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This Master's Project

Increasing Access and Sustainability for Camping along the Bay Area Ridge Trail

by

Hannah Fraser Bartee

is submitted in partial fulfillment of the requirements

for the degree of:

Master of Science

in

Environmental Management

at the

University of San Francisco

Submitted:



Hannah Fraser Bartee

12/19/2023

Received:



Aviva J. Rossi, PhD

12/19/2023

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Abstract

The Bay Area Ridge Trail (Ridge Trail) is a long-distance, multi-use trail that connects parks and open space on the ridge lines encircling the San Francisco Bay (Bay). Like the Pacific Crest Trail and Appalachian Trail, the Ridge Trail offers continuous travel through protected natural areas, but this trail is unique as it is located in a densely populated metropolitan area. The trail is currently incomplete, with gaps where the trail does not connect. The Ridge Trail also lacks the number and distribution of overnight accommodations needed to support a full circumnavigation of the Bay. Addressing gaps in the current network of publicly operated campsites along the Ridge Trail increases regional connectivity of conservation lands and expands opportunities within local communities for individuals to engage with nature. To understand the barriers to public access to campsites and the potential environmental impacts of camping, an analysis of recreation ecology literature and a campsite inventory were completed. The result of this evaluation was a set of recommendations for siting and managing new campsites intended for use by the Bay Area Ridge Trail Council. This study found that confining camping to designated, durable campsites in high-use areas, like the parks in the San Francisco Bay Area, is the most effective strategy to reduce the extent of environmental impacts. Based on the locations of campsite network gaps identified, the development of new campsites should be prioritized on the eastern side of the Bay. The Council can support the implementation of these recommendations in partnership with public land managers through a wide variety of advocacy and technical assistance activities.

Acknowledgments

Thank you to my family -- especially my grandparents, Arvonne Skelton Fraser, Don Fraser, Bonnie Skelton, and Shirley Lindros Bartee, and my parents, Tom Bartee and Mary Fraser -- for nurturing my curiosity, independence, and love of the outdoors. I am eternally grateful to Jean Fraser and Geoff Gordon-Creed for all their support, mentorship, and advice. Ian Kelmartin continues to be the best partner; thank you for your patience, constructive feedback, and good cooking. I could not have completed this work and my USF career without the continued support from all of you, my Bay Area adventure crew, my roommates, the USF Geospatial Analysis Lab, my MSEM cohort and my professors. An enormous thank you to my Master's Project advisor, Aviva J. Rossi, for her guidance and encouragement. Finally, this project builds upon decades of planning and advocacy conducted by the dedicated staff, volunteers, partners, and friends of the Bay Area Ridge Trail Council. Thank you and happy trails to you all!



1. Introduction

The Bay Area Ridge Trail (Ridge Trail) is a long-distance trail that, when the route is completed, will encircle the San Francisco Bay Area on the ridgelines of the Coast Ranges (Figure 3). Today, it is 74% complete and 407 miles of dedicated Ridge Trail exist, connecting more than 75 parks and open space preserves across diverse terrain, including urban pathways and remote wildlands (Bay Area Ridge Trail Council et al. 2020). Closing gaps in the Ridge Trail route increases regional connectivity of conservation lands and expands opportunities within local communities for individuals to engage with nature for recreation, stewardship, and employment (Bay Area Ridge Trail Council et al. 2020). A robust network of overnight accommodations along the Ridge Trail would support the vision of multi-day trekking along this long-distance route, similar to section-hiking or through-hiking experiences along the Pacific Crest Trail (PCT) or Appalachian Trail (AT). However, even in areas with long sections of continuous trail, there are few, if any overnight accommodations. Endorsing the creation of new or improved overnight accommodations could help to fill the gaps in services along the Ridge Trail. The Bay Area Ridge Trail Council (Council) is the nonprofit that collaborates with local land managers on projects that close route gaps and promote the use of the Ridge Trail (Bay Area Ridge Trail Council et al., 2020). This study was conducted with support from the Council, and I intend the resulting management recommendations to be considered for implementation by the Council's land manager partners. I designed these recommendations to support the development of a cohesive network of overnight accommodations that better serves Ridge Trail users while realizing a high standard of environmental sustainability.



Figure 1: View of San Pablo Bay from multi-use Ridge Trail section in Lucas Valley Open Space Preserve, Marin County, CA. Photo by Hannah Bartee, July 2022.

1.1 Issue Statement

Unlike planning for overnight stays within a particular park or park network, such as the National Park Service (NPS), there is no unified system for locating and accessing overnight accommodations along the Ridge Trail. A wide array of public land management agencies, nonprofit organizations, and for-profit businesses oversee the existing overnight accommodations, each with its own policies and procedures. Additionally, many existing overnight accommodations are situated far from one another or the Ridge Trail, making it difficult for trail users to plan for continuous, multi-day treks. This patchwork of jurisdictions and the limited number of overnight accommodation facilities make trip planning logistically complicated for individual recreationists and potentially exclusionary to recreationists from under-resourced communities.

1.2 Management Considerations

This evaluation identifies overnight accommodation management practices that public land managers could implement to increase access to and minimize environmental impacts from camping along the Ridge Trail. This evaluation considers:

1. The environmental impacts of camping-related activities.
2. The existing inventory of overnight accommodations along the Ridge Trail.

1.2.1 Goal

Providing effective management recommendations for the development of new overnight accommodations requires adhering to the best practices for reducing negative environmental impacts from different types of campsites as well as identifying existing gaps in overnight accommodations along the Ridge Trail. With this information, the Council could advocate for land-managing partner agencies to create new environmentally sustainable campsites that facilitate continuous travel and benefit local communities.

2. Setting and Background

2.1 San Francisco Bay Area and the Ridge Trail

2.1.1 The Bay Area Ridge Trail

The Ridge Trail is a recreational trail for pedestrians, bicyclists, and equestrians, which runs along the principal ridgelines closest to the San Francisco and San Pablo bays (collectively

referred to here as the San Francisco Bay) and which links parks and open spaces (Bay Area Ridge Trail Council et al., 2020). The Ridge Trail passes through 10 counties of the San Francisco Bay Area (Bay Area) in California (clockwise around the San Francisco Bay, starting at the Golden Gate Bridge): Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, Santa Cruz, San Mateo, and San Francisco (Figure 3). While Santa Cruz County does not have any shoreline along San Francisco Bay and is not part of the typical 9-county Bay Area, it is considered part of the San Francisco Bay Area for this study.

The grand vision of a continuous, multi-use trail that links the parks and communities of



Figure 2: Views of Mount Tamalpais and other ridgelines from Ridge Trail in Lucas Valley Open Space Preserve, Marin County, CA. Photo by Hannah Barte, December 2022.

the Bay Area was inspired by William Penn Mott, Jr., during his time as the General Manager of the East Bay Regional Park District in the 1960s (EBRPD, 1984). Mott went on to serve as a director of the California State Department of Parks and Recreation and as

the 12th Director of the NPS, both present-day partner agencies of the Council (National Park Service, 2023). In 1987, the Greenbelt Alliance nonprofit adopted the Ridge Trail concept as an official project (Bay Area Ridge Trail Council et al., 2020). The Greenbelt Alliance, local trail advocates, and park agencies worked together to establish over 100 miles of Ridge Trail between the time of the first trail dedications on May 13, 1989, and the incorporation of the Council in 1992. The Council, a registered 501(c)(3) nonprofit organization, continues to operate under the mission “to plan, promote, and sustain the vision of a 550-mile-long Ridge Trail” (Bay Area Ridge Trail Council et al., 2020). As of December 2023, the Ridge Trail has 407 miles of dedicated trail (Figure 3).



Figure 3: Dedicated and planned Ridge Trail sections as of October 2023 (Bay Area Ridge Trail Council, n.d.).

2.1.2 Ridgelines

For my grandmother, who grew up on the prairies of western Minnesota, nothing felt more like home than a wide, flat horizon. Growing up in the Bay Area, my horizons were defined by the mountains and hills hemming the edges of an expansive estuary. The Ridge Trail route scales the sides and runs along the ridgelines of the many subranges of the Coast Ranges of California that encompass the San Francisco Bay (California Coastal Commission et al., 1987). The Coast Ranges are comprised of mountains formed through convergent tectonic activity 140 million years ago, as the oceanic Farallon plate subducted underneath the North American continental plate, scraping off a layer of ocean floor sediment onto the edge of the continental plate (Harden, 2004). Layers of these sediments now make up the geological formation known as the Franciscan Complex, which is common terrain along the Coast Range ridgelines, particularly on the eastern ranges within the San Andreas fault system (USGS, 2023). The remnants of the Farallon plate make up the Juan de Fuca plate which meets the North American and Pacific plates in the Mendocino Triple Junction area, more than 100 miles north of the San Francisco Bay Area (Harden, 2004).

Residents in California are familiar with the earthquakes caused by the famously active San Andreas fault system, which represents the present-day transform boundary of the Pacific and North American tectonic plates. This change from convergent to transform, i.e., lateral, tectonic movement contributed to the uplift of the Coast Ranges, beginning around five million years ago and continuing today (Harden, 2004). Stark evidence of this continued uplift was observed when the Santa Cruz Mountains, part of the mountains that ring the San Francisco Bay, grew 47.2 inches after the 1989 Loma Prieta earthquake (Anderson, 1990). The northwest-southeast, elongated valleys of the Coast Ranges are also a result of this lateral movement as the Pacific and North American plates slip past one another creating pull-apart basins flanked by new Coast subranges (Harden, 2004). A basin expansion at the northern end of the Napa and Sonoma valleys, known as the Sonoma Volcanics, has become a center for volcanic activity and the genesis of igneous soils. The Palisades within Robert Louis Stevenson State Park (Figure 4), located along the northernmost spur of the primary Ridge Trail route, refers to iconic outcroppings of igneous rocks (CASP, 2023). Underpinning much of what passes underfoot of the Ridge Trail traveler, from the dramatic topography to the array of soil types, is this unique

geologic history of the Bay Area. The numerous ridges and valleys also shape the proliferation of microclimates that provide a mosaic of ecosystems.



Figure 4: Overlooking conifer forests, Napa Valley, and the ridgelines beyond from the Table Rock igneous rock formation on the Palisades Trail, a spur trail of the Ridge Trail. Photo by Hannah Barteo, November 2023.

2.1.3 Ecology

The Bay Area has a Mediterranean climate with long, dry summers and wet winters that foster a wide range of vegetation and wildlife habitat regions within its unique topography (Sawyer et al., 2009). The Bay Area is part of the California Floristic Province, one of only a couple dozen biodiversity hotspots in the world (Myers et al., 2000). The conservation priority ranking of “biodiversity hotspot” refers to a region with a high concentration of endemic, or exclusively local, species that is experiencing a high rate of habitat loss (Myers, 1988). A basic inventory of Bay Area plant and animal species and a general understanding of their distributions informs which management practices for overnight accommodations may reduce impacts on the local environment.

The Bay Area landscape consists of over 3,000 plant species, with more than 121 of those listed for state and federal protection (Bay Area Open Space Council, 2019a). The eastern side of San Francisco Bay is dominated by rolling grasslands and oak (*Quercus* spp.) woodlands (Figure 5), with some fog-saturated pockets of coast redwoods (*Sequoia sempervirens*) (Sawyer et al., 2009). The northwestern regions of the Bay Area are covered in conifers, including coast

redwoods and Douglas-fir (*Pseudotsuga menziesii*), grasslands, agriculture, and mixed hardwood forests that include oaks, bay laurel (*Umbellularia californica*), California buckeye (*Aesculus californica*), and madrone (*Arbutus menziesii*) (Sawyer et al., 2009). The southwestern regions of the Bay Area are dominated by coast redwoods and coastal scrub that includes coast live oak (*Quercus agrifolia*), manzanita (*Arctostaphylos* spp.), California sagebrush (*Artemisia californica*), *Ceanothus*, and monkeyflower (*Mimulus* spp.) (Sawyer et al., 2009). The Ridge Trail route crosses through most of these major, undeveloped biomes of the Bay Area in addition to agricultural and urban lands.



Figure 5: Oak woodlands and dry grasslands along the Ridge Trail in Solano County. Photo by Hannah Barte, October 2022.

A rich medley of animals finds habitat among these varied terrains and vegetation in the Bay Area. Ridge Trail trekkers might see seabirds, waterfowl, wading birds, songbirds, or birds of prey, depending on the biome through which they are passing. Swooping through the skies at night are up to 15 species of bats (Riensch et al., 2017). During the day, over 100 species of butterflies float from plant to plant, including the famous, migratory monarch (*Danaus plexippus plexippus*), the endangered Bay checkerspot (*Euphydryas editha bayensis*), and the threatened Mission blue (*Icaricia icarioides missionensis*) (University of California, Berkeley, 2023). Noteworthy herpetofauna along the Ridge Trail are California red-legged frogs (*Rana draytonii*), western pond turtles (*Actinemys marmorata*), San Francisco garter snakes (*Thamnophis sirtalis*

tetrataenia), Alameda whipsnakes (*Coluber lateralis euryxanthus*), western rattlesnakes (*Crotalus oreganus*), skinks, salamanders, and newts (Bay Area Open Space Council, 2019a). Among mammals present in the Bay Area ranges, carnivore species include American badgers (*Taxidea taxus*), bobcats (*Lynx rufus*), mountain lions (*Puma concolor*), North American river otters (*Lontra canadensis*), ring-tailed cats (*Bassariscus astutus*), American mink (*Neovison vison*), and long-tailed weasels (*Mustela frenata*) (Bay Area Open Space Council, 2019a). Common omnivores, besides humans (*Homo sapiens sapiens*), include coyotes (*Canis latrans*), raccoons (*Procyon lotor*), skunks (*Mephitis* spp.), opossums (*Didelphis virginiana*), black bears (*Ursus americanus*), and gray foxes (*Urocyon cinereoargenteus*) (Bay Area Open Space Council, 2019a). Common herbivores include mule deer (*Odocoileus hemionus*), many different species of small mammals like squirrels and other rodents, rabbits, and hares, and less commonly porcupines (*Erithizon dorsatum*) and American beavers (*Castor canadensis*) (Bay Area Open Space Council, 2019a). Many of these mammals regularly traverse the mountain ranges of the Bay Area searching out food, territory, and mates (Dertien et al., 2018). More than any other taxonomic group, mammals require large areas of connected habitat to avoid genetic or population isolation (Bay Area Open Space Council, 2019a). As the Council advocates for a contiguous Ridge Trail route, it is also advancing the conservation of interconnected lands in critical wildlife corridors and helping to protect biodiversity. Land managers must consider local wildlife contexts in their design of overnight accommodations.

2.1.4 Demographics

Understanding who lives in this diverse region is essential to centering equity in the design of recommendations for overnight accommodation development along the Ridge Trail (Brown et al., 2023). Diverse, as used here, is a descriptor of an area where the population consists of more than 50% Black, Indigenous, and other People of Color (BIPOC). People and places are inextricably linked, so a brief historical review will solidify the foundation of this Bay Area background information and highlight some of the persistent equity issues.



Figure 6: Timeline of exclusionary housing and property policies and practices in the Bay Area that have resulted in disenfranchisement and segregation (Montejo et al., 2019)

The Ridge Trail route is located on unceded native lands that were originally stewarded by the Miwok-, Pomo-, Wappo-, Patwin-, Karkin-, Chochenyo-, Mutsun-, Awaswas-, Thámien-, Muwekma-, and Ramaytush-speaking peoples, among others (*Native Land Digital*, n.d.). These Indigenous communities have demonstrated tremendous resiliency over the course of more than 400 years of colonization and their descendants continue to exist on and care for these lands. Spanish soldiers and missionaries were the initial colonizers, followed by Spanish and other European, Mexican, and early US settlers and governments (Montejo et al., 2019). The present-day Bay Area was part of “Alta California”, a Spanish colony from 1769 until 1821 when it became a Mexican province (Brown et al., 2023). Many Mexican and European residents remained after the US annexation of “California” in 1848, at the start of the Gold Rush era (Brown et al., 2023). The Bay Area has also been home to large Asian and Asian American populations, many of Chinese descent, persisting since the Gold Rush despite a series of racist and exclusionary immigration and land laws (Montejo et al., 2019). During and after World War II, the region experienced a shift in racial and ethnic demographics due to the wartime influx of

Black workers and the internment and subsequent dispersal of Japanese Americans (Montejo et al., 2019). Additional histories of migration have continued to shape the social fabric of this area.

Table 1: Race and ethnicity demographic data for 10 Bay Area counties in 2020 (U.S. Census Bureau, 2023).

| COUNTY | ASIAN | AMERICAN INDIAN/ ALASKA NATIVE | BLACK | LATINO | NATIVE HAWAIIAN/ PACIFIC ISLANDER | TWO (2) OR MORE RACES | WHITE |
|---------------|-------|-----------------------------------|-------|--------|--------------------------------------|-----------------------|-------|
| Marin | 6.9% | 1.0% | 2.9% | 16.8% | 0.3% | 4.2% | 70.1% |
| Sonoma | 4.8% | 2.3% | 2.1% | 28.3% | 0.4% | 4.3% | 61.5% |
| Napa | 9.1% | 1.3% | 2.6% | 35.6% | 0.4% | 3.5% | 50.4% |
| Solano | 16.7% | 1.3% | 14.8% | 28.6% | 1.1% | 7.5% | 35.3% |
| Contra Costa | 19.3% | 1.1% | 9.5% | 26.8% | 0.6% | 5.8% | 40.8% |
| Alameda | 33.8% | 1.1% | 10.7% | 22.4% | 1.0% | 5.6% | 29.2% |
| Santa Clara | 40.6% | 1.2% | 2.9% | 25.0% | 0.5% | 4.3% | 28.9% |
| Santa Cruz | 5.3% | 1.9% | 1.5% | 34.4% | 0.2% | 4.4% | 56.2% |
| San Mateo | 31.8% | 0.9% | 2.8% | 24.0% | 1.4% | 5.1% | 37.4% |
| San Francisco | 37.2% | 0.8% | 5.7% | 15.7% | 0.5% | 4.8% | 38.2% |

Table 2: Population, population density, income, and poverty data for 10 Bay Area counties from the 2020 Census and *2021 American Community Survey (U.S. Census Bureau, 2023).

| County | Population | Population per Mi ² | Median Household Income (2017-2021, in 2021 \$) * | Poverty Rate* |
|---------------------------|------------|--------------------------------|--|---------------|
| Marin | 262,321 | 504.1 | \$131,008 | 7.8% |
| Sonoma | 488,863 | 310.3 | \$91,607 | 9.1% |
| Napa | 138,019 | 184.4 | \$97,498 | 9.0% |
| Solano | 453,491 | 551.8 | \$89,648 | 10.0% |
| Contra Costa | 1,165,927 | 1,626.3 | \$110,455 | 8.8% |
| Alameda | 1,682,353 | 2,281.3 | \$112,017 | 9.4% |
| Santa Clara | 1,936,259 | 1,499.7 | \$140,258 | 6.9% |
| Santa Cruz | 270,861 | 608.5 | \$96,093 | 10.6% |
| San Mateo | 764,442 | 1,704.0 | \$136,837 | 6.8% |
| San Francisco | 873,965 | 18,629.1 | \$126,187 | 11.4% |
| National Averages: | | | \$67,521 | 11.4% |

In the present day, the more densely populated counties along the southern and eastern shores of San Francisco Bay display majority BIPOC populations (Figure 7). As shown in Table 1, the more rural and suburban North Bay counties of Marin, Sonoma, and Napa are predominantly White and less densely populated (Table 2) as compared to more urban, diverse

counties like Alameda and San Francisco. The Bay Area has become more diverse since the inception of the Ridge Trail but still displays the same level of racial segregation as 30 years ago (Menendian et al., 2021). Historical disenfranchisement of BIPOC communities as related to racialized housing policies and urban development practices (Figure 6) has led to economically depressed areas and under-resourced communities being disproportionately represented by minority groups.

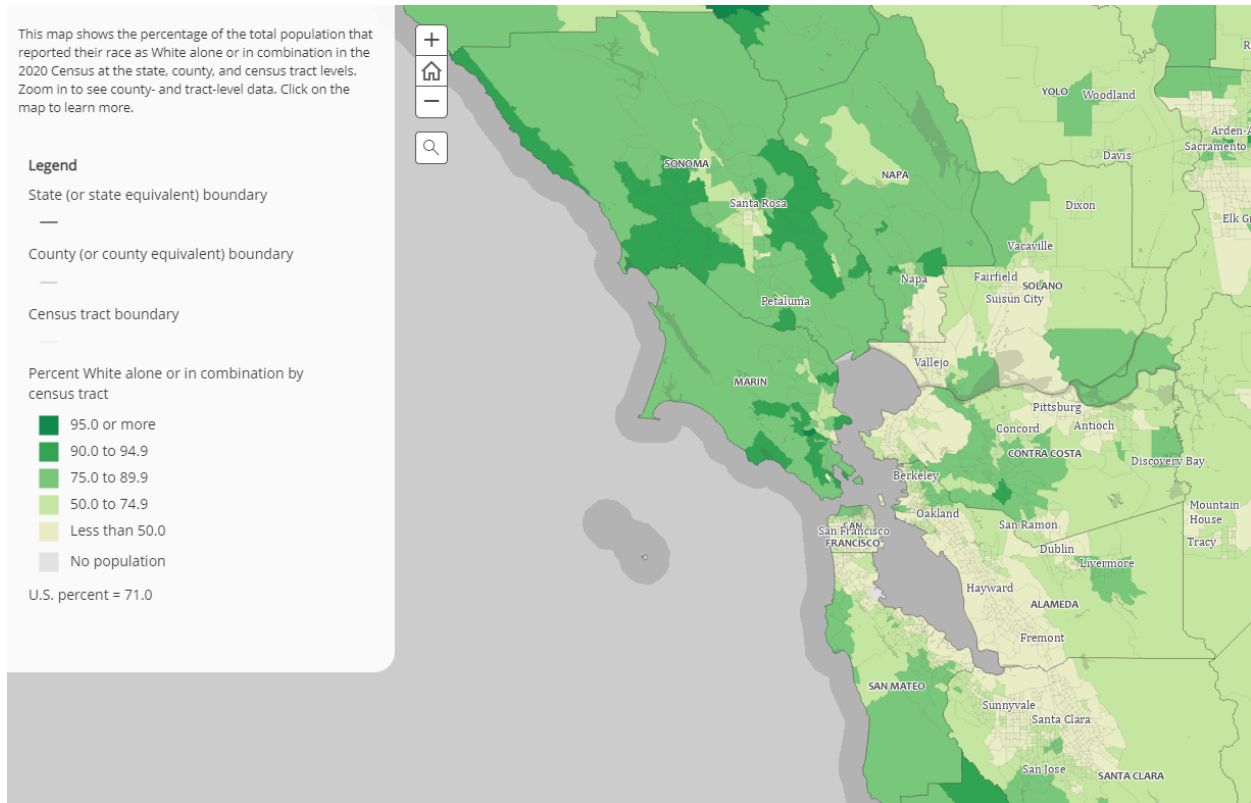


Figure 7: 2020 Census Demographic Data Map Viewer showing the percentage of the population that identifies as White, non-Hispanic, alone or in combination with another race. Areas with higher percentages of White-identifying people are shown in dark green and areas with lower percentages are shown in lighter green (U.S. Census Bureau, 2023).

Income, in addition to race and ethnicity demographics, is relevant to consider in the context of access to parks and open spaces in the Bay Area because each of these socioeconomic indicators is often correlated to differences in access to, quality, and distribution of green spaces (Rigolon, 2016). Though all Bay Area counties reported a significantly higher median household

income (MHI) than the 2020 national average, there is a divide of almost \$50,000 between the lowest and highest MHI with variability demonstrated across the Bay Area (Table 2). Since official poverty thresholds used by the Census Bureau for calculating the poverty rate do not vary geographically, the poverty rates listed in Table 2 may not reflect the lived realities of communities in the Bay Area that experience facets of de facto poverty. Inflated costs for basic expenses like food, housing, and childcare in the Bay Area may affect a household's capacity to maintain a decent standard of living, let alone participate in fee-based or equipment-based leisure activities like recreational camping.

2.2 Importance of Overnight Accommodations

Parks and protected natural areas (PPAs) are not only crucial for supporting conservation efforts that protect biodiversity but are also key resources for promoting health and wellness within local communities. The East Bay "Healthy Parks, Healthy People" and San Mateo County Park Prescription Program (Park Rx) collaboratives bring park agencies, community-serving nonprofits, and healthcare providers together to support community health. These local, multidisciplinary collaborations promote access to public land for all, with a focus on communities at high risk of chronic diseases or other under-resourced communities (East Bay Regional Park District, 2013; San Mateo County Health, 2016). Globally, there is a growing body of research that demonstrates that outdoor recreation can positively affect preventative health factors like increased physical activity, reduced mental health issues like stress and depression, lower blood pressure, decreased screen time, and increased social engagement (McCurdy et al., 2010; Penbrooke et al., 2022; Triguero-Mas et al., 2015; Wolch et al., 2014). Overnight accommodations are a resource that facilitates access to PPAs and their associated health benefits (Rice & Phillips, 2023).

The term "overnight accommodations" describes a variety of places (Figure 8) for people to sleep overnight which are outside of their primary residence (Arredondo et al., 2021). This includes backcountry or trail campsites, family campgrounds, group camps, equestrian camps, shelters, cabins or yurts, and recreational vehicle (RV) sites. Overnight accommodations can also refer to more developed, permanent structures like hostels, hotels, inns, and even short-term vacation rentals booked through digital marketplaces like Airbnb and Hipcamp (East Bay Regional Park District, 2013). For this study, I will only include overnight accommodations located on public lands and will collectively refer to all types as "campsites". Though campsites

and camping are widely used for non-recreational purposes (e.g.; temporary or long-term shelter for unhoused populations, emergency shelter related to housing disruptions from natural disasters or war), this study will focus on camping as a recreational or leisure activity (Watts & Cerveny, 2021).



Figure 8: “Photos illustrating four campsite types: A – [Backcountry] Campsite, B - Shelter, C - Side-Hill Campsite, and D - Campsite on Road” (Arredondo et al. 2021).

The Ridge Trail is located within the large metropolitan Bay Area and links PPAs that are mainly managed by state, regional, county, and municipal governments (Bay Area Ridge Trail Council et al., 2020). This differentiates the experience of traveling on the Ridge Trail from traveling on other well-known, long-distance trails in California, like the PCT or Tahoe Rim Trail (TRT). The PCT and TRT provide remote travel primarily through federally and state protected wilderness areas and rarely venture into trail towns or gateway communities (Goldenberg et al., 2023). In contrast, the Ridge Trail often delivers direct access to and connection through communities around the Bay Area. Despite this proximity to urban centers, the Ridge Trail is lacking in the quantity and distribution of campsites to support the experience of continuous travel common to other long-distance trails (Bay Area Ridge Trail Council et al., 2020). Mirroring the trend in other locations across the United States, PPA managers in the Bay

Area have seen increasing interest in camping and outdoor recreation (National Park Service, 2023; Regional Parks Foundation, 2021; Rice et al., 2022). Accelerated by the mental, social, and physical health stressors of the COVID-19 pandemic, this surge in demand has made campsites an even more scarce resource (Pröbstl-Haider et al., 2023; Rice et al., 2020). Among the increased visitors since the start of the pandemic, US campgrounds have also seen a significant increase in the percentage of BIPOC campers and first-time campers (Cairn Consulting Group, 2022). The development of a wide variety of campsite types close to the Ridge Trail would provide benefits for a broader diversity of community members. Campers along the Ridge Trail could include folks looking for short, immersive nature experiences close to home as well as locals and visitors alike looking to undertake epic, multi-day adventures.

2.3 Recreation Ecology and Environmental Sustainability

The potential environmental sustainability of different types of campsites should be considered when developing recommendations for improvements or for building new campsites. Recreation ecologists study the impact of tourism and recreation (e.g., hiking, camping) on ecology and have, more recently (Figure 9), incorporated analysis of social systems and the effects of recreation management strategies (Cole, 1983; Hammitt et al., 2015; Leung & Marion, 2000; Liddle, 1997).

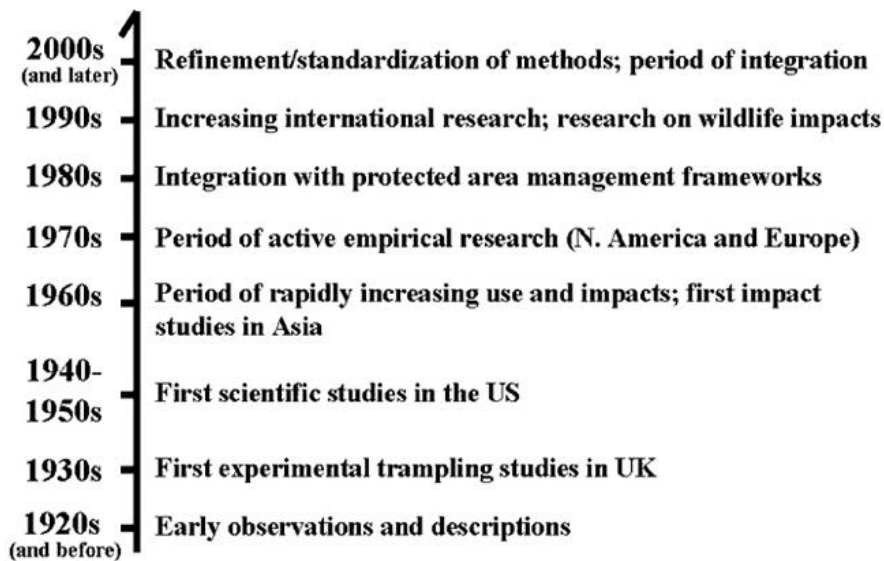


Figure 9: A generalized timeline of recreation ecology research (Leung & Marion, 2000).

Recreation ecologists define a sustainable campsite as “accommodating the intended type and amount of use over time without unacceptable levels of expansion, degradation, or maintenance

(Marion, 2019)”. In contrast, a recent national survey indicated that there has been no consensus among PPA managers on a single definition of sustainability when it comes to managing visitation (Cervený, 2022). Instead, there are two competing sustainability paradigms: a “dual mandate” and the “three pillars” of sustainability (Cervený, 2022). The dual mandate paradigm is based on the mandate that the NPS must conserve both the natural and cultural resources of PPAs while providing opportunities for public use and enjoyment. The three pillars paradigm encompasses the need to consider ecological protection, economic viability, and social equity when developing management options. The two sustainability paradigms have a shared framework that encapsulates the levels of ecosystems, communities, cultures, economies, agencies, partners, and visitors as simultaneously discreet and interdependent systems. Major sub-themes also emerge in discussions among PPA managers, including a focus on visitor experience and stewardship opportunities, an emphasis on managerial capacity and governance, and a sense of sustainability-focus fatigue (Cervený, 2022).

Though they may not refer to themselves as recreation ecologists, recent recreation-focused social science researchers have studied and subsequently demonstrated systemic and perceived exclusion of people of color from parks and outdoor recreation activities, leading to an overrepresentation of White people in activities like camping (Byrne & Wolch, 2009; Finney, 2010; Mowatt, 2020; Rice et al., 2022; Scott & Lee, 2018; Shinew et al., 2004). The result of such a “nature gap” is that access to PPAs, such as those along the Ridge Trail route, is more limited for BIPOC communities and those with lower income levels (Nesbitt et al., 2019; Rigolon et al., 2018; Rowland-Shea et al., 2020). The strategic design of sustainable campsites and equity-focused management may be a tool to address some established barriers to inclusion.

2.3.1 Local Sustainability Frameworks

In the Bay Area, PPA managers that the Council works with rely on local conservation-focused initiatives, like the Conservation Lands Network (CLN) and 30x30 California (30x30), for guidance on sustainability goals. The 30x30 strategy document provides a new, cohesive framework for public agencies in partnership with nonprofit, tribal, and private organizations to advance conservation efforts with the target of protecting 30% of California’s lands and coastal waters by the year 2030 (California Natural Resources Agency, 2022). The CLN is a previously-existing regional conservation strategy for the Bay Area that is being activated to support the 30x30 goals (Bay Area Open Space Council, 2019a). The most recent CLN report takes a light

dual mandate approach to sustainability by primarily focusing on conserving natural and cultural resources, with limited considerations for public use of conservation lands. The 30x30 strategy is infused with social equity and economic stability considerations reflecting the three pillars paradigm. Following the leadership of the 30x30 initiative, I have applied the three pillars lens of sustainability throughout this study and in the development of recommendations for campsite development to the Council.

3. Methods

3.1 Literature Analysis of Campsite Management & Environmental Impacts

I conducted a comparative analysis of the literature on campsite management and the environmental impacts of campsites. I used the search terms “campsite” or “campground” and “management” to obtain peer-reviewed papers from the following databases: FUSION, SCOPUS, ProQuest, and Google Scholar. I repeated the same database search process twice by replacing the term “management” with the terms “impact” and “sustain*”. I evaluated all results for relevance to this study using the following criteria: camping was the primary focus of the paper, the study area was located within PPAs, data analysis on environmental impacts from camping-related activities was included, and a discussion about campsite management strategies was included. I included papers that met at least three of the four criteria in this study. I then reviewed the bibliographies of identified papers to locate additional relevant studies using the same criteria. I located two out of the total 64 papers reviewed for inclusion in this study via recommendations by professionals working in trail-related industries who attended the 2023 California Trails & Greenways Conference (California Trails Conference Foundation, 2023). For each paper found in the literature search, I recorded the following information: study location, length of study, campsite type, campsite management methods, and observed environmental impacts from camping-related activities. I created a summary of the environmental impacts, shown in Table 3 in my results.

3.2 Surveys of Ridge Trail Campsite Facilities

The Council does not directly manage the protected areas through which the trail passes and instead partners with approximately 35 landowning and land management organizations

around the Bay Area. These partner organizations include federal, state, regional, and municipal park and open space agencies, as well as public utilities, land trusts, colleges, and nonprofit “friends of” or user group organizations. In this study, I used data from a survey of partners that was conducted in 2016 as a starting point for creating an updated review of campsite facilities along the Ridge Trail in 2023.

3.2.1 The 2016 Partner Survey

In 2016, Council staff reached out via email to 32 partner organizations to take a survey about their overnight facilities and programs. Staff conducted targeted follow-up via email and phone calls to get as robust a response rate as possible. For organizations that did not respond but were known to have public campgrounds, Council staff verified the existence of campsites through a review of maps or website content created by those organizations. Council staff designed the 2016 Partner Survey (Appendix 1) to collect responses specifically for existing and planned campsites located up to five miles from the existing or planned Ridge Trail route and accessible by a connecting trail. They used professional judgment to make an initial assumption that five miles from the trail to a campsite was a reasonable distance for pedestrians and cyclists to travel. The types of campsites considered for inclusion in the survey ranged from a low-impact backcountry campground to an inn, as long as they were located within a PPA or were otherwise under the management of one of the surveyed organizations. Responses were categorized by county usually, but responses from some state and federal organizations that tend to manage properties across multiple counties, as well as organizations like the Scouts, were separately categorized by affiliation (Table 4).

3.2.2 The 2023 Campsite Inventory Update

3.2.2.1 Data Verification and Partner Outreach

Seven years after the initial survey and after the disruption to standard operations due to the COVID-19 pandemic, the Council needed an updated inventory of campsites along the Ridge Trail. I used the results of the 2016 Partner Survey as a preliminary inventory of existing campsites. I created an expanded list of organizations to include in the systematic search by examining the attribute data for the Bay Area Conservation Lands GIS feature layer (California Protected Areas Database, 2022). My review sought to verify 2016 data and identify additional campsites not included in the 2016 results by systematically searching each partner organization’s websites using the terms “camp”, “amenities”, “accommodation”, and “night”. I

only considered campsites to be relevant for this study if they were located within PPAs that are in the path of or directly adjacent to the Ridge Trail. I then cross-referenced static webpage information with the organization's interactive camping reservation website (e.g., ReserveCalifornia.com, Recreation.gov) where possible. In cases when missing or conflicting information on an organization's website required further verification, I performed direct outreach to partner staff. For each campsite identified in the partner website search, I recorded the following information in a digital spreadsheet: campsite name, campsite type, campsite location (i.e., latitude and longitude coordinates), campground or park entrance address, county, campsite manager, PPA name, the primary website containing camping information, and notes on temporary or seasonal closures.

3.2.3 Visualizing the 2023 Campsite Inventory

I used ArcGIS Pro (GIS) software to perform spatial analyses on the collected geographical data to verify and visualize my results (Environmental Systems Research Institute, 2023). Using the latitude and longitude data from my updated 2023 database spreadsheet of public campsites, I converted the CSV file to a GIS shapefile. Though I collected attribute data for recreational vehicle (RV) campsites on public lands through the course of collecting data for the 2023 campsite inventory update, I did not include RV-only campsites in the results reported for this study. This was to ensure that all campsites identified could be utilized by trail users intending one-way, continuous travel along the Ridge Trail. I created a five-mile buffer from the planned and existing Ridge Trail route, which is a shapefile maintained by the Council for planning and maintenance purposes. I used this buffer to clip the Public Campsites layer, resulting in a layer that displayed only those campsites within five miles of the Ridge Trail to verify if the correct campsites were included in the 2016 Partner Survey. Since the buffer represents miles as the crow flies (i.e., Euclidian distance) from the Ridge Trail, it does not account for the changes in topography that could increase the surface miles traveled by a hiker, cyclist, or equestrian between the Ridge Trail and a campsite. To define more practical campsite-trail distances for Ridge Trail users traveling on foot, wheels, or horseback, I created a two-mile buffer and repeated the clip geoprocessing on the Public Campsites layer. Next, this clipped Public Campsites layer was overlaid onto a layer showing the public conservation lands in the 10-county Bay Area as both a verification and visualization tool (Bay Area Open Space Council, 2019b). Finally, I used satellite imagery hosted on maps.google.com and personal observations

to ground truth, or verify, the results (*Google Maps*, 2023). I conducted a county-by-county validation to ensure that all campsites within the clipped area of the new two-mile buffer were connected to the Ridge Trail by connector trails.

4. Results and Discussion

This section gives an overview of the findings of the analyses of this research, presented in the following order:

1. Analysis of literature on recreation ecology as it relates to campsite design and management strategies for addressing environmental impacts from camping.
2. Summary of 2016 and 2023 surveys of existing campsites near the Ridge Trail.

I use tables and maps throughout to provide a more synthesized understanding of research results. I discuss the findings as they relate to the context of the Ridge Trail and the goal of increasing access to and sustainability of camping along the route.

4.1 Literature Analysis

4.1.1 Environmental Impacts from Camping

Human activities in natural landscapes cause impacts to the local ecosystems. Human activities in natural landscapes do cause impacts to the local ecosystems. Recreation ecologists tend to focus on camping-related disturbances to surrounding vegetation, soil, water, and wildlife (Leung and Marion, 2000). I have organized my discussion of the results of my literature analysis into these four overarching categories (Table 3).

Table 3: Summary of literature synthesis on environmental impacts of camping-related activities.

| Category of Environmental Impact | # of Papers | Metrics |
|---|--------------------|---|
| Vegetation | 53 | Loss of ground cover and fragile shrubs Tree damage Composition change Introduction of non-native species |
| Soil | 47 | Erosion Loss of mineral-rich soil Compaction Loss of pore space Loss of moisture Altered biota |
| Water | 18 | Increased turbidity Increased nutrient inputs Contamination Introduction of non-native species |
| Wildlife | 19 | Alteration or loss of habitats Wildlife harassment Food attraction behaviors Avoidance of camping areas Altered hours of activity Change in populations due to lack or presence of predation Introduction of non-native species |

4.1.1.1 Vegetation Impacts

One of the primary categories of environmental impacts correlated with camping-related activities is vegetation impacts. Of the 64 studies identified, 53 covered vegetation impacts (Table 3). Across campsite types, direct impacts from camping include vegetation loss due to the trampling of ground cover and shrubs by campers' feet and tents, damage to trees and shrubs as campers collect fuel for campfires, and introduction of non-native or invasive species spread via campers' clothes and shoes (Aas et al., 2022; Cole, 2004; Erfanian, Mohammad Bagher et al., 2021; James Y. Taylor, 1995; Marion et al., 2020). Vegetation loss has indirect impacts on microclimates and vegetation composition as the amount of shade decreases (H. Eagleston & Marion, 2017). Shade from the overstory can help soil and plants retain moisture because less direct sunlight translates to lower temperatures and slower rates of photosynthesis and transpiration (evaporation of water from plants as a product of photosynthesis) (H. A. Eagleston

& Marion, 2018; H. Eagleston & Marion, 2017). The loss of overstory can expose shade-adapted plants to more sun potentially allowing more sun-tolerant plants to outcompete (H. A. Eagleston & Marion, 2018).

Some types of vegetation or certain ecosystems are more resilient to camping impacts. Sunny campsites with grasses as the primary ground cover are resistant to trampling and recover quickly, even from high use (James Y. Taylor, 1995; Marion et al., 2020). Deep forest clearings that already lack undergrowth also tend to be resistant to negative impacts from some of the environmental impacts of camping, but damage to trees within campsites can lead to eventual loss and creation of sunny clearings (Marion, 2003; Marion et al., 2020). Having well-defined borders to campsites can reduce the extent of negative impacts on vegetation by creating an area within which impact is high, but outside of which impacts are minimized (Arredondo et al., 2021; Erfanian, Mohammad Bagher et al., 2021; James Y. Taylor, 1995; Marion et al., 2020). As a biodiversity hotspot, grasslands and deep forest clearings in the Bay Area that would otherwise be suitable campsite spots may not be resilient to impacts due to the presence of sensitive endemic species or unique soil compositions (Marion et al., 2020; Norman, 2003).

4.1.1.2 Soil Impacts

In addition to the indirect impacts to soil from vegetation loss, such as increased erosion in barren areas, camping-related activities have direct impacts on soil (Aas et al., 2022; Cole, 2004; Leung & Marion, 2000; Marion et al., 2020; Marion & Cole, 1996). Of the 64 studies identified in my research, 47 of them described impacts on soil such as erosion and compaction. Mineral-rich topsoil that supplies nutrients for plants and organic litter that builds topsoil as it decays can be eroded from campsites. This loss of organic litter can be due to foot traffic, from direct removal as campsite grounds are cleared to place tents, or when woody debris and leaves are gathered for campfires (Hall & Farrell, 2001; Smith et al., 2012). Soil compaction, another direct impact of camping, reduces soil pore space which impacts gas exchange for plant roots and aerobic decomposition rates (Cole, 2004; Marion & Cole, 1996). Paths of travel between campsite features increase rates of erosion and compaction within the camping area (Arredondo et al., 2021; Cole, 2004; H. Eagleston & Marion, 2017; Marion et al., 2020; Marion & Cole, 1996). These campsite features and amenities may include cooking areas, seating areas, water sources, flat tent sites, established latrines, secluded areas popular for individual temporary latrines or “cat holes”, and the path connecting the campsite to the main trail. Designing

campgrounds that have a single common cooking area or latrine that services several sites connected by a limited number of formal trails could help to reduce the total areal impact on soil and vegetation (Arredondo et al., 2021; Marion et al., 2020). Additionally, heat from campfires can leave fire scars on the landscape, altering soil biota and composition under campfire sites (Marion et al., 2020). Just as certain vegetation types are more resistant and/or resilient to impacts from camping-related activities, so too are soil types. Sandy soil is less resistant to displacement, while soil with a mixture of particle sizes and some organic matter is more resistant to erosion and more resilient due to better drainage capacity than soils high in organic matter (Marion et al., 2020). Bedrock or campsites and trails that already have high levels of compaction are also highly durable as they are resistant to change (Marion et al., 2020). The Leave No Trace (LNT) principle to “travel and camp on durable surfaces” is derived from recreation ecology research that has demonstrated these differing levels of impact on vegetation and soil (Leave No Trace, n.d.).

4.1.1.3 Water Impacts

LNT principles give specific guidance on how campers should interact with water bodies (Leave No Trace, n.d.; Marion et al., 2020). LNT recommends that camping, food preparation, and human waste disposal should take place a minimum of 200 feet from water sources (Leave No Trace, n.d.). This focus on distance from water sources is a concern because camping-related activities can change water quality in multiple ways. Camping-related activities that cause soil erosion can increase the turbidity of nearby water bodies as wind, rain, or foot traffic drive loose sediment into the water (Leung & Marion, 2000). More turbid water can change the temperature, alter gas exchange in water, or affect the photosynthesizing plants living in the water (H. Eagleston & Marion, 2017; Leung & Marion, 2000). Campers can also directly introduce excess nutrients, exotic species, pathogens, or contaminants like soaps and sunscreen into water by bathing in the water bodies or disposing of waste (human waste or food waste from dishwater) too close to water sources without a runoff buffer (Marion et al., 2020). Both human waste and human food are sources of nutrients that could be introduced into water bodies and alter typical nutrient cycles, potentially leading to excessive algal growth or otherwise altering the composition of aquatic ecosystems (Leung & Marion, 2000). All 18 of the studies that discussed impacts to water were conducted in backcountry settings where campers' primary water sources were water bodies and opportunities to use established latrines were few and far between. These

characteristics are unlike most existing Ridge Trail campsites that provide potable water and restrooms.

4.1.1.4 Wildlife Impacts

My literature analysis revealed a lack of studies that consider the impacts of camping on wildlife, as compared to the abundance of studies that cataloged impacts to vegetation and soil (Table 3). Many more studies about wildlife examine the relationship with human activity, the presence of human structures, or recreation but do not specify how camping affects wildlife behavior or habitat (Leung & Marion, 2000; Reilly, 2015). Camping differs from other types of outdoor recreation in important ways that must be considered for the activity's unique potential impacts on wildlife. Campers stay in one location longer than many other types of recreationists who may be moving between locations or just have a shorter duration of activity in a single location. Campers are also present in PPAs at different hours than most other types of recreation that take place during the daytime. In non-camping-focused studies, wildlife have been shown to alter their active hours to avoid times when humans are more present, often shifting to crepuscular or nocturnal activity (Green et al., 2023; Procko et al., 2022; Reilly, 2015). Animals who are already nocturnal or crepuscular may be affected by campers who bring artificial light sources, stay up late around campfires, or get up early to disassemble their camp (Leung et al., 2018; Leung & Marion, 2000). In the studies that focus on the impacts of camping-related activities on wildlife, impacts tended to fall into these categories: wildlife avoidance of campsites, wildlife attraction to food at campsites, and introduction of exotic or invasive species (Leung & Marion, 2000). Visitors to popular National Park vista points may be familiar with overly friendly chipmunks or birds who have become accustomed to being fed or eating food left behind. While non-camper recreationists might bring lunch or snacks with them into a PPA, campers are the main recreationists who cook or store food in the PPA, leading campsites to be common locations in PPAs that can attract wildlife (Blakesley & Reese, 1988; Jain et al., 2022; Larson & Smith, 2019). Black bears, corvids (i.e., crows, ravens, blue jays), and rodents (e.g., mice and squirrels) were common subjects for studies that identified food attraction as a camping-related impact on wildlife (Blakesley & Reese, 1988; Gore et al., 2007; Larson & Smith, 2019; Marzluff & Neatherlin, 2006; Sundstrom, 1985). These animals are all found in the Bay Area. Separating food preparation and storage from sleeping and leisure areas may help to reduce the incidence of camper-wildlife conflict (Gore et al., 2007; Larson & Smith, 2019).

Some additional themes that emerged related to wildlife avoidance of campsites included the alteration or loss of habitat due to campsite development and wildlife harassment, though the level of avoidance and tolerance of humans' presence over time differed among species (Coleman et al., 2013; Farmer et al., 2022; Leung & Marion, 2000).

4.1.2 Sustainable Campsites

Several studies assert that camping impacts have a nonlinear asymptotic relationship between the level of impact and the level of use, meaning that the most pronounced impacts occur with the initial use of campsites and then level off quickly as campsites experience moderate to high use (Figure 10) (Cole, 1992; Hammitt et al., 2015; Marion, 2016; Marion et al., 2016). There can then be a much smaller additional increase in impact level if high use continues (Arredondo et al., 2021; Marion et al., 2020).

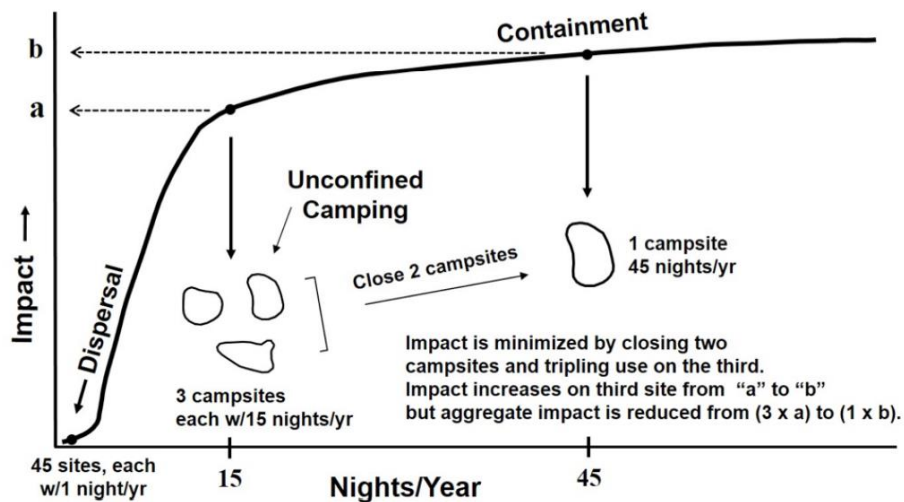


Figure 10: A popular model of the nonlinear asymptotic use-impact relationship of camping impacts on soil and vegetation that shows levels of impact for different campsite types at the same total number of camper nights per year (Marion, 2016).

Cole (2021) suggests that this use-impact relationship is oversimplistic and that individual environmental factors can have longer periods of a slower exponential increase in impact as use level increases, then a rapid period of linear acceleration of impact, followed by an asymptotic relationship once a threshold of use had been reached. Despite this somewhat contrary assertion about the use-impact dynamic, he reflects that the LNT principle of camping on durable surfaces and the containment strategy to concentrate use and impact in popular places is still the best

guiding advice (Cole, 1992, 2021; H. Eagleston & Marion, 2017; Leung & Marion, 2000; Marion et al., 2020; Reid & Marion, 2004).

4.1.2.1 Choosing Campsite Type and Design Elements

Bay Area PPAs experience high use due to proximity to large population centers and the growing popularity of outdoor recreation (Cairn Consulting Group, 2022; National Park Service, 2023; Regional Parks Foundation, 2021; Rice et al., 2022). Due to the Ridge Trail's proximity to large urban populations, I suggest that all areas of the Ridge Trail should be considered popular areas attracting high levels of use and that any new camping should be in designated campgrounds (not dispersed, unconfined camping) to limit the areal extent of impacts in PPA areas. Dispersed camping is a type of camping in which campers can camp anywhere within a PPA without a permit but are encouraged to use previously used campsites (Cole, 1992; Leung & Marion, 2000). Dispersed camping is not a viable option due to this anticipated high use, for which dispersed camping is contraindicated, and prevailing camping policies prohibit this type of unregulated camping (Cole, 2021; Marion et al., 2020). A management strategy to reduce the areal impact is to concentrate use to fewer, more well-defined sites (Arredondo et al., 2021; Marion, 2003). In the few truly backcountry areas that exist in the Bay Area, like those in the Santa Cruz Mountains and the Marin Headlands (Appendix 2), implementation of this confinement strategy might look like requiring advanced reservations for designated low-amenity trail camps. Developed family campgrounds and designated group campsites can be used to confine the areal impact of camping-related activities in frontcountry areas, which are closer to roads, park entrances, or other high-traffic areas (Cole, 2021; Marion et al., 2020). Developed campsite types are those that are created by PPA managers and typically have an elevated level of campsite amenities that may include potable water, restrooms, trash receptacles, and wildlife-resistant food storage containers. Campers can only use designated sites within developed campgrounds and typically are required to make advanced reservations, with some locations offering a few first-come-first-serve walk-in sites.

Recreation ecologists have identified a process called campsite expansion that happens as vegetation loss and soil compaction impacts spread outward from campsite centers (Cole, 1992, 2004; H. A. Eagleston & Marion, 2018; Marion et al., 2016, 2020; Marion & Cole, 1996). Both established and developed campsites can be improved by adding boundaries around tent areas and the edges of the campsite itself to prevent campsite enlargement and an increase in total areal

impact to the local soil and vegetation (Arredondo et al., 2021; James Y. Taylor, 1995; Marion et al., 2020). These boundaries are best created by placing more durable objects like rocks or large logs around a tent area, or through the creation of formal tent pads (Marion et al., 2020). Use of natural topography or rugosity (unevenness) around a campsite can also help to limit the areal extent of impacts to vegetation and soil; creation of side-hill campsites on slopes of less than 15% discourages campers from expanding activity outside of the defined tent area (Arredondo et al., 2021; Marion, 2003; Marion et al., 2020). Additionally, prioritizing the siting of campsites on durable surfaces away from water bodies and critical wildlife habitats can further reduce negative impacts (Marion et al., 2020). The requirement of campfire permits and provision of moderately sized, fixed metal campfire rings in backcountry areas may limit the impact of fires on soil and discourage the burning of large woody debris (Marion et al., 2020). The exclusion of the fire rings from highly developed, frontcountry campgrounds where camper behavior is easier to monitor, may limit damage to standing trees and the collection of woody litter that campers might gather around their site for firewood (Ferrell, 1990; James Y. Taylor, 1995; Marion et al., 2020; Smith et al., 2012). PPA managers can use these variables to design new or redesign existing campsites to be more ecologically sustainable and provide high-quality visitor experiences.

4.1.2.2 Camping Management Strategies

In addition to campsite design, managerial actions can play a significant role in increasing the sustainability of campsites. Improving the sustainability of existing campsites following the previously described design elements may require PPA managers to perform minor campsite improvements or close campsites that were established on terrain or in locations that are non-sustainable for regular use (Cole, 2013; Marion et al., 2020). Seasonal closures can increase the environmental protection dimension of sustainable campsites by reducing impacts to soil and vegetation during wet seasons and to sensitive wildlife during critical annual cycle periods (e.g., migrations, breeding) (H. Eagleston & Marion, 2017; Marion et al., 2020; Marion & Cole, 1996; Swenson, 1979). Including education as part of the camping/reservation process is a strategy that growing numbers of PPA managers are implementing as a preventative measure to reduce the impacts of camping and increase the managerial sustainability of campsites (Goldenberg et al., 2023; Marion et al., 2020; North et al., 2023; Settina et al., 2020; Sundstrom, 1985). Campsite designs that increase universal access as much as feasible in backcountry areas

improve equity of access to natural spaces. In frontcountry settings, following Americans with Disabilities Act (ADA) standards and best available design guidelines for accessibility will increase the social sustainability dimension of the campsite. Providing a variety of lower-cost camping options, like the glamping campsites or larger group sites discussed further in the 2023 campsite inventory results, helps to meet the needs of diverse users (California Coastal Commission, 2022).

4.2 Surveys of Ridge Trail Campsite Facilities & Management

4.2.1 The 2016 Partner Survey

In 2016, Council staff gathered information through surveys of partner organizations about their overnight camping facilities, with a special focus on those located approximately five miles from the existing or planned Ridge Trail route. Staff made an initial assumption that five miles was a reasonable distance for hikers and cyclists planning thru-hikes of any length. Analysis of campsites located further from the route and “non-park-affiliated” campsites was identified as a follow-up action for future research but was outside of the scope of this study. A full copy of the 2016 Partner Survey questions is provided in Appendix 1.

4.2.1.1 Roster of Participants

Council staff reached out via email to 32 partner organizations to take the survey about camping, resulting in a final count of 23 responses. A roster of participating partner organizations is listed in Table 4. The Council received responses from partners headquartered in eight out of the nine counties that surround the Bay, with only San Francisco County not represented in the respondents. San Francisco County contained fewer Ridge Trail miles than any other county. For this 2016 Partner Survey, Council staff did not consider Santa Cruz County, which contains less than five miles of Ridge Trail, to be part of the Bay Area. Although staff categorized the Midpeninsula Open Space District (Midpen) as located in San Mateo County, Midpen also manages lands in Santa Clara County.

Sonoma County had the highest number of partners, including three nonprofits and two government agencies, surveyed and all of them responded. Staff grouped responses for Contra Costa and Alameda counties together because the two partners that manage the most public land along the Ridge Trail route in the East Bay, East Bay Regional Park District (EBRPD) and East Bay Municipal Utility District, span both counties.

Table 4: 2016 Ridge Trail Partner Survey Respondents

| County/ Affiliation | Responded | Did Not Respond |
|---|---|---|
| Marin | <ul style="list-style-type: none"> • Marin County Parks and Open Space District • OneTam (GGNRA, Marin Municipal Water District, Marin County Parks, State Parks; via Golden Gate National Parks Conservancy) | -- |
| Sonoma | <ul style="list-style-type: none"> • Sonoma County Regional Parks • Sonoma County Agricultural Preservation & Open Space District • Sonoma Land Trust • Sonoma Ecology Center • LandPaths | -- |
| Napa | <ul style="list-style-type: none"> • Napa County Regional Park & Open Space District • Land Trust of Napa County | -- |
| Solano | <ul style="list-style-type: none"> • Greater Vallejo Recreation District • Benicia State Recreation Area • Solano Land Trust | -- |
| Contra Costa /Alameda | <ul style="list-style-type: none"> • East Bay Regional Park District • East Bay Municipal Utility District | <ul style="list-style-type: none"> • <i>John Muir Land Trust</i> |
| Santa Clara | <ul style="list-style-type: none"> • City of San José Department of Parks, Recreation and Neighborhood Services • Santa Clara County Parks & Recreation Department • Santa Clara Valley Open Space Authority | <ul style="list-style-type: none"> • <i>City of Gilroy</i> |
| San Mateo | <ul style="list-style-type: none"> • San Mateo County Parks Department | <ul style="list-style-type: none"> • <i>Midpeninsula Regional Open Space District</i> |
| San Francisco | -- | <ul style="list-style-type: none"> • <i>Presidio Trust</i> • <i>San Francisco Public Utility Commission</i> • <i>San Francisco Recreation & Parks Department</i> |
| State and National Parks | <ul style="list-style-type: none"> • State Parks, Santa Cruz District | <ul style="list-style-type: none"> • <i>State Parks, Sonoma Sector</i> • <i>Golden Gate National Recreation Area</i> • <i>National Parks Service</i> |
| Equestrians | <ul style="list-style-type: none"> • Bay Area Equestrians (individuals and organizations; considered as one group) | -- |
| Scouts | <ul style="list-style-type: none"> • Northern California Girl Scouts • Central California Girl Scouts • Boy Scouts | -- |
| Totals | 23 Respondents | 9 Did Not Respond |
| <p>Participation from 23 out of 32 partners surveyed; no or low participation from San Francisco County, and State and National Park partners.</p> | | |

The third East Bay partner, John Muir Land Trust, is a nonprofit with a much smaller portfolio of land than the two regional governmental agencies. Aside from John Muir Land Trust, the partners who did not respond were governmental agencies and all but one of them (the City of Gilroy) would be considered large agencies due to either the size of their landholdings and/or the size of their annual budgets. Half of the partners who responded and only one of those who did not were nonprofit organizations. In some cases, like with the Land Trust of Napa County, organizations that responded did not provide any information about camping. In other cases, like the Sonoma Ecology Center, they gave incomplete information. Reasons cited by partners for these types of responses were a lack of either desire or capacity to focus on camping facilities or programs at the time.

The 2016 Partner Survey roster was not an exhaustive list of all Council partner organizations, as it did not include all municipal governments nor all public utilities that own or manage land along the Ridge Trail route. Given limitations to staff time and capacity, the Council staff created the limited survey roster based on their knowledge of partners that managed campsites and other partners with whom they had a close working relationship. Though some YMCA camps were identified as part of the results of this survey, their managing entities, or “associations”, were not formally surveyed. Other partners that had previously worked with YMCA camps for overnight access, like the Golden Gate National Recreation Area (GGNRA), indicated that the YMCA associations may be open to allowing camping access by permission for guided Council groups.

4.2.1.2 Summary of Existing Campsite Facilities and Management

The 2016 Partner Survey identified 50 campsites (Table 6) within five miles of the Ridge Trail that were in national, state, or county parks. The campsite types included family camps, group camps, backpack camps, horse camps, yurts, and cabin options. Note that this total was the number of group sites/individual camping facilities identified through the survey process, not the total number of sites or number of parks with facilities; there may have been more than one campsite/facility in the same park. While staff identified that they needed additional research effort to summarize the full cost range and per-site camper capacity, they recorded that some options started as low as \$15/site and accommodated up to six persons. Capacity at each site ranged from a half dozen at backpack camps to 300 persons at large group camps.

In addition to these permanent campsites, seven PPA partners indicated a willingness to allow temporary camping by special permission for guided, overnight Ridge Trail events (Table 5). There were also non-public, park-affiliated camping options such as Scout and YMCA camps throughout the Ridge Trail counties. These youth-centered campsites could allow group camping organized by the Council or other youth-serving organizations. They were not shown in the results tables since they were not located within public lands, but they were included as a resource for group trip planners in subsequent Ridge Trail campsite maps that the Council created. Partners expressed that professionally organized group camping, like a Ridge Trail event, was currently the most sustainable type of camping for them. This viewpoint reflected an emphasis on the economic viability pillar of the ‘three pillars’ sustainability paradigm, with a lesser focus on the pillars of environmental protection and even less so on social equity. Organized group camping was seen as more managerial sustainable because campers had more direct oversight from the organizers, organizers typically had to provide their own liability insurance, and camping need not take place in a developed campground that would otherwise require costly regular maintenance or staffing. Through this special permission method, partners could also more strictly ration the use of camping areas to keep use levels low and ensure that every group was given a minimum level of direct education to promote camping behaviors that were less environmentally impactful.

Table 5: Partners Allowing Camping in Public Parks by Special Permission, 2016 Ridge Trail Partner Survey

| Partner Agency/Organization | Park Name, if specified | County¹ |
|--|--------------------------------|---------------------------|
| Marin County Parks and Open Space District | -- | Marin |
| LandPaths | Rancho Mark West | Sonoma |
| Greater Vallejo Recreation District | McIntyre Ranch | Solano |
| City of San José | Alum Rock Park | Santa Clara |
| Santa Clara County Parks | -- | |
| Santa Clara Valley Open Space Authority | -- | |
| San Mateo County Parks | -- | San Mateo |

¹Only counties with partners allowing additional camping by special permission are listed here.

Table 6: Public Park Campsites per Bay Area County (Total #) <5 Miles Distance from Ridge Trail (2016 Ridge Trail Survey)

| San Francisco (1) | Marin (5) | Sonoma (5) | Napa (2) | Solano (0) |
|------------------------------------|--|--------------------------------------|---|-------------------------|
| Rob Hill Group Camp | Kirby Cove Campground | Spring Lake Regional Park Campground | Bothe-Napa State Park Campground | -- |
| -- | Hawk Trail Camp | Merganser Pond Trail Camp | Skyline Wilderness Park Campground | -- |
| -- | Haypress Trail Camp | Azalea Creek Environmental Camp | -- | -- |
| -- | Pan Toll Campground | Red Barn Backcountry Camp | -- | -- |
| -- | Bootjack Campground | Sonoma County Group & Horse Camp | -- | -- |
| Contra Costa (6) | Alameda (11) | Santa Clara (9) | Santa Cruz (2)¹ | San Mateo (9) |
| Wildcat View Group Camp | Trail's End Camp | Woodland Youth Camp | Castle Rock Trail Camp - Main Camp | Slate Creek Trail Camp |
| New Woodland Group Camp | Fern Dell Camp | Halls Valley Campground | Castle Rock Trail Camp - Frog Flat Camp | Modoc Youth Camp |
| E S Anderson Equestrian Camp | Anthony Chabot Family Campground | Snell Campground | -- | Chinook Youth Camp |
| Gillespie Youth Camp | Two Rocks Group Camp | Lakeview Campground | -- | Choctaw Youth Camp |
| Sibley Regional Park Backpack Camp | Lookout Ridge Group Camp | Tan Oak Campground | -- | Jack Brooks Horse Camp |
| Girls' Camp | Hawk Ridge Group Camp | Bay View Youth Campground | -- | Sierra Club Hiker's Hut |
| -- | Bort Meadow Group Camp | Huckleberry Campground | -- | Toyon Campground # 1 |
| -- | El Venado Group Camp | Valley View Campground & Yurts | -- | Toyon Campground # 2 |
| -- | Puma Point Group Camp | Sanborn County Park Campground | -- | Toyon Campground # 3 |
| -- | Arroyo Flats Group Camp | -- | -- | -- |
| -- | Eagle Springs Backpack Camp/Group Camp | -- | -- | -- |

Total # of Camping Facilities within five miles of the Ridge Trail = 50

¹Santa Cruz County was not included as a “Bay Area” county at the time of the 2016 Partner Survey.

Finally, Council staff gleaned information from partners specifically about equestrian campsites, which could accommodate horseback riders intending to travel on the Ridge Trail. They included both publicly and privately managed campsites in the survey results. The 15 campsites listed may also have been a greater distance than five miles from the Ridge Trail as equestrians stated that they were willing to camp away from the Ridge Trail. This increased distance of travel from camp to trail would be more possible for equestrians accustomed to arriving at trailheads towing a horse trailer. Equestrians and PPA managers familiar with this user group's needs shared that the current restrictions to equestrian use of some Ridge Trail sections, either de jure from PPA policy excluding equestrian trail use or de facto from a lack of trailhead parking facilities that could accommodate a truck and trailer, meant that equestrians were currently less likely than other trail user groups to travel continuously along the Ridge Trail. The summary of equestrian campsites identified by partners in Table 7 revealed that these unique campsites were located primarily in Marin, Contra Costa, and Alameda counties; three of the same campsites were also captured in Table 6 since they permitted non-equestrian camping as well. Following the Council's mission to create a fully multi-use trail, the goal of a complete system of campsites along the Ridge Trail would ideally include the ability to accommodate as many user types as possible. These reflections on existing equestrian overnight access shed light on areas for improvement to camping access and multi-use trail availability.

For over 20 years, the Council has helped to organize large, trail-centered events for equestrians and pedestrians in both Marin and the East Bay. These two areas of the Bay Area have a long tradition of equestrian use of trails and PPAs and also have some of the older large PPA networks around the Bay (Stein, 1984). The East Bay Hills Trails Benefit includes camping for event participants, allowing them to traverse a long, continuous stretch of Ridge Trail through regional and municipal parklands in Contra Costa and Alameda counties over the course of a week. The Marin event, Ridge to Bridge, is just a single-day trail event through state and national park lands, but nearby equestrian campsites could allow participants from further afield the opportunity to participate. These events provided notable examples of types of recreational opportunities for user groups beyond pedestrians that could become possible in other regions of the Bay Area when gaps in the network of campsites are filled.

Table 7: Equestrian Camping Facilities Identified in 2016 Ridge Trail Partner Survey

| Facility Name | Facility Location | Facility Manager | County¹ |
|---|--|--|---------------------------|
| Marin Headlands Horse Hotel | Marin Headlands, GGNRA | Presidio Riding Club | Marin |
| Frank Valley Horse Camp | Mount Tamalpais State Park | State Parks | |
| Devil’s Gulch Equestrian and Group Camp | Samuel P. Taylor State Park | State Parks | |
| Stewarts Horse Camp | Point Reyes National Seashore | Five Brooks Horse Camp | |
| Homestead Valley Camp | Briones Regional Park | EBRPD | Contra Costa |
| Es Anderson Equestrian Camp | Tilden Regional Park | EBRPD | |
| Corral Group Horse Camp | Las Trampas Wilderness Regional Preserve | EBRPD | |
| BBQ Terrace | Mount Diablo State Park | State Parks | |
| CMDTRA Grounds | Clayton, CA | Concord Mt. Diablo Trail Ride Association (CMDTRA) | |
| Sequoia Arena | Joaquin Miller Park | Metropolitan Horsemen’s Association | Alameda |
| Bort Meadow | Anthony Chabot Regional Park | EBRPD | |
| Caballo Loco Equestrian Group Camp | Del Valle Regional Park | EBRPD | |
| Lil’ Chaparral Horse Camp | Del Valle Regional Park | EBRPD | |
| Doe Meadow Horse Camp | Ohlone Regional Wilderness | EBRPD | |
| Jack Brooks Horse Camp | Sam McDonald County Park | San Mateo County Parks | San Mateo |
| Total # of Equestrian Camping Facilities Identified = 15 | | | |
| ¹ Only counties with equestrian camping facilities identified through the 2016 Partner Survey are listed here. | | | |

4.2.1.3 Developing Future Campsites

In their responses to the 2016 Partner Survey, partner organizations shared preliminary information about potential future projects to develop campsites. Council staff added projects that were furthest along in the planning process, or at least not in confidential planning stages, to an existing campsites map to create a planning version. Because those maps and information are for internal planning purposes only, they were not attached and were instead housed internally on the Ridge Trail office server. Council staff were directed to use this information to prioritize sites with the greatest potential for development, most needed location, willing partners, and least barriers. The Council would commit to offering partners technical assistance, fundraising or grant application support, and advocacy efforts as staff capacity allowed. The following is a

high-level summary of future campsite development for each of four geographic regions around the Ridge Trail:

- North Bay Region: This region consists of Marin, Sonoma, Napa, and Solano counties. The greatest potential for new campsites in this region was in Sonoma County where the Regional Parks was actively planning for new campsites and was interested in continuing a strong partnership with the Council. There would also be an opportunity to create a temporary camping near the Ridge Trail route in Solano County through special permission to use a LandPaths property for a guided event.
- East Bay: This region consists of Contra Costa and Alameda counties. The East Bay Regional Park District camp development plans were far more robust than those in other counties. The addition of their planned campsites would add facilities in a region that already has more campsites along the Ridge Trail route than in any other area except southwest Marin County.
- South Bay: This region consists of Santa Clara County. The greatest potential for new campsites in this region was with the Santa Clara Valley Open Space Authority due to its dearth of campsites and willingness to explore options for increasing camping opportunities on its lands. Fostering this founding interest in camping would require long-term planning support and advocacy from the Council.
- Peninsula: This region consists of San Mateo and San Francisco counties. The contemporary GGNRA Management Plan called for a study of backcountry camp feasibility along the Ridge Trail route on Sweeney Ridge. San Mateo County Parks was considering a ‘hut camping’ cabin pilot program to start in 2017.

4.2.1.4 Survey Conclusions and Follow-up Opportunities

The 2016 Partner Survey results generated a preliminary gap analysis of existing campsites and planning needs for future campsites. The following are the key conclusions resulting from the survey; they are included in this results section as they informed the 2023 update and partner outreach process undertaken in this study:

- Solano County had the least number of overnight options, but it was also the only county with no regional park and/or open space district (and accompanying funding measure/source). Solano did have one of the strongest Trail Advocacy Groups, and Ridge

Trail staff planned to focus in 2017 on supporting the development of campsites using the current capacity and resources of the Solano Trail Advocacy Group.

- Napa County did not have many overnight camping options, though it also had one of the lowest percentages of dedicated Ridge Trail miles and no dedicated funding source for its regional park and open space district. Napa County had a wealth of more upscale overnight options like hotels due to its wine country location. There might be a unique opportunity to work with the Napa Valley Vine Trail to develop more varied types of overnight options.
- The willingness expressed by partners to allow overnight stays “with special permission” created a meaningful niche for Council staff and volunteers to fill by planning guided events.
- Council staff were tasked with following up on this survey with four tasks that fall within the purvey of the Council’s role as an advocacy organization:
 1. Analyzing cost for each campsite type and within each county.
 2. Identifying additional “non-public park” options.
 3. Using this information to understand the number of Ridge Trail miles that were currently supported by viable overnight options.
 4. Developing a regular schedule of “special overnight” options, trips, and events.

Since the conclusion of the 2016 Partner Survey, Council staff have developed a regular schedule of guided overnight events, including the “Solano Trek and Overnight”, as well as a series of website posts that detail multi-day, overnight Ridge Trail trip itineraries (Bay Area Ridge Trail Council, n.d.).

4.2.2 The 2023 Updated Campsite Inventory

The 2023 Campground inventory was built upon the 2016 Partner Survey. The catalog of campsites along the Ridge Trail developed through the 2023 update revealed a changed campsite inventory and new partner approaches to campsite management. The following subsections report on and discuss key findings of this 2023 update.

4.2.2.1 More Campsites Identified in 2023

Overall, the 2023 campsite inventory update yielded 77 campsites within two miles of the Ridge Trail through detailed research and partner outreach (Appendix 2). This was a total increase of 27 more campsites identified than in the 2016 Partner Survey. The 2016 Partner Survey used different methods, such as: 1) focusing on campsites within five miles, 2) relying on Council staff knowledge, and 3) direct reporting from surveyed partner agencies. There was no

change in the number of campsites identified in Solano, Contra Costa, Alameda, and San Francisco counties from 2016 to 2023 (Figure 11). All other counties experienced a change in campsite inventory.

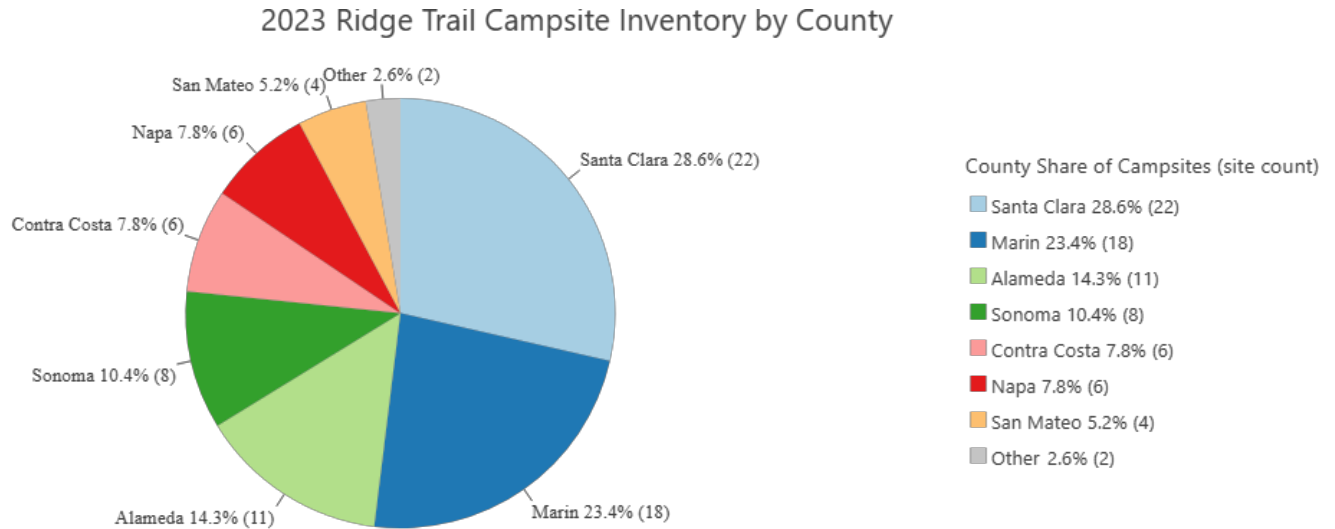


Figure 11: Pie chart depicting the share per county of public campsites (n=77) that are within two miles of the Ridge Trail. The "Other" counties shown collectively in gray are San Francisco and Santa Cruz, each having one campsite or 1.3% of the total number of campsites. Solano is the only Bay Area county not shown as it did not have any public campsites within two miles of the Ridge Trail.

There was a decrease in the number of campsites identified for San Mateo and Santa Cruz counties. In San Mateo, a large part of the change from the 2016 campsites was due to the decrease in survey area from five miles to two miles from the Ridge Trail. Five campsites were removed from consideration because they were located in Sam McDonald County Park; these campsites could be feasible for campers who use private transportation to access the park from a nearby Ridge Trail trailhead. Slate Creek Trail Camp was also removed from the San Mateo inventory due to its distance from the Ridge Trail. Santa Cruz campsite count decreased due to considering two directly adjacent trail camps in Castle Rock State Park as a single campsite.

There was a small increase in the number of campsites identified in Sonoma and Napa counties and a substantial increase in the number of sites identified for Marin and Santa Clara counties. The inventory for Sonoma County rose due to the inclusion of Spring Lake Parks’s new cabins, which were noted as in development in 2016, and the newly reported group, family, and yurt campsites at Sugarloaf State Park. The increase in the campsites reported for Napa County is purely due to the different campsite data categorization methods between the two survey years. In 2016, different types of individual campsites located in the same campground or even in the

same park were often reported as a single overnight facility. To provide greater resolution on the types and quantities of campsites available for users with different needs, I separated campsite types (e.g., trail, group, yurt/cabin, equestrian) for the 2023 campsite inventory (Table 8). All individual campsites of the same type within one overnight facility area were considered to be a single campsite.

In Marin and Santa Clara counties, I made wholly new identifications of campsites. Samuel P. Taylor State Park campgrounds along the northwestern Ridge Trail sections in Marin were not at all recorded in 2016, nor were a handful of other campsites on Mount Tamalpais in southern Marin. The omission of these Marin campsites may have been because OneTam, a collaborative program administrated by the Golden Gate National Parks Conservancy nonprofit, was one of only two Marin partners invited to complete the 2016 Partner Survey. OneTam was relied upon to represent the multi-jurisdictional interests of the GGNRA, California State Parks (State Parks), Marin County Parks, and the Marin Municipal Water District managed lands on Mount Tamalpais. GGNRA and Marin County Open Space District were separately invited to complete the survey, but only the latter did so. Samuel P. Taylor State Park campsite data was only reported as an equestrian camping facility even though the park also offered tent camping, group camps, and a cabin. This incomplete data is because the park is located outside of the jurisdiction of OneTam and all other State Parks sectors individually surveyed. In Santa Clara County, the campsite total jumped from nine to 22 campsites. This more than two-fold increase in newly identified campsites may be due to missing or incomplete survey responses from four Santa Clara partners in 2016, as well as the separate notation of different campsite types in 2023.

4.2.2.2 Increase in Glamping Options

“Glamping”, a portmanteau of “glamor” and “camping”, typically refers to more developed campsites with amenities considered luxurious or unusual for rudimentary tent camping, such as electricity or camping shelters like cabins or yurts (Kiryakova-Dineva et al., 2022). Table 8 shows the range of types of campsites, from trail camps to glamping cabins, along the Ridge Trail and their managing agency. Trail camps represent the least developed campsite type and are usually located in backcountry settings that tend to have fewer amenities.

Santa Clara County Parks is the only partner to offer all types of campsites noted in the 2023 inventory. They have a yurt program unmatched by any other county park department in the Bay Area. Glamping attracts types of campers who may be drawn to the novelty of the

experience or the increased level of comfort while being immersed in a natural setting (Kiryakova-Dineva et al., 2022). Yurts and cabins may make camping more accessible to first-time campers by reducing barriers created by a lack of camping-related knowledge or financial means to purchase specialized equipment. Sonoma County Regional Parks has opened three new cabins at Spring Lake Park since the 2016 Partner Survey. While the Spring Lake Park cabins only accommodate four to six people, the entire campsite has an 8-person limit, allowing for a mix of camping types within the same campsite. Two additional campers could pitch a tent next to the cabin or sleep in a camper van in the campsite's included parking spot. Larger family campsites in a developed campground or group sites can also reduce access barriers by allowing larger family, friends, and/or community groups to camp together. This can create the potential for less experienced campers to join more knowledgeable recreationists. Additionally, higher-capacity campsites can feel more welcoming to campers from cultures where activities are more commonly undertaken by extended family groups rather than small groups or individuals. A lack of culturally relevant amenities and services can have the same level of impact as physical proximity on park visitation rates by historically marginalized communities (Hamstead et al., 2018; Wang et al., 2021).

Glamping amenities that might be seen as luxurious or convenient by some campers might be necessities for other campers. For example, a person who requires electricity to run their medical equipment or an elderly camper with mobility challenges might find a cabin bed easier to arise from than a ground pad in a tent. RV campsites may have the potential to reduce access barriers for some individuals with disabilities who gain more enjoyment from camping-related activities using their own equipment or for whom some tent and cabin sites may not be designed. One of the three new cabins at Spring Lake Park was designed to follow ADA standards. A campsite becomes more socially sustainable when it is designed so that recreationists want to and can use it to increase their access and enjoyment of outdoor areas. Campground managers should address equity issues like the need to provide more welcoming options and make camping more accessible for a broader audience by shifting away from a one-size-fits-all approach.

Table 8: Types of Campsites in PPAs along the Ridge Trail as of April 2023.

| Managing Agency | Trail Camp | Camp-ground | Group Camp | Youth Camp | Equestrian | Yurt / Cabin | RV |
|---|-------------------|--------------------|-------------------|-------------------|-------------------|---------------------|-----------|
| State Parks, Bay Area District | X | X | X | | X | X | X |
| State Parks, Santa Cruz District | X | X | X | | | | X |
| East Bay Regional Park District | X | X | X | X | X | | X |
| Golden Gate National Recreation Area (NPS) | X | X | | | | | |
| Midpeninsula Regional Open Space District | X | | | | | | |
| Napa County Regional Park and Open Space District | | X | X | | | X | X |
| Peninsula Open Space Trust | | | | | | X | |
| Presidio Trust (NPS) | | | X | | | | |
| San Mateo County Parks | | X | | X | X | X | |
| Santa Clara County Parks | X | X | X | X | X | X | X |
| Sonoma County Regional Parks | X | X | X | | | X | X |
| Sonoma Ecology Center | | X | X | | | X | X |
| Skyline Wilderness Park | | X | | | X | | X |
| West Point Inn Association | | | | | | X | |

4.2.2.3 Patterns in Distribution of Existing Campsites

In combination with the campsite counts per county, the map I developed (Figure 12) reveals some distribution patterns for the public campsites within two miles of the Ridge Trail. There are a few regions with more campsites that are grouped closely together, such as the dense

cluster of campsites along the East Bay ridgeline in southern Contra Costa and northern Alameda counties and on Mount Tamalpais in Marin County. In contrast, there are long stretches of dedicated Ridge Trail in Napa and San Mateo counties without campgrounds. Along the ridgelines in San Mateo, we can see that much of the lands have restricted access as those are protected watershed lands belonging to the San Francisco Public Utilities Commission (SFPUC). SFPUC allows for docent-guided tours through much of its northern watershed lands but does not currently allow camping nor open public access as part of a policy to protect reservoir water quality and sensitive riparian habitat (Alexander, 2023). There are similar restrictions or prohibitions on public watershed lands around the Bay Area, with the least restrictive recreation areas managed by the Marin Municipal Water District.

Areas closer to the highly developed cities of San Francisco and San José have fewer camping opportunities. In these more urban settings, low-cost overnight accommodations like hostels and motels may be practical options if public transit or urban paths connect Ridge Trail users easily to those options. Although Santa Clara County had the highest number of campsites recorded for 2023, they were spread across a far distance in this large county; trail users would benefit from more campsites along the inner southern curve of the Ridge Trail. Solano County, despite a high ratio of dedicated to planned Ridge Trail miles, does not have any campsites. When viewed in conjunction with the lack of campsites along the adjacent Ridge Trail sections in southern Napa and northern Contra Costa County, this presents an even larger gap in campsite service areas. The areas around this campsite gap in the northeast Bay Area are racially diverse (Table 1 and Figure 7). Solano County is the most racially/ethnically diverse (Table 1) and has the lowest median household income (Table 2). This lack of campgrounds in these areas is symptomatic of a nature gap, or reduced access to outdoor spaces, for lower income or BIPOC communities.

Campsites tend to be found along sections of the Ridge Trail that were dedicated earlier on in the history of the Ridge Trail. I suggest a few possible relationships between dedicated Ridge Trail and campsites: 1) older PPAs are more likely to have camping opportunities; 2) campsites are more likely to be developed secondarily to the construction of trails; 3) campsites have become more challenging to develop in the Bay Area, whether due to changing perceptions of camping and concerns related to camping-related impacts or due to rising costs of land, labor, and materials that public agencies would need to develop campsites. Newer acquisitions of

public land in the Bay Area have tended to be facilitated by land trusts which may or may not later transfer the PPA title to public land management agencies. 92% of campsites within two miles of the Ridge Trail are in PPAs managed by public parks agencies or open space districts, reflecting a difference in both the mission and capacity of governmental agencies versus nonprofit land trust organizations to facilitate overnight public access. Public perceptions of camping are influenced to some degree by the high visibility of houselessness in California and concerns that people experiencing houselessness will engage in unauthorized camping in PPAs (California Department of Parks and Recreation, 2021). Additionally, Ridge Trail partners informally shared that the public's heightened concerns about wildfires and related worries that unattended campfires or careless smokers in campsites will start fires have, at times, inhibited the development of new campsites.



Figure 12: Map of existing public campsites within two miles of the Ridge Trail route, both dedicated and planned trail, as of November 2023.

4.2.2.4 Wildfire and Climate Change Impacts Alter Campsite Inventory

The 2023 update not only identified more campsites overall and an increase among certain campsite types but also revealed eight campsites that had been rendered inaccessible. Since the 2016 Partner Survey, Sonoma and Santa Cruz counties have experienced record-breaking destruction from wildfires (CAL FIRE, 2022). Three campsites, whether or not they were identified in the 2016 Partner Survey results, have burned during these recent wildfires. Burned sites included the Red Barn, a group campsite used during a Ridge Trail event arranged by special permission, at Sugarloaf State Park and the Azalea Creek Environmental Camp in the neighboring Hood Mountain Regional Park, both of which burned during the Glass Fire in September 2020 (Kallen, 2020; Roney, 2021; Sonoma County Regional Parks, 2022). The 2020 CZU Lightning Complex Fire scarred the landscape in the Santa Cruz mountains, including the Waterman Gap Trail Camp (State of California, n.d.). The Waterman Gap and Azalea Creek campsites are slated to be restored, with some improvements to increase their wildfire resilience, but other sites with structures like the Red Barn Trail Camp will be lost forever. These fires and other large-scale, high-intensity, devastating wildfires in California since 2016 have also increased fire safety concerns in the public and first responder groups. Seasonal restrictions or total bans on campfires and even camp stove use during high fire danger conditions have become more common (Lillywhite et al., 2013). Severe landslides from the 2022-2023 rainy season have impeded access to other previously accessible campsites, like the three Toyon Campgrounds in Huddart County Park whose access road washed out making them difficult for rangers to reach. All campsites where PPA managers have indicated that they would restore the site(s) were included in the 2023 inventory update data. These extreme weather and wildfire impacts reveal an added need for sustainable campsite design to consider building resiliency to direct and indirect impacts of climate change.

5. Limitations and Opportunities for Future Research

This study was limited in its scope to focus primarily on the impacts on environmental resources from camping as the primary measurement of sustainability. While this study makes landscape-level recommendations for the placement of new campsites, the final evaluation of appropriate sites for campsite development will be part of site-specific environmental studies undertaken as part of the compliance process for the California Environmental Quality Act. Each

Ridge Trail partner should further apply the dimensions of social sustainability and managerial sustainability to ensure that they have sufficiently woven local community factors and organizational capacity for management into the planning process for sustainable campsites. Though the recommendations of this study have been developed using a lens of social equity as it relates to the context of the Bay Area, these complex equity issues go beyond access to inclusive campsites and will need to be systematically and collaboratively addressed region-wide.

5.1 Spatial Gap Analysis and Explorable Map Opportunities

Future researchers could perform a spatial analysis of gaps in the network of campsites along the Ridge Trail to find sites most suitable for the development of sustainable campsites. I propose the following they follow the process outlined in my methods section to recreate the initial layers and feature classes I used to visualize the existing campsite inventory: Public Campsite, Ridge Trail two-mile buffer, conservation lands, and Ridge Trail route. Then they should create the following classified layers:

- Campsite service areas with dissolved rings between overlapping service areas.
- A multiple-ring buffer from the water bodies displayed on the feature layer from CLN 2.0 (Bay Area Open Space Council, 2016).
- Elevation gradients derived from HARP Digital Elevation Model data (California Air Resources Board, 2022).

Next, they should reclassify these layers into a 1-5 scale using the Jenks Natural Breaks method and then use the reclassified layers to perform a weighted overlay (Table 9), creating a raster layer outlining suitable sites for new campsites. This site-suitability analysis would allow researchers to find areas with a high need for new campsite facilities, namely those areas more than eight miles from an existing campsite within the Ridge Trail overnighting system. The next highest priority and weight should be given to campsite locations that are more likely to protect water quality, even if they are less desirable to campers, due to their distance from waterbodies. Note that the water bodies layer does not include seasonal springs. The final criterion relates to the less sustainable placement of campsites on relatively flat ground (less than two % slope) due to the increased opportunity for campsite expansion (H. Eagleston & Marion, 2017; Marion et al., 2020). Under 15% slope is the recommendation for the creation of the more expansion-

resistant side-hill campsite type (Marion et al., 2020). This analysis is expected to be a tool for identifying potentially suitable sites for campsite development and should be used early in the planning process. Field verification should always be done before moving further.

Table 9: Suggested weights to assign per reclassified layer for a site-suitability analysis for new campsites.

| Reclassified Layer Name | Criteria | Weight Assigned |
|--------------------------------|--|------------------------|
| Distance_Next_Site | >8 miles from any other Ridge Trail campsite | 50 |
| Distance_Water | >200 meters from a water body | 30 |
| Aspect | Between 2-15 % slope | 20 |

Researchers performing this gap analysis could also add more complexity to their analysis through these considerations:

- Exclude areas within municipal limits of San Francisco, San José, Petaluma, and Napa from identified gap areas due to the availability of hotels/motels/inns accessible by ground transportation.
- Add amenities for equestrian trips, such as a water supply, corrals for horses, trailheads or campsite access areas with space for parking trucks and trailers to transport horses.
- Add site features to attribute fields to facilitate trip planning: average cost for use of the campsite, water availability, site capacity, and reservation method.
- Perform a separate analysis that identifies gaps in multi-use trail designation between campsites.
- Incorporate equity layers into the weighted site suitability analysis to prioritize the development of campsites close to communities that have historically been excluded from or underserved by PPAs (Brown et al., 2023; Nesbitt et al., 2019; Rigolon, 2016; Rowland-Shea et al., 2020).

A public, explorable web map with more information about existing campsites would be a useful tool that could decrease the knowledge barrier for people hoping to complete multi-day trips along the Ridge Trail. Council staff could create this map using the original layers and feature classes I created through this project’s research and GIS analysis. They could include the following overnight accommodation types located in or near public lands types as separate feature layers for use in an interactive map of all overnight accommodations near the Ridge Trail: public campgrounds that allow RVs, private RV parks, hostels, private inns, and cabins. Council staff could also develop this interactive tool through a public-private partnership with a local university that wants to rent out its dorms during school breaks or with the Hipcamp

company. Hipcamp hosts an online reservation portal for privately owned campsites. There are currently hundreds of private campsites on farms, vineyards, and private land around the Bay Area, with more opening each year as a way for landowners to make supplemental income. I had collected data on private Scout and YMCA camps but omitted them from the campsite gap analysis due to their unique reservation requirements. If Council staff develop a version of the explorable map tool exclusively for the internal use of Ridge Trail staff planning guided, overnight trail outings, special permission sites like youth-serving camps would be useful to include.

6. Recommendations

The results of my literature analysis and campsite inventory have been applied to the Ridge Trail context, including consideration of local ecology and demographics. The following recommendations provide guidance for land managers who are aiming to provide campsites, and for Council staff who work to advocate for or otherwise support partners' development of campsites.

6.1 Recommendation 1: Concentrate Activity to Minimize Camping Impacts

Most of the popular campsites in the Bay Area have already implemented visitor use rationing practices, such as requiring advanced reservations and limiting camper capacity per site, so most recommendations in this report focus on strategies for reducing impacts in high-use areas. PPA managers can use a containment strategy to minimize aggregate camping impact by concentrating use on a limited number of sites (Leung and Marion 1999; Marion 2016). Providing fixed camping furniture, like picnic tables that attract and concentrate cooking and social activities, and installing visually obvious campsite boundaries help to minimize the expansion of campsites and associated environmental impacts (H. Eagleston & Marion, 2017; Marion et al., 2020). Installing and regularly maintaining restrooms, such as vault toilets or composting toilets, at trail camps along the Ridge Trail can help manage campers' disposal of human waste and minimize adverse impacts to nearby waterways (Marion, 2003; Marion et al., 2020). To diminish camping-related impacts that uniquely affect wildlife, campsites should be established close to already disturbed areas of PPAs and should provide amenities that deter food

attraction, like food storage lockers and wildlife-resistant trash cans (Coleman et al., 2013; Farmer et al., 2022; Marion et al., 2020). New or rehabilitated campsites should be located on durable or resilient surfaces, such as compacted gravel, bedrock, or sunny, grass-covered sites (Marion et al., 2020). Many PPAs along the Ridge Trail contain grassland ecosystems, but some of these ecosystems may have low resilience to camping impacts due to the presence of sensitive, endemic plant and animal species. The campsite design considerations and management strategies in this first recommendation are meant to be general guidance and applied as deemed appropriate after further, site-specific surveys of existing environmental conditions.

6.2 Recommendation 2: Prioritize New Campsites on the Eastern Side of the Bay

By studying the gaps in the network of campsites along the Ridge Trail, I have established a list of ideal locations for campsite development. From the map created as a result of the 2023 campsite inventory update (Figure 12), I recommend that the Council focus its advocacy efforts on supporting partners' development of new campsites in the following counties that have low numbers of or no campsites in PPAs along the Ridge Trail (in order of descending priority):

- Solano County
- San Mateo County
- Napa County

Solano County is listed first due to its higher rates of equity priority populations of low-income communities (Table 2) and BIPOC residents (Table 1) compared to the other two counties. While advocating for the development of campsites in Solano, Napa, and San Mateo counties could increase in access in the near-term for day-trippers, it could help to chart a long-term path toward a more complete series of campsites for long-distance thru-hikers.

Additionally, the Council should advocate for the development of campsites in the following areas along the Ridge Trail would quickly fill gaps in counties with an otherwise robust network of campsites:

- northeastern Marin County
- southern Sonoma County
- northern Contra Costa County

- southern Alameda County
- northern and eastern Santa Clara County

New campsites in these areas could increase the near-term feasibility of multi-day section hiking on the Ridge Trail. Overall, most priority areas for new campsite development would be on the eastern side of San Francisco Bay.

6.3 Recommendation 3: Coordinate Partner Support for Priority Areas

As a trail advocacy organization, the Council could provide technical support to its land managing partners by creating a Ridge Trail guide to existing accommodations like the explorable map proposed in the future research section above. This would help both recreationists and PPA partners understand where and how each entity’s property and potential campsite fit into a larger network and planned route. The Council should prioritize their advocacy or any fundraising support efforts on campsites with the greatest potential to be built, i.e., in the most needed location, with willing partners, and having the least political, environmental, and /or fiscal barriers to development. Even more important than considering the ease of development, the Council should support priority development of campsites near low-income communities or BIPOC communities that have been historically excluded from public outdoor spaces (Brown et al., 2023; Rigolon, 2016; Rowland-Shea et al., 2020). Their technical and funding support of these priority projects could look like many different things, including:

- analyzing costs for existing campsite types in the Bay Area,
- researching options for sharing or renting maintenance equipment,
- identifying and helping to apply for funding sources,
- conducting public surveys about the type of campsites and campsite features that local communities want to see in nearby parks,
- supporting volunteer recruitment,
- hosting regular trail workdays to increase volunteer assistance to reduce construction, operation, and maintenance costs.

7. Conclusion

The Ridge Trail needs a network of campsites close to the trail to support the Council’s ultimate vision of a complete, world-class recreation trail. Campsites provide opportunities for intimate and immersive nature experiences for users. Campgrounds that provide multiple types

of campsites, and which are developed in areas that are underserved by outdoor recreation facilities, can reduce barriers to the inclusion of campers of diverse backgrounds and abilities. Campsites that are close enough to feasibly walk, roll, or ride between in a single day are essential support infrastructure for multi-day continuous travel along the Ridge Trail. Currently, only a few areas along dedicated Ridge Trail sections in Marin, Contra Costa, Alameda, and Santa Clara counties have enough campsites close to one another to facilitate long-distance, multi-day trips.

Whatever their primary motivation for camping may be, campers create impacts on the vegetation, soil, water, and wildlife in and near campsites. Strategic campsite design can help to reduce the total amount of area that receives high levels of impact. For high-use Bay Area campsites, the primary strategy recommended is for PPA managers to confine camping to a few areas located on resilient vegetation and soil that are also initially resistant to impacts from campers. The secondary strategy entails encouraging lower-impact camper behaviors within the sites by providing amenities that create structure for common activities like cooking, socializing, sleeping, and defecating. PPA managers along the Ridge Trail who are considering where and how to develop new campsites must balance the three pillars of sustainability: ecological protection, economic viability, and social equity. The Council should work with PPA managers to support the development of a full network of environmentally sustainable campsites that facilitate continuous travel along the Ridge Trail and are responsive to the needs of local communities.

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Appendix 1 – 2016 Ridge Trail Partner Survey

Bay Area Ridge Trail Council

Overnight Accommodations Planning - Partner Survey, September 1, 2016

INTRODUCTION

The Bay Area Ridge Trail Council is kicking off a region-wide initiative to identify, plan for, and develop facilities and accommodations that support overnight treks and thru-hike and ride opportunities for hikers, cyclists, and equestrians—supporting multi-day trips and eventual circumnavigation.

This mission-driving effort will capitalize on the Ridge Trail’s status as a world-class destination—while also enhancing our collective ability to provide a diverse array of recreational opportunities for both locals and visitors and to realize the economic benefits of increased trail-related offerings.

We envision two types of planning:

- For a broad suite of accommodations (from low-impact backcountry camps to inns) appropriate to support all user groups; and
- For pilot overnight events to evaluate the routes and build partnerships, public awareness, and funding support.

We are beginning the process with a two-fold objective: (1) Inventory and map both existing and planned facilities and (2) get a good understanding of what the research/study should include that would be most beneficial to support our collective needs.

SURVEY QUESTIONS

Please provide responses for sites/facilities located up to five miles from the existing or planned Ridge Trail route (and accessible by a linking trail or path). Again, a “facility” can range from a low-impact backcountry campground to an inn.

Existing Facilities

1. For each facility that you own and/or manage, please provide the following information:
 - Name and general location (i.e., is the facility identified and correctly located on our maps? See attached).
 - Type of facility (e.g., campground, hut), users supported (hikers, bikers, and/or equestrians), and when open (year-round, seasonal, or special permission).

- Cost to construct; year constructed; necessary permits/approvals.
- Who operates (both facility maintenance ***and*** visitor management/reservations), what is the estimated cost of operation, and what do you charge for overnight stays?
- Estimated annual use volume (number of people).
- What works well about the facility (or could use improvement/upgrade)?

Planned Facilities

2. Are you currently planning any overnight sites or facilities?
 - Type, location, and user groups (hikers, cyclists, equestrians) served.
 - Planning/approval process and target construction date.
 - Who will operate/manage (both facility maintenance ***and*** user management/reservations)?
 - Drivers/needs (e.g., existing facilities inadequate to accommodate the volume of use, need more equestrian facilities, demand for a facility at this particular location, etc.).
3. At which locations do think new facilities are needed?

Any Good “Example” Systems/Facilities?

4. Are you familiar with other long-distance trails that have a system for accompanying overnight accommodations that you recommend as a model for the Ridge Trail?

Pilot Overnight Events

5. Would it be possible to get permission for pilot overnight camping at locations where no campground currently exists? How are special event requests managed? Who should we contact?

Study Goals/Deliverables – What info would be most helpful?

6. What actions (besides funding) could the Ridge Trail spearhead through this planning effort that would help you implement your organization’s recreation, access, economic development, events/outings, and community engagement goals? (e.g., analysis of operations and maintenance frameworks/models, analysis of regulatory requirements for specific facility types, case studies, etc.).

THANK YOU! [End survey questions]

Appendix 2 – 2023 Inventory of Campsites on Public Lands within Two Miles of the Bay Area Ridge Trail

| ID | COUNTY | CAMP | TYPE | PARK | MANAGER | NOTES |
|----|--------|---------------------------------------|------------|-----------------------------|------------------------------|---|
| 1 | Marin | Bicentennial Camp | Trail Camp | Marin Headlands (GGNRA) | National Park Service | |
| 2 | Marin | Kirby Cove Campground | Campground | Marin Headlands (GGNRA) | National Park Service | |
| 3 | Marin | Hawk Campground | Trail Camp | Marin Headlands (GGNRA) | National Park Service | |
| 4 | Marin | Haypress Campground | Trail Camp | Tennessee Valley (GGNRA) | National Park Service | |
| 5 | Marin | Pantoll Campground | Campground | Mount Tamalpais State Park | California State Parks | |
| 6 | Marin | Alice Eastwood Group Campsite | Group | Mount Tamalpais State Park | California State Parks | |
| 7 | Marin | Bootjack Campground | Campground | Mount Tamalpais State Park | California State Parks | |
| 8 | Marin | Frank Valley Horse Camp | Equestrian | Mount Tamalpais State Park | California State Parks | |
| 9 | Marin | Steep Ravine Walk-In Camp | Campground | Mount Tamalpais State Park | California State Parks | |
| 10 | Marin | Steep Ravine Cabins | Cabin | Mount Tamalpais State Park | California State Parks | |
| 11 | Marin | West Point Inn | Inn | Mount Tamalpais State Park | West Point Inn Association | |
| 12 | Marin | Devil's Gulch Group Campground | Group | Samuel P. Taylor State Park | California State Parks | |
| 13 | Marin | Devil's Gulch Equestrian Campground | Equestrian | Samuel P. Taylor State Park | California State Parks | |
| 14 | Marin | Orchard Hill Loop | Campground | Samuel P. Taylor State Park | California State Parks | |
| 15 | Marin | Orchard Hill Group | Group | Samuel P. Taylor State Park | California State Parks | |
| 16 | Marin | Madrone Group Camp Cabin | Cabin | Samuel P. Taylor State Park | California State Parks | |
| 17 | Marin | Madrone Group Camp | Group | Samuel P. Taylor State Park | California State Parks | |
| 18 | Marin | Creekside Loop | Campground | Samuel P. Taylor State Park | California State Parks | |
| 19 | Sonoma | Spring Lake Park Campground | Campground | Spring Lake Park | Sonoma County Regional Parks | |
| 20 | Sonoma | Spring Lake Park Cabins | Cabin | Spring Lake Park | Sonoma County Regional Parks | |
| 21 | Sonoma | Spring Lake Park Group Camp | Group | Spring Lake Park | Sonoma County Regional Parks | |
| 22 | Sonoma | Azalea Creek Environmental Campground | Trail Camp | Hood Mountain Regional Park | Sonoma County Regional Parks | CLOSED until further notice due to wildfire damage. |
| 23 | Sonoma | Merganser Pond Trail Camp | Trail Camp | Hood Mountain Regional Park | Sonoma County Regional Parks | |
| 24 | Sonoma | Sugarloaf Ridge Group Campground | Group | Sugarloaf Ridge State Park | Sonoma Ecology Center | |
| 25 | Sonoma | Sugarloaf Ridge Campground | Campground | Sugarloaf Ridge State Park | Sonoma Ecology Center | |

| | | | | | | |
|----|--------------|--|------------|-----------------------------------|---|------------------------------|
| 26 | Sonoma | Sugarloaf Ridge Canvas Glamping Tents | Yurt | Sugarloaf Ridge State Park | Sonoma Ecology Center | |
| 27 | Napa | Bothe-Napa Valley State Park | Campground | Bothe-Napa Valley State Park | Napa County Regional Park and Open Space District | |
| 28 | Napa | Bothe-Napa Valley State Park | Yurt | Bothe-Napa Valley State Park | Napa County Regional Park and Open Space District | |
| 29 | Napa | Bothe-Napa Valley State Park | Group | Bothe-Napa Valley State Park | Napa County Regional Park and Open Space District | |
| 30 | Napa | Bothe-Napa Valley State Park | Cabin | Bothe-Napa Valley State Park | Napa County Regional Park and Open Space District | |
| 31 | Napa | Skyline Wilderness Park Horse Campground | Equestrian | Skyline Wilderness Park | Skyline Wilderness Park | |
| 32 | Napa | Skyline Wilderness Park Campground | Campground | Skyline Wilderness Park | Skyline Wilderness Park | |
| 33 | Contra Costa | New Woodland Group Camp | Group | Tilden Regional Park | East Bay Regional Park District | |
| 34 | Contra Costa | Wildcat View Group Camp | Group | Tilden Regional Park | East Bay Regional Park District | |
| 35 | Contra Costa | Es Anderson Equestrian Camp | Equestrian | Tilden Regional Park | East Bay Regional Park District | |
| 36 | Contra Costa | Gillespie Youth Camp | Youth | Tilden Regional Park | East Bay Regional Park District | |
| 37 | Contra Costa | Sibley Backpack Camp | Trail Camp | Sibley Volcanic Regional Preserve | East Bay Regional Park District | |
| 38 | Contra Costa | Girls' Camp | Youth | Redwood Regional Park | East Bay Regional Park District | Closed in winter |
| 39 | Alameda | Trail's End Camp | Group | Redwood Regional Park | East Bay Regional Park District | |
| 40 | Alameda | Fern Dell Camp | Group | Redwood Regional Park | East Bay Regional Park District | |
| 41 | Alameda | Bort Meadow | Group | Anthony Chabot Regional Park | East Bay Regional Park District | Equestrian camping permitted |
| 42 | Alameda | Two Rocks | Trail Camp | Anthony Chabot Regional Park | East Bay Regional Park District | |
| 43 | Alameda | Hawk Ridge | Group | Anthony Chabot Regional Park | East Bay Regional Park District | |
| 44 | Alameda | El Venado | Group | Anthony Chabot Regional Park | East Bay Regional Park District | |
| 45 | Alameda | Lost Ridge | Group | Anthony Chabot Regional Park | East Bay Regional Park District | |
| 46 | Alameda | Puma Point | Group | Anthony Chabot Regional Park | East Bay Regional Park District | |
| 47 | Alameda | Anthony Chabot Family Campground | Campground | Anthony Chabot Regional Park | East Bay Regional Park District | |
| 48 | Alameda | Arroyo Flats Group Camp | Group | Garin Regional Park | East Bay Regional Park District | |
| 49 | Alameda | Eagle Springs Backpack Camp | Trail Camp | Mission Peak Regional Preserve | East Bay Regional Park District | |
| 50 | Santa Clara | Ed Levin Youth Area | Youth | Ed R. Levin County Park | Santa Clara County Parks Department | |

| | | | | | | |
|----|-------------|--------------------------------------|------------|---|-------------------------------------|---|
| 51 | Santa Clara | Joseph D Grant Equestrian Campground | Equestrian | Joseph D Grant County Park | Santa Clara County Parks Department | |
| 52 | Santa Clara | Halls Valley Campground | Campground | Joseph D Grant County Park | Santa Clara County Parks Department | |
| 53 | Santa Clara | Woodland Group Camp | Group | Joseph D Grant County Park | Santa Clara County Parks Department | |
| 54 | Santa Clara | Halls Valley Group Camp | Group | Joseph D Grant County Park | Santa Clara County Parks Department | |
| 55 | Santa Clara | Big Oak Group Camp | Group | Joseph D Grant County Park | Santa Clara County Parks Department | |
| 56 | Santa Clara | Woodland Youth Camp | Youth | Joseph D Grant County Park | Santa Clara County Parks Department | |
| 57 | Santa Clara | Snell Campground | Campground | Joseph D Grant County Park | Santa Clara County Parks Department | |
| 58 | Santa Clara | Blacktail Group Campsite | Group | Coyote Lake Harvey Bear Ranch County Park | Santa Clara County Parks Department | |
| 59 | Santa Clara | Lakeview Campground | Campground | Coyote Lake Harvey Bear Ranch County Park | Santa Clara County Parks Department | |
| 60 | Santa Clara | Valley View 3 | Campground | Mt Madonna County Park | Santa Clara County Parks Department | |
| 61 | Santa Clara | Valley View 2 | Campground | Mt Madonna County Park | Santa Clara County Parks Department | |
| 62 | Santa Clara | Valley View 1 | Campground | Mt Madonna County Park | Santa Clara County Parks Department | |
| 63 | Santa Clara | Valley View Yurts | Yurt | Mt Madonna County Park | Santa Clara County Parks Department | |
| 64 | Santa Clara | Huckleberry Group Campground | Group | Mt Madonna County Park | Santa Clara County Parks Department | |
| 65 | Santa Clara | Arrowhead Group Campground | Group | Mt Madonna County Park | Santa Clara County Parks Department | |
| 66 | Santa Clara | Indian Rock Group Campground | Group | Mt Madonna County Park | Santa Clara County Parks Department | |
| 67 | Santa Clara | Manzanita Group Campground | Group | Mt Madonna County Park | Santa Clara County Parks Department | |
| 68 | Santa Clara | West Deer Pen Group Campground | Group | Mt Madonna County Park | Santa Clara County Parks Department | |
| 69 | Santa Clara | Tan Oak Campground | Campground | Mt Madonna County Park | Santa Clara County Parks Department | |
| 70 | Santa Clara | Sanborn County Park Campground | Group | Sanborn County Park | Santa Clara County Parks Department | |
| 71 | Santa Clara | Sanborn County Park Campground | Campground | Sanborn County Park | Santa Clara County Parks Department | |
| 72 | Santa Cruz | Castle Rock Trail Camp | Trail Camp | Castle Rock State Park | California State Parks | Includes "Main Camp" and "Frog Flat Camp" |
| 73 | San Mateo | Black Mountain Backpack Camp | Trail Camp | Monte Bello Preserve | Midpeninsula Open Space Trust | |
| 74 | San Mateo | Toyon Campground 1 | Group | Huddart County Park | San Mateo County Parks | CLOSED until further notice; by reservation only from the 2nd Sunday in May through the 3rd |

| | | | | | | |
|----|---------------|---------------------|-------|---------------------------|------------------------|--|
| | | | | | | Sunday in October (closed Nov-April) |
| 75 | San Mateo | Toyon Campground 2 | Group | Huddart County Park | San Mateo County Parks | CLOSED until further notice; by reservation only from the 2nd Sunday in May through the 3rd Sunday in October (closed Nov-April) |
| 76 | San Mateo | Toyon Campground 3 | Group | Huddart County Park | San Mateo County Parks | CLOSED until further notice; by reservation only from the 2nd Sunday in May through the 3rd Sunday in October (closed Nov-April) |
| 77 | San Francisco | Rob Hill Campground | Group | Presidio of San Francisco | Presidio Trust | Open for camping April 1 to October 31 every year |