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EDITED BY
Sophie S. Parker,
The Nature Conservancy, United States

REVIEWED BY
Wei Chen,
Northwest A&F University, China
Seth Riley,
National Park Service, United States

\*CORRESPONDENCE
Daniel S. Cooper
dcooper@rcdsmm.org

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# Lessons from the Santa Monica Mountains: Continuing the cycle of conservation

Daniel S. Cooper<sup>1,2\*</sup>, Nurit D. Katz<sup>3</sup>, Brianna Demirci<sup>1</sup> and Fiona M. Osborn<sup>4</sup>

<sup>1</sup>Resource Conservation District-Santa Monica Mountains, Topanga, CA, United States, <sup>2</sup>Department of Ornithology, Natural History Museum of Los Angeles County, Los Angeles, CA, United States, <sup>3</sup>Department of Sustainability, University of California, Los Angeles, Los Angeles, CA, United States, <sup>4</sup>Department of Geography, University of California, Los Angeles, Los Angeles, CA, United States

Spanning more than 73 km across two counties at the western border of the Los Angeles metropolitan area, the Santa Monica Mountains represent both a major landform as well as a unique urban-adjacent open space for millions of residents throughout southern California. Critically, they are essential for the maintenance of high levels of biodiversity within a global biodiversity hotspot that includes a major metropolis. The Los Angeles County portion of the Santa Monica Mountains (LASMM), spanning approximately 62 km from the Los Angeles River at the eastern edge of Griffith Park to the Los Angeles – Ventura County Line, contains substantial public open space, protected from encroaching development in the growing metropolis. In order to understand how these protected areas were established, we gathered information regarding over 3,000 parcels of public open space and their acquisition dates and owners, and examined the history of land conservation in the LASMM to determine the roles and relationships of key stakeholders. These stakeholders have included residents, activists, scientists, legislators, non-governmental organizations (NGOs), and land management agencies. We suggest that there is a virtuous cycle, or positive feedback loop over time, as open space protection is informed by, and influences, advocacy, land use policies, and habitat conservation. This interplay of stakeholders has been refined over several decades, and may offer lessons for other regions working to produce similar results in durable open space conservation.

KEYWORDS

land acquisition, virtuous cycle framework, urban biodiversity, open space, conservation

#### Introduction

The acquisition and conservation of undeveloped land, is critical to the maintenance of biodiversity. Particularly in urbanizing areas, parkland managed by public agencies represent a means of long-term conservation of resources. In a review of land conservation in the southern California city of Thousand Oaks, Towne (1998) described

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nine "keys to successful open space conservation," including "community initiative and support," "open space conservation policies," and "diverse implementation techniques," including the creation of agencies dedicated to land acquisition and management (see also Petrillo, 2008). The policies of individual cities that contain undeveloped land within their borders are reflected in higher levels of biodiversity, while those that fail to acknowledge biodiversity and natural areas show the opposite pattern (Cooper et al., 2021).

The Santa Monica Mountains of Los Angeles County (LASMM) represent an ideal case study by which to understand the process of acquiring and protecting open space for public good and resource conservation, which has been ongoing in the area for more than a century (Li and Pei, 2019). While the Santa Monica Mountains span Los Angeles and Ventura counties, we focus on the Los Angeles County portion of the range, a 63kmlong expanse extending from the Arroyo Sequit watershed west of Malibu, east through Topanga Canyon and Sepulveda Pass to Griffith Park (Figure 1). While such popular natural areas as Griffith Park, Topanga State Park, and Malibu Lagoon might seem to most residents and visitors to have "always been here" for their enjoyment, the creation of most local parks and protected parcels of land is usually the result of their acquisition by a public agency (or shifting to another public entity, such as city land absorbed by a state park) or a donation by a private individual to a state conservancy or non-profit group. In recent decades, some efforts to preserve remaining open space threatened by development are successful only after a protracted battle involving grassroots activism organized by local residents.

We examine the complex web of interests involved in land conservation in the LASMM, and explore how these stakeholders continue to work together to support conservation of these resources. We show how early open space acquisitions, while slow to accumulate, gathered momentum after the 1960s, leading to a virtuous cycle today, where land is seen more often as a public good to be protected and fought for, rather than as a blank slate for urban development.

#### Methods

#### Setting

The California Floristic Province is an internationally recognized biodiversity hotspot (Myers et al., 2000). As a large area of undeveloped land in Southwestern California, the LASMM supports an ecosystem rich in California-endemic flora and fauna along its entire length (Tiszler and Rundel, 2007; Cooper, 2017), and is characterized by a mix of scrub and oak-covered canyons and ridges in the larger patches of undeveloped land, with slivers of vegetation between houses in more densely-populated areas. The Santa Monica Mountains are divided at their western end by the Los Angeles/Ventura

County line. The Los Angeles County portion of the Santa Monica Mountains (LASMM), spanning  $\sim$ 62 km from the Los Angeles River at the eastern edge of Griffith Park to the Los Angeles – Ventura County Line. 32,000 acres of protected open space in the LASMM are contained within the boundaries of incorporated cities of varying size and population density. The majority of these open space holdings (c. 25,000 acres) are within the City of Los Angeles.

Land conservation in the LASMM was initiated by philanthropy as early as the late 1800s, with a donation (to the city) of the 4,000 acre Griffith Park in what had been the northern edge of the city of Los Angeles (Eberts, 1996). Yet, the years 1900-1950 saw just six other park acquisitions here (totaling just under 400 acres), and open space was frequently used for generally unsuccessful afforestation attempts such as planting groves of eucalyptus (Godfrey, 2013) rather than for outright conservation. Starting in the 1950s, however, acquisitions (by the state of California) of sprawling cattle ranches would become Leo Carrillo State Park (2,264 acres) and Topanga State Park (now 11,439 acres), and launched an era of widespread and significant open space protection in the LASMM that continues today. Currently, the Los Angeles portion of the LASMM alone supports more than 70,000 acres of land classified as "open space," a category of protected area (CPAD, 2020), owned by 36 entities (refer to lists in Supplementary Tables S1, S2).

## Data analysis

To understand temporal patterns of land acquisition, we first established a study area boundary, drawing a broad perimeter around the topographical unit of the Santa Monica Mountains/Simi Hills, and then used the California Protected Areas Database (CPAD, 2020) to identify the open space parcels within the Los Angeles County portion of this area (the Ventura County portion of the range to the west exists under a different land-planning regime, as most land use decisions involving undeveloped land, such as zoning, are made at the county level). We chose to focus on Los Angeles County in order to better examine the relationships between stakeholders, not all of which operate across county lines. This resulted in a preliminary list of 3,091 individual parcels within the study area totaling 72,581 acres. To focus and simplify our analysis, we removed parcels under 1 acre in size, and removed those located in the west San Fernando Valley portion of the eastern Simi Hills (2,809 acres), which are generally treated as separate from the Santa Monica Mountains (e.g., Chatsworth Hills, Santa Susana Pass), thus restricting our analysis to the main body of the Santa Monica Mountains as commonly understood. We then aggregated multiple separate parcels by park/preserve name, resulting in 249 "sites," and further refined our list of sites by removing school properties, urban parks (i.e., with lawn and little/no

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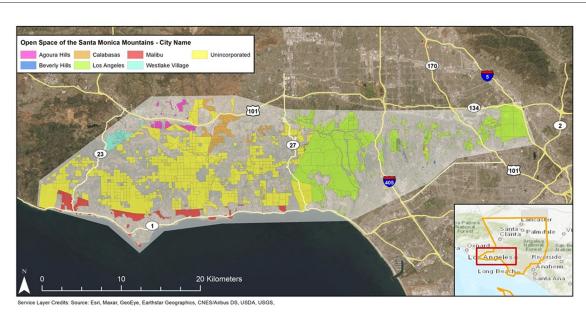


FIGURE 1
Map of protected open space of Santa Monica Mountains within Los Angeles County, by city (shading added to improve visibility). Griffith Park is the large green area at the far east, and Topanga State Park dominates the green area in the center (both within the city of Los Angeles). The surrounding cities of West Hollywood, Burbank, Glendale, Santa Monica, and Hidden Hills contain small portions of the Santa Monica Mountains topographically, but these areas are largely urbanized and do not contain protected open space, so are not reflected on the map.

natural habitat), and golf courses, restricting our analysis to areas dominated by natural open space. We then researched the most recent owner and "creation date" of each remaining site (where this information was not included in CPAD; usually the date of acquisition by the last conservation entity/agency to manage it) using online searches, which included reviews of city documents, meeting minutes and newspaper articles (keywords included "purchased," "bought," "acquired," "saved," etc.). This resulted in a final list of 91 sites located in ten incorporated cities (as well as in unincorporated Los Angeles County) where both the year of creation and the landowner is known.

#### Results

Our review of protected open space in the LASMM revealed several distinct patterns involving elected officials, agencies, scientists/conservationists, and the public. In the political realm, local elections within the neighborhoods of the LASMM have consistently promoted candidates with a strong record of land protection, starting in the 1960s with Los Angeles city councilmember Marvin Braude and later Paul Koretz, County Supervisors Edmund D. Edelman and later Zev Yaroslavsky, and U.S. House members Thomas Rees and later Anthony Beilenson (Table 1). Over years and in some cases decades, these officials were essential to directing local, regional and national attention (and funds) toward land conservation in the LASMM. Their efforts resulted in multiple park bonds passed through the 2000s,

even as the acreage of undeveloped land available for purchase began to decline, making each acquisition more expensive (McGreevy, 1999; Pincetl, 2003). While land acquisition for open space exceeded 5,000 acres per decade between 1960 and 2010, that of the most recent decade (2010–2020) dropped by roughly half that of the prior one, perhaps signaling an eventual limit to how much land can be realistically acquired for public open space (Figure 2).

As these representatives worked within government to secure bond funding for park creation and management, they did so with the strong support of the earliest non-governmental organizations, including volunteers from a local task force of the Sierra Club launched in the early 1970s (Guldimann, 2018). These groups organized such events as a 5,000 person march in 1971 along the crest of the LASMM to push for the creation of a national park here, which was realized less than a decade later with the creation of Santa Monica Mountains National Recreation Area in 1978 (Woo, 2008). Today, agencies serving as de facto land trusts including Santa Monica Mountains Conservancy and the Mountains Recreation and Conservation Authority, as well as California State Parks, and a federal park unit, Santa Monica Mountains National Recreation Area, have matured in their working relationship to efficiently direct funding toward land purchases to piece together the remaining undeveloped land in the range. These groups and agencies continue to use organizing principles like the Backbone Trail, a single, continuous hiking trail from Point Mugu east to Will Rogers State Park in Pacific Palisades, or the Big Wild, a gateway

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TABLE 1 Notable examples within each major stakeholder category that drive the virtuous cycle of conservation in the Santa Monica Mountains.

Ecological Research	Stunt Ranch Santa Monica Mountains
Ecological Research	Stufft Kaffeli Saffta Moffica Mountains

Reserve (1995)

RCD-SMM (1999)

Puma Project/NPS (2002)

La Kretz Field Station (2013)

Activist Groups and NGOs Friends of the SMM, Parks and Sea Shore

(1964)

Sierra Club SMM Task Force (1972)

Save Open Space (1990)

Supportive Legislators City: Marvin Braude (1965)

US: Thomas Rees (1966)

County: Edmond D. Edelman (1975)
US: Anthony Beilenson (1977)
County: Zev Yaroslavsky (1994)
US: Brad Sherman (1997)
City: Paul Koretz (2009)
State: Richard Bloom (2012)
County: Sheila Keuhl (2015)

State Park Bonds 1964 (\$150M)

1974 (\$250M) 2000 (\$1.3B) 2002 (\$2.6B) 2018 (\$4.1B)

Land Acquisitions Griffith Park (1896)

Will Rogers SHP (1944) Pt. Mugu SP (1967)

Cold Creek Canyon Preserve (1970) Topanga SP, Malibu Creek SP (1974)

SMMNRA (1978) Paramount Ranch (1980)

Jordan Ranch/Palo Comado (1994) Stunt Ranch Santa Monica Mountains

Reserve (1995)

Ahmanson Ranch/ULV (2003) King Gillette Ranch (2005) La Kretz Field Station (2013)

Wallis Annenberg overcrossing (2022)

Land Management Entities Santa Monica Mountains Conservancy

(1980)

TreePeople Land Trust (formerly Mountains

Restoration Trust) (1984)

Mountains Restoration and Conservation

Authority (1985) California State Parks National Park Service

University of California (UCLA)

(Continued)

TABLE 1 Continued

Conservation Regulations and Ordinances

State: California Environmental Quality Act

(1970)

State: California Coastal Commission (1976) County of Los Angeles: Santa Monica Mountains Zone Local Coastal Program

(1986, updated 2014)

County of Los Angeles: Environmental Review Board of the Santa Monica

Mountains (1992)

City of Los Angeles: Mullholland Scenic

Parkway Specific Plan (1992)

County of Los Angeles: Santa Monica Mountains North Area Plan (2002, updated

2021)

City of Malibu: Local Coastal Program (2002) County of Los Angeles: Oak Woodland

Ordinance (2010- draft)

City of Los Angeles: "Own a Piece of LA"

Ordinance (2022)

City of Los Angeles: Wildlife Ordinance

(2022 - draft)

The legislators included were recognized in reports and media articles for their efforts to support conservation in the Santa Monica Mountains. See Supplementary Table S1 for full list of Protected Areas and dates of first acquisitions.

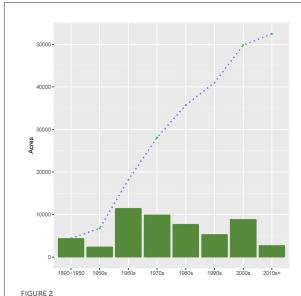


FIGURE 2

Temporal distribution of open space acquisitions (where date is known), LASMM, 1890–present. The dotted line indicates the cumulative amount of open space protected in the range over time, indicating a continuous augmentation of open space each decade, though perhaps slowing in recent years as available large parcels of land are fewer and more expensive.

park concept that includes the 10,000 acre Topanga State Park and other public lands at Encino Reservoir and Rustic, Sullivan, and Mission canyons.

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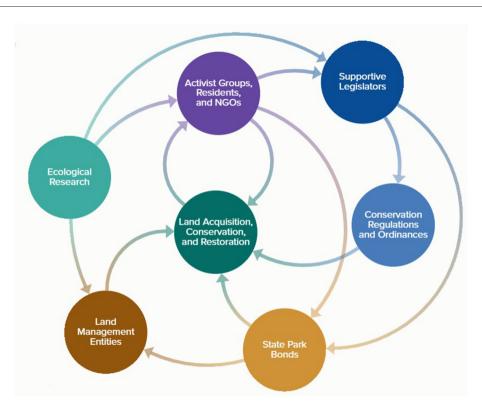


FIGURE 3

The virtuous cycle of land acquisition in the Santa Monica Mountains, showing the relationship between governmental officials and organizations, NGOs, and other stakeholders involved in open space prioritization and acquisition. Ecological research informs conservation priorities and educates stakeholder groups. Local activists and NGOs rally public support and identify threats and opportunities. NGOs endorse and support politicians and bond measures. Bond measures fund grants for local land acquisition and support management. Officials at multiple levels of government draft laws and bond measures for land protection. Multiple agencies own and manage land. A few purchase and set aside open space for public use. Access to open space inspires activists and NGOs to conserve more. See Table 1 for detail on each category.

A surge in ecological research occurred in the LASMM starting in the 1990s, with studies of habitat connectivity (Swenson and Franklin, 2000), urban-edge wildlife response (Sauvajot et al., 1998), large mammal movement and wildlife corridor use (e.g., Riley et al., 2003, 2021), rare fishes and stream ecology (Dagit et al., 2009), and detailed vegetation mapping of the entire range (AIS ESRI, 2007). This research has been led by a diverse group of scientists from more than a dozen agencies and NGOs, and has informed projects such as a wildlife crossing (vegetated bridge) over the 101 Freeway to assist in the genetic exchange of mountain lions (see Riley et al., 2021), which is under construction, at the cost of tens of millions of dollars (Anaya-Morga, 2021). In this way, ecological research has both aided—and reflected—the public's understanding of the importance of connecting and conserving these pieces of land.

Finally, the continued refinement and enforcement of laws and regulations aimed at conserving, rather than facilitating development of, raw land at both the municipal and county level across the LASMM seeks to ensure that these conservation acquisitions are encouraged (e.g., Santa Monica Mountains Conservancy given "first right"

of refusal" on vacant, city-owned lands in the LASMM; Catanzaro, 2022). Since the mid-1970s, the California Environmental Quality Act (1970)1 has required environmental review of most projects larger than a single-family home, and the California Coastal Act (1976)<sup>2</sup> strictly regulates development within five miles of the coast (which represents roughly half the area of the LASMM). Much of the land in the LASMM is located outside incorporated cities, in unincorporated portions of Los Angeles County; here, the administration of open space falls under the purview of the county's Department of Regional Planning, whose additional regulatory overlays include Local Area Plans and an Environmental Review Board (the latter staffed by local scientists and representatives of NGOs) to assess and reduce the impact of proposed development on open space within the LASMM.

<sup>1</sup> California Public Resources Code §21000 et seq.

<sup>2</sup> Public Resources Code Division 20 California.

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#### Discussion

The iconic public lands of the Santa Monica Mountains are visited and enjoyed by people from both the surrounding region and around the world, particularly at such tourist destinations as Griffith Park/ "Hollywood Sign" and Malibu Beach. Conservation efforts here have paid off for many species groups, as reflected in the persistence of high diversity in herptiles (Delaney et al., 2021) and breeding birds (Allen et al., 2016), as well as rare plants (Cooper, 2011); other groups, such as rare amphibians (Halstead et al., 2022), large mammals (Riley et al., 2006), and raptors (Cooper et al., 2020) have suffered extirpations and loss of genetic diversity and may require human intervention to persist long-term. And while individual activists or politicians such as Anthony C. Beilenson and Susan B. Nelson have been dubbed by media "the father (or mother) of the Santa Monica Mountains," no single individual or group is responsible for the acquisition and continued protection of open space. Many stakeholders worked collaboratively and in tandem over time. The activities of each inform the others, encouraging more land to be acquired and protected each year. We depict this cycle in Figure 3.

Maintaining this virtuous cycle of land acquisition for conservation and public enjoyment will depend on supporting productive relationships between the public and government. The success of the LASMM over the past decades may serve as a model for other areas of California and beyond, as human needs are balanced with those of the natural environment. However, the acquisition-conservation model must also be sustainable, as protected areas may not remain protected forever, given the demands of forces such as recreation and the perceived need for housing. Today, large areas of open space in the  $LASMM-particularly\ those\ close\ to\ dense\ urban\ areas-remain$ off-limits to many residents (see Wolch et al., 2005; Byrne et al., 2009). Access to open space is also hampered by early decisions to permanently close access to open space to the public, not for protection of wildlife and biodiversity, but for security concerns (e.g., nearly 1,400 acres of open space in the eastern LASMM are fenced off, with entry strictly controlled by the Los Angeles Department of Water and Power, though a recently-opened perimeter path around Hollywood Reservoir provides some access). Because public support for land and wildlife conservation actions appears to be linked to one's own activities in nature (including bird-watching; see Cooper et al.,

2015; Rutter et al., 2021), the dearth of accessible open space in some areas may eventually cause drag on the virtuous cycle of land conservation by impacting residents' sense of connection to and willingness to advocate for continuing to conserve open space in the LASMM.

# Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

### **Author contributions**

DC conceived of the paper and wrote the majority of the manuscript. NK assisted in the analysis, provided editing, and improved the graphics. BD and FO assisted in GIS data collection and spatial analysis. All authors contributed to the article and approved the submitted version.

### Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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# Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/frsc.2022.923946/full#supplementary-material

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