



# 2025 Significant Ecological Areas Study

May 2026

Prepared for County of Los Angeles  
Department of Regional Planning

*Photo by Robert A. Hamilton*

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HAMILTON BIOLOGICAL



# TABLE OF CONTENTS

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EXECUTIVE SUMMARY .....	v
1 INTRODUCTION .....	1
1.1 Significant Ecological Areas Program Overview .....	1
1.2 SEA Designation Framework and Guiding Principles .....	1
1.3 Regulatory Context and Need for Update .....	3
1.4 Purpose and Scope of the 2025 SEA Study .....	5
1.5 How This Analysis Builds on Previous SEA Studies .....	6
2 RESEARCH APPROACH & METHODS.....	7
2.1 Existing Database and Literature Review .....	7
2.2 Desktop Analysis.....	10
2.3 Field Visits & Verification.....	12
2.4 Technical Advisory Committee (TAC) Process.....	15
3 INCORPORATION OF RELEVANT RESEARCH FINDINGS & POLICY CONTEXT.....	18
3.1 Regional Conservation Planning Efforts .....	18
3.2 Traditional Ecological Knowledge (TEK).....	18
3.3 Climate Vulnerability and Resilience Research .....	20
3.4 Regional Wildlife Connectivity Research.....	20
3.5 Species-Specific Research.....	21
3.6 Localized Studies of High Biological Value Areas.....	22
4 RESULTS & FINDINGS .....	23
4.1 Countywide Ecological Changes and Key Findings.....	23
4.2 Species & Biodiversity Findings .....	25
4.3 Wildlife Connectivity Findings.....	34
4.4 Land Cover Stability & Disturbance.....	40
4.5 Climate Change, Exposure & Refugia .....	45
4.6 Human-Induced Environmental Stressors .....	52
5 SEA RECOMMENDATIONS.....	56
5.1 Boundary Recommendation Framework .....	56
5.2 Recommended SEA Adjustments & Consolidations .....	67

5.3	Recommended SEA Expansions .....	73
5.4	Recommended New SEAs.....	100
5.5	Updated SEA Descriptions .....	132
6.	Connectivity Recommendations .....	133
7.	SEA Boundary Contractions .....	136
8.	Conclusion: Strengthening the SEA Network and Landscape Connectivity .....	138
LITERATURE CITED AND REVIEWED.....		140
	Species & Natural Communities .....	140
	SEA Background and Historical Context .....	147
	LA County General Plan and Related Information.....	148
	Climate Change and Adaptation .....	149
	Connectivity .....	151
	Regional and Local Studies and Reports .....	152

# LIST OF FIGURES

---

Figure 1. Existing SEAs and Coastal Resource Areas. ....	2
Figure 2. Field visit locations conducted as part of the SEA Study (November 2025 – February 2026). ....	15
Figure 3. SEAs and the Indigenous Landscape.. ....	19
Figure 4. Rare Plant Richness Heatmap showing hotspots of rare plant diversity.....	29
Figure 5. Rare and uncommon butterfly hotspots across LA County.....	31
Figure 6. Landscape connectivity across Los Angeles County. ....	37
Figure 7. Examples of modeled connectivity patterns across selected SEAs.....	39
Figure 8. Temporal trends in land-cover composition across Los Angeles County .....	41
Figure 9. Rate of habitat change within selected unincorporated SEAs.....	44
Figure 10. Climate Refugia within current SEAs and National Forest.....	47
Figure 11. Super Refugia and Refugial Capacity in Los Angeles County. ....	49
Figure 12. Comparison of projected vegetation climate exposure in Los Angeles County ...	51
Figure 14. Utility Solar Proliferation by Year in North Los Angeles County.....	53
Figure 14. Countywide Proposed SEA Updates .....	59
Figure 15. Proposed SEA Updates in the northwestern portion of Los Angeles County .....	60
Figure 16. Proposed SEA Updates in the north-central portion of Los Angeles County .....	61
Figure 17. Proposed SEA Updates in the northeastern portion of Los Angeles County.....	62
Figure 18. Proposed SEA Updates in the west-central portion of Los Angeles County .....	63
Figure 19. Proposed SEA Updates in the southeastern portion of Los Angeles County .....	64
Figure 20. Proposed SEA Updates in the southernmost portion of Los Angeles County .....	65
Figure 21. Proposed SEA Updates in the southeastern portion of Los Angeles County .....	66
Figure 22. Current and Recommended SEAs with Constrained Movement Pathways .....	135
Figure 23. Climate Refugia Captured by Existing and Proposed SEA Network.....	139

# LIST OF TABLES

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Table 1. Examples of TAC Input Received.....	16
Table 2. Summary of distribution of rare plants added to CNPS Inventory of Rare Plants since 2000 and their general distribution relative to SEA boundaries in effect at the start of this study (June 2025). ....	26
Table 3. Los Angeles County Bird Species of Concern (Allen et al. 2009) and their general distribution relative to SEA boundaries in effect at the start of this study (June 2025). ....	28

# LIST OF APPENDICES

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Appendix A – Species Lists Used in the Analysis

Appendix B – Methodology and Workflow

Appendix C – Threatened and Endangered Species of Los Angeles County

Appendix D – Inventory of Geographic Data Reviewed and Analyzed

Appendix E – Field Visits and Verification

Appendix F - Technical Advisory Committee (TAC) Process and Summary of Input

# EXECUTIVE SUMMARY

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Los Angeles County's Significant Ecological Areas (SEA) Program plays a critical role in identifying, conserving, and managing lands that support the County's most important biological resources and ecological functions. The SEA Program has evolved over several decades, with boundaries and implementation approaches refined over time to reflect advancing scientific understanding and changing land use conditions. The most recent comprehensive countywide evaluation of SEAs occurred in 2000. This SEA Study, initiated in June 2025, builds upon that effort by integrating updated biological data, recent scientific research, and field observations to evaluate the continued effectiveness of the SEA Program and to identify opportunities for refinement. The resulting SEA Study recommended boundaries presented in this report are regional in scope and are not intended to represent official SEA boundaries. The mapped boundaries should be considered preliminary and conceptual; final SEA boundaries will be developed by the County through subsequent refinement at a final spatial resolution.

This study incorporates extensive spatial analysis, review of relevant ecological and climate research, and targeted field verification to assess current conditions across existing SEAs and surrounding landscapes. The analysis draws upon a wide range of regional and countywide studies addressing habitat quality, species distributions, climate vulnerability, and wildlife connectivity, including recent conservation investment strategies, climate vulnerability assessments, and species-specific research. Together, these sources provide an updated context for understanding how ecological patterns, stressors, and conservation priorities have shifted since the 2000 SEA Study.

Based on this integrated analysis, the study identifies several key findings. In many cases, existing SEAs continue to capture landscapes that support high biological value and important ecological processes. In other cases, boundary refinements are warranted to better reflect updated information, including improved understanding of species and habitat distribution, and areas where development has permanently altered ecological function and connectivity. The study also identifies landscapes not previously designated as SEAs that support sensitive resources, high biodiversity value, or important ecological functions and that may warrant consideration as new SEAs.

A central theme of the study is the importance of ecological connectivity for maintaining biodiversity and ecosystem resilience. While some connectivity can be addressed through SEA boundary adjustments, the analysis finds that many functionally important movement areas are diffuse, constrained, or extend across developed landscapes where full SEA designation would be impractical or excessive. For this reason, the study emphasizes a complementary approach that distinguishes between core ecological areas, suitable for SEA designation, and interstitial lands that provide for diffuse movement of wildlife between and among the core habitat areas, where possible, and that identifies critical corridors and pinch points in areas of intensive development.

The study also updates the Sensitive Local Native Resources List, which was compiled for and included in the SEA Implementation Guide (2020; Appendix B). This effort identifies locally rare or significant species and communities that are not formally protected under state or federal programs at this time, but that nevertheless warrant consideration within SEAs due to their local rarity or sensitivity. Inclusion on this list applies existing SEA Resource Category 3 development standards to these resources, providing a consistent mechanism for addressing local biological significance without creating new regulatory categories.

Recommendations presented in this report include proposed adjustments to existing SEA boundaries, identification of areas for consideration as new SEAs, updated SEA descriptions for newly recommended areas, and a refined approach to addressing ecological connectivity. In particular, the study recommends application of a proposed new connectivity criterion to better integrate functionally important movement areas associated with SEAs, while using modeled connectivity results to inform connectivity-related policy outside of SEAs as well in order to address wildlife movement more comprehensively. The resulting boundaries are intended to represent reasonable landscape-scale delineations rather than fine-scale habitat edges that would be best assessed in the field. For purposes of the SEA Program, SEA boundaries should be viewed and shared at no finer than approximately the 1:20,000 scale, with site-specific refinement occurring through subsequent County review and field verification.

Collectively, these recommendations are intended to support the long-term viability and resilience of biological resources based upon current science, improve clarity and consistency in implementation of the SEA Program, and provide flexible tools to address evolving ecological and land use challenges. Adoption of these recommendations would strengthen the County's ability to conserve biodiversity, enhance climate resilience, and guide future planning and development decisions in a manner consistent with the intent of the SEA Program and the General Plan.

# 1 INTRODUCTION

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To recognize and conserve the vast ecological values within Los Angeles County, the Significant Ecological Area (SEA) Program was established through the Los Angeles County General Plan as a tool for identifying biological resource areas capable of sustaining themselves into the future (Los Angeles County General Plan, Conservation and Natural Resources Element, 2015; SEA Ordinance Implementation Guide, 2020). Since its inception, the SEA Program has served as a mechanism for integrating biological considerations into land use planning while acknowledging that SEAs occur within a complex mosaic of public and private lands. The existing SEA boundaries in effect at the time of his study (2025) are shown in **Figure 1**.

## 1.1 Significant Ecological Areas Program Overview

SEA designation does not change underlying land use designations or zoning of a parcel. Rather, it identifies areas where planning and development decisions are made with heightened sensitivity to biological resources and ecosystem function. Many SEAs include privately held lands, recreational areas, and lands adjacent to developed environments, requiring the Program to balance long-term conservation objectives with other public needs and reasonable use of private property (SEA Ordinance Implementation Guide, 2020).

The SEA Program is implemented through three primary components: (1) goals and policies contained in the Conservation and Natural Resources (CNR) Element of the Los Angeles County General Plan; (2) the Significant Ecological Areas and Coastal Resource Areas Policy Map (SEA Boundary Map); and (3) development standards and biological review procedures within the County Zoning Code (SEA Ordinance).

## 1.2 SEA Designation Framework and Guiding Principles

The CNR Element of the General Plan establishes goals and policies for the identification and management of SEAs. Currently, areas designated as SEAs satisfy at least one of six selection criteria, which address the presence of core populations of sensitive species, unique or restricted biotic communities, areas of concentrated wildlife use, resources of scientific interest, and relatively undisturbed examples of the County's original natural communities (Los Angeles County General Plan, Conservation and Natural Resources Element, 2015).

These six SEA Selection Criteria are:

- A. The habitat of core populations of endangered or threatened plant or animal species.

B. On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.

C. Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.

D. Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.

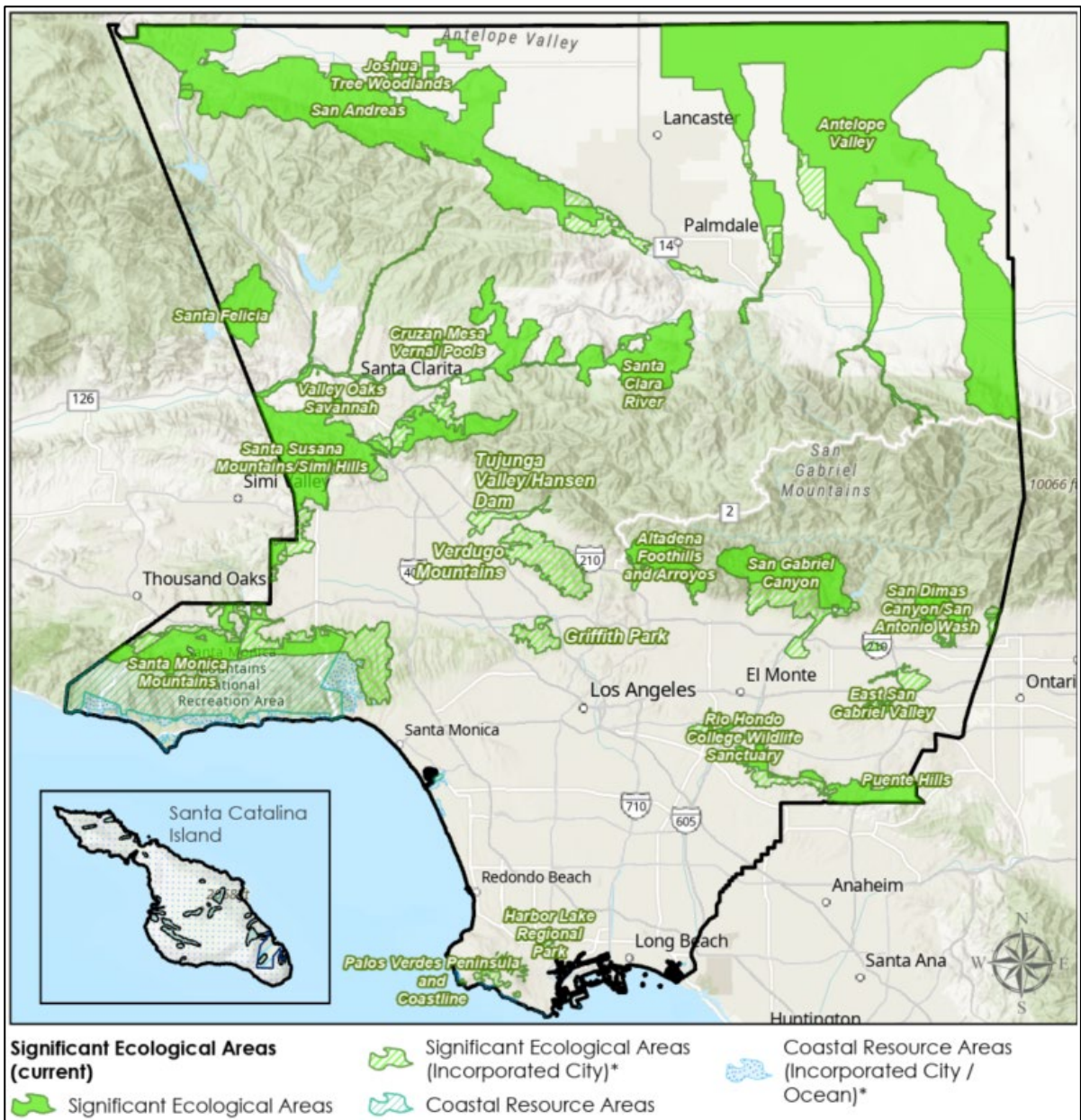


Figure 1. Existing SEAs and Coastal Resource Areas in Los Angeles County at the time of this study (2025).

E. Biotic resources that are of scientific interest because they are either an extreme in physical/geographic limitations or represent unusual variation in a population or community.

F. Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.

Appendix E of the General Plan provides detailed descriptions of each SEA, including boundaries, representative biological resources, wildlife movement considerations, and designation criteria analyses. SEA designation does not attempt to catalog every biological resource present within an area; instead, it identifies landscapes where ecological processes, habitat function, and biological value warrant special consideration in planning and development decisions (Los Angeles County General Plan, Conservation and Natural Resources Element, 2015).

As described in the General Plan CNR Element, SEAs are designated where *irreplaceable biological resources* occur—resources whose loss could not be functionally offset elsewhere in the County, are not redundant at the County scale, and are essential to sustaining viable populations or ecological processes. These areas are intended to showcase undisturbed (or lightly-disturbed) habitats throughout the County, as well as areas with corridors and linkages that promote wildlife movement. Collectively, SEAs are intended to represent the wide-ranging biodiversity of Los Angeles County across physiographic regions, rather than to capture every biologically intact or undeveloped area.

Each individual SEA is sized and configured to meaningfully contribute to population-level sustainability, including core habitats and associated linkages or corridors that support long-term ecological function. SEA designation therefore reflects a planning-level determination that an area warrants heightened sensitivity in County land use decisions beyond standard biological review, rather than a determination that the area functions as a preserve or conservation reserve.

The SEA Program is guided by principles related to biodiversity conservation, ecological resiliency, and public service. These principles emphasize protecting and restoring biodiversity, reducing habitat fragmentation, maintaining connectivity, and encouraging development practices that are compatible with long-term ecological function, while also providing clear expectations for development and maintaining reasonable use of private property (SEA Ordinance Implementation Guide, 2020).

## 1.3 Regulatory Context and Need for Update

Recent state legislation has expanded expectations for how local governments address conservation, climate change, and habitat connectivity in land use planning. Senate Bill 1425 (Stern) and Assembly Bill 1889 (Friedman) require updates to General Plan elements to address climate resiliency, rewilding opportunities, access to open space, and the effects of development on wildlife movement and habitat connectivity.

In response to these mandates, Los Angeles County is updating the CNR Element. This SEA Study is a central component of that effort, providing updated scientific information and analysis to support continued implementation of the SEA Program in a manner consistent with current statutory requirements and contemporary conservation science.

Although wildlife movement has long been recognized as an important component of SEA function, such connectivity has not previously been articulated as a distinct SEA Selection Criterion. To better address this consideration, a new SEA selection criterion focused on landscape and habitat connectivity was added as part of the 2025 SEA Study:

G. Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.

Consistent with the framework for existing criteria, areas whose primary ecological value is maintaining such connectivity may qualify under this criterion even if they do not independently meet other SEA Selection Criteria. These areas facilitate species movement, genetic exchange, and other ecological processes where connectivity remains viable or restorable within the surrounding landscape.

For purposes of this study, “functionally important habitat connectivity” refers to landscape areas that meaningfully facilitate wildlife movement or ecological processes between core habitat areas, even if those areas include low-density development, working lands, or other lightly modified conditions. Functional linkages or corridors are characterized by relatively permeable land cover, limited barriers to movement, sufficient width or redundancy to support passage, and spatial continuity between habitat blocks. Such areas may include undeveloped lands, lightly disturbed habitats, low-density rural development, agricultural lands, utility corridors, and other landscapes that retain the ability to support wildlife movement at a landscape scale. Areas that are highly fragmented, intensively developed, or dominated by impermeable barriers generally do not meet this definition unless restoration or conservation actions could reasonably reestablish functional connectivity.

The proposed criterion identifies areas that contribute to connectivity for both short- and long-term movements of species and populations, including individual movements necessary for mating and migration, as well as broader patterns such as species range contractions and expansions. Incorporating connectivity as a distinct criterion reflects advances in ecological science and acknowledges the critical role of connected landscapes in sustaining biodiversity under ongoing development pressure and a changing climate. This emphasis is consistent with longstanding SEA Program principles, which recognize that ecological resilience depends on landscape-scale habitat blocks, functional linkage width, and opportunities for range shifts in plant and animal populations. Studies have shown that isolated or fragmented habitats are more vulnerable to long-term decline

than large, connected habitats. Advances in spatial data and connectivity modeling now allow these principles to be evaluated more explicitly and consistently across the County.

## 1.4 Purpose and Scope of the 2025 SEA Study

This study, initiated in June 2025 (hereafter referred to as the 2025 SEA Study) is to evaluate the existing SEA boundaries for their effectiveness at meeting the goals of the General Plan. The SEA Study also includes recommendations to refine the SEA boundaries and updates to the SEA descriptions contained in General Plan Appendix E. The study integrates updated information on Threatened, Endangered, rare, and uncommon species, sensitive habitats, landscape-scale connectivity, climate-driven ecosystem change, and other factors that influence long-term ecological function and resilience.

While the SEA Program applies to land use decision-making in unincorporated Los Angeles County, the analytical scope of this study intentionally extends beyond jurisdictional boundaries. Ecological systems, species distributions, and movement pathways do not conform to city or county lines; therefore, the study was designed to first evaluate SEA-relevant resources across a biologically meaningful landscape. The study area includes all mainland areas within the mainland County and Santa Catalina Island; adjacent areas beyond the County line have been incorporated as buffers or bounding extents where needed to support connectivity modeling, species analyses, and other spatial assessments.

Biological resources were initially mapped and assessed for meeting SEA criteria across this broader study area without regard to land ownership and jurisdiction. Thus, boundary evaluations, connectivity modeling, and identification of potential boundary adjustments or new SEAs were completed based on ecological patterns and processes alone. Only after these analyses were finalized were jurisdictional boundaries overlaid to distinguish unincorporated and incorporated boundaries, which dictate where the SEA Ordinance is implemented. As a result, and consistent with prior studies, biologically significant areas located outside the jurisdiction of Los Angeles County (including areas within incorporated cities and the Angeles National Forest) are recommended for SEA designation based solely on ecological merit, irrespective of implementation authority.

The analysis includes a comprehensive review of published literature and spatial datasets, targeted field verification, and assessment of boundary effectiveness relative to General Plan goals and SEA Selection Criteria. The resulting recommendations are intended to support boundary adjustments, identification of potential new SEAs, and updates to existing SEA descriptions, ensuring that the SEA framework remains scientifically robust, ecologically resilient, and responsive to evolving environmental conditions, while remaining applicable to land use planning and policy in unincorporated Los Angeles County.

The 2025 SEA Study recommended boundaries presented in this report are regional in scope and are not intended to represent official SEA boundaries. The delineations developed through this analysis reflect landscape-scale ecological patterns derived from available

spatial data and modeling, rather than fine-scale habitat edges that would be best assessed through field verification. Accordingly, the resulting boundaries should be interpreted as conceptual planning-level delineations intended to guide further refinement by the County. For purposes of the SEA Program, it is recommended that SEA boundaries be viewed and shared at no finer than approximately the 1:20,000 scale. Site-specific adjustments and final boundary determinations should be developed through subsequent County review, incorporating parcel-level considerations, field verification, and additional local information.

## 1.5 How This Analysis Builds on Previous SEA Studies

The most recent comprehensive countywide SEA study was completed in November 2000, following an earlier effort in 1976 that established much of the original SEA network. Those studies focused primarily on unincorporated areas of the County and relied on literature review, expert input, and interpretation of aerial photography to evaluate biological resources and delineate SEA boundaries. Notably, earlier SEA studies explicitly excluded the majority of National Forest lands from evaluation prior to assessing the remainder of the County. While this approach reflected planning priorities at the time, it also removed from consideration the most extensive and ecologically intact landscapes in Los Angeles County. The current analysis departs from that precedent by evaluating ecological patterns across the full landscape, recognizing that biodiversity, watershed function, and wildlife movement operate across jurisdictional and ownership boundaries, and that private inholdings within federally managed lands remain subject to County land use authority.

This update builds on prior SEA studies while reflecting substantial advances in data availability, analytical tools, and scientific understanding. In particular, the study incorporates species-occurrence datasets, landscape-scale connectivity analyses, and climate-related information that were not available during the County's previous SEA update in 2000, enabling a more comprehensive and spatially explicit evaluation of the SEA Selection Criteria across the County. Unlike earlier efforts, this analysis also evaluates incorporated areas alongside unincorporated lands and federal holdings, recognizing that ecological processes and wildlife movement extend beyond jurisdictional boundaries.

Consistent with the intent of previous SEA studies, this analysis seeks to ensure that the SEA framework continues to represent the full biotic diversity of Los Angeles County while remaining durable in the face of ongoing land conversion, increasing disturbance, and climate change. Where possible, data-driven patterns of species occurrence, habitat condition, and connectivity were used to inform recommendations for boundary adjustments, identification of new SEAs, and updates to existing SEA descriptions, rather than relying on administrative boundaries.

## 2 RESEARCH APPROACH & METHODS

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This SEA Study was designed as a countywide, planning-level evaluation of biological resources, landscape conditions, and ecological processes relevant to the identification and refinement of Significant Ecological Areas. The approach emphasizes synthesis of existing scientific information, spatial analysis, and targeted field verification to assess whether current SEA boundaries and descriptions continue to reflect biological value, ecological function, and long-term sustainability.

The study does not constitute a comprehensive biological inventory or parcel-level assessment. Instead, it integrates multiple lines of evidence—including published literature, species occurrence databases, spatial datasets, connectivity modeling, and expert input—to evaluate patterns of biodiversity, habitat condition, and connectivity at scales relevant to land use planning and policy decisions. Methods were selected to ensure consistency across the County, support comparison among SEAs, and align with the goals and selection criteria of the SEA Program. Together, these methods provide an evidence-based framework for evaluating existing SEAs, identifying areas where boundaries or descriptions may warrant revision, and informing recommendations for future updates to the SEA Program.

### 2.1 Existing Database and Literature Review

The 2025 SEA Study began with a comprehensive review of existing biological, ecological, and spatial information relevant to the identification and evaluation of SEAs across Los Angeles County. This effort focused on synthesizing updated species occurrence data, sensitive habitat information, and scientific literature developed since the last countywide SEA study completed in 2000.

#### **DATABASE REVIEW**

The database review emphasized current, authoritative sources of species occurrence and conservation status information. Primary data sources included the California Natural Diversity Database (CNDDDB), Calflora, iNaturalist, and eBird, along with associated regulatory and conservation listings maintained by the California Department of Fish and Wildlife (CDFW) and partner agencies. These databases were used to characterize the known and reported distribution of special-status plant and animal species across the County.

For plant species, the review included approximately 470 CNDDDB-tracked special-status taxa recognized for Los Angeles County. Species records were evaluated to distinguish mainland occurrences from those restricted to the Channel Islands (including Santa Catalina Island), and to identify taxa believed to persist based on current documentation. Species lists used in earlier SEA studies were also reviewed for comparison, recognizing that

differences among studies may reflect changes in taxonomic understanding, data availability, documentation standards, and conservation status over time.

Sensitive natural communities were also reviewed using current classification frameworks. While earlier SEA efforts referenced certain vegetation community concepts that are no longer widely used (e.g., Holland 1986), this study relied on contemporary sources, including California Sensitive Natural Community rankings recognized by CDFW and NatureServe. Although no comprehensive mapping of sensitive natural communities exists for the entire study area—and such mapping was beyond the scope of this study—these communities nonetheless informed the analysis. For example, there is no publicly available spatial dataset depicting the local distribution of the vegetation alliance *46.100.00, alkali weed – salt grass playas and sinks*, which is ranked as “Sensitive” by NatureServe and CDFW (G2/S2). However, alkali vernal pools are readily identifiable in Los Angeles County through field observation and high-resolution aerial imagery. In addition, multiple rare plant species with documented occurrence data are closely associated with this habitat, providing further evidence of its location and ecological importance. Locations of other sensitive natural communities were identified in a similar manner.

For wildlife species, the review focused on current special-status listings and documented occurrences within Los Angeles County. Species lists were evaluated for changes in status, taxonomy, and distribution since 2000, recognizing that refinements in species classification and expanded monitoring have altered how conservation priorities are understood.

Key species lists compiled for this study are provided in **Appendix A** (Tables A1 – A7).

## **SPECIES LISTS AND RECORD EVALUATION**

Species lists and occurrence records represent a foundational component of the SEA Study but require careful interpretation to inform policy and boundary evaluation. Raw database outputs may include historical records, misidentifications, outdated taxonomy, or taxa no longer believed to occur within the County. For this reason, species lists were reviewed and refined using consistent evaluation criteria, including record age, documentation quality, taxonomic updates, and current understanding of species distribution. All inclusion and exclusion decisions were documented in the associated tables to ensure transparency and consistency.

Since the 2000 SEA Study, substantial taxonomic revisions have occurred, including species splits, newly described taxa, and changes in conservation status. The review accounted for these updates to ensure that analyses reflected current scientific understanding.

## **SENSITIVE LOCAL NATIVE RESOURCES LIST**

Not all biologically important resources are formally listed under state or federal endangered species statutes. In addition to special-status species and sensitive natural communities, the SEA framework recognizes Sensitive Local Native Resources—species that

may be rare, uncommon, declining, or otherwise vulnerable within Los Angeles County or within a specific SEA, even if they are not rare elsewhere or formally protected under other regulatory programs.

Locally rare populations may contribute disproportionately to genetic diversity and long-term species resilience, particularly where they occur in isolated settings or near the edge of a species' geographic range. Recognition of these locally important resources helps identify ecological values that may not be captured through statewide or federal conservation designations alone.

This study identifies species that appear to be locally uncommon, declining, or infrequently recorded within Los Angeles County based on available biological data sources. The resulting preliminary Sensitive Local Native Resources list includes multiple taxonomic groups and highlights species that may warrant consideration in SEA planning and resource management. The full list is provided in **Appendix A** (Table A8), and the screening criteria and analytical methods used to develop the list are described in **Appendix B**.

## **LITERATURE REVIEW**

An extensive literature review was conducted to support this SEA Study, focusing on biological, ecological, and spatial research relevant to species, habitats, landscape processes, and environmental change within Los Angeles County. Emphasis was placed on information developed since 2000, including peer-reviewed studies, technical reports, conservation plans, and agency guidance documents.

The literature review incorporated the following categories of sources:

- Regulatory and conservation references addressing species status, natural community classifications, and habitat protection frameworks (e.g., lists of rare natural communities and species)
- Biodiversity datasets and regional analyses documenting species richness and concentrations of sensitive taxa (e.g., reports on conservation priority areas of the Antelope Valley)
- Vegetation and habitat studies, including statewide and regional mapping efforts and floristic inventories (e.g., local floras covering the Verdugo Mountains and the Liebre Mountains)
- Land-cover, development, and disturbance datasets used to assess habitat loss, fragmentation, and landscape change
- Protected lands and ecological reference layers providing context for conservation representation and connectivity
- Climate change vulnerability and climate change refugia studies relevant to long-term ecological resilience
- Regional and statewide connectivity planning frameworks addressing biodiversity, wildlife movement and landscape permeability

- Local and regional ecological studies, including prior SEA analyses and watershed-scale assessments
- Federal and State technical reports and guidance documents related to Threatened and Endangered species, including official publications from the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NOAA Fisheries), and California Department of Fish and Wildlife (CDFW).

The complete Literature Cited and Reviewed list included at the end of this document encompasses both sources cited directly in the body of this report and additional resources reviewed as part of the study. Although not all reviewed materials are referenced through in-line citations, they collectively informed the study's conceptual framework, analytical approach, interpretation of results, and understanding of species ecology, data limitations, and landscape processes. Many sources influenced how analyses were structured, how results were interpreted, and how recommendations were developed.

In addition, a centralized repository of documents on federal and state Threatened and Endangered Species (TES) relevant to Los Angeles County was compiled. This repository includes official reports, recovery plans, status reviews, and technical guidance produced by USFWS, NOAA Fisheries, and CDFW. Documents were reviewed as part of the literature synthesis and, where applicable, cross-referenced to relevant species and analyses. The repository is intended to serve as a supporting technical resource and is provided in **Appendix C**.

Collectively, these databases and literature sources provide the scientific foundation for spatial analyses, field verification, and boundary evaluations described later in this report.

## 2.2 Desktop Analysis

Following completion of the literature and database review and compilation of species lists, a comprehensive desktop analysis was conducted to evaluate existing SEA boundaries using the best available spatial data for Los Angeles County. This phase focused on assembling, reviewing, and synthesizing a wide range of ecological datasets to support consistent, transparent evaluation of SEA Selection Criteria and to identify areas warranting closer review through field verification.

### **DATA COMPILATION AND EVALUATION**

The desktop analysis incorporated publicly available and agency-provided spatial datasets representing species occurrences, vegetation and natural communities, land cover and disturbance history, hydrology and aquatic resources, protected lands, habitat connectivity, and climate-related variables. Because these datasets varied widely in spatial resolution, temporal coverage, methodological approach, and intended use, each dataset was evaluated for relevance, reliability, spatial accuracy, and appropriateness for countywide planning applications.

As preliminary analyses were synthesized, additional datasets and refinements were identified and incorporated, allowing the analytical framework to evolve in response to emerging information and project needs.

## **DEVELOPMENT OF PROJECT-SPECIFIC SPATIAL LAYERS AND ANALYTICAL INPUTS**

A suite of project-specific spatial layers and analytical inputs tailored to Los Angeles County were developed and prepared to support evaluation of the SEA Selection Criteria. These products were designed to synthesize complex biological information into spatial representations suitable for countywide planning and comparative evaluation across SEAs.

Key products developed for this study include:

- **Generalized species-occurrence summaries** using hexagonal grids to support pattern recognition while addressing spatial uncertainty, data sensitivity, and uneven survey effort
- **Composite species layers** summarizing concentrations of rare, sensitive, or locally uncommon species across specific taxonomic groups
- **Land-cover stability metrics** characterizing the extent and persistence of habitat within undeveloped landscapes under historical disturbance and land-use patterns
- **Connectivity modeling outputs** representing potential wildlife movement pathways at countywide and regional scales
- **Expert-informed habitat delineations**, including hand-digitized core habitat areas for select species based on professional judgment, field experience, and review of supporting data sources
- **Consolidated protected lands dataset**, integrating the most current federal, state, regional, and County sources into a single spatial layer to represent protected and conserved lands across jurisdictional boundaries

New spatial and analytical layers were developed using ArcGIS Pro, ArcGIS Online, QGIS, R, and other spatial tools. Processing approaches emphasized consistency across datasets while balancing scientific rigor with transparency and interpretability for land use planning and policy applications.

## **SPATIAL OVERLAY AND SCREENING PROCESS**

An iterative overlay analyses was conducted to examine where multiple ecological indicators coincided across Los Angeles County, both within and outside existing SEA boundaries. Datasets representing species records, vegetation and habitat types, aquatic resources, connectivity, disturbance patterns (such as fire perimeters), and climate-related factors were reviewed together to identify areas exhibiting overlapping ecological values.

To support this process, datasets and analytical layers were compiled into an interactive SEA Web Application developed using ArcGIS Online and Experience Builder. The application integrated existing SEA boundaries with the full suite of datasets used in the

analysis and served as the primary environment for spatial review and comparison. Layers could be toggled on and off to evaluate spatial relationships, explore patterns across multiple scales, and identify locations where multiple ecological indicators overlapped.

The overlay process was organized by SEA Selection Criterion, allowing datasets to be reviewed in relation to the ecological conditions each criterion is intended to capture. This framework enabled evaluation of where individual criteria were likely being met across the County and an assessment of how those areas align with existing SEA boundaries. Organizing the analysis in this manner supported consistent, criterion-specific screening across diverse geographic regions and ecological settings.

Importantly, the screening process was designed to distinguish between areas lacking ecological value and areas lacking sufficient biological data. Locations with limited records were evaluated in the context of landcover, habitat availability, landscape setting, and adjacent resources to identify areas where absence of data likely reflects limited survey effort rather than absence of biological significance.

This overlay-based screening process was used to:

- Assess how well existing SEA boundaries capture key ecological resources associated with each SEA Selection Criterion
- Identify locations where updated information or emerging datasets warranted closer review
- Identify areas of limited biological data coverage where targeted field verification was needed to evaluate habitat condition and ecological function
- Prioritize sites for field visits where desktop data alone could not resolve ecological significance.

## **DATA DOCUMENTATION AND PROCESSING METHODOLOGY**

Detailed descriptions of project-developed analytical layers and processing methodologies are provided in Appendix B. A complete inventory of datasets reviewed and analyzed for the SEA Study is provided in **Appendix D**, organized by SEA Selection Criterion. These appendices are intended to support transparency, reproducibility, and future updates to the SEA Program.

### **2.3 Field Visits & Verification**

Field visits were conducted as part of the SEA Study to verify on-the-ground ecological conditions in areas identified through the desktop analysis and spatial screening process. The primary purpose of these visits was to supplement desktop findings with field-based observations, particularly in locations where available data were limited, where multiple SEA Selection Criteria appeared to overlap, or where potential boundary adjustments warranted closer evaluation.

A key focus of the field visits was the evaluation of areas potentially meeting the newly proposed SEA Selection Criterion related to landscape and habitat connectivity. Because this criterion was not considered in the 2000 SEA Study, locations that may not have been identified previously as "SEA-quality" based on traditional habitat condition or species presence required on-the-ground assessment to evaluate their functional role in facilitating wildlife movement. Such areas may include degraded habitats, narrow linkage zones, or highly constrained features (such as culverts, washes, or underpasses) that nonetheless serve as critical movement pathways.

While advances in aerial imagery and desktop tools supported preliminary evaluation of these areas, field verification was used to assess certain site-specific conditions not visible in remotely sensed data. These include microhabitats, minor barriers to movement, soil and vegetation disturbance intensity, and other localized and subtle factors influencing ecological function.

## **FIELD VISIT PREPARATION AND DATA INTEGRATION**

Field visits were supported by a mobile field mapping application developed using ArcGIS Field Maps. Prior to fieldwork, the majority of datasets used in the desktop analysis were loaded into the application, allowing real-time visualization of location relative to species records, habitat layers, connectivity models, jurisdictional boundaries, and other relevant spatial data.

This approach enabled efficient navigation, informed selection of observation points, and facilitated immediate comparison between desktop-derived patterns and field conditions. To manage map complexity and performance, not all datasets used in the desktop analysis were displayed as standalone layers in the field application; however, these datasets informed the identification of "high-interest areas" used to guide route planning and site selection.

## **IDENTIFICATION OF CANDIDATE AREAS AND ROUTE PLANNING**

Prior to field visits, preliminary polygons representing areas meeting one or more SEA Selection Criteria based on desktop analysis were developed without reference to existing SEA boundaries to allow the data to independently indicate areas of potential ecological significance. Existing SEA boundaries were then overlaid to identify locations where these polygons extended beyond current designations, highlighting areas for targeted field review.

For each subregion, field routes were planned to maximize coverage of key locations while minimizing travel time. Routes prioritized logical access points from public rights-of-way and vantage points offering visibility into adjacent habitats, with adjustments made based on road conditions, accessibility, and time constraints.

## FIELD OBSERVATION METHODS

At each survey location, observations focused on ecological attributes and conditions relevant to SEA Selection Criteria and boundary evaluation. Field notes emphasized features not readily discernible from aerial imagery, including habitat structure, evidence of wildlife movement, localized barriers, disturbance patterns, and novel or emerging stressors.

For each survey point, observations included documentation of site context, dominant habitat features, observed species or sign (with particular attention to sensitive or indicator species), existing impacts, and representative photographs illustrating habitat condition and landscape context.

## FIELD VISIT SUMMARY

Field visits were conducted between November 24, 2025, and February 21, 2026, documenting field observations at a total of 181 survey points across the region (**Figure 2**).

## ROLE OF FIELD VISITS IN SEA EVALUATION

Field observations were used to supplement and contextualize desktop analyses, particularly where spatial datasets alone could not resolve ecological function, habitat condition, or connectivity relevance. Field visits informed:

- Evaluation of potential SEA boundary adjustments
- Interpretation of connectivity and movement pathways
- Identification of degraded or constrained features that nonetheless support ecological function
- Prioritization of areas for further consideration or refinement

Field visit findings were integrated qualitatively into the SEA boundary evaluation and recommendations presented in the main body of this report. Photographs from field visits are incorporated throughout the report to illustrate site conditions and provide visual context.

**Appendix E** documents the purpose, scope, and methodology of field visits conducted to support SEA boundary evaluation. It describes how field verification was used to supplement desktop analyses, outlines the protocols applied to ensure consistency and defensibility, and explains how field observations informed professional judgment and boundary recommendations.

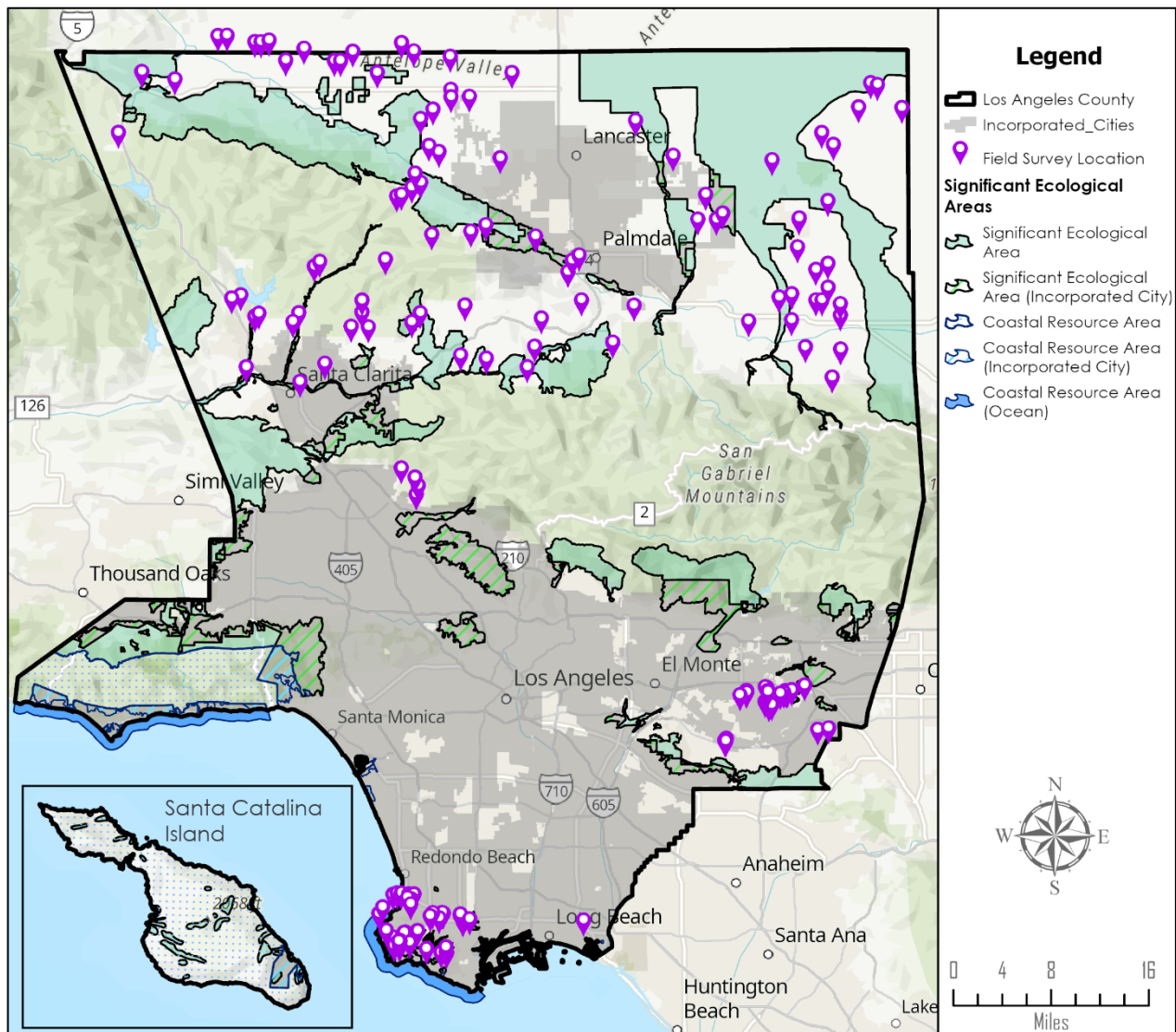


Figure 2. Field visit locations conducted as part of the SEA Study (November 2025 – February 2026).

## 2.4 Technical Advisory Committee (TAC) Process

A Technical Advisory Committee (TAC) composed of regional natural history and conservation experts was convened in late 2025 to provide technical review and subject-matter input for the SEA Study. The TAC was established to support the scientific rigor of the study by reviewing analytical approaches and interim work products, identifying relevant data sources and unpublished information, and offering expert knowledge on ecological conditions, species distributions, and landscape processes across Los Angeles County.

Invited members represented a broad range of expertise, including taxonomic specialists, general ecologists, tribal-affiliated biologists, conservation practitioners, and researchers with long-term familiarity with Los Angeles County ecosystems. To ensure appropriate coverage across disciplines and geographies, prospective TAC members were encouraged

to recommend additional experts where gaps in expertise were identified, and invitations were extended on a rolling basis as the process progressed.

The TAC process was structured to provide technical input at a key phase of the study, allowing TAC members to submit data sources, review analytical approaches, and identify information gaps. TAC members served in an advisory capacity only and did not review, evaluate, or provide input on SEA boundary recommendations, proposed policy changes, or final study conclusions. Participation on the TAC did not confer decision-making authority over SEA boundaries, ordinance interpretation, or policy outcomes.

Two virtual meetings were held on November 13, 2025, and December 2, 2025, to orient TAC members to the SEA Program, the scope of the SEA Study, and the tasks for the TAC.

## SUMMARY OF TAC INPUT

Input received from TAC members reflected a wide range of technical perspectives and was generally focused on improving data completeness, technical clarity, and scientific context. TAC input broadly fell into the following categories:

- Identification of additional data sources, unpublished datasets, or regional studies
- Clarification of species distributions, habitat associations, or ecological processes
- Suggestions for improving figures, maps, and supporting documentation
- Technical observations regarding analytical assumptions or data limitations
- Contextual information regarding long-term ecological conditions or site-specific knowledge

TAC members also provided supplemental reference materials, including reports, datasets, and citations, which were reviewed and considered. Comments received from TAC members were compiled, reviewed, and synthesized to identify key themes, data contributions, and technical observations relevant to the study. **Table 1** provides selected examples of substantive technical input received from TAC members. The examples are illustrative and do not represent an exhaustive accounting of all comments received.

**Table 1. Examples of TAC Input Received**

<b>Topic</b>	<b>Summary of TAC Input Received</b>
Amphibians as Indicators of Climate Refugia	TAC members emphasized that amphibians—particularly salamanders and spadefoot toads—are strong indicators of mesic climate refugia due to their sensitivity to moisture and temperature.

Spadefoot Toads and Seasonal Wetlands	Input highlighted spadefoot toads as ecologically significant species associated with ephemeral and seasonal wetlands, particularly in arid portions of the County.
Salamander Distribution and Taxonomy	Comments provided detailed observations on salamander species and subspecies distributions in Los Angeles County, including cautions against overgeneralization.
Santa Ana Sucker ( <i>Catostomus santaanae</i> )	Multiple comments and references addressed distribution, genetic structure, and population distinctions of Santa Ana sucker.
Mojave Ground Squirrel	Input addressed status, distribution, habitat associations, and survey limitations for Mojave ground squirrel.
Rare Butterflies	Comments addressed rare butterfly distributions, habitat associations, and survey effort limitations.
Climate Refugia and Joshua tree woodland	Input discussed climate refugia concepts as they relate to Joshua tree woodlands, including distinctions between refugial value and transitional landscapes.
Vegetation Alliances and Natural Communities	Recommendations and clarifications were provided regarding vegetation alliances and sensitive natural community classifications.
Invasive Species and Weed Mapping Data	TAC members shared invasive species mapping resources and suggested their relevance for understanding landscape condition.
Publicly Available Data Sources	Multiple GIS datasets, reports, and online tools were submitted for consideration.
Clarifications on Analytical Interpretation	Comments cautioned against interpreting data absence as absence of ecological value.

A summary of the TAC process, along with a list of participating members, is presented in **Appendix F**.

## 3 INCORPORATION OF RELEVANT RESEARCH FINDINGS & POLICY CONTEXT

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The current analysis draws upon a broad body of ecological research completed over recent decades that informs the continued designation of existing SEAs and the identification of additional areas that may warrant SEA consideration.

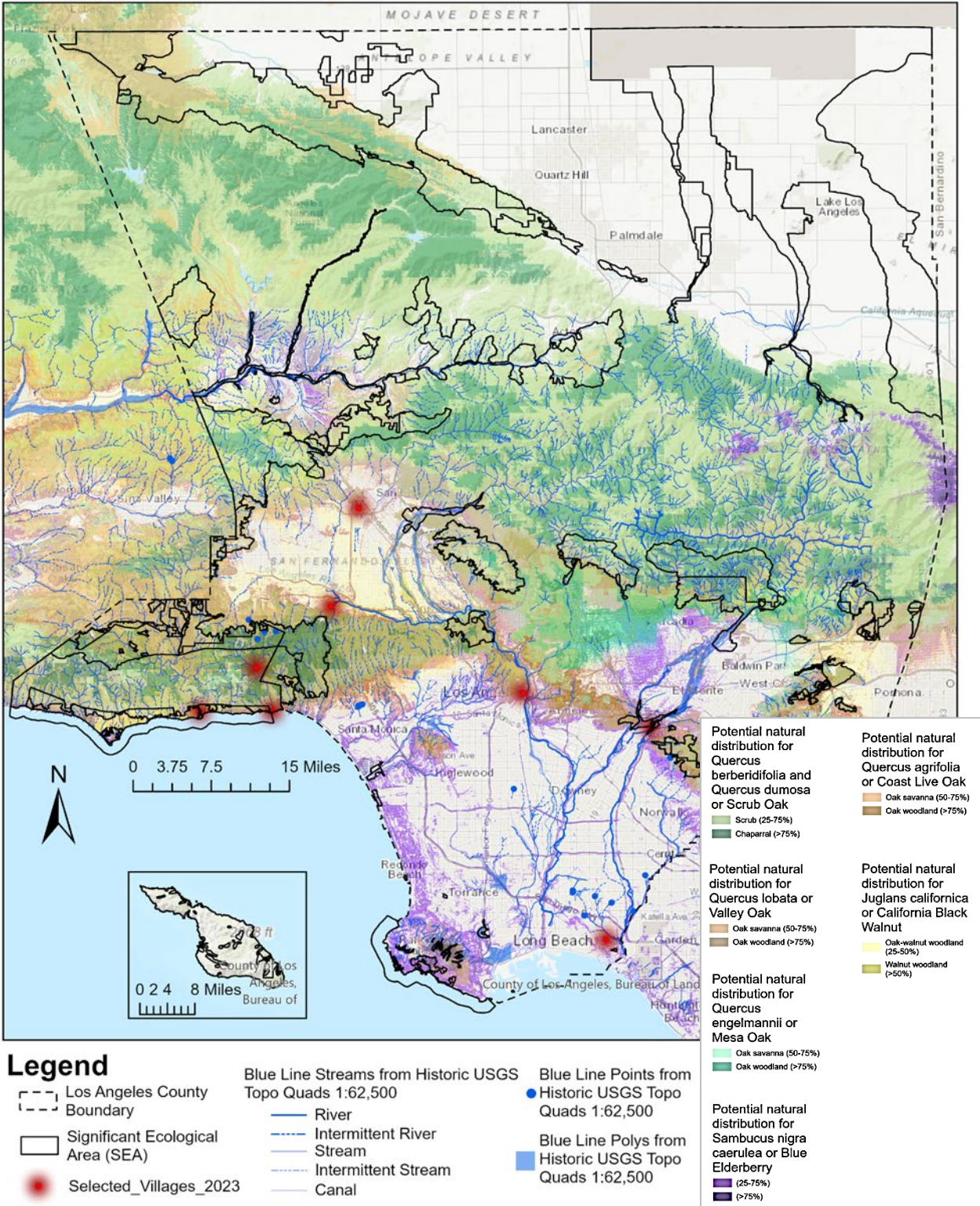
### 3.1 Regional Conservation Planning Efforts

Among the most relevant efforts is the *Antelope Valley Regional Conservation Investment Strategy* (AVRCIS; ICF 2021), which built upon field data developed as part of the Desert Renewable Energy Conservation Plan and Environmental Impact Report/Environmental Impact Statement effort (DRECP; California Energy Commission et al. 2014) to identify areas of highest conservation priority for conservation investments by public agencies or conservation organizations. The AVRCIS incorporated the best available biological and land use planning information, including empirical biological resource data (e.g., mapping of habitats and species occurrences), current scientific literature, state-of-the-art modeling and mapping of biological resources and climate change effects, and existing and future planned land use and ownership. While this SEA Study includes independent analyses of conservation needs and opportunities in the Antelope Valley, alignment with AVRCIS-identified conservation areas provides continuity with established regional planning efforts.

### 3.2 Traditional Ecological Knowledge (TEK)

While the 2025 SEA Study incorporates a growing body of research addressing sensitive species, natural communities, habitat connectivity, edge effects, and climate change across Los Angeles County, it also recognizes Traditional Ecological Knowledge (TEK) as a complementary framework for understanding landscape-scale ecological processes. TEK reflects longstanding relationships between indigenous communities and the lands now encompassed within Los Angeles County and provides insights that extend beyond conventional ecological datasets. In addition to documenting species presence or habitat distribution, TEK emphasizes deep temporal continuity, culturally significant keystone species, historic hydrologic systems, fire regimes, seasonal indicators, and long-term patterns of landscape change. This place-based knowledge can enhance understanding of ecological resilience, habitat function, and connectivity in ways that are not fully captured by contemporary modeling or short-term monitoring efforts.

**Figure 3** illustrates the relationship between existing SEA boundaries and the broader Indigenous landscape, including historic stream alignments, tribal village locations, and the potential natural distribution of culturally important plant communities. While this mapping is necessarily generalized and does not represent site-specific Tribal knowledge, it demonstrates the spatial overlap between areas currently designated as SEAs and landscapes historically recognized for their ecological and cultural significance.



**Figure 3. SEAs and the Indigenous Landscape.** From Mapping Los Angeles Landscape History: The Indigenous Landscape by the LA Landscape History Project (Longcore and Ethington 2023; landscapehistory.org).

Incorporation of TEK was beyond the scope and timeline of the 2025 SEA Study; however, input from TAC members strongly emphasized its relevance to the SEA Program. Meaningful integration of TEK requires direct collaboration with Tribal representatives and knowledge holders and should occur through structured consultation processes that respect cultural protocols and data sensitivity. Future SEA updates and related planning efforts should prioritize coordination with Tribal governments and TEK experts and consider formal recognition of TEK within the SEA Selection Criteria. Establishing TEK as an explicit evaluative lens would provide a durable pathway for incorporating indigenous stewardship perspectives into SEA designation, boundary refinement, and regulatory implementation.

### 3.3 Climate Vulnerability and Resilience Research

At the countywide scale, the *Los Angeles County Climate Vulnerability Assessment* (Chief Sustainability Office 2021) provides the most detailed assessment available of how climate-related hazards—particularly extreme heat, wildfire, flooding, and drought—are expected to affect both human and ecological systems. The assessment identifies spatial overlap between hazard-prone areas and biodiversity-rich landscapes, including portions of the San Gabriel and Santa Monica Mountains. Its findings regarding cascading infrastructure vulnerabilities, heat island effects, and uneven adaptive capacity provide valuable context for understanding cumulative pressures on SEAs and adjacent communities. The assessment also supports the role of SEAs as nature-based tools for hazard mitigation and climate resilience, particularly where ecological functions reduce downstream risk to vulnerable populations. As energy demand continues to increase statewide—driven by extreme heat, electrification, and expanding digital infrastructure—the assessment highlights potential implications for land use, transmission infrastructure, and water resources that may affect SEAs, particularly in already climate-stressed regions such as the Antelope Valley, Santa Clarita Valley, and portions of the San Gabriel Mountains. Integrating SEA considerations into broader climate resilience and infrastructure planning frameworks can help maintain these landscapes as biodiversity refuges and natural climate buffers.

### 3.4 Regional Wildlife Connectivity Research

A substantial body of research has also focused on regional wildlife connectivity and landscape permeability. A foundational example is the Conservation Biology Institute's 2005 report, *Maintaining Ecological Connectivity Across the "Missing Middle" of the Puente – Chino Hills Wildlife Corridor*, which identified the Puente – Chino Hills as a critical but increasingly fragmented movement corridor. The study documented existing and proposed development pressures that could further constrain wildlife movement, particularly within the corridor's central "Missing Middle" segment and recommended targeted conservation and management actions to prevent further loss of connectivity. The report underscored the importance of the Puente Hills SEA and identified additional areas that contribute to maintaining functional movement pathways.

More recently, *Restoring California's Wildlife Connectivity* (CDFW 2022) synthesized statewide efforts to identify and prioritize barriers to wildlife movement, including roads, fences, and development. The report highlights funded and proposed connectivity projects, strategic partnerships, and analytical tools supporting landscape-scale conservation, with particular emphasis on large mammals such as mountain lions and deer. Southern California is identified as a high-priority region due to its high road density, extensive development, and globally significant biodiversity. The report cites the Wallis Annenberg Wildlife Crossing at Liberty Canyon, within the Santa Monica Mountains SEA, as a model project at the wildland-urban interface and provides tools—such as the California Essential Habitat Connectivity Map, Areas of Conservation Emphasis, and the Barrier Prioritization Tool—that can inform corridor and pinch-point analysis within and between SEAs.

Building on this work, the UCLA Institute of the Environment and Sustainability (2023) produced high-resolution, species-specific connectivity models for more than 1,000 terrestrial species across the greater Los Angeles region. Using Omniscape current-flow modeling and resistance surfaces derived from habitat suitability models, the study generated validated connectivity surfaces informed by both field surveys and community science data. The resulting composite connectivity heatmap identifies movement corridors, pinch points, and impeded areas across urban and wildland settings. This work provides directly applicable insights for SEA boundary evaluation and connectivity planning, particularly in more densely developed areas.

### 3.5 Species-Specific Research

Species-focused studies further inform the SEA Study's approach to connectivity and habitat protection. In 2020, the California Fish and Game Commission determined that mountain lions in southern and central coastal California warranted candidacy for listing under the California Endangered Species Act, and in December 2025 CDFW recommended listing this Evolutionarily Significant Unit as Threatened. Extensive research on mountain lion movement, genetics, and conservation needs in the Santa Monica Mountains and surrounding areas consistently emphasizes the importance of maintaining large, connected landscapes that allow for dispersal, territory establishment, and long-distance movement. These considerations have informed the SEA Study's connectivity analyses and evaluation of movement corridors.

Similarly, the U.S. Fish and Wildlife Service's 2021 five-year review of the federally Endangered Palos Verdes blue butterfly documented the species' persistence at only three sites on the Palos Verdes Peninsula. Given the species' extreme rarity and highly specialized habitat requirements, this information supports reconsideration of SEA designation in this area. Identified threats include habitat degradation, invasive species, ecological succession, small population size, and climate change, all of which underscore the importance of targeted habitat protection and management.

### 3.6 Localized Studies of High Biological Value Areas

Additional localized studies further highlight areas of high biological value that inform SEA boundary review. In the Baldwin Hills and Kenneth Hahn State Recreation Area, bat surveys documented the occurrence of Mexican free-tailed, Yuma, and hoary, along with at least one California Species of Special Concern, the western red bat, and probably a second, the western yellow bat (Remington 2014). More recently, members of the public posting to eBird have documented a population of federally Threatened coastal California gnatcatchers in the same area. Although more than half of these hills have been greatly impacted by oil development that dates back more than a century, this area retains important ecological values that warrant protection and eventual restoration.

To the east, near the intersection of Los Angeles, San Bernardino, and Orange Counties, recent surveys have identified high biological values in a block of natural open space in the City of Diamond Bar that includes Tres Hermanos Ranch, Pantera Park, Summitridge Park, and Sycamore Canyon Park (Hamilton Biological, Inc. 2019). This open space includes extensive grasslands, coastal sage scrub, and oak/walnut woodlands, with documented occurrences of golden eagles, white-tailed kites, coastal California gnatcatchers, and cactus wrens. The identified area has high potential to support several other special-status species with very limited distributions in Los Angeles County, including the western spadefoot, grasshopper sparrow, and pallid bat.

Collectively, these studies provide important context for evaluating existing SEAs and identifying additional areas that contribute to biodiversity, connectivity, and ecosystem resilience at the countywide scale.

## 4 RESULTS & FINDINGS

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The principal ecological findings of this SEA Study synthesize results from literature review, spatial analyses, contextual field visits, and review of updated species and habitat information described in Section 2. Collectively, these findings represent the most comprehensive update to the County's understanding of SEA-related ecological conditions since the 2000 SEA Study.

Since the previous update, the volume and quality of biological information available for Los Angeles County has expanded substantially. This study draws on more than two decades of additional species-occurrence data, improved spatial datasets, and landscape-scale analytical tools, providing a more complete and spatially explicit picture of biodiversity patterns, habitat condition, and ecological function than was previously available. The addition of a proposed Connectivity Criterion provides the first opportunity to identify areas of high ecological significance based on their strategic positions on the landscape, relative to SEA core habitat areas, rather than on their habitat resources alone, which in some cases may be degraded.

Results and associated mapping are presented at a landscape scale and are intended to identify general areas of ecological value rather than fine-scale habitat boundaries. Spatial datasets used in this analysis include both point occurrences and polygons representing similar habitat types or modeled suitability, which may extend beyond documented observation locations. Accordingly, mapped resources and recommended SEA boundaries should be interpreted as screening-level guidance; absence of a documented observation at a specific property does not necessarily indicate absence of habitat value, and site-specific conditions should be verified in the field during project-level review.

Findings are organized thematically to highlight countywide patterns, changes since the prior SEA update, and conditions relevant to evaluation of the SEA Selection Criteria. Results are presented at multiple spatial scales, including countywide trends and SEA-specific observations, to support both regional planning considerations and/or area-specific evaluation.

The sections that follow summarize key updates to species distributions and biodiversity priorities, identify areas of concentrated ecological value or function, evaluate changes in landscape connectivity and land-cover stability, and assess projected climate exposure and refugia. Together, these findings provide the technical basis for the SEA boundary adjustments, new SEA recommendations, and updated SEA descriptions presented later in this report.

### 4.1 Countywide Ecological Changes and Key Findings

Countywide ecological changes and key findings identified through this SEA Study are summarized below, based on synthesis of updated species information, spatial analyses, and contextual field visits. Together, these findings describe how ecological conditions, functional landscape patterns, and conservation priorities have evolved since the previous

SEA update in 2000 and provide context for the detailed results presented in Sections 4.2 through 4.7.

## COUNTYWIDE PATTERNS AND CHANGES

At a countywide scale, the study identified several overarching changes relevant to the evaluation of SEA Selection Criteria:

- **Substantially expanded documentation of biodiversity.**  
Since 2000, the number and spatial coverage of species-occurrence records have increased dramatically. Updated datasets provide a more complete picture of the distribution of rare, sensitive, and locally uncommon species, revealing concentrations and patterns that were previously undocumented or poorly resolved.
- **Improved identification of areas with overlapping ecological values.**  
Integration of multiple datasets indicates that certain areas support multiple SEA Selection Criteria simultaneously, including species richness, habitat specialization, connectivity function, and relative landscape stability. In some cases, these areas extend just beyond existing SEA boundaries or occur in locations not previously designated.
- **Increased importance of connectivity and constrained movement pathways.**  
Countywide connectivity analyses reveal the extent to which ongoing development, transportation infrastructure, and land conversion have narrowed or fragmented many wildlife movement pathways. As a result, some areas now function as critical corridors or pinch points for movement between larger habitat blocks, even where habitat conditions may be partially degraded. Just as importantly, these analyses permit the identification of lightly developed areas that provide diffuse connectivity between and among core SEA areas, allowing such areas to be protected against forms of future development that could create future bottlenecks or breaks in connectivity. In some cases, these connectivity functions occur within partially developed landscapes; therefore, areas with existing development are included where they continue to support movement, buffering, or linkage between higher-quality habitats.
- **Variable landscape stability and disturbance across regions.**  
Analysis of land-cover stability and disturbance patterns indicates uneven ecological trajectories across the County. Some SEAs and surrounding landscapes retain relatively intact habitat conditions, while others show increased disturbance associated with wildfire, vegetation change, or edge effects impacting key habitats related to development along SEA boundaries.

- **Emerging climate-related patterns affecting long-term resilience.**

Climate exposure<sup>1</sup> and refugia<sup>2</sup> analyses suggest that certain areas may retain comparatively stable conditions under projected future scenarios, while others are likely to experience greater climatic stress. These patterns have implications for the long-term sustainability of species populations and ecological processes within and beyond existing SEA boundaries. While these analyses primarily evaluate long-term climatic stability of vegetation communities rather than seasonal timing directly, the underlying climate projections reflect broader changes such as increasing temperatures, altered precipitation patterns, and longer dry seasons that can influence ecological processes and species life cycles.

## **IMPLICATIONS AT THE SEA SCALE**

When examined at the scale of individual SEAs, these countywide patterns manifest differently across geographic regions. In many cases, existing SEA boundaries continue to encompass large areas of high ecological value consistent with their original designation. In other locations, updated species data, connectivity analyses, or disturbance patterns indicate that boundary refinements may better align SEA designations with current ecological conditions and functions.

In addition, updated information identifies several areas outside current SEA boundaries that contribute meaningfully to biodiversity conservation, habitat connectivity, or landscape resilience, and that warrant closer evaluation in the context of SEA designation.

Together, these findings indicate that, while the SEA framework remains fundamentally sound, refinements are needed to ensure that SEA boundaries and descriptions reflect contemporary ecological information, expanded data availability, and the increased importance of connectivity and climate resilience in long-term conservation planning.

The following sections present detailed results organized by thematic topic, providing the technical basis for the boundary adjustment recommendations, new SEA proposals, and updated SEA descriptions presented later in this report.

## **4.2 Species & Biodiversity Findings**

Updated species-occurrence data and targeted analyses conducted for this study reveal important changes in how biodiversity patterns are understood across Los Angeles County since the 2000 SEA Study. Expanded documentation of rare, sensitive, and locally uncommon species—combined with new analytical approaches—provides a more

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<sup>1</sup> Climate exposure is the degree to which a location is projected to experience climatic change (e.g., temperature, precipitation, or disturbance regimes) that may alter ecological conditions and vegetation composition. See section 4.5 for further discussion.

<sup>2</sup> Climate refugia are areas where environmental conditions are projected to remain relatively stable under future climate change, allowing existing ecological communities to persist longer than in surrounding landscapes. See section 4.5 for further discussion.

complete picture of species distributions, habitat associations, and areas of concentrated biological importance relevant to evaluation of the SEA Selection Criteria.

## NEW SPECIAL-STATUS SPECIES SINCE 2000

One of the clearest indicators of changing biodiversity priorities since 2000 is the addition of “new” special-status species. For plants, 57 taxa known from Los Angeles County have been added to the California Native Plant Society (CNPS) Inventory of Rare Plants since the last SEA study in 2000. These include taxa that were described as new to science since 2000 (e.g., *Lepechinia rossii*), and those known from Los Angeles County but not previously considered sensitive (e.g., *Pseudognaphalium leucocephalum*). These taxa are summarized by habitat type and distribution in Table 2. Several additional taxa (exact number unknown) were included in the CNPS Inventory of Rare Plants by 2000 but were not yet documented in Los Angeles County and have since been recorded in the County. These were not included in the prior SEA update but were identified through contemporary database searches and incorporated into the analyses.

**Table 2. Summary of distribution of rare plants added to CNPS Inventory of Rare Plants since 2000 and their general distribution relative to SEA boundaries in effect at the start of this study (June 2025).**

<b>Habitat</b>	<b>Species</b>	<b>General Distribution</b>
Montane rock outcrops	<i>Acanthoscyphus parishii</i> var. <i>parishii</i> , <i>Diplacus johnstonii</i> , <i>Fritillaria pinetorum</i> , <i>Monardella australis</i> ssp. <i>gabrielensis</i> , <i>Oxytropis oreophila</i> var. <i>oreophila</i>	San Gabriel Mountains (high ridges), <b>many outside current SEA boundaries</b>
Foothill/lower montane chaparral	<i>Arctostaphylos parryana</i> ssp. <i>tumescens</i> , <i>Baccharis malibuensis</i> , <i>Deinandra paniculata</i> , <i>Lepechinia rossii</i> , <i>Lupinus paynei</i> , <i>Microseris sylvatica</i> , <i>Navarretia ojaiensis</i> , <i>Nemacladus secundiflorus</i> var. <i>robbinsii</i> , <i>Nolina cismontana</i> , <i>Piperia cooperi</i> , <i>Quercus durata</i> var. <i>gabrielensis</i>	Scattered in San Gabriel, Santa Susana and Santa Monica Mountains and Simi Hills; <b>many outside current SEA boundaries</b> (especially San Gabriel Mountains).
Foothill/lower montane riparian	<i>Monardella hypoleuca</i> ssp. <i>hypoleuca</i> , <i>Imperata brevifolia</i> , <i>Clinopodium mimuloides</i> , <i>Symphyotrichum defoliatum</i> , <i>Parnassia cirrata</i> var. <i>cirrata</i>	Species with limited distributions found at a handful of sites in the San Gabriel and Santa Monica Mountains; many outside current SEA boundaries.; <b>many outside current SEA boundaries.</b>
Alluvial scrub	<i>Horkelia cuneata</i> var. <i>puberula</i> , <i>Pseudognaphalium leucocephalum</i>	Restricted to Castaic Creek and southern base of San Gabriel Mountains; <b>mostly within SEAs</b>
Lowland clay/shale	<i>Microseris douglasii</i> ssp. <i>platycarpha</i> , <i>Phacelia hubbyi</i>	Local in urban-edge habitats and ( <i>P. hubbyi</i> ) within urbanized LA Basin; <b>many outside current SEA boundaries.</b>
Desert alkali sink/sand	<i>Astragalus hornii</i> var. <i>hornii</i> , <i>Eriastrum rosamondense</i> , <i>Monardella exilis</i> , <i>Puccinellia simplex</i> , <i>Plagiobothrys parishii</i>	Antelope Valley <b>outside current SEA boundaries.</b>

Coastal dune/bluffs	<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i> , <i>Lycium californicum</i> , <i>Phacelia ramosissima</i> var. <i>australitoralis</i>	Mainly El Segundo Dunes, Palos Verdes; <b>mostly within SEAs</b>
Unique habitats/single sites	<i>Monardella breweri</i> ssp. <i>glandulifera</i> , <i>Helianthus inexpectatus</i> , <i>Calystegia felix</i>	Some within SEAs (e.g., <i>Helianthus inexpectatus</i> along the Santa Clara River), others <b>largely outside current SEA boundaries</b> .
Channel Islands	<i>Quercus pacifica</i> , <i>Rhamnus pirifolia</i> , <i>Phacelia lyonii</i> , <i>Malacothamnus fasciculatus</i> var. <i>catalinensis</i> , <i>Dudleya virens</i> ssp. <i>hassei</i> <i>Dudleya virens</i> ssp. <i>insularis</i> , <i>Cryptantha wigginsii</i> , <i>Artemisia nesiotica</i>	Largely within the CRA and SEAs.
Status in County Unclear	<i>Lonicera subspicata</i> var. <i>subspicata</i> , <i>Senecio astephanus</i> , <i>Chenopodium littoreum</i> , <i>Carex occidentalis</i> , <i>Cladium californicum</i> , <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i> , <i>Schoenoplectiella saximontana</i> , <i>Amaranthus watsonii</i> , <i>Thysanocarpus rigidus</i> , <i>Spermolepis lateriflora</i> , <i>Lycium torreyi</i> , <i>Gilia interior</i> , <i>Navarretia prostrata</i>	These taxa are included as potentially present in the County but require additional study to confirm presence. Some records may be misidentifications, and others may represent extirpated (locally extinct) occurrences. These taxa were not included in the current analysis.

As shown in **Table 2**, rare plant species occur in many parts of Los Angeles County that currently lack SEA designation, such as most of the Angeles National Forest and large portions of the Antelope Valley. While some of these species are highly localized and occur in remote areas, others are regionally widespread within the County. In such cases, SEA boundaries could potentially be extended to encompass a significant portion of their County-wide range.

In many instances, incorporation of these newly recognized taxa does not substantially alter the overall spatial pattern of rare plant diversity, as they occur in areas already known to support other rare species. However, certain taxa draw attention to areas that were likely underrepresented or overlooked in the 2000 study. One example is chaparral nolina (*Nolina cismontana*), a yucca-like plant scattered across the Simi Hills with isolated occurrences in the eastern Santa Monica Mountains and the Linda Vista Hills of Pasadena, areas currently outside SEA boundaries. When considered alongside other special-status taxa newly documented in these locations, such as *Phacelia hubbyi* (and potentially *Lupinus pasadenensis*, if recognized as valid), these areas warrant closer evaluation for SEA inclusion.

## CHANGES IN SPECIAL-STATUS WILDLIFE

In contrast to plants, relatively few animal species have been added to State or federal special-status lists since 2000, reflecting a number of issues, including the possibility of poorly understood cryptic diversity within invertebrate animal groups and less diversity overall of vertebrates as compared to plants. Nonetheless, several notable additions to state and federal Candidate, Threatened, and Endangered lists—including monarch butterfly, mountain lion, and Crotch's bumblebee—reflect evolving understanding of species

vulnerability and conservation need within the County. These changes provide additional context for evaluating habitat significance and ecological function within and adjacent to existing SEAs.

## LOCALLY SENSITIVE BIRD SPECIES AND HABITAT GAPS

Another post-2000 development relevant to SEA evaluation is the identification of locally sensitive species that may not be listed at the State or federal level. The *Los Angeles County Bird Species of Concern* list (Allen et al. 2009) was developed to highlight bird species that are declining or vulnerable at the local scale. Species included on this list, along with their associated habitats, are summarized in **Table 3**.

**Table 3. Los Angeles County Bird Species of Concern (Allen et al. 2009) and their general distribution relative to SEA boundaries in effect at the start of this study (June 2025).**

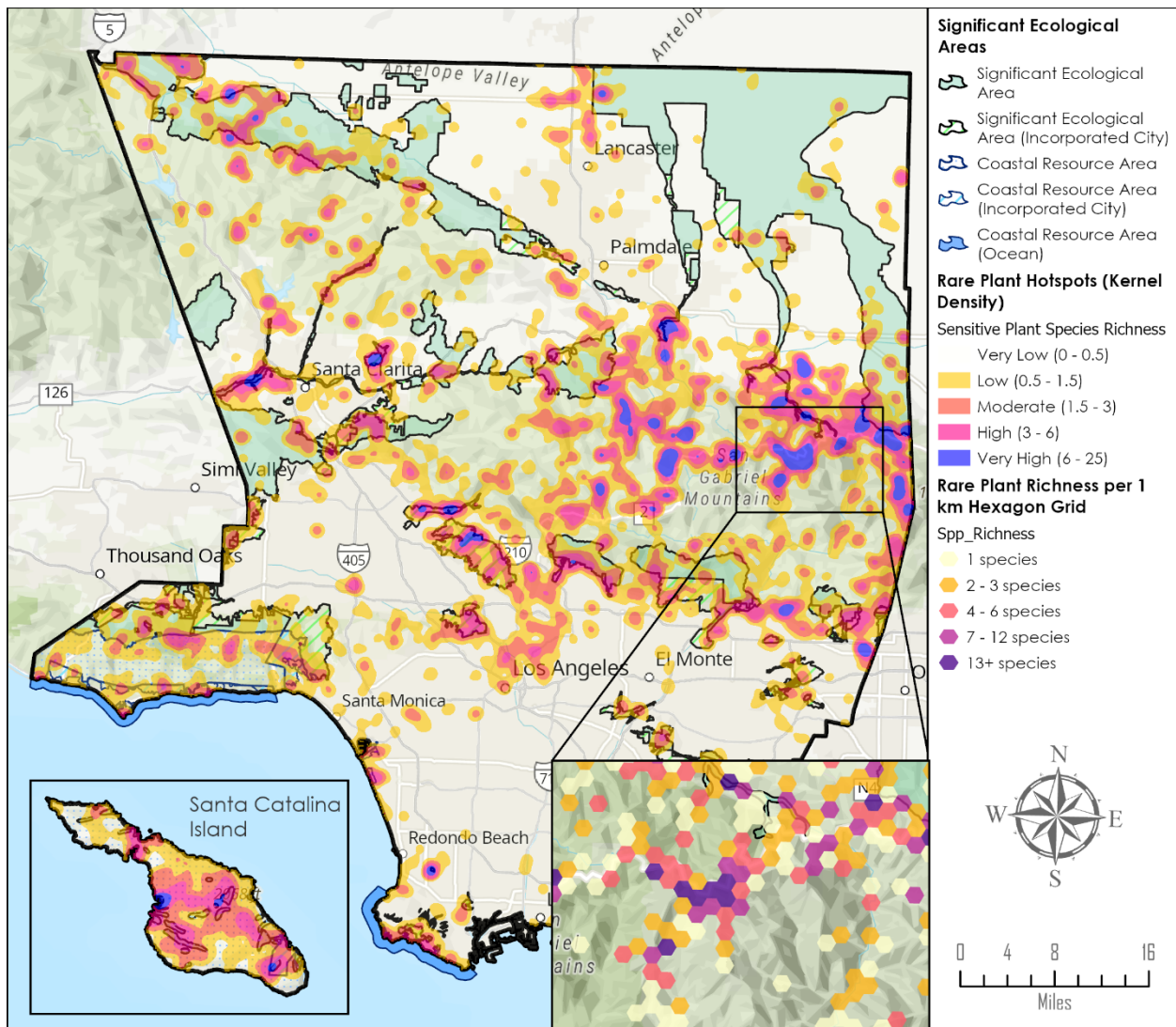
<b>Habitat</b>	<b>Species</b>	<b>General Distribution</b>
Agricultural fields and pastureland	mountain bluebird (wintering), western meadowlark (breeding), vesper sparrow (wintering)	<b>Partially within current SEA boundaries</b> (which were drawn to include mainly natural habitats, rather than agricultural areas)
Unique habitats/single sites	Caspian tern (breeding), royal tern (breeding)	<b>Mostly within current SEA boundaries</b> (Terminal Island)
Montane meadows	Lincoln's sparrow (breeding), Wilson's warbler (breeding)	<b>Many outside current SEA boundaries</b>
Alluvial fan scrub	lesser nighthawk (coastal slope)	<b>Mostly within current SEA boundaries</b> (Big Tujunga Wash, Santa Fe Dam)
Lowland riparian woodland	hairy woodpecker (lowland)	<b>Mostly within current SEA boundaries</b> (Santa Clara River)
Freshwater marshes	eared grebe (breeding), sora (breeding), Virginia rail	<b>Mostly within current SEA boundaries</b> (Piute Ponds, Elizabeth Lake)
Desert-edge woodland	Scott's oriole (breeding), gray flycatcher (breeding)	<b>Mostly outside current SEA boundaries</b>
Scrub and arid chaparral	greater roadrunner	<b>Mostly within current SEA boundaries</b> but threatened by lack of connectivity between blocks of open space.
Status Unclear in County	snow goose (wintering flocks), greater white-fronted goose (wintering flocks), turkey vulture (breeding), Swainson's thrush (breeding), belted kingfisher (breeding)	Turkey Vulture is under-studied; remaining species largely extirpated from the County in role indicated (e.g., breeding or wintering).

While existing SEAs support many bird habitats and special-status bird species identified in earlier studies, the Bird Species of Concern list highlights several habitat types that are underrepresented in the current SEA network. These include agricultural fields and pastureland in the Antelope Valley, montane meadow and riparian habitats along the

Angeles Crest corridor, and desert-edge woodlands at the northeastern base of the San Gabriel Mountains, including the Devil's Punchbowl – Ball Flat area. These findings suggest that refinements to SEA boundaries or consideration of new SEAs may be warranted to better capture regionally significant avian habitats.

## PATTERNS OF UNCOMMON PLANT DIVERSITY

In addition to formally listed species, patterns of uncommon and infrequently collected native plants provide important insight into countywide biodiversity that was not captured in the 2000 SEA Study. For this analysis, federally and state-listed Threatened and Endangered Species and CNPS Rank 1 and 2 taxa were excluded to avoid duplicating existing regulatory indicators. A heatmap of uncommon plant diversity shows that several biodiversity hotspots occur outside of existing SEAs (**Figure 4**).



Due to the complexity and spatial variability of these patterns, it is not feasible to summarize every area of plant diversity. However, several notable regional trends emerge. In the Antelope Valley, diversity hotspots are evident in the far northwest near the Gorman area, in north-central areas between Lancaster and Rosamond, and in scattered desert habitats east of Palmdale. The northern base of the San Gabriel and Liebre mountains also stands out for its exceptional diversity of uncommon plants.

Within the San Gabriel Mountains and Angeles National Forest, distinct hotspots occur despite access limitations, including Liebre Mountain, Warm Springs Mountain, high ridges from the Chilao Campground area to Wrightwood, Big Dalton Canyon, and the upper Arroyo Seco drainage. Although species occurrence datasets can reflect uneven sampling effort—particularly in these remote or less-accessible areas—these montane hotspots are notable because they emerge even where survey intensity has historically been lower due to limited road access and rugged terrain. This suggests that the observed concentrations likely represent ecologically meaningful patterns rather than simply areas of concentrated observer activity.

In the Santa Clarita and San Fernando Valleys, sites with major concentrations include the Santa Clara River corridor, Cruzan Mesa, Big Tujunga Wash, and the northern Verdugo Mountains.

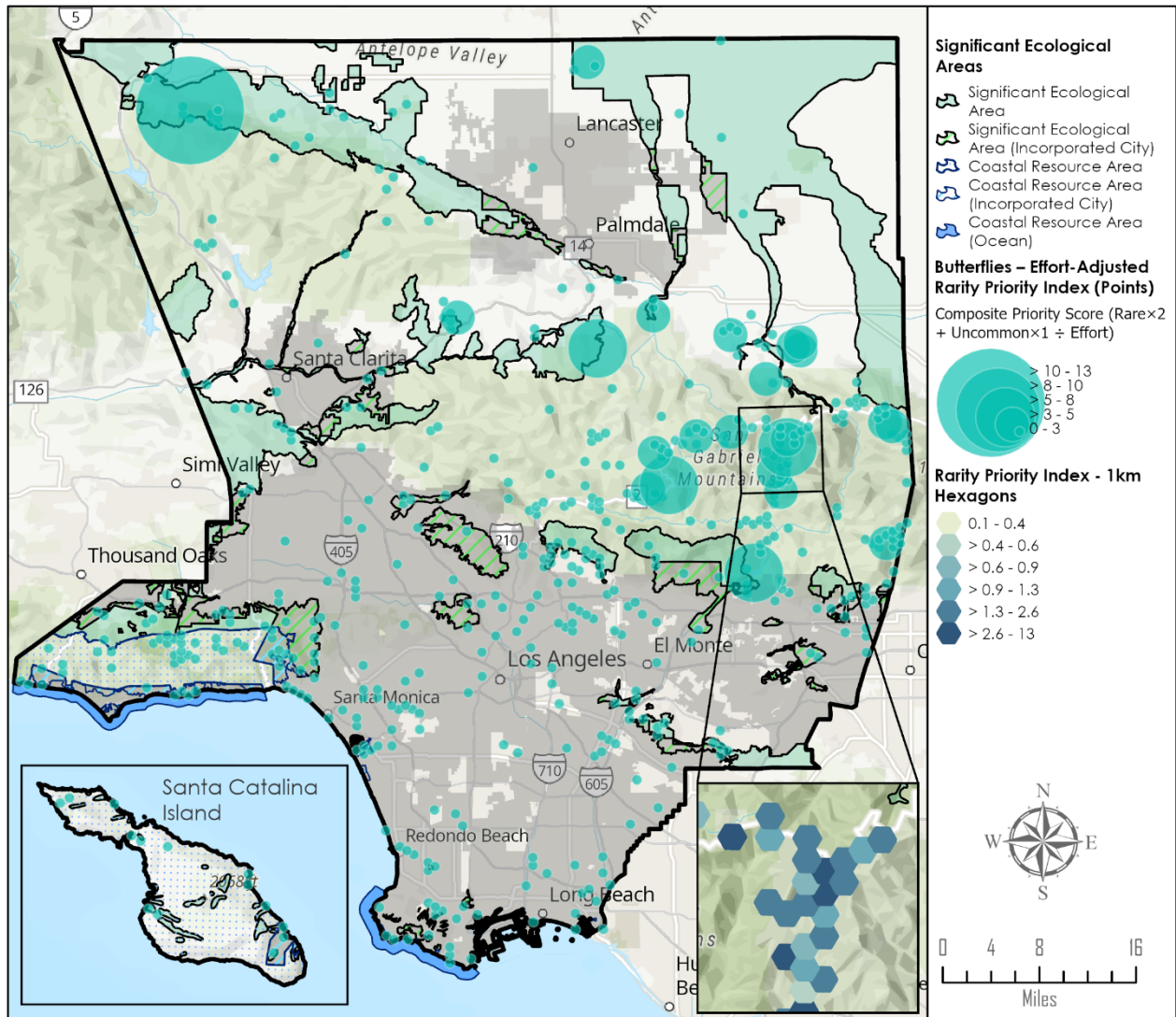
On the coastal plain, Madrona Marsh and the Long Beach wetlands complex anchored by Colorado Lagoon and Los Cerritos Wetlands stand out for exceptionally high diversity of uncommon plant taxa. At finer spatial scales, nearly any large block of undeveloped land (>100 acres) supports multiple uncommon plant species. For example, within the South Bay – Palos Verdes area, hotspots are apparent along the coastal slopes and canyons from Redondo Beach south to Malaga Cove, around Point Vicente, and within the Machado Lake area.

## **BUTTERFLY DIVERSITY ANALYSIS**

This study represents the first known countywide analysis of butterfly diversity for Los Angeles County. Because butterfly occurrence records are derived largely from community science observations, they reflect spatial variation in observer effort, often concentrated near accessible areas such as roads and trails. To reduce the influence of sampling bias, this analysis incorporated an Effort-Adjusted Rarity Priority Index (see Appendix D), which accounts for variation in survey intensity when identifying areas of high conservation value.

Although based on a preliminary dataset, results identify several areas supporting concentrations of uncommon or rare butterfly species (**Figure 5**). These include the far northwestern San Gabriel Mountains between Three Points and Gorman, the north-central Antelope Valley alkali sink region, Agua Dulce – Vasquez Rocks, Acton and Little Rock washes, the Valyermo area, and the central and eastern San Gabriel Mountains from Upper Big Tujunga Wash east to the County boundary.

Lower-elevation hills and coastal plain areas did not exhibit comparable levels of uncommon and rare butterfly diversity, underscoring the importance of montane and



**Figure 5. Rare and uncommon butterfly hotspots across LA County.**

desert landscapes—particularly the eastern San Gabriel Mountains—in supporting specialized butterfly assemblages.

### **SENSITIVE LOCAL NATIVE RESOURCES AND LOCALLY UNCOMMON SPECIES**

The Sensitive Local Native Resources list described in Section 2.1 is closely related to several of the biodiversity datasets used in above analyses. In particular, species considered during development of the list overlap with taxa included in the uncommon plant diversity and butterfly diversity datasets described above. These datasets draw from many of the same underlying biological records but are used for different purposes: the Sensitive Local Native Resources list identifies individual taxa that may warrant consideration in SEA planning, while

the spatial analyses examine broader geographic patterns in the distribution of uncommon species across the landscape.

Patterns observed in the preliminary dataset highlight several geographic areas and habitat types that support concentrations of locally uncommon species. For reptiles, the Mojave Desert biome is particularly important, with more than half of the uncommon species restricted to this area. Several species occur primarily in the lower-elevation creosote bush-dominated habitats in the far northeastern corner of the Antelope Valley, including desert horned lizard (*Phrynosoma platyrhinos*), common chuckwalla (*Sauromalus ater*), sidewinder (*Crotalus cerastes*), and Mojave shovel-nosed snake (*Sonora occipitalis*). Other species are associated with the broad transition zone along the northern base of the San Gabriel Mountains, such as Gilbert's skink (*Plestiodon gilberti*).

A similar pattern is observed among mammals. Several species of kangaroo rat (*Dipodomys* spp.) occur in and around the Antelope Valley and adjacent desert habitats. These species may function as umbrella species<sup>3</sup>, where conservation of the habitat conditions supporting them also benefits a broader array of less-studied organisms that share similar ecological requirements.

Although desert landscapes support many locally uncommon species, non-desert habitats remain important for other taxa. Several locally uncommon species occur primarily in the remaining coastal lowland habitats of Los Angeles County, including western threadsnake (*Rena humilis*), western yellow-bellied racer (*Coluber constrictor mormon*), and California pocket mouse (*Chaetodipus californicus*). These species likely represent indicators of broader ecological communities with similarly restricted distributions within the County, including invertebrates and other taxa that remain less well documented.

Patterns observed in butterfly diversity provide additional insight into these broader biodiversity patterns. Many butterfly species exhibit strong host-plant specialization and close associations with particular habitat types. As a result, areas supporting high butterfly diversity often also support a wide range of other plant and animal species. Because butterflies are relatively conspicuous and frequently documented through community science observations, their occurrence records can provide a useful indicator of localized ecological diversity across the landscape.

Together, these observations highlight the importance of considering locally uncommon species and associated habitats when evaluating biodiversity patterns across Los Angeles County. While many of these species occur within existing SEAs, others occur in areas currently outside designated boundaries, suggesting that additional landscapes may contribute meaningfully to the County's overall biological diversity.

In addition to individual species, earlier versions of the Sensitive Local Native Resources list also identified certain habitat types as "SEA-specific Sensitive Resources." At the time these

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<sup>3</sup> Umbrella species are species whose conservation indirectly protects many other species because the habitats and ecological conditions required to support them also support broader biological communities.

communities were included in the list, they had not yet been formally recognized as sensitive at the statewide level. Examples included Joshua tree woodland, juniper woodland, and pinyon-juniper woodland occurring in select desert and foothill SEAs.

Since updating the Sensitive Local Native Resources list, the regulatory status of some of these resources has evolved. For example, the western Joshua tree is now a candidate for listing under the California Endangered Species Act, and Joshua tree woodland is recognized by the State as a sensitive natural community. As a result, this resource is now addressed through existing regulatory frameworks and incorporated within SEA Resource Categories associated with those listings.

More broadly, identification of SEA-specific Sensitive Local Native Resources presents methodological challenges, as many SEAs contain numerous species and communities occurring near the edges of their geographic ranges. Selection of a limited subset of these resources as “sensitive” within a given SEA—while excluding others occurring under similar ecological conditions—cannot be readily supported with available data. For this reason, refinement or expansion of SEA-specific Sensitive Local Native Resources lists is not proposed; instead, this study recommends maintaining a countywide Sensitive Local Native Resources list of taxa that are rare or locally uncommon within Los Angeles County but not otherwise protected under state or federal regulations.

## **AREAS OF WILDLIFE CONCENTRATION**

Certain areas within the County support predictable seasonal or periodic concentrations of wildlife that may qualify as unique or restricted biotic communities or as critical life-cycle habitats under the SEA Selection Criteria. One example is a 13-kilometer segment of the Los Angeles River channel where shorebird numbers recorded during fall migration approached or exceeded 15,000 individuals during surveys conducted in 2000 (Cooper 2006). These numbers are comparable to other regionally important shorebird sites in southern California and support identification of this heavily modified habitat as a candidate for SEA designation.

Additional wildlife concentration areas occur at Legg Lake and the downstream spreading grounds of the San Gabriel River, which support large rookeries, wintering waterfowl, and migratory birds within the urban matrix. These sites function as ecological oases, attracting species otherwise uncommon in the surrounding developed landscape.

In more natural settings, recent observations have identified Bear Divide—a low-elevation pass in the western San Gabriel Mountains—as a predictable migration bottleneck for northbound songbirds during spring migration. This finding highlights the importance of maintaining large, well-connected habitat blocks and movement pathways that support a wide range of migratory species across the County.

## 4.3 Wildlife Connectivity Findings

Previous SEA studies evaluated ecological significance using six SEA Selection Criteria, resulting in identification of SEAs that generally consist of large blocks of intact natural vegetation supporting rare species and other sensitive biological resources. While wildlife connectivity was not explicitly evaluated as a distinct SEA selection criterion in past SEA studies, adjacent natural areas often provided de facto opportunities for wildlife movement, dispersal, and genetic exchange.

Nearly 50 years into the SEA Program, however, adequate connectivity between and among SEAs can no longer be assumed, even in areas that once appeared well conserved. Continued urbanization, infrastructure expansion, and land-use intensification have increasingly constrained movement pathways across much of Los Angeles County. In response to these conditions, and in compliance with direction from State legislation, the current analysis explicitly recommends a new seventh SEA selection criterion to address connectivity: *areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another*. This new criterion allows for areas whose primary ecological value is maintaining such connectivity to qualify for SEA designation even if they do not independently meet other SEA Selection Criteria.

This analysis demonstrates that while SEAs remain central components of the County's ecological network, connectivity processes frequently extend beyond SEA boundaries and may not be able to be fully addressed through SEA designation alone. Importantly, wildlife connectivity in Los Angeles County functions within a broader regional context, with many movement pathways linking SEAs and other natural areas to adjacent jurisdictions and major mountain systems beyond County boundaries. Maintaining these regional connections is essential to sustaining biodiversity, genetic exchange, and long-term species persistence across southern California.

### **CONCEPTUAL BASIS OF THE CONNECTIVITY CRITERION**

The new connectivity criterion differs fundamentally from the six traditional, resource-based SEA criteria. Rather than identifying locations based on the presence of rare species or sensitive natural communities, this criterion evaluates the functional role of an area within the broader landscape network. The ecological importance of a given location for connectivity is often unrelated to the rarity, sensitivity, or apparent quality of resources present within that area, and may instead reflect the location's position between otherwise disconnected habitat patches or its role as one of few remaining functional pathways linking SEAs or connecting core habitat blocks.

Areas considered functionally important for connectivity typically exhibit one or more of the following characteristics: they form the only or one of few remaining connections between larger habitat blocks; they maintain corridor width sufficient to support wildlife movement;

they provide multiple potential movement routes (redundancy) across the landscape; they occur at natural bottlenecks or pinch points where movement is constrained; they connect complementary habitat types used during different life stages or seasons; or they represent relatively permeable areas within otherwise developed or fragmented landscapes. In some cases, these areas may include partially developed lands, modified habitats, or infrastructure crossing locations that nonetheless facilitate movement between higher-quality habitat areas.

In highly fragmented landscapes, the last remaining connections between preserved habitat blocks are frequently degraded, modified, or heavily disturbed. Nevertheless, these areas may represent irreplaceable links maintaining countywide ecological function, despite falling outside areas that would qualify for SEA designation under traditional criteria.

Two examples illustrate this distinction:

- The concrete-lined San Gabriel River channel between Whittier and Duarte, while highly disturbed, provides the *only contiguous connection* between SEAs in the northern Puente Hills and those in the San Gabriel foothills.
- A small underpass beneath State Route 14 south of Lake Palmdale serves as a unique and critical crossing for terrestrial wildlife moving between the southern portion of the San Andreas SEA and the San Gabriel Mountains.

The scale and configuration of functional connectivity vary substantially among species and taxa. While large, mobile species may rely on broad landscape linkages spanning multiple habitat types, smaller or less-mobile species depend on more localized pathways that facilitate dispersal, seasonal movement, or gene flow. As a result, areas supporting connectivity may function at multiple spatial scales and may not be adequately characterized by a single corridor form or width. Instead, maintaining landscape permeability across a range of pathways and habitat conditions is essential for supporting diverse movement strategies. Redundancy in connectivity is also critical for ecological resilience in the face of climate and other environmental change. For example, when disturbances such as wildfire temporarily degrade one pathway, alternative routes can allow wildlife movement and recolonization to continue across the broader landscape.

Despite lacking rare species or sensitive habitat types, these locations are ecologically important because they maintain connectivity between large areas of high biological integrity. The current analysis identifies such areas and evaluates their role in sustaining movement across the landscape, independent of traditional resource-based SEA qualifications.

## **COUNTYWIDE CONNECTIVITY PATTERNS UNDER CURRENT CONDITIONS**

The analysis modeled potential wildlife movement across Los Angeles County under current landscape conditions, based on how landscape features facilitate or constrain movement.

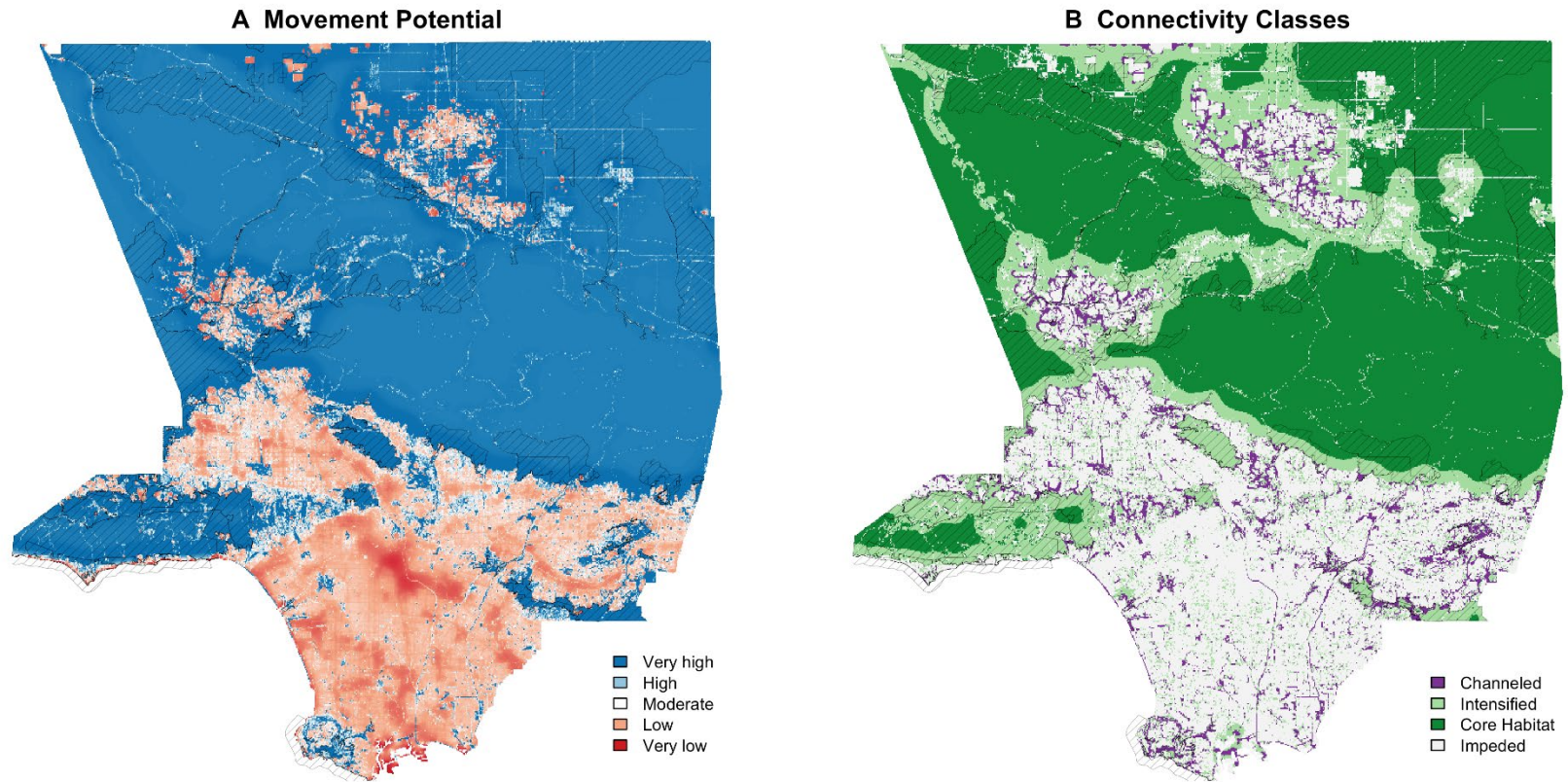
**Figure 6** presents two complementary views of these modeled patterns. Panel A illustrates the connectivity footprint across the County, identifying areas that support wildlife movement under existing conditions. Blue areas indicate portions of the landscape that contribute to regional connectivity, where movement may occur either along narrow pathways or more broadly across intact habitat. Red areas represent landscapes where movement is limited or unlikely due to development and other barriers, either because habitat is lacking or because remaining habitat is isolated.

Panel B presents a complementary classification derived from a habitat-normalized version of the model, illustrating how movement is distributed across the landscape relative to the surrounding habitat context. Channeled includes areas where movement is highly concentrated, for instance where movement has been limited to a single pathway within an otherwise impermeable landscape, such as a narrow strip of riparian habitat running through the city. Intensified includes areas where movement is moderately concentrated due to partial barriers in the landscape, such as at the wildland-urban interface. Core habitat denotes areas where movement is predicted to be diffuse because there are large blocks of contiguous undeveloped habitat, allowing movement in multiple directions. These areas are defined as patches of at least one square kilometer of contiguous habitat that do not meet the thresholds for channeled or intensified connectivity. Finally, impeded shows all other remaining areas in the map, where movement is substantially limited or completely absent either because no habitat exists or because nearby habitat is completely isolated by barriers on all sides. Importantly, these classes do not represent a simple gradient from low to high connectivity. Instead, they describe how movement is distributed across the landscape, ranging from diffuse movement in large intact habitats (core) to highly concentrated movement through narrow pathways (channeled).

Across Los Angeles County, connectivity is highly uneven. Large natural landscapes such as the Santa Monica Mountains, the Angeles National Forest, and other extensive open-space areas function as core habitat, where movement can occur broadly across intact landscapes rather than along single corridors. In these areas, connectivity is diffused because wildlife can move across many possible routes within large blocks of habitat.

In contrast, many of the channeled connectivity areas occur within developed parts of the region, including portions of the greater Los Angeles basin, Santa Clarita, and the Lancaster – Palmdale area. In these locations, wildlife movement is forced into narrow pathways by surrounding development and infrastructure. These areas represent the remaining strands of connectivity linking larger natural landscapes across otherwise fragmented urban environments.

Surrounding many of these corridors are areas classified as intensified connectivity, which commonly occur along the edges of large natural habitat blocks (e.g. within the wildland-urban interface). In these areas, wildlife movement remains possible but is increasingly constrained by nearby development or infrastructure. These landscapes often represent locations where connectivity is gradually being reduced through incremental habitat loss,



**Figure 6. Landscape connectivity across Los Angeles County.**

(A) Movement potential based on the connectivity model, showing areas predicted to facilitate wildlife movement across the landscape. Blue areas highlight parts of the landscape that contribute to regional connectivity, where movement is possible whether it is constrained or not. Red areas represent landscapes where connectivity is limited by development and other barriers, either due to lack of habitat or complete isolation of habitat.

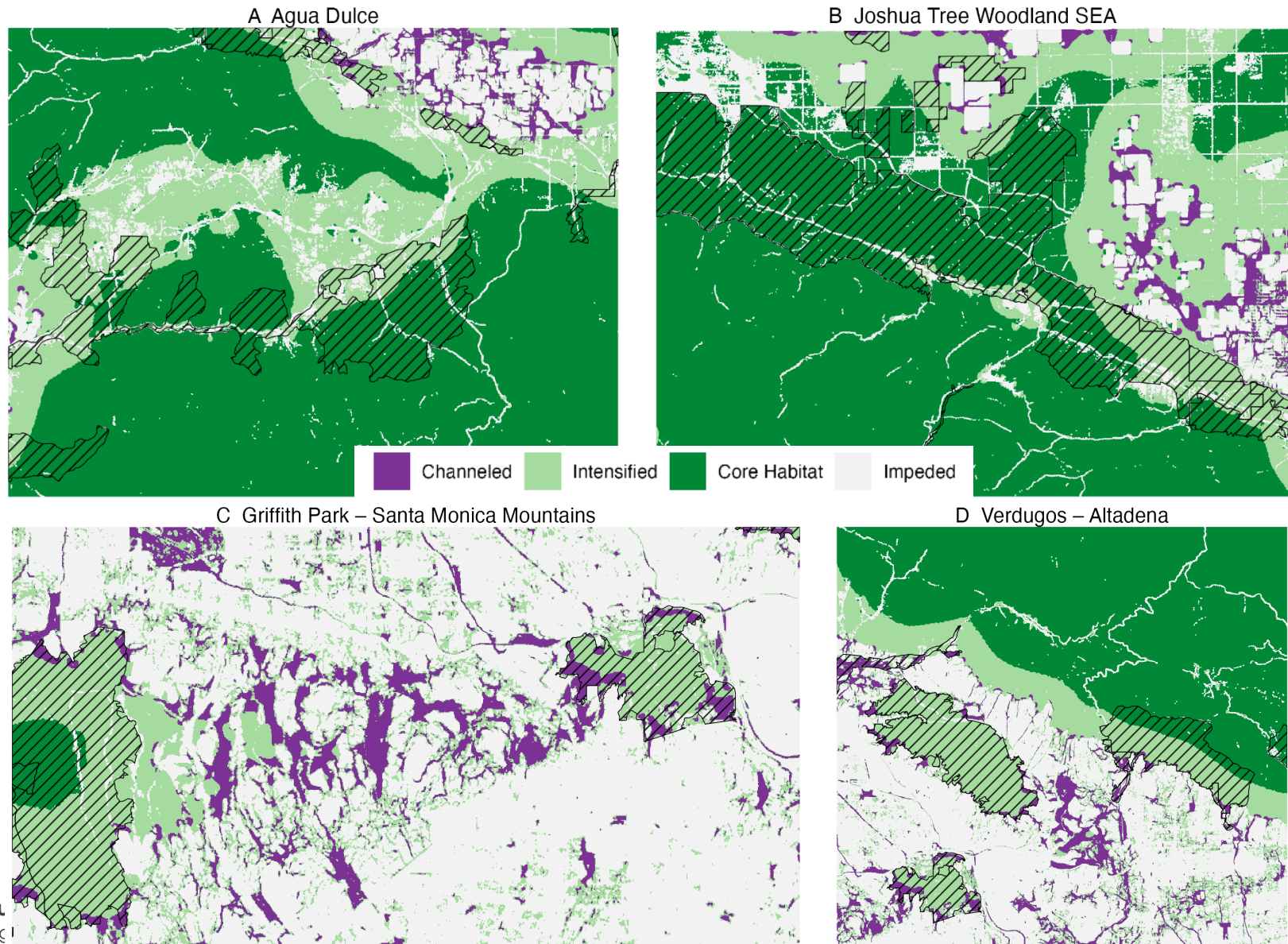
(B) Connectivity classes derived from the connectivity model, identifying areas where movement is concentrated (channeled, e.g. movement has been limited to a single pathway within an otherwise impermeable landscape, such as a narrow strip of riparian habitat running through the city), moderately constrained (intensified, e.g. movement is redirected and concentrated due to partial barriers in the landscape, such as wildland-urban interface), broadly distributed across large habitat blocks (core habitat, e.g. movement is unconstrained in any direction and occurs diffusely in many directions), or substantially limited by development and other barriers (impeded, e.g. little to no movement occurs because there habitat is absent or isolated by barriers on all sides). Significant Ecological Areas (SEAs) are shown with diagonal hatching.

sometimes described as “death by a thousand cuts.” These areas frequently funnel movement toward the narrower channeled corridors.

Finally, areas classified as impeded represent landscapes where wildlife movement is substantially limited. These areas either lack sufficient habitat to support connectivity or contain barriers such as dense urban development and major infrastructure that strongly restrict movement. These results also help clarify how the County’s existing SEA network functions within the broader connectivity landscape. Many existing SEAs correspond with or are adjacent to large core habitat areas, such as the Angeles National Forest, northeastern Los Angeles County, and the Santa Monica Mountains, where intact landscapes support diffuse wildlife movement. However, the model also highlights numerous channeled and intensified connectivity areas that occur outside SEA boundaries, particularly within partially developed landscapes that connect these larger habitat blocks. In many cases, these areas represent the remaining pathways through which wildlife movement can occur between SEAs. Recognizing and maintaining these connective landscapes is therefore essential to ensuring that the SEA network functions as an interconnected system rather than a set of isolated habitat areas.

For instance, the connectivity assessment highlights a potential weakness in the linkage between the Santa Clara River, Antelope Valley, and San Andreas SEAs. The landscapes connecting these areas through the Agua Dulce region are classified largely as intensified connectivity, indicating that wildlife movement remains possible but is already constrained by surrounding development and infrastructure (**Figure 7, Panel A**). This area functions not only as a connection between these SEAs, but also as an important linkage between the San Gabriel Mountains and the Sierra Pelona Mountains, which together form portions of the Angeles National Forest. In this region, movement is no longer diffuse across broad habitat blocks but is increasingly concentrated along the remaining permeable portions of the landscape. Although connectivity has not yet been reduced to a single narrow corridor, the model suggests that movement pathways are already becoming constrained, making management of this area particularly important for maintaining regional connectivity.

A similar pattern emerges in the Joshua Tree Woodland SEA in the western Antelope Valley (**Figure 7, Panel B**). Historically, this area formed part of a broader mosaic of Joshua tree woodland that connected the valley floor with the foothills of the Sierra Pelona Mountains and the San Andreas SEA to the south. Today, however, much of the landscape between these areas has been fragmented by scattered development and, increasingly, by large-scale solar energy facilities. The connectivity model identifies the remaining linkage zones between the separate Joshua Tree Woodland SEA units and the San Andreas SEA as intensified connectivity, indicating that wildlife movement remains possible but is becoming increasingly constrained. In several locations, solar field development has fragmented formerly continuous habitat, narrowing the remaining permeable areas available for movement across the Antelope Valley floor. Because these landscapes represent the last functional connections between Joshua tree woodland habitat and the adjacent



**Figure 1**  
 Diagram illustrating landscape connectivity dynamics across the region. (A) Agua Dulce: Movement is partially restricted by State Route 14, increasing the risk of disconnection between adjacent segments of Angeles National Forest. (B) Joshua Tree Woodland SEA: Recent solar energy development is reducing connectivity within and between adjacent SEA areas. (C) Griffith Park – Santa Monica Mountains: Connectivity persists primarily through a narrow set of remaining corridors. (D) Verdugo Mountains – San Gabriel Mountains: Connectivity is limited to a few channeled pathways, with low permeability across the surrounding landscape.

mountain systems, continued expansion of energy infrastructure or incompatible land uses could further restrict movement and isolate these SEA units from one another and from the San Andreas SEA. Maintaining permeability across this portion of the Antelope Valley will therefore be important for preserving connectivity between the remaining Joshua tree woodland habitats and the surrounding mountain landscapes.

In contrast, **Figure 7, Panels C and D** illustrate SEAs located within the urbanized portions of Los Angeles County where connectivity has already been reduced to narrow, channeled pathways. In Panel C, the linkage between Griffith Park and the Santa Monica Mountains persists through a highly developed landscape where the remaining permeable areas are limited to small patches of open space, riparian corridors, and other fragmented habitat features. Similarly, Panel D highlights the connection between the Verdugo Mountains and the San Gabriel Mountains, where wildlife movement must navigate dense urban development and major transportation infrastructure. In both cases, the model identifies connectivity primarily as channeled, indicating that movement has already been concentrated into a small number of remaining pathways through otherwise impermeable surroundings. These examples illustrate the final stage of connectivity loss within the county's ecological network: while movement may still occur, the loss or degradation of even small portions of the remaining habitat could sever these linkages entirely. Protecting and enhancing permeability within these constrained corridors will therefore be essential for maintaining connections between urban SEAs and the broader regional habitat network.

Together, these patterns illustrate that maintaining regional connectivity in Los Angeles County depends not only on protecting large natural landscapes, but also on sustaining the increasingly narrow corridors and transitional landscapes that link them.

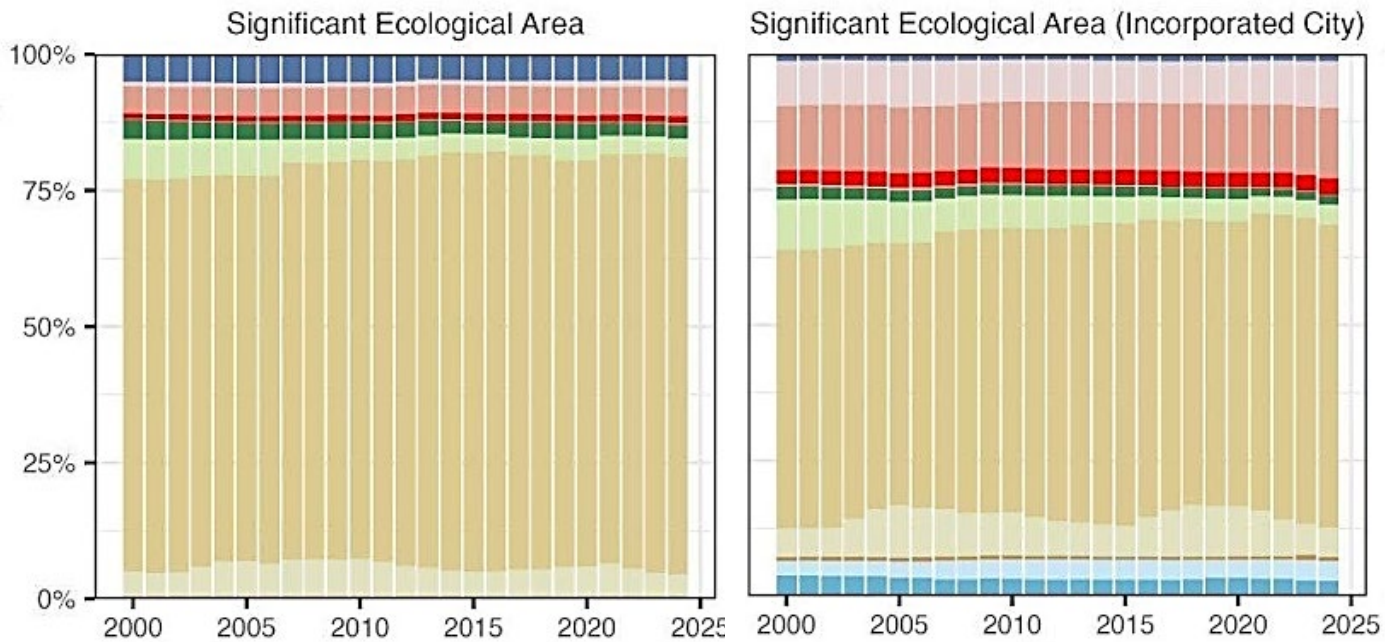
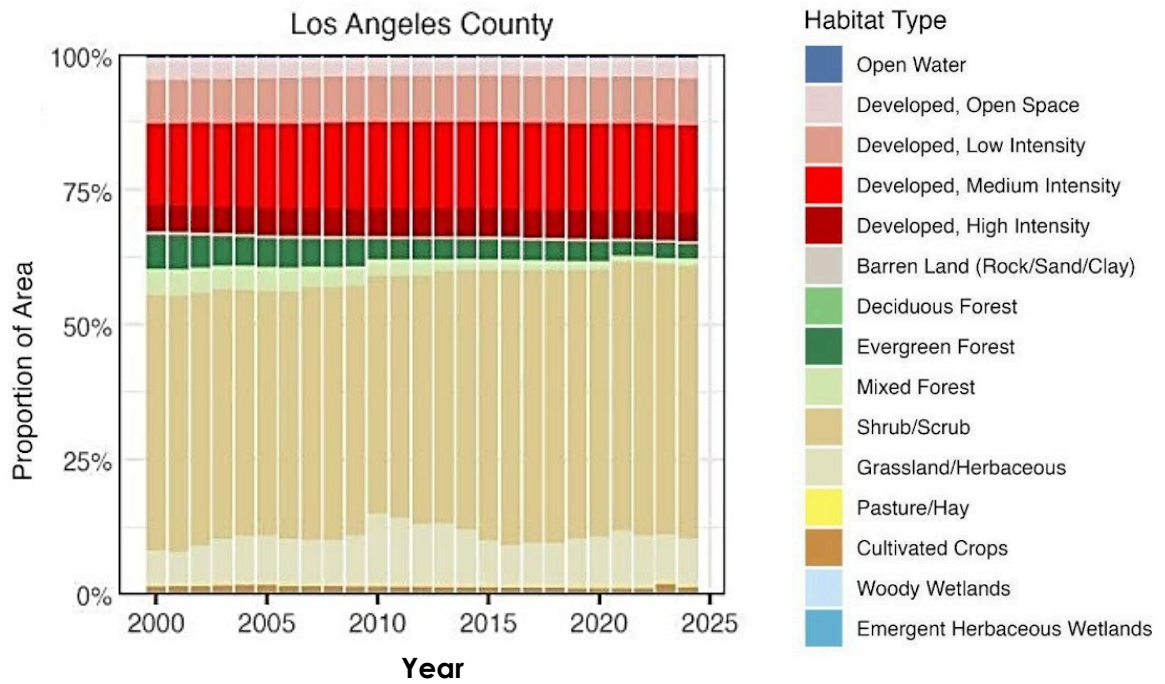
## 4.4 Land Cover Stability & Disturbance

### OVERVIEW OF LAND COVER CHANGE

From 2000 to 2024, land cover composition in Los Angeles County remained dominated by shrub/scrub and developed land uses, but exhibited directional, non-random shifts among habitat classes. Patterns of change differed between the county as a whole and current SEAs, reflecting both gradual urban intensification and slower but ecologically consequential restructuring of natural vegetation.

### COUNTYWIDE LAND COVER TRENDS

Across Los Angeles County, shrub/scrub was the dominant land cover type, comprising roughly half of the landscape throughout the study period and showing a small but consistent increase in proportional area over time (**Figure 8**). Grassland/herbaceous cover declined modestly overall, with the steepest reductions occurring in the early to mid-2000s, followed by partial stabilization in later years. Forested land covers (evergreen, mixed, and deciduous forest combined) represented a relatively small but ecologically important



**Figure 8. Temporal trends in land-cover composition across Los Angeles County and SEAs from 2000 – 2024.** Stacked bars represent the mean proportional area of NLCD habitat classes within that category for each year. The county-wide panel summarizes proportional land-cover composition across all mapped land area and serves as a regional baseline for comparison. Proportions were calculated annually and visualized consistently across panels; colors denote NLCD habitat classes.

component of the county and exhibited consistent declines across the study period, particularly for evergreen and mixed forest. Developed land cover increased gradually from 2000 to 2024, driven primarily by medium- and high-intensity development, both of which showed positive and statistically significant trends. In contrast, developed open space and low-intensity development exhibited weaker or near-neutral changes. Cultivated crops and pasture/hay declined slightly and comprised a negligible proportion of the county landscape by the end of the study period. However, declines in agricultural land are likely underestimated in these estimates as the National Land Classification Dataset (NLCD) used for the analysis of land cover change does not consistently pick up solar fields. Wetland classes (woody wetlands and emergent herbaceous wetlands) remained rare and showed little absolute change.

## **LAND COVER PATTERNS WITHIN UNINCORPORATED SIGNIFICANT ECOLOGICAL AREAS**

SEAs remained dominated by natural vegetation throughout the study period and experienced substantially less development than the surrounding county. Shrub/scrub comprised approximately 70 – 80% of total SEA area and increased modestly through time, largely offset by declines in grassland/herbaceous cover. Forested habitats within SEAs accounted for a small but ecologically important fraction of total area and exhibited slight but consistent declines, mirroring countywide trends. Developed land uses within unincorporated SEAs remained low overall, with some small but significant increases in low- to medium-intensity development observed within several SEAs (**Figure 9**).

## **INFLUENCE OF WILDFIRE AND VEGETATION RECOVERY**

Although this analysis focuses on net changes in habitat proportions, many transitions among natural vegetation classes in southern California are influenced by wildfire. Losses of forested habitat often reflect conversion to grassland or shrub-dominated states following fire, followed by slow and sometimes incomplete recovery. In many cases, post-fire landscapes become dominated by native shrub or grass communities that are increasingly interspersed with non-native or invasive species introduced through repeated disturbance. Because tree-dominated habitats require long regeneration times relative to the study period, declines in forest cover observed from 2000 to 2024 likely represent cumulative losses rather than temporary displacement, even where shrub or grass cover subsequently increased. This ongoing conversion from forest to shrubland or grassland is ecologically significant, as forested habitats across the county are being lost and replaced with vegetation types that may not support the same suite of species or provide equivalent ecosystem services.

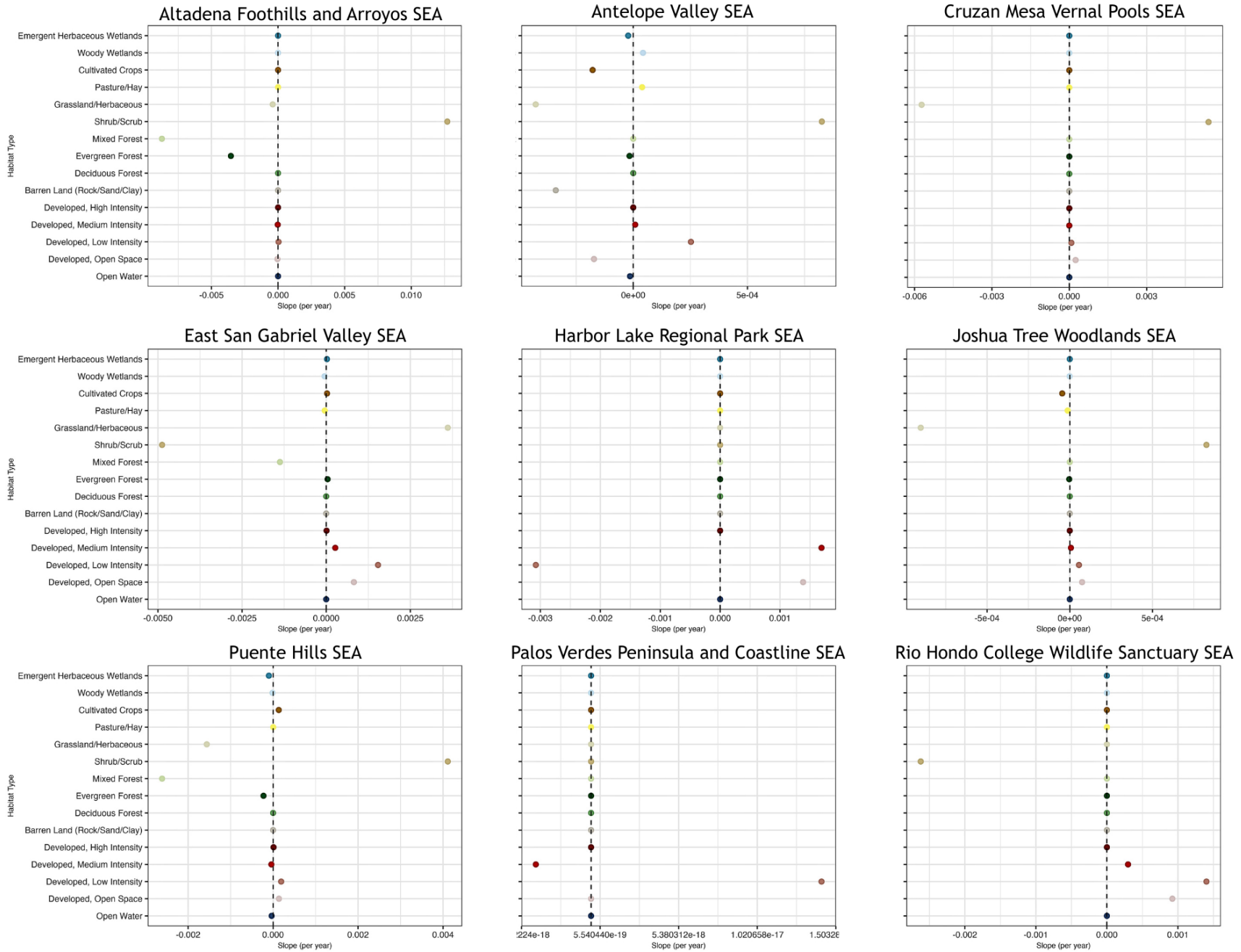


Figure 9. Rate of habitat change within selected unincorporated SEAs from 2000 – 2024 by habitat type (continued)

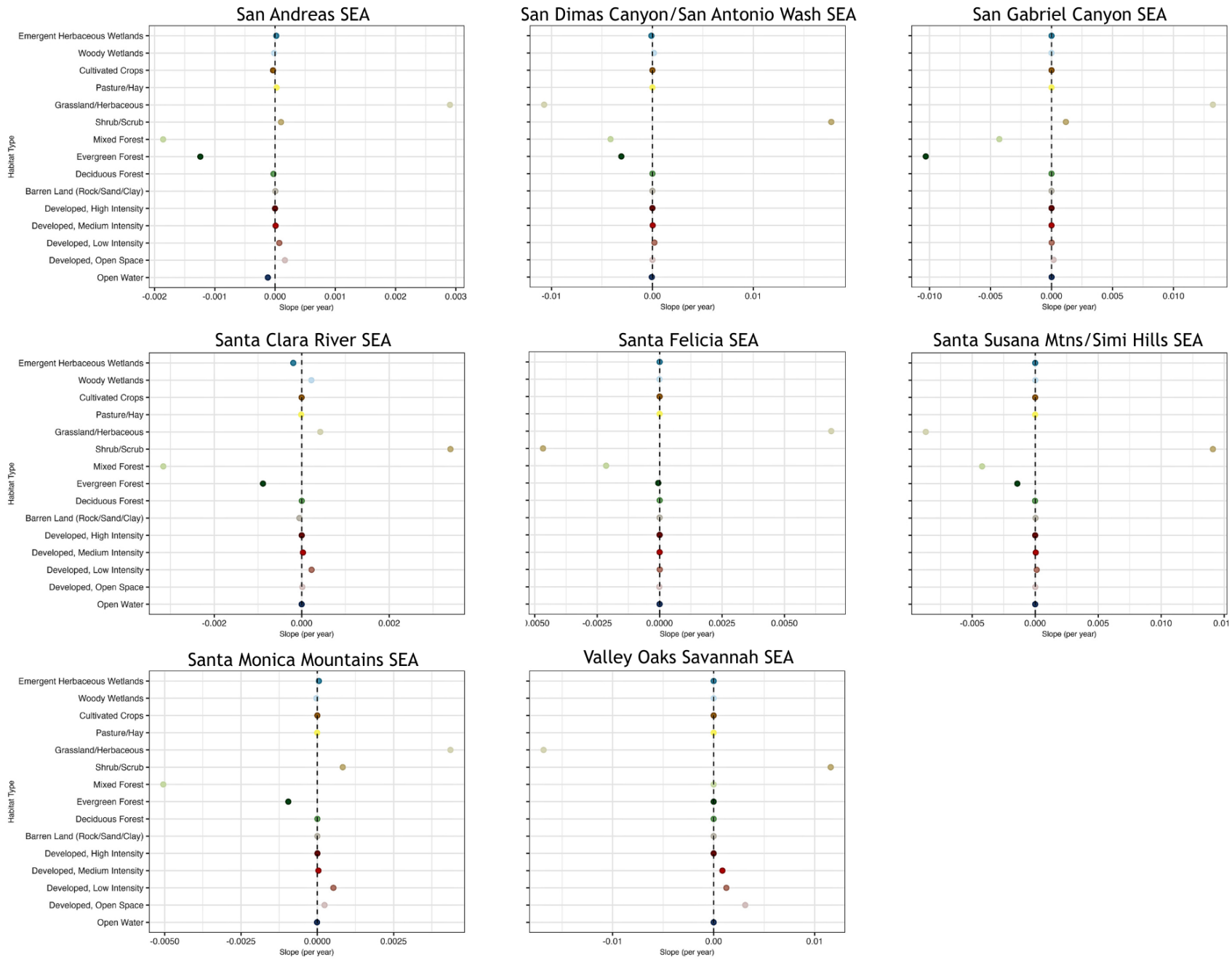


Figure 9. Rate of habitat change within selected unincorporated SEAs from 2000 – 2024 by habitat type.

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## **VARIATION AMONG INDIVIDUAL SEAS (UNINCORPORATED AND INCORPORATED)**

Over the past 25 years, a subset of individual SEAs has exhibited higher rates of change in vegetation composition than others. Montane portions of SEAs, as well as certain foothill sites such as the Altadena Foothills have exhibited stronger-than-average declines in forest cover accompanied by increases in shrub/scrub, indicating persistent shifts away from tree-dominated habitats (Figure 9). SEAs that include incorporated or partially urbanized areas, such as the Verdugo Mountains and San Jose Hills, showed detectable increases in low- and medium-intensity development both within and adjacent to its borders, whereas largely undeveloped SEAs such as Santa Felicia and Altadena Foothills and Arroyos SEAs exhibited little change in developed land cover. Importantly, forest losses were most pronounced in SEAs where tree cover was already spatially limited (e.g., San Gabriel Mountains), suggesting that declines were concentrated in a small number of high-value forest remnants rather than evenly distributed across all SEAs.

### **4.5 Climate Change, Exposure & Refugia**

Climate refugia and climate exposure were evaluated to assess the relative stability and vulnerability of vegetation across Los Angeles County under projected future climate conditions. The climate change vulnerability assessment of California's terrestrial vegetation developed by Thorne et al. (2016) provided the vegetation stability and exposure datasets used here to examine spatial patterns relevant to conservation planning at the county scale. Although the underlying vulnerability assessment was developed in 2016, it is based on downscaled climate projections extending through late-century conditions rather than recent historical observations. Consequently, the analysis remains relevant for evaluating long-term vegetation stability and identifying potential climate refugia under projected future warming. Recent climatic variability observed across California over the past decade—including prolonged drought, extreme heat events, and increased wildfire activity—is broadly consistent with the trajectory of change projected in these scenarios and reinforces the importance of identifying landscapes likely to retain ecological stability.

Climate refugia are areas projected to experience relatively low levels of climate-driven ecological change, where existing vegetation communities are more likely to persist despite regional warming. Climate exposure refers to areas projected to experience greater climatic stress and ecological change, where vegetation communities may be more vulnerable to shifts in temperature, precipitation, and disturbance regimes. Climate refugia therefore represent landscapes expected to retain relatively stable environmental conditions over time, while areas with high climate exposure may experience greater ecological transformation.

Although the analysis focuses on projected changes in vegetation stability rather than individual species responses, these patterns reflect broader ecological consequences of climate change, including increasing temperatures, altered precipitation regimes, longer and more intense dry seasons, and associated changes in disturbance processes such as

wildfire and invasive species expansion. Such changes can influence the timing and duration of ecological processes, including flowering, breeding, and migration periods, and may alter the seasonal variability and suitability of habitats across the county. Identifying areas projected to remain relatively stable under these conditions provides an important tool for conservation planning.

Two future periods were evaluated: a near-term period (2040 – 2069) and a late-century period (2070 – 2099), using vegetation-based climate stability and exposure metrics. These periods correspond to the future climate windows summarized in the Thorne et al. (2016) vegetation vulnerability dataset, which follows the common practice of evaluating projected climate conditions using 30-year intervals beginning in the mid-21st century, when climate-driven changes become more clearly distinguishable from shorter-term variability.

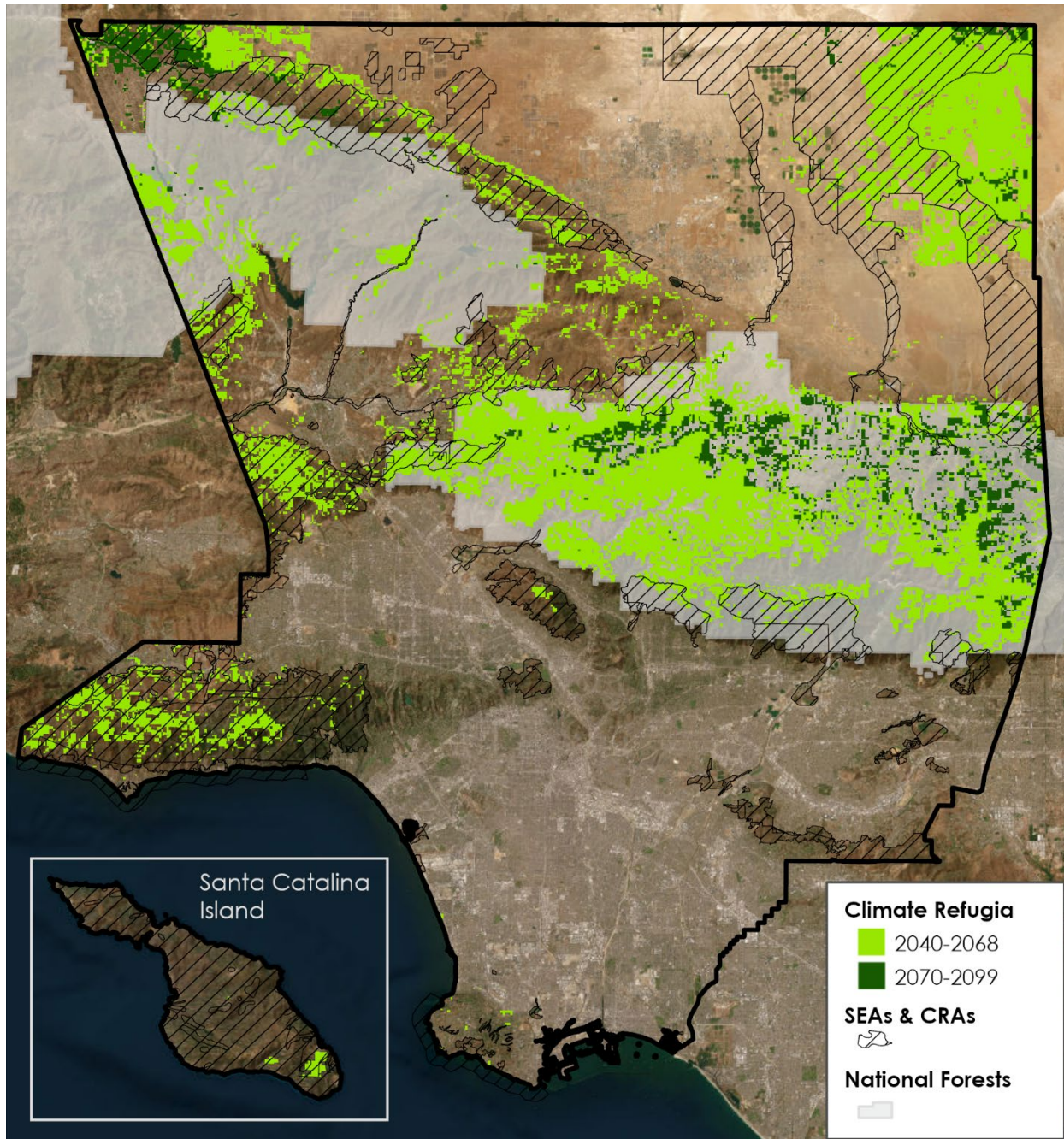
Results of this analysis indicate that climate refugia occur across multiple landscape settings, including both higher-elevation, topographically complex areas and portions of lower-elevation desert environments (**Figure 10**). Persistent refugia (areas projected to remain climatically stable into the late century period, 2069 – 2099) tend to be concentrated in higher-elevation and topographically complex landscapes, including the eastern San Gabriel Mountains, particularly along higher peaks and north-facing slopes, as well as in the far northwestern County near Gorman and Quail Lake. However, extensive mid-century refugia (2040 – 2069) also occur across large portions of the northeastern County near the Antelope Valley margin. Although these areas are lower in elevation and less topographically complex than montane regions, modeled refugial conditions likely reflect the presence of large, intact landscapes, reduced urban heat influences, and localized microclimatic variability associated with alluvial fans, washes, and subtle terrain variation. Together these areas represent locations projected to retain relatively stable climatic and vegetative conditions compared to surrounding landscapes.

Climate refugia encompass approximately 473,000 acres in Los Angeles County. Approximately 36 percent of national forest lands in the county are projected to function as climate refugia. The relationship between climate refugia and the existing SEAs can be summarized as follows:

- 30 percent of all climate refugia in Los Angeles County occur within SEAs.
- 23 percent of all climate refugia in Los Angeles County occur within unincorporated SEAs.
- Within unincorporated SEAs, climate refugia comprise approximately 25 percent of the total SEA land area.
- Current SEAs capture roughly 30 percent of all climate refugia within Los Angeles County,

These metrics describe different relationships. The first two values represent the proportion of countywide refugia captured by SEAs, whereas the third value represents the proportion of SEA lands that function as climate refugia. Together, these results indicate that the existing SEA network contains a substantial portion of lands projected to retain relatively stable ecological conditions under future climate scenarios. Increasing the representation of

climate refugia within the SEA network was considered a priority during boundary refinements where these areas overlapped with other SEA designation criteria.



**Figure 10. Climate Refugia within current SEAs (black outlines) and National Forest (grey shading), as modeled by Thorne et al. (2016).**

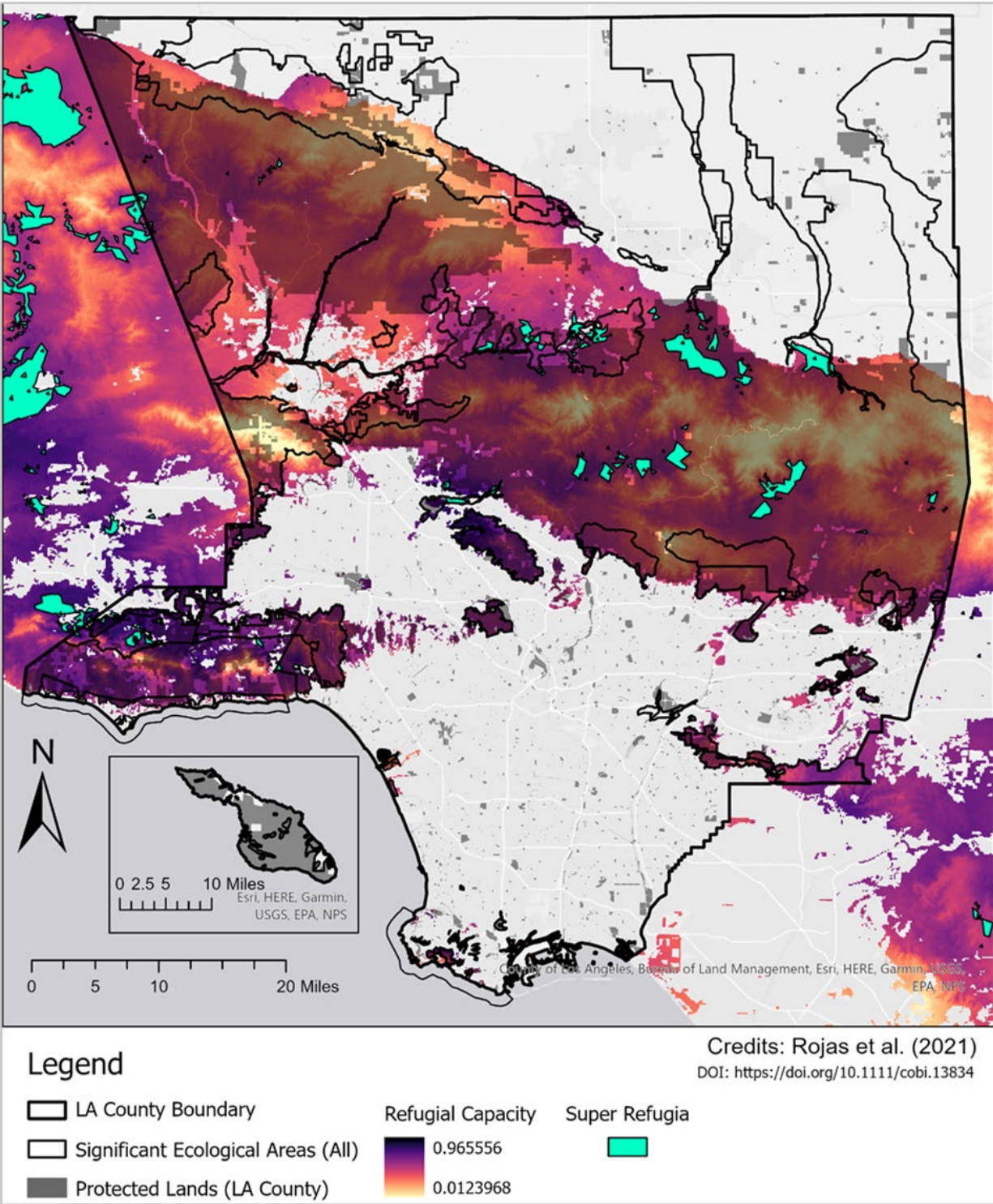
A related regional analysis provides additional context for evaluating refugial capacity within Los Angeles County. Rojas et al. (2021) refined climate refugia analysis for southern coastal California and developed a framework referred to as 'the domains of refugia,' which evaluates refugial capacity based on four categories of stressors: fire, climate

change, water, and human activities. Areas with lower exposure to multiple stressors are considered to have a higher refugial value. **Figure 11** depicts SEAs, Climatic Refugial Capacity, and the “Super Refugia” identified in that analysis. Super Refugia are defined as areas where “...exposure was characterized as having 30% fewer extremely warm summer months, 20% fewer fire events, 10% less exposure to altered river channels and riparian areas, and 50% fewer recreational trails per unit area than the rest of the landscape” (Rojas et al., 2021, page 7).

The Rojas et al. analysis focuses on the southern California coastal and transverse ranges region and does not extend into the Mojave Desert landscapes north of the San Gabriel Mountains. As a result, the apparent boundary along the Antelope Valley side of the mountains reflects the geographic extent of the modeling rather than a definitive absence of refugial capacity in those areas. Within the study area covered by Rojas et al., only relatively small areas of Super Refugia occur in Los Angeles County, and virtually all occur within the Angeles National Forest. Approximately 80% of mapped refugial capacity in Los Angeles County occurs within lands that are already protected or managed for conservation, including federal lands such as the Angeles National Forest, as well as state, county, and local open space and conservation lands identified in the compiled protected lands dataset. This regional analysis broadly reinforces the pattern observed in the vegetation-based refugia analysis described above, in which higher-elevation protected landscapes—particularly within the Angeles National Forest—contain the greatest concentration of climatically stable areas.

Coastal lowland areas along the Los Angeles Basin, including the coastal plain from Santa Monica to the Palos Verdes Peninsula, are largely absent from the mapped refugia in this regional analysis. While this pattern may reflect a reduction in the climatic stability historically associated with coastal fog and marine influence under future warming scenarios, it is important to note that the underlying vegetation models did not explicitly incorporate oceanic or fog dynamics. As a result, the apparent lack of coastal refugia should be interpreted cautiously and should not be assumed to indicate a lack of ecological importance or resilience in coastal ecosystems.

Areas of Santa Catalina Island, including unincorporated portions, are included in the underlying datasets used for refugia analysis by both Thorne et al. and Rojas et al. However, few or no areas on the island were identified as climate refugia or high refugial capacity in these regional analyses. This likely reflects the coarse spatial resolution of the models, limited elevational gradients on the island, and the lack of explicit representation of marine and fog influences that may contribute to local climatic buffering. As a result, the absence of mapped refugia on Santa Catalina Island should not be interpreted as indicating low ecological resilience or lack of conservation value, but rather as a limitation of the regional-scale modeling approach.



**Figure 11. Super Refugia and Refugial Capacity in Los Angeles County.**

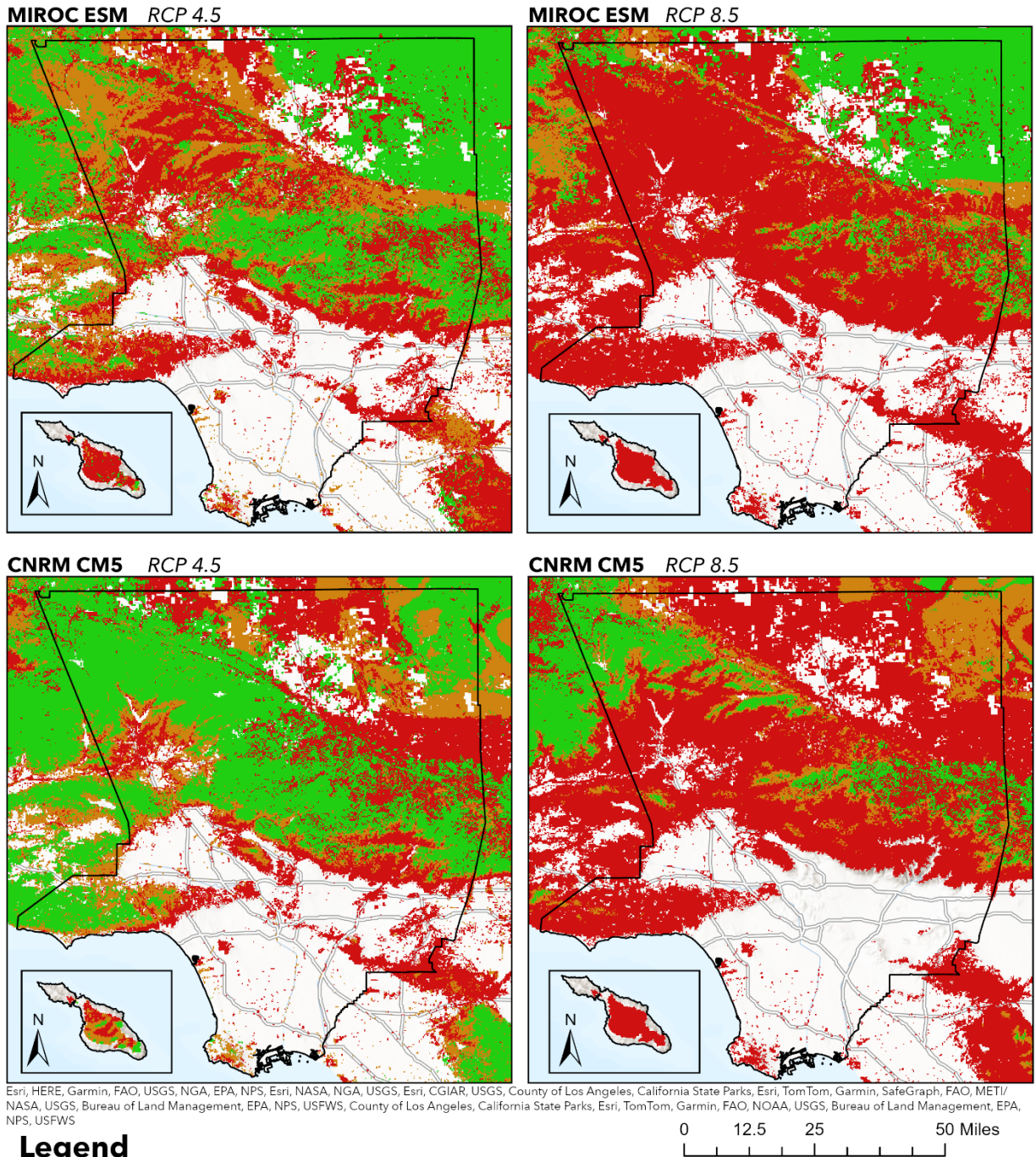
Complementing the refugia analysis described above, climate exposure mapping highlights areas expected to experience the greatest climate-driven vegetation change across Los Angeles County. The highest levels of projected exposure occur primarily across mountainous and foothill landscapes, including much of the San Gabriel Mountains, the

Santa Monica Mountains, the Santa Susana and Liebre Mountains, and portions of the Santa Clarita Valley. Although these areas are projected to experience substantial vegetation change under late-century climate scenarios (**Figure 12**), this does not conflict with their identification as climate refugia. Climate refugia represent areas expected to retain relatively cooler, moister, or otherwise buffered conditions compared to surrounding landscapes, even if vegetation composition shifts over time. In mountainous regions such as the San Gabriel Mountains, elevational gradients, north-facing slopes, and topographic complexity can allow species to persist locally by shifting upslope or into microhabitats, resulting in continued refugial function despite overall vegetation change. As a result, areas mapped as refugia may still exhibit moderate to high climate exposure, reflecting ecological transformation within landscapes that nonetheless remain comparatively resilient at the regional scale. Urban and agricultural areas—including much of the Los Angeles Basin and parts of the Antelope Valley floor—are shown in gray because they were not evaluated in the underlying vegetation modeling framework (Thorne et al., 2016).

Taken together, the refugia and exposure analyses suggest a complementary, two-pronged conservation approach. Areas identified as climate refugia may warrant prioritization for long-term protection due to their projected ability to sustain ecological communities under future climate conditions. These landscapes are expected to play an increasingly important role in supporting special-status species and maintaining ecological function as regional temperatures rise and seasonal climate patterns continue to shift.

At the same time, highly exposed landscapes—particularly fragmented habitat areas within the Los Angeles Basin, such as portions of the Puente Hills—may also represent strategic opportunities for restoration and resilience-building. In these areas, actions such as restoring native oak woodland, enhancing riparian systems, and removing non-native vegetation may yield disproportionately high ecological benefits by increasing adaptive capacity in the most climate-vulnerable settings. By incorporating climate exposure and refugia analysis into the evaluation of ecological resources, the present study addresses an additional dimension of conservation planning that was not available in earlier SEA studies.

# Vegetation Climate Exposure (2070 - 2099)



The Climate Change Vulnerability Assessment of California's Terrestrial Vegetation assessed climate exposure of vegetation macrogroups based on two global climate models (GCMs) and two emission scenarios. The GCMs, CNRM CM5 and Miroc ESM, and emission scenarios used, RCP4.5 and RCP 8.5, represent a range of warming statewide from 1.99 to 4.56°C and between a 24.8% decrease in precipitation and a 22.9% increase, respectively. See Thorne et al. (2016)

Figure 12. Comparison of projected vegetation climate exposure in Los Angeles County for 2070 – 2099 across two climate models (MIROC ESM and CNRM CM5) and two emissions scenarios (RCP 4.5 and RCP 8.5). Grey areas represent urban and agricultural lands that were not evaluated.

## 4.6 Human-Induced Environmental Stressors

No standardized framework exists to consistently track emerging or evolving environmental stressors across Los Angeles County over time. Accordingly, the stressors described below reflect field observations and professional judgment developed through decades of work within and adjacent to Significant Ecological Areas (SEAs). While many pressures affecting natural systems are longstanding, several stressors have intensified or expanded in recent decades in ways that are relevant to SEA conditions and management.

### **ANTELOPE VALLEY: CHANGING LAND-USE PATTERNS**

The Antelope Valley has experienced substantial land-use change in recent decades, reflecting regional population growth, infrastructure expansion, and shifts in energy production and agricultural practices. These changes have occurred at a scale that has measurably altered landscape structure and habitat availability.

One notable component of this change is the expansion of utility-scale solar energy facilities, both within Los Angeles County and in adjacent portions of Kern County (**Figure 13**). These facilities occupy areas previously characterized by agricultural or desert land cover and include associated infrastructure such as transmission lines, substations, and access roads. Collectively, these features contribute to habitat conversion, fragmentation, and changes in wildlife movement patterns.

Field observations documented solar facilities that include large, fenced footprints and areas of reduced vegetation cover. Some facilities incorporate fencing designs intended to allow passage of smaller wildlife species.

### **MATERIAL STOCKPILING AND LAND MANAGEMENT PRACTICES**

During field visits, the presence of large vegetative material stockpiles on former agricultural or pasture lands was observed, often located near roadway intersections. These stockpiles consist of large volumes of chipped plant material intermixed with varying amounts of non-organic debris (e.g. plastic debris ranging in size from microplastic-sized fragments to larger household items) and may extend across multiple acres and, in some locations, exceed ten feet in height.

Because these materials are stored outdoors, wind and stormwater runoff can transport lighter material into adjacent properties, including areas supporting sensitive desert vegetation communities such as Joshua tree woodland, alkali sink, and dune scrub. While the long-term ecological implications of this material dispersal are not yet well characterized, these practices represent a relatively recent land management feature within portions of the Antelope Valley landscape.

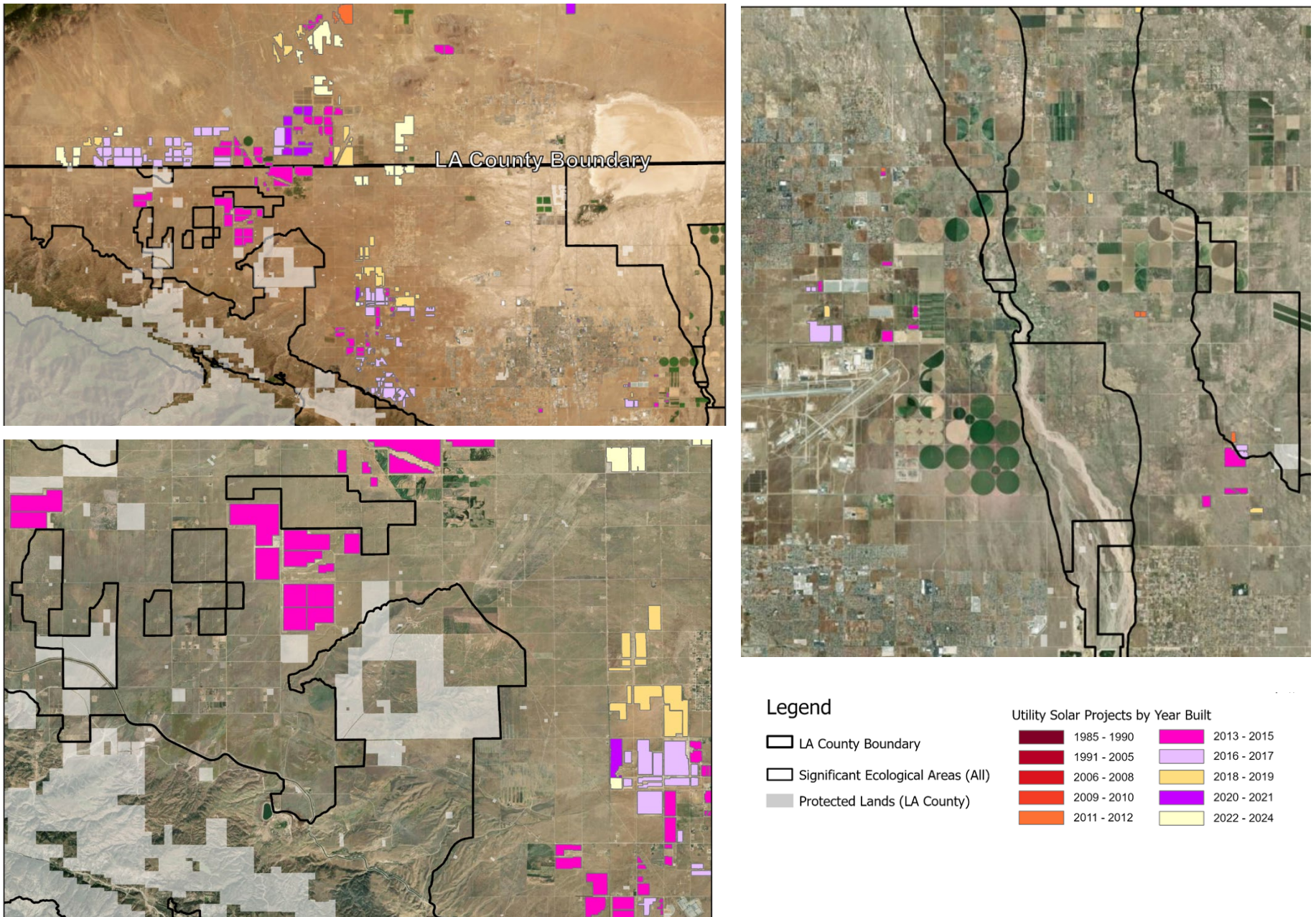


Figure 13. Utility Solar Proliferation by Year in North Los Angeles County. From Fujita et al. (2023).

## **URBAN EXPANSION AND INFRASTRUCTURE FOOTPRINTS IN ANTELOPE VALLEY**

Urban development in the Antelope Valley continues to follow patterns established in previous decades, dominated by large residential subdivisions extending outward from Lancaster and Palmdale, along with lower density “ranchette” development in surrounding areas such as Neenach, Quartz Hill, Hi Vista, and Juniper Hills.

In some locations, grading associated with planned development has occurred in advance of construction that has not proceeded. While some vegetation has begun to recolonize abandoned pads and roadbeds, the site illustrates the long-term ecological consequences of large-scale grading even where development does not proceed to completion.

Across the Antelope Valley more broadly, relatively quiet or undeveloped environments have become increasingly scarce as residential development, road expansion, and associated infrastructure continue to spread across the landscape. Field visits were frequently accompanied by traffic noise, construction activity, and other signs of expanding urban disturbance. Although nighttime surveys were not conducted, increasing development and infrastructure are typically associated with higher levels of artificial nighttime lighting, which can influence wildlife behavior, movement patterns, and habitat use.

## **CANNABIS CULTIVATION AS AN UNINTENDED LAND-USE STRESSOR**

Changes in state policy related to cannabis cultivation beginning in the early 2000s were followed by an increase in parcel-level land conversion in portions of the Antelope Valley, especially in remote areas characterized by smaller lot sizes. In some cases, land clearing and installation of infrastructure occurred prior to or without full regulatory oversight.

Observed impacts associated with these activities include removal of native desert vegetation, including removal of Joshua trees and creosote bush rings. These activities have also been accompanied by a substantial increase in fencing and water infrastructure and accumulation of debris. The cumulative footprint of these parcel-level conversions extends beyond individual sites and contributes to broader patterns of habitat modification.

## **ENCAMPMENTS, FIRE, AND VEGETATION DEGRADATION**

Broader social and legal changes have also produced unintended environmental consequences. Following the *Martin v. Boise* decision in 2018, enforcement of anti-camping laws was significantly curtailed, resulting in rapid expansion of RV encampments and informal tent settlements across many parts of the county. These are particularly prevalent in the central Antelope Valley and along coastal and inland riparian corridors such as the San Gabriel River and Los Angeles River.

Encampments in or adjacent to natural areas have led to a marked increase in human-caused ignitions, including cooking and warming fires that escape into surrounding

vegetation and become wildland fires. Fire suppression responses often involve construction of emergency access routes, contingency lines, and fuel breaks, which further degrade habitat through vegetation removal and soil disturbance. These disturbed areas are then highly susceptible to invasion by non-native, often highly flammable grasses and forbs, reinforcing a self-perpetuating cycle of degradation and justification for additional vegetation removal.

Locations most acutely affected by this encampment-fire-vegetation degradation cycle include lower portions of the San Gabriel River, Santa Clara River, Big Tujunga Wash/Hansen Dam, Whittier Narrows, and Ballona Wetlands SEAs.

## **POPULATION GROWTH AND TRANSPORTATION PRESSURES**

Although population growth is not a novel stressor, continued increases in population and associated transportation activity contribute to cumulative pressures on habitat areas and ecological connectivity within and adjacent to SEAs. The City of Palmdale increased from approximately 116,700 residents in 2000 to an estimated 162,000 – 165,000 by the mid-2020s (approximately 40% increase), while the City of Lancaster increased from approximately 118,700 residents in 2000 to more than 173,000 residents by 2020 (approximately 46% increase). Population growth in nearby unincorporated areas further contributes to these trends (TRIP 2018).

Traffic volumes through and adjacent to SEAs have increased correspondingly, influenced by both local growth and regional transportation activity. State Route 138 (Pearblossom Highway), which traverses the Antelope Valley east – west and intersects multiple SEAs, exemplifies a transportation corridor where increased vehicle use contributes to noise, wildlife mortality risk, and habitat fragmentation. Similar pressures occur along other major transportation corridors intersecting or bordering SEAs, including Interstate 5 through the Santa Clarita Valley and Tejon Pass, State Route 14 through Soledad Canyon, and portions of Pacific Coast Highway along the Santa Monica Mountains, where wildlife-vehicle collisions have prompted planning for wildlife crossing structures and other connectivity improvements.

At the regional scale, Los Angeles County's population increased from approximately 9.5 million residents in 2000 to just over 10 million residents by 2020, before declining slightly to an estimated 9.6 – 9.7 million residents in the early 2020s (U.S. Census Bureau 2024). Although growth rates have slowed compared with earlier decades, continued population and economic activity within the county sustain high levels of transportation demand and infrastructure use. These trends contribute to the cumulative land-use and transportation pressures affecting natural landscapes and ecological connectivity within and adjacent to SEAs.

## 5 SEA RECOMMENDATIONS

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Recommended updates to the SEA boundaries are presented below, informed by the analyses, research synthesis, and field observations described in the preceding sections. These recommendations reflect current scientific understanding, updated biological data, observed land use changes, and evolving regional conservation priorities. Collectively, they address potential boundary adjustments, consideration of new SEA designations, updates to SEA descriptions, and connectivity-related considerations, while remaining consistent with the SEA Selection Criteria.

The following guiding principles informed evaluation of boundary refinements and new SEA designations.

- ❖ Maintain the integrity of existing SEA designations while evaluating opportunities to better align boundaries with ecological resources and landscape conditions.
- ❖ Where appropriate, adjust boundaries to better reflect ecological features, habitat patterns, and biological resources rather than political or administrative boundaries.
- ❖ Consider development patterns and landscape fragmentation when evaluating areas for potential inclusion or exclusion from recommended SEA boundaries.
- ❖ Prioritize areas that support large, relatively intact habitats or that contribute to regional landscape connectivity.

Additional technical details describing the datasets and analytical methods used to evaluate boundary refinements are provided in Appendix B (Methodology and Workflow).

### 5.1 Boundary Recommendation Framework

The SEA Program envisioned SEA boundaries as planning tools that could be refined over time in response to improved information and changing environmental conditions. Along with meeting SEA Selection Criteria, SEA boundary delineations were intended to include areas of sufficient size and configuration to sustain focal species, ecological processes, and resilience to disturbance, while avoiding the inclusion of areas that no longer function as significant natural resources. Consistent with this intent, the boundary adjustment recommendations presented here focus on maintaining biologically meaningful landscapes capable of supporting key species and ecological processes, while recognizing permanent changes in land use that have occurred since the original boundaries were established.

The same six SEA Selection Criteria as were used in the 2000 update and one proposed new selection criterion were utilized for evaluating SEA boundaries, as follows:

- A. The habitat of core populations of endangered or threatened plant or animal species.

B. On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.

C. Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.

D. Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.

E. Biotic resources that are of scientific interest because they are either an extreme in physical/geographic limitations or represent unusual variation in a population or community.

F. Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.

G. (NEW) Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.

This study distinguishes between four types of recommendations: **boundary adjustments**, **SEA consolidations**, **boundary expansions**, and **proposed new SEAs**.

**Boundary adjustments** involve minor modifications to existing SEA boundaries to better align them with ecological features, landforms, or the edges of existing development where biological resources remain present. These adjustments are limited in scope and do not alter the defining characteristics of the SEA.

**SEA consolidations** refer to the incorporation of existing SEAs (and, in some cases, associated proposed SEAs) into larger SEAs that share the same biological systems, landscape processes, and geographic context.

**Boundary expansions** refer to the addition of larger areas adjacent to existing SEAs that support ecological resources meeting the SEA Selection Criteria. In some cases, expansions may include habitats not originally represented within the SEA but that contribute to the ecological function and integrity of the area.

**Proposed new SEAs** represent entirely new areas that are ecologically and geographically distinct from currently designated SEAs and that independently meet one or more of the SEA Selection Criteria.

**No boundary changes** are recommended for several SEAs where available biological data, habitat conditions, landscape context, and field observations indicate that the existing SEA

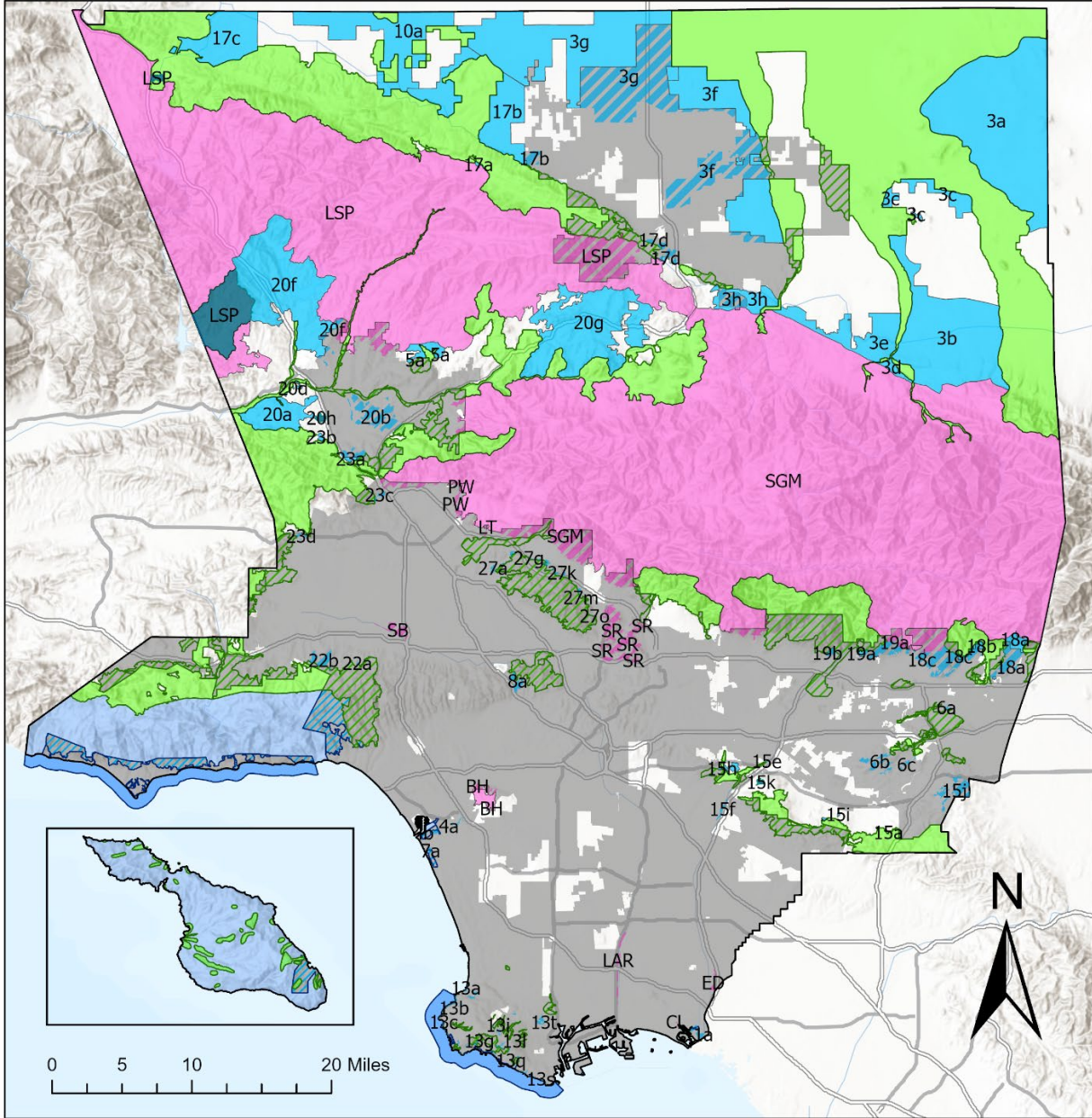
boundaries adequately capture the ecological values and biological resources for which the areas were designated. No boundary adjustments are recommended for the following SEAs:

- » Altadena Foothills and Arroyos
- » Harbor Regional Park
- » Madrona Marsh Preserve
- » Malibu Coastline
- » Point Dume
- » Terminal Island (Pier 400)
- » Tujunga Valley / Hansen Dam
- » Santa Catalina Island (SEAs and CRA)

**Figure 14** shows county-wide recommended boundary adjustments, expansions, consolidations, and proposed new SEAs across Los Angeles County, while **Figure 15-Figure 21** show the distribution of SEA recommendations within regional subareas of the County alongside existing SEAs. Alphanumeric codes (e.g., 3a – 3j) are used to identify and discuss recommended adjustment and expansion areas. The numeric portion of each code corresponds to the SEA numbering used in the General Plan's Significant Ecological Areas and Coastal Resource Areas Policy Map (Figure 9.3, Los Angeles County General Plan, Conservation and Natural Resources Element, 2015).

Section 5.2 presents recommended boundary adjustments and boundary expansions, while Section 5.3 presents proposed new SEAs. Ecological justifications are provided for boundary expansions, and full descriptions are proposed new SEAs.

# Proposed Significant Ecological Areas (SEAs)



Esri, NASA, NGA, USGS, County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

## Legend

- Los Angeles County Boundary
- Incorporated City

### Proposed SEAs

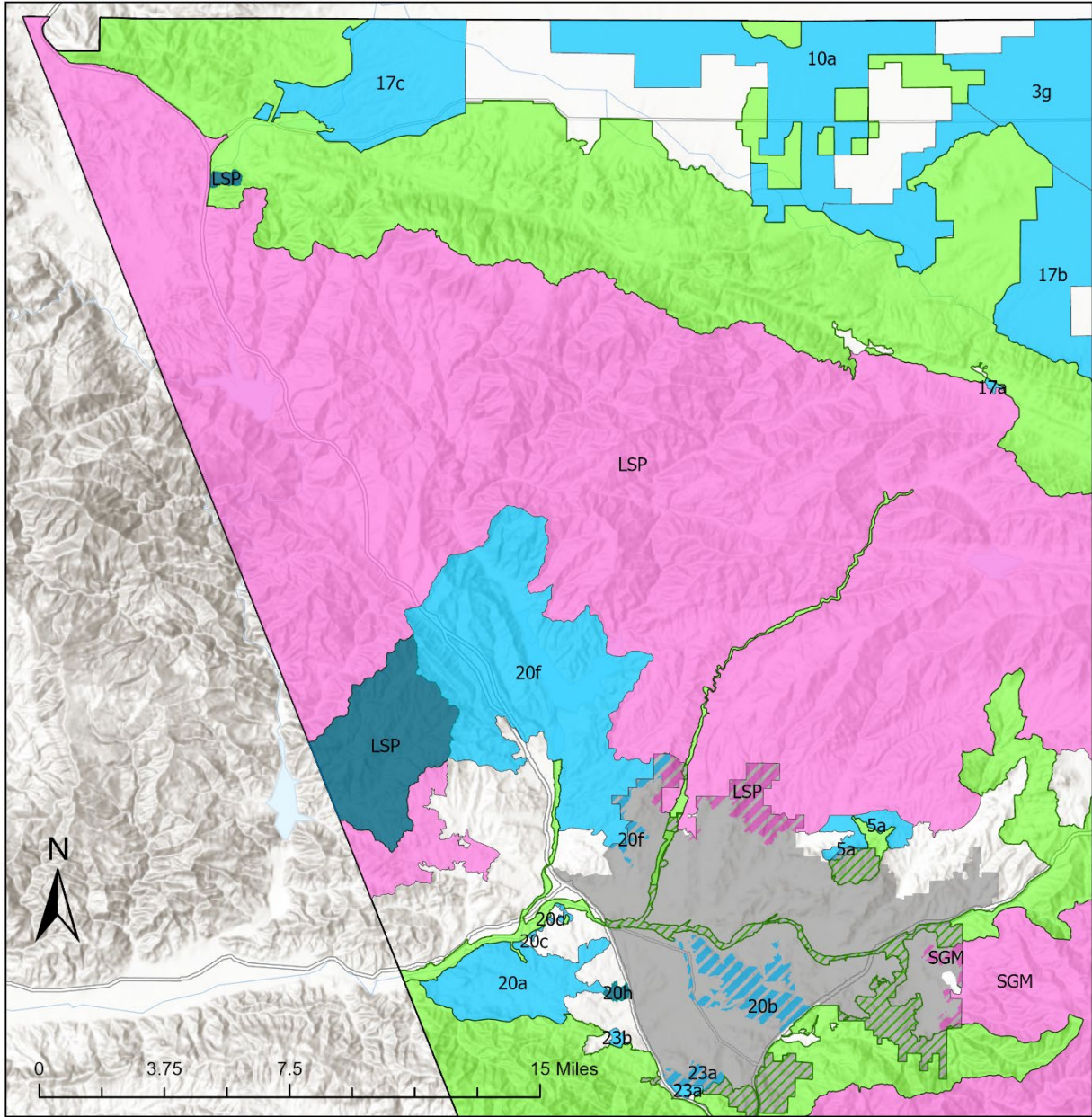
- |  |  |   |   |
|--|--|---|---|
| <b>Unincorporated: 1,454 square miles</b>  |  | <b>Incorporated: 110 square miles</b>   |   |
| <span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Adjustment or Expansion | <span style="background-color: lightblue; border: 1px solid black; border-style: dashed; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Adjustment or Expansion (Incorporated City) | <span style="background-color: pink; border: 1px solid black; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> New | <span style="background-color: pink; border: 1px solid black; border-style: dashed; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> New (Incorporated City) |
| <span style="background-color: darkblue; border: 1px solid black; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Consolidation            |  |   |   |

### Significant Ecological Area (SEA) (existing)

- |   |  |
|---|--|
| <span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Significant Ecological Area   | <span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Coastal Resource Area                               |
| <span style="background-color: lightgreen; border: 1px solid black; border-style: dashed; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Significant Ecological Area (Incorporated City) | <span style="background-color: lightblue; border: 1px solid black; border-style: dashed; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Coastal Resource Area (Ocean) |
| <span style="background-color: lightblue; border: 1px solid black; border-style: dashed; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Coastal Resource Area (Incorporated City)        |  |

Figure 14. Countywide Proposed SEA Updates

# Northwest Proposed Significant Ecological Areas (SEAs)



County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

## Legend

- Los Angeles County Boundary
- Incorporated City

### Proposed SEAs

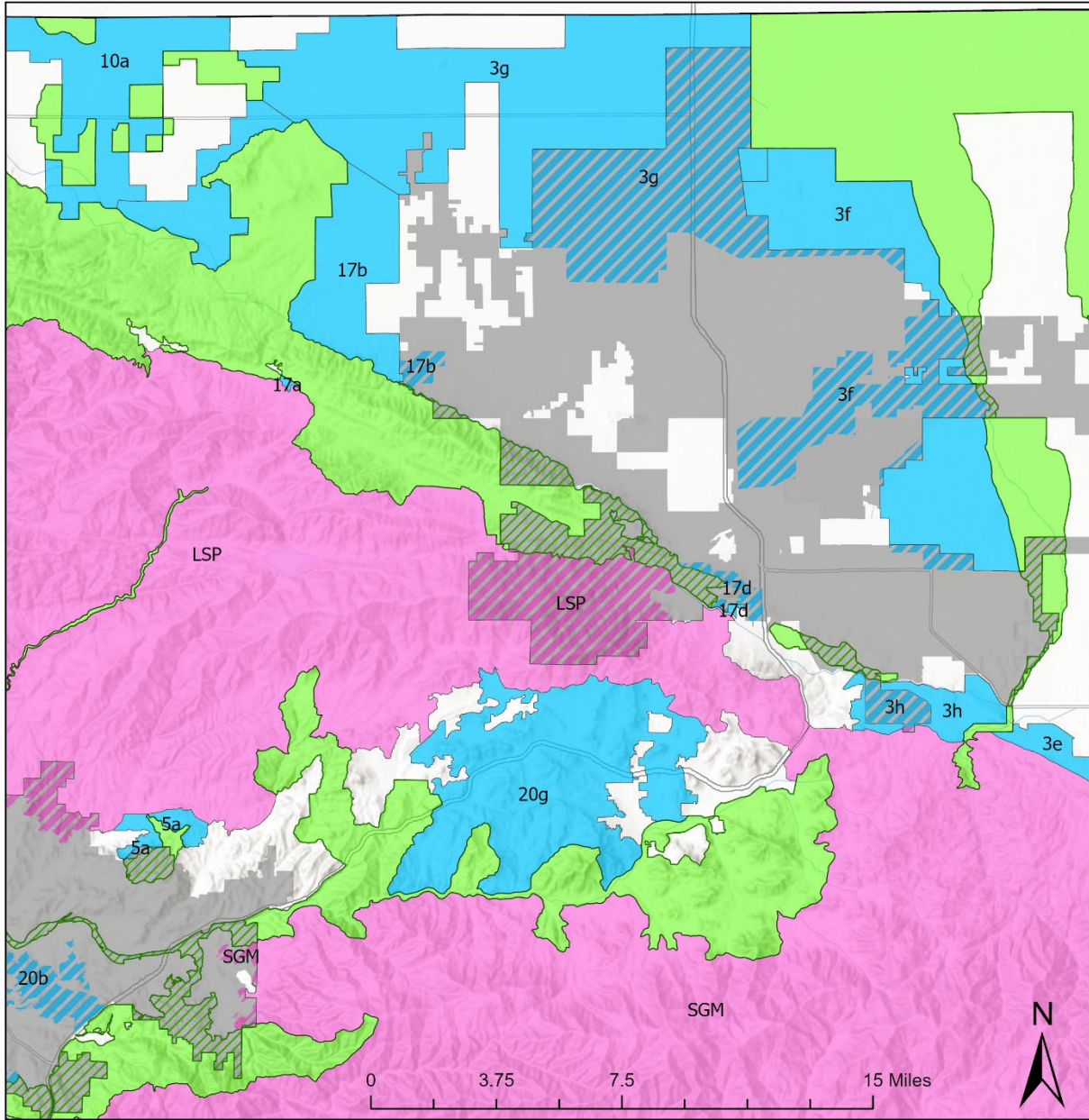
- Adjustment or Expansion
- New
- Adjustment or Expansion (Incorporated City)
- New (Incorporated City)
- Consolidation

### Significant Ecological Area (SEA) (existing)

- Significant Ecological Area
- Coastal Resource Area
- Significant Ecological Area (Incorporated City)
- Coastal Resource Area (Ocean)
- Coastal Resource Area (Incorporated City)

Figure 15. Proposed SEA Updates in the northwestern portion of Los Angeles County

# North Proposed Significant Ecological Areas (SEAs)



County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

## Legend

- Los Angeles County Boundary
- Incorporated City

### Proposed SEAs

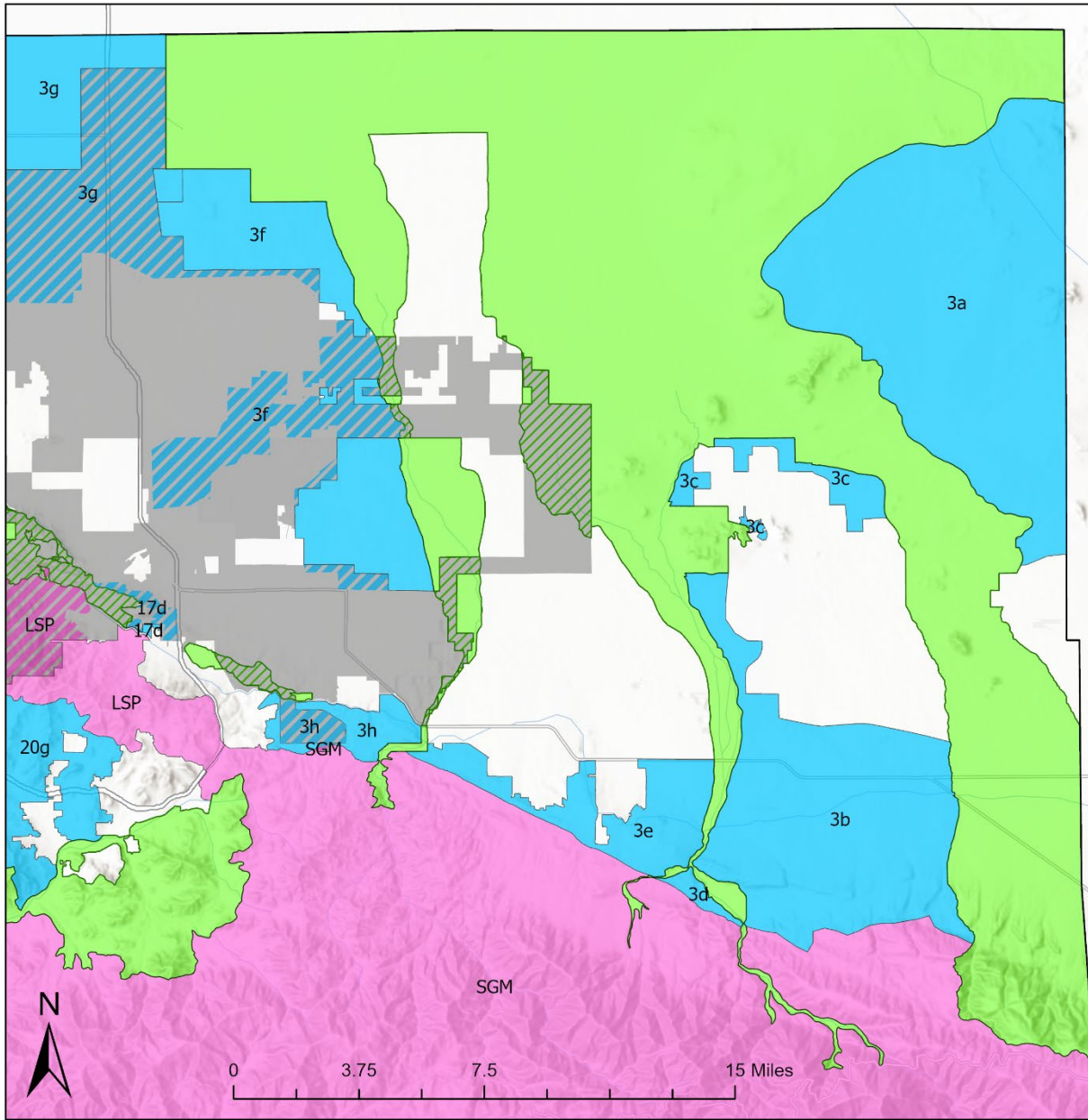
- Adjustment or Expansion
- New
- Adjustment or Expansion (Incorporated City)
- New (Incorporated City)
- Consolidation

### Significant Ecological Area (SEA) (existing)

- Significant Ecological Area
- Coastal Resource Area
- Significant Ecological Area (Incorporated City)
- Coastal Resource Area (Ocean)
- Coastal Resource Area (Incorporated City)

Figure 16. Proposed SEA Updates in the north-central portion of Los Angeles County

# Northeast Proposed Significant Ecological Areas (SEAs)



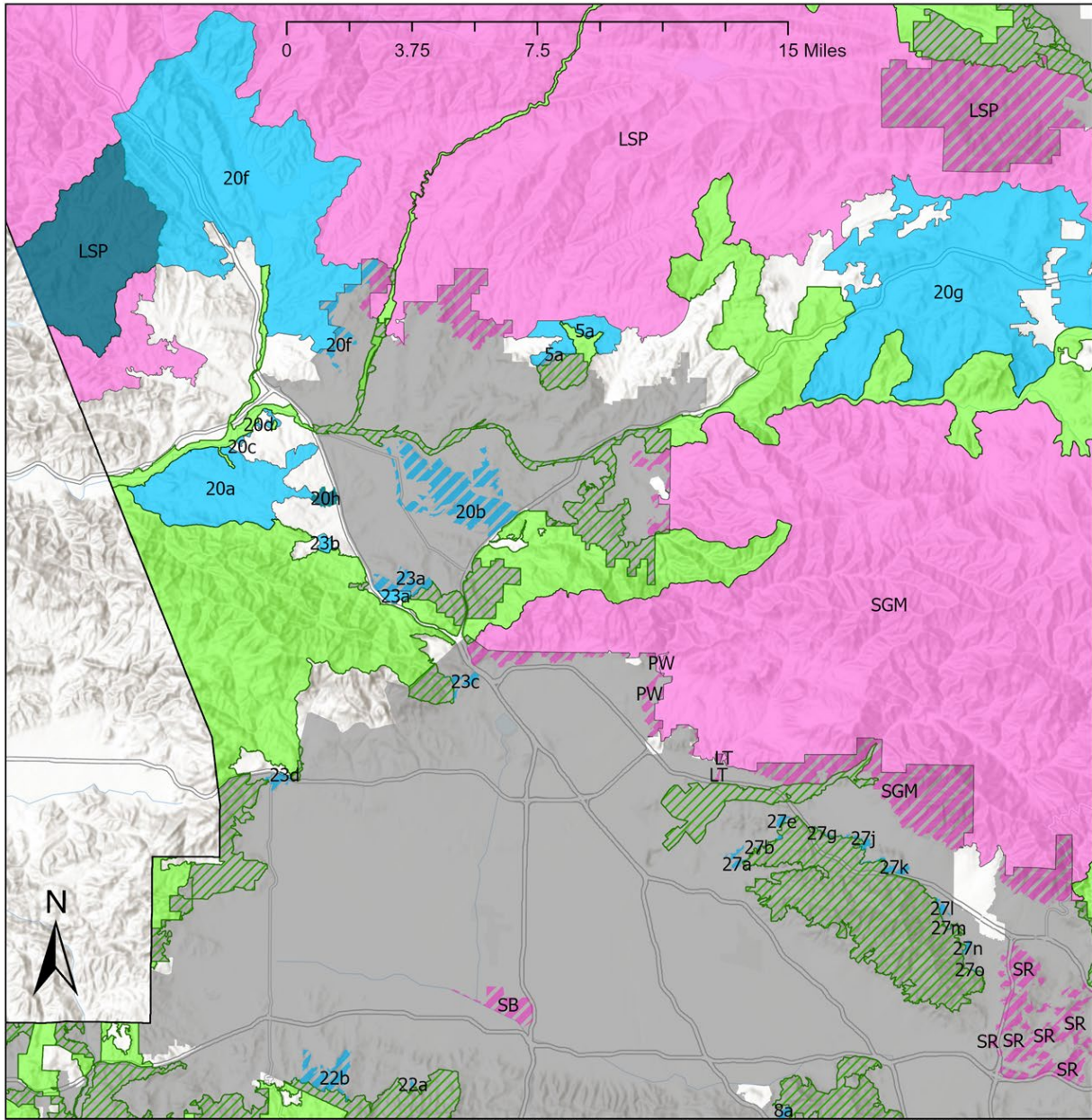
County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

## Legend

- Los Angeles County Boundary
- Incorporated City
- Proposed SEAs**
- Adjustment or Expansion
- New
- Adjustment or Expansion (Incorporated City)
- New (Incorporated City)
- Consolidation
- Significant Ecological Area (SEA) (existing)**
- Significant Ecological Area
- Coastal Resource Area
- Significant Ecological Area (Incorporated City)
- Coastal Resource Area (Ocean)
- Coastal Resource Area (Incorporated City)

Figure 17. Proposed SEA Updates in the northeastern portion of Los Angeles County

# Central Proposed Significant Ecological Areas (SEAs)



County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

## Legend

Los Angeles County Boundary

Incorporated City

### Proposed SEAs

Adjustment or Expansion New

Adjustment or Expansion (Incorporated City) New (Incorporated City)

Consolidation

### Significant Ecological Area (SEA) (existing)

Significant Ecological Area

Significant Ecological Area (Incorporated City)

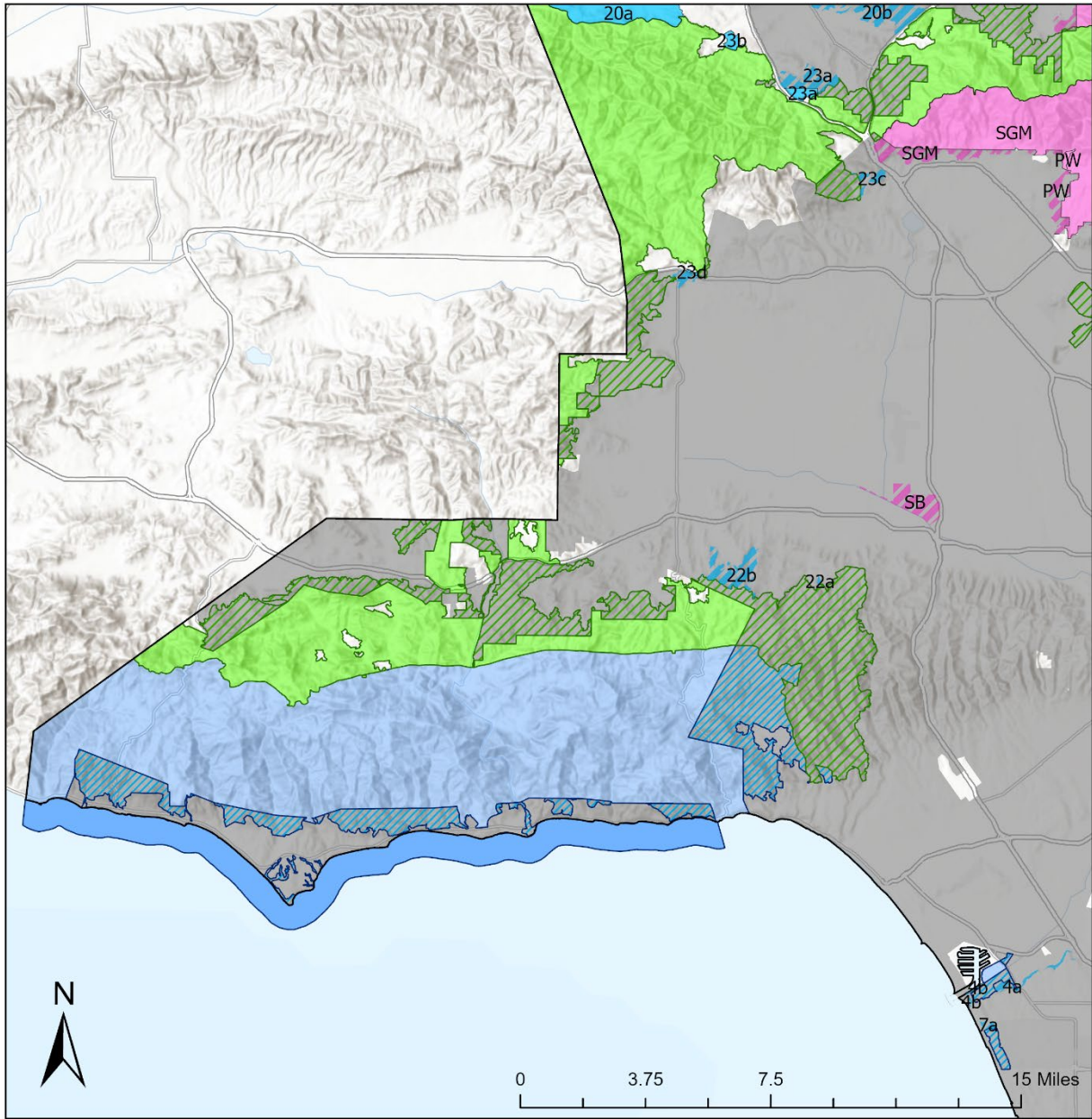
Coastal Resource Area (Incorporated City)

Coastal Resource Area

Coastal Resource Area (Ocean)

Figure 18. Proposed SEA Updates in the west-central portion of Los Angeles County

# Southwest Proposed Significant Ecological Areas (SEAs)



County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

## Legend

- Los Angeles County Boundary
- Incorporated City

### Proposed SEAs

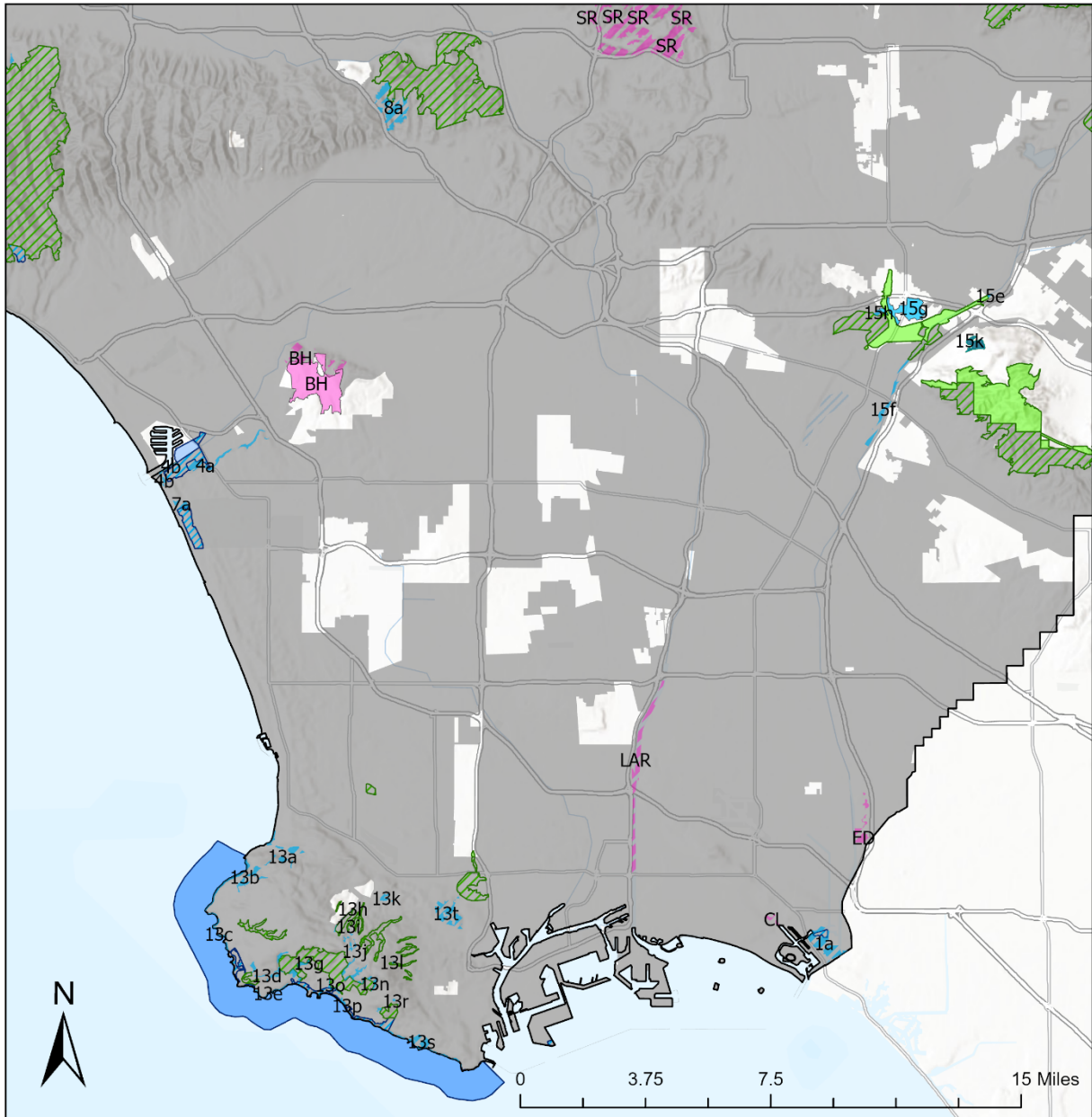
- Adjustment or Expansion
- New
- Adjustment or Expansion (Incorporated City)
- New (Incorporated City)
- Consolidation

### Significant Ecological Area (SEA) (existing)

- Significant Ecological Area
- Significant Ecological Area (Incorporated City)
- Coastal Resource Area (Incorporated City)
- Coastal Resource Area (Ocean)

Figure 19. Proposed SEA Updates in the southwestern portion of Los Angeles County

# South Proposed Significant Ecological Areas (SEAs)



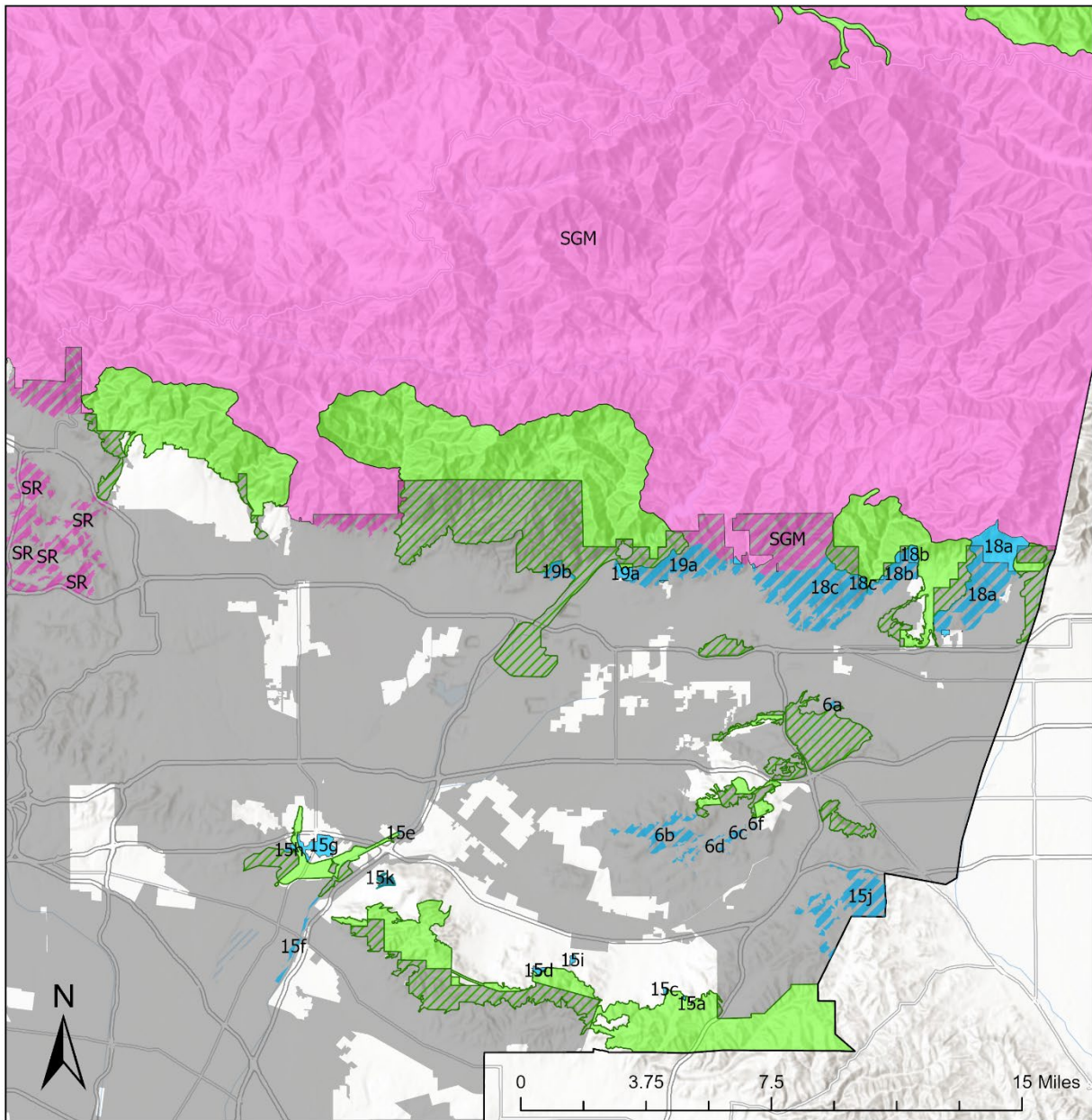
County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

## Legend

- Los Angeles County Boundary
- Incorporated City
- Proposed SEAs**
  - Adjustment or Expansion
  - Adjustment or Expansion (Incorporated City)
  - Consolidation
  - New
  - New (Incorporated City)
- Significant Ecological Area (SEA) (existing)**
  - Significant Ecological Area
  - Significant Ecological Area (Incorporated City)
  - Coastal Resource Area
  - Coastal Resource Area (Ocean)
  - Coastal Resource Area (Incorporated City)

Figure 20. Proposed SEA Updates in the southernmost portion of Los Angeles County

# Southeast Proposed Significant Ecological Areas (SEAs)



County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

## Legend

Los Angeles County Boundary

Incorporated City

### Proposed SEAs

Adjustment or Expansion (New)

Adjustment or Expansion (Incorporated City) (New (Incorporated City))

Consolidation

### Significant Ecological Area (SEA) (existing)

Significant Ecological Area

Significant Ecological Area (Incorporated City)

Coastal Resource Area (Incorporated City)

Coastal Resource Area

Coastal Resource Area (Ocean)

Figure 21. Proposed SEA Updates in the southeastern portion of Los Angeles County

## 5.2 Recommended SEA Adjustments & Consolidations

Recommended updates to existing SEA boundary were developed through integrated review of species data, habitat patterns, landscape connectivity, and contemporary field observations. For each existing SEA, the discussion below summarizes recommended minor boundary adjustments and consolidations.

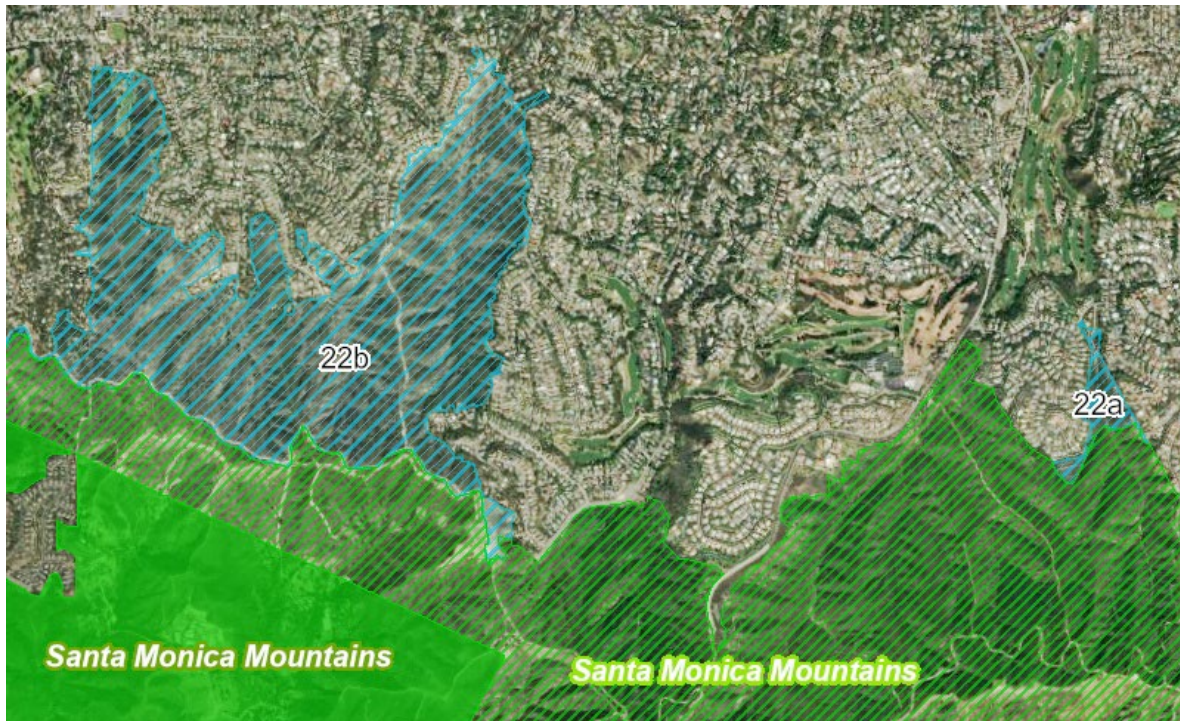
### RECOMMENDED BOUNDARY ADJUSTMENTS

The following SEAs include only minor boundary adjustments intended to better align SEA boundaries with ecological features, existing habitat conditions, or the edge of urban development.

#### Santa Monica Mountains SEA (Subareas 22a – 22b)

##### Recommendation:

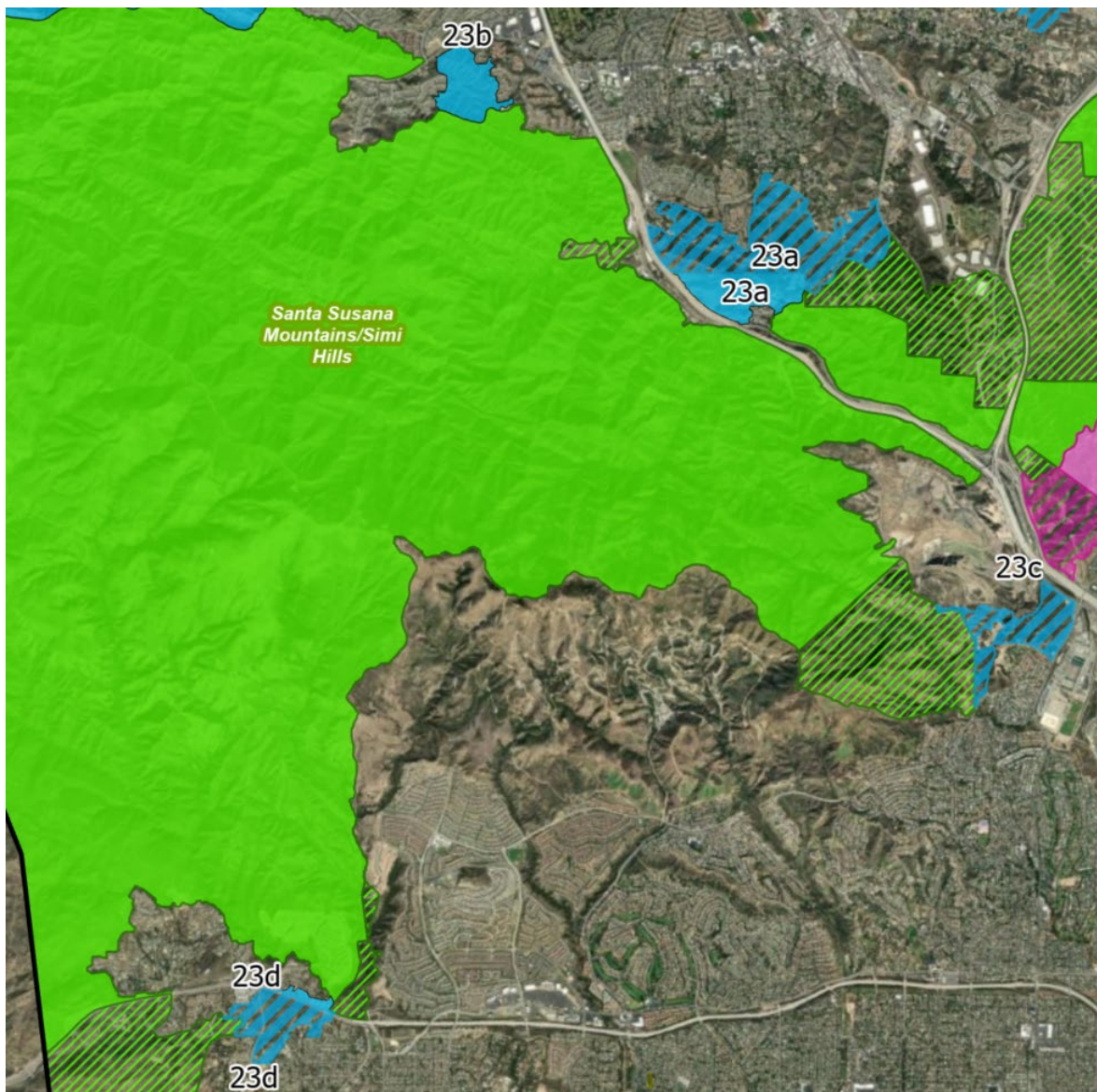
Adjust the SEA boundary of the northeastern San Monica Mountains SEA to include approximately 22.2 acres along a ridge south of the Caballero Country Club (22a) and approximately 700 acres encompassing Serrania Park and Corbin Canyon (22b). These areas contain habitat comparable to that within the adjacent SEA and, in the case of Serrania-Corbin Canyon, include relatively intact walnut woodland and other low-elevation habitats that remain less developed than portions of the SEA to the south. Inclusion of these areas would also strengthen an important east-west movement zone along the northern base of the eastern Santa Monica Mountains for species such as mule deer and mountain lions.



## Santa Susana Mountains/Simi Hills SEA (Subareas 23a – d)

### Recommendation:

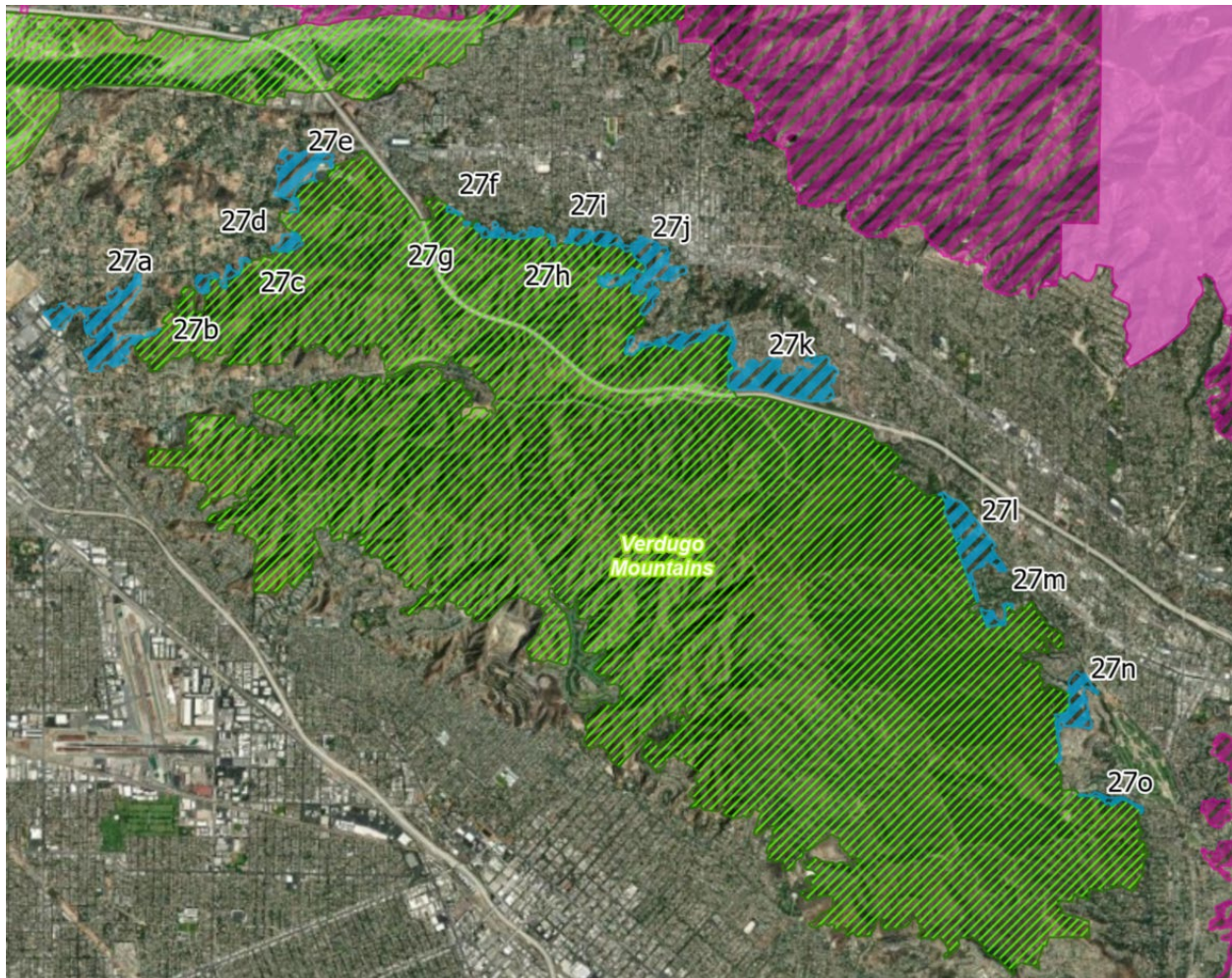
Adjust the SEA boundary in four localized areas (Subareas 23a – d) to incorporate adjacent natural habitat and improve connectivity along the southeastern margin of the existing SEA. These refinements include approximately 167 acres south of San Fernando Road/Interstate 5 and west of Balboa Boulevard, encompassing a hillside that supports a large population of *Lupinus paynei* (CRPR 1B.1) and southern California black walnut woodland. Additional adjustments capture adjacent undeveloped hillsides and habitat patches that would improve continuity of natural vegetation and strengthen potential linkage with nearby open space to the east and northeast. Inclusion of these areas would extend the SEA boundary toward the Balboa Boulevard bridge over Interstate 5 and reduce fragmentation along the urban interface.



## Verdugo Mountains SEA (Subareas 27a – o)

### Recommendation:

Adjust the SEA boundary to include 15 small areas located around the margins of the existing SEA. These areas contain habitat conditions comparable to those within the adjacent SEA—including intact, high-quality coastal sage scrub—and appear to have been excluded from the existing designation due to mapping limitations or boundary simplification. Situated along the interface between the Verdugo Mountains and surrounding development, these areas are particularly vulnerable to degradation from fuel modification, vegetation clearing, and other forms of disturbance. Inclusion of these areas would improve the consistency of the SEA boundary.



## SEA CONSOLIDATION RECOMMENDATIONS

The evaluation process found that certain existing SEAs, along with their recommended adjustments or expansions, would be more appropriately represented as part of a larger, contiguous ecological unit. In cases where adjacent areas share the same biological systems, landscape processes, and geographic context, consolidation can improve the

clarity, functionality, and manageability of the SEA Program. The following consolidations are recommended based on this analysis:

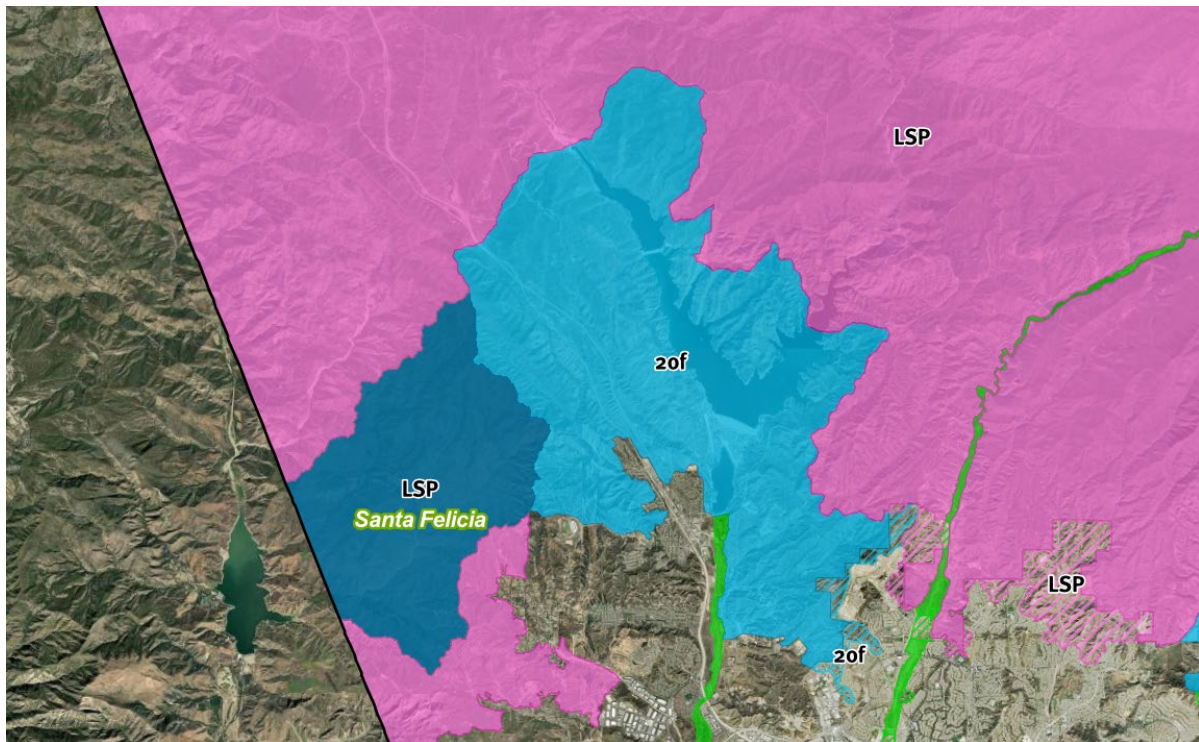
### **Santa Felicia SEA → proposed Liebre – Sierra Pelona (LSP) SEA<sup>4</sup>**

The existing Santa Felicia SEA, including its mapped expansion area, was evaluated in relation to the proposed Liebre – Sierra Pelona SEA (LSP SEA). This evaluation found that Santa Felicia represents a continuation of the same biological systems, landscape processes, and geographic setting that define the broader Liebre – Sierra Pelona region.

These areas share common vegetation communities, wildlife movement patterns, and topographic features, and function as part of a single, integrated ecological landscape. Maintaining Santa Felicia as a standalone SEA would artificially segment what is, in actuality, a contiguous ecological system.

#### **Recommendation:**

The Santa Felicia SEA and its associated expansion areas should be consolidated into the proposed Liebre – Sierra Pelona SEA. As a result, the ecological values and characteristics previously attributed to Santa Felicia are incorporated into the Liebre – Sierra Pelona SEA description (see Section 5.4), and Santa Felicia is no longer regarded as a separate SEA.



<sup>4</sup> See Section 5.4 (New SEA Descriptions) for additional information on the proposed Liebre – Sierra Pelona SEA.

### Rio Hondo College Wildlife Sanctuary SEA → Puente Hills SEA<sup>5</sup>

The existing Rio Hondo Wildlife Sanctuary SEA was evaluated in relation to the broader Puente Hills SEA, particularly in the context of recommended adjustments along the San Gabriel River, Rio Hondo corridor, and Whittier Narrows area. This evaluation found that the Rio Hondo Wildlife Sanctuary functions as part of the same interconnected ecological system as the western Puente Hills SEA, rather than as a distinct or isolated unit.

#### **Recommendation:**

The Rio Hondo College Wildlife Sanctuary SEA should be consolidated into the Puente Hills SEA. Its ecological functions and resource values are incorporated into the expanded Puente Hills SEA, and Rio Hondo Wildlife Sanctuary is no longer regarded as a separate SEA.



### Valley Oaks Savannah SEA → Santa Clara River SEA<sup>6</sup>

The existing Valley Oaks Savannah SEA was evaluated in relation to the Santa Clara River SEA, particularly in light of the SEA's role as a regionally significant connectivity corridor and the recommended SEA expansions within the Santa Clarita Valley. This evaluation found that the Valley Oaks Savannah represents a remnant and ecologically important

<sup>5</sup> See the Puente Hills SEA discussion in Section 5.3 and the SEA description in the General Plan Appendix E for more detailed information about the Puente Hills SEA.

<sup>6</sup> See the Santa Clara River SEA discussion in Section 5.3 and the SEA description in the General Plan Appendix E for more detailed information about the Santa Clara River SEA.

component of the broader Santa Clara River landscape and should be considered part of the Santa Clara River SEA.

The Valley Oaks Savannah SEA supports one of the last remaining stands of valley oak (*Quercus lobata*) in the Santa Clarita Valley, a habitat type that is both regionally uncommon and of high ecological value due to its position near the southern limit of the species' range. Although the SEA itself primarily supports local wildlife movement and functions as a foraging area for birds and smaller wildlife, it is immediately adjacent to and functionally linked with the larger Santa Clara River system and associated upland habitats.

Recommended refinements and expansions to the Santa Clara River SEA—including extensions around Newhall Ranch, Castaic Creek, and adjacent upland areas—further integrate this portion of the landscape into a continuous ecological framework. Incorporating the Valley Oaks Savannah into the Santa Clara River SEA better reflects the role of this habitat as part of the broader riverine and upland mosaic that supports regional biodiversity and connectivity.

Maintaining the Valley Oaks Savannah as a standalone SEA would isolate a relatively small habitat patch from the larger system to which it is ecologically tied, reducing clarity in how the area functions within the County's SEA Program.

**Recommendation:**

The Valley Oaks Savannah SEA should be consolidated into the Santa Clara River SEA. Its ecological values—particularly its rare valley oak savannah habitat—are incorporated into the expanded Santa Clara River SEA, and the area is included as part of the overall connectivity framework described for that SEA. As a result, the Valley Oaks Savannah is no longer presented as a separate SEA.



## 5.3 Recommended SEA Expansions

The following SEAs include boundary expansions that incorporate adjacent areas supporting sensitive habitats, documented occurrences of special-status species, or landscapes that strengthen ecological connectivity and representation of important habitat types within the SEA Program. In some cases, these SEAs also include minor boundary adjustment recommendations alongside larger expansion recommendations. Where both expansions and adjustments are recommended for the same SEA, they are described below, while SEAs with only minor adjustments are addressed separately above. For larger or more geographically diverse SEAs, subareas or groups of subareas are described to provide more detailed discussion of ecological characteristics and justification. Where subareas share similar primary ecological justifications or geographic context, they are grouped and described together.

### Alamitos Bay SEA (Subarea 1a)

#### **Recommendation:**

Expand the SEA to incorporate adjacent areas of the Los Cerritos Wetlands complex undergoing ecological restoration and/or those recently restored, including lands south of Steamshovel Slough currently approved for a major oil-field reclamation project and natural open space north of the channel restored pursuant to a California Coastal Commission enforcement action. The expansion extends the SEA beyond the currently undisturbed core of Steamshovel Slough to include areas that will function as restored tidal wetlands and associated uplands.



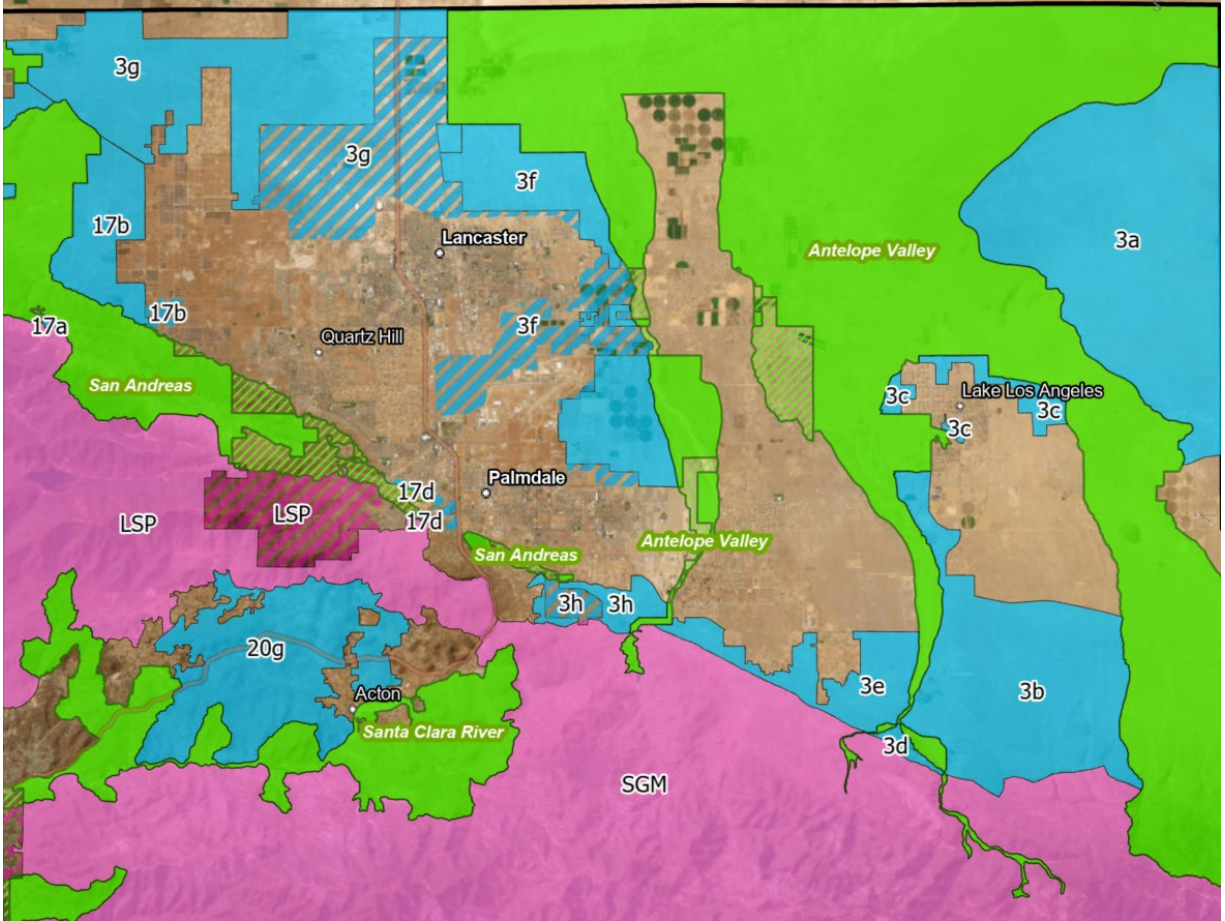
### Primary Ecological Justifications:

- **Criterion A:** Documented occurrences of California least Tern, Belding's Savannah sparrow, and *Centromadia parryi ssp. australis*.
- **Criterion B/C:** Occurrences of numerous Bird Species of Special Concern (e.g., Redhead, least Bittern, northern Harrier, and Clark's Marsh Wren) and Los Angeles County Bird Species of Concern.
- **Criterion D:** Existing and restored wetlands provide important foraging habitat for a broad suite of permanent and seasonal wetland-dependent species. Permanent and seasonal wetlands have been extensively lost in Los Angeles County.
- **Criterion E:** Coastal salt marsh and alkali seasonal wetlands present across the entire Los Cerritos wetland/Alamitos Bay complex represents some of the rarest and most heavily depleted habitat types in Los Angeles County.
- **Criterion F:** Although not undisturbed, the planned restoration seeks to reestablish ecological conditions comparable to intact tidal marsh systems such as Steamshovel Slough.
- **Criterion G:** Restoration will reduce fragmentation and improve functional ecological connectivity within the Los Cerritos Wetlands complex.
- **Traditional Ecological Knowledge:** The Los Cerritos Wetlands are culturally significant and recognized as an important ancestral landscape associated with the Kizh.

### Antelope Valley SEA (Subareas 3a – 3h)

#### Recommendation:

Substantial expansion of the Antelope Valley SEA is recommended to capture intact desert landscapes, transition zones, and riparian systems currently excluded from the existing boundary. Proposed adjustments include extensions across the northeastern corner of the County (east of 172nd Street East), multiple eastern and western "arms" of the SEA, areas surrounding Lake Los Angeles (including Stephen Sorensen Park and adjacent alkali sink habitats), montane – desert transition zones near Valyermo and Juniper Hills, open-space areas west toward developed edges near Palmdale and Littlerock, and portions of the alkali sink scrub habitat north of Lancaster not currently within an SEA.



Subarea 3a. Northeastern Corner

The northeastern corner of the County is ecologically distinct from the rest of the Antelope Valley and supports some of the highest concentrations of federally and state protected species in Los Angeles County, such as Mojave desert tortoise (including officially designated Critical Habitat) and Mojave ground squirrel. Existing SEA boundaries in this area largely follow only the active wash corridors. This proposed expansion captures additional adjacent uplands and higher portions of wash systems necessary to sustain ecological function, as well as significant habitats like Joshua tree woodland, rocky buttes, intact roadless areas of creosote bush scrub (including communities on both sandy and gravel soil), and alluvial washes not included in earlier mapping, all of which are habitats occupied by the rare plants and wildlife of this SEA.

**Primary Ecological Justifications:**

- **Criterion A:** Mojave ground squirrel and Mojave desert tortoise, burrowing owl.
- **Criterion B/C:** Areas of locally rare plants and wildlife, including LeConte's thrasher, *Monardella exilis*, and *Muilla coronata*.

- **Criterion E:** The area represents a westward extension of central Mojave Desert flora and fauna into Los Angeles County, with many species reaching their westernmost limit in the County.
- **Criterion F:** Contains some of the best remaining examples of undisturbed creosote-bush scrub and rocky butte habitats in Los Angeles County.

### Subarea 3b. Southeastern Antelope Valley

Similar in habitat types to Subarea 3a, Subarea 3b connects the two “arms” of the existing SEA, which were mapped along a narrow corridor following Big Rock Wash and, along the eastern county line, Mescal Wash. Connecting these two washes provides east-west movement opportunities for wildlife and protects some of the most intact natural desert scrub east of the community of Llano and south of Lake Los Angeles, where habitat connectivity remains high and soil disturbance is limited. Although not as remote or undisturbed as the far northeastern corner, Subarea 3b contains large intact areas, including the landscape north of Llano.

This subarea includes extensive undisturbed desert habitats such as creosote bush scrub and alkali scrub dominated by saltbushes (*Atriplex* spp.). Much of this landscape remains roadless and has received limited biological study. Desert bird species such as LeConte’s thrasher and Scott’s orioles are both presumed to breed here.

Based on known ecological and species distributional data, diversity and concentrations of rare species increase toward the southern portion of this subarea, although human disturbance also increases in that direction, particularly along Pearblossom Highway. Notable concentrations of rare plant species richness occur south of the railroad tracks and Lancaster Road, where areas of high rare butterfly richness are also present. A record of southern grasshopper mouse suggests that the small mammal community within this subarea remains intact.

#### Primary Ecological Justifications:

- **Criterion A:** Burrowing owl and Joshua tree woodland, including areas of Joshua tree woodland near its upper and lower elevational limit in the County.
- **Criterion B/C:** LeConte’s thrasher, Scott’s oriole, southern grasshopper mouse; high rare plant richness; rare butterfly richness toward the south (e.g., Mojave dotted-blue).
- **Criterion F:** Contains large, roadless and undisturbed areas of Mojave Desert floor habitats.
- **Criterion G:** Provides regional connectivity for desert-floor species such as desert kit fox, and supports climate-driven range shifts (e.g., Joshua tree migration), lateral movement across washes into adjacent uplands, and connectivity across multiple major transportation corridors.

### Subarea 3c. Lake Los Angeles (Adjustments)

The recommended boundary adjustment of the SEA north and east of the community of Lake Los Angeles encompasses some of the rarest habitat types in the County, including alkali sink scrub, freshwater wetland (fed by natural springs), and rocky buttes. These diverse habitats around Lake Los Angeles represent a mosaic that are not found in close association in many places within the County.

#### Primary Ecological Justifications:

- **Criterion B/C:** Several species of bats utilize the rocky buttes found here, including potentially state-rare species. Rare habitats include alkali sink scrub and alkali meadow.
- **Criterion E:** The mosaic of habitats occurring in close proximity—including rocky buttes, creosote bush scrub, Joshua tree woodland, and extensive alkali meadow and alkali sink systems—represents an unusual combination of communities that makes the Lake Los Angeles area distinctive within the County.

### Subarea 3d. Big Rock Wash (Adjustment)

This minor boundary adjustments connects two of the “arms” of Big Rock Wash where they emerge from the north slope of the San Gabriel Mountains. Big Rock Wash is one of the most significant riparian habitats in the Los Angeles County portion of the Mojave Desert, supporting exceptionally high diversity of breeding and migratory birds, including Species of Special Concern such as summer tanager and yellow-breasted chat. This area represents the last known breeding location for gray vireo (California Species of Special Concern) in the County and may support future reestablishment. The area also appears to support a high concentration of rare plants, although much of it remains understudied due to rugged terrain and limited public access.

Adjacent uplands support breeding Scott’s oriole (Los Angeles County Bird Species of Concern), which is becoming rare at the northwestern edge of its California range.

#### Primary Ecological Justifications:

- **Criterion A:** *Calochortus palmeri* var. *palmeri*, *Opuntia basilaris* var. *brachyclada*; Joshua tree woodland.
- **Criterion B/C:** LeConte's thrasher, Scott's oriole, southern grasshopper mouse; high rare plant richness; elevated rare butterfly richness toward the south.
- **Criterion D:** Desert riparian and adjacent upland habitats provide critical resources for desert wildlife, including resident species and migratory birds.
- **Criterion F:** The subarea is nearly entirely roadless.
- **Criterion G:** Supports climate-driven range shifts (e.g., Joshua tree migration) and facilitates lateral movement from riparian zones into adjacent uplands.

### Subarea 3e. Pearblossom South

This expansion covers more of the full extent of Big Rock Wash (western edge), and connects this area east to west with another major drainage in the eastern Antelope Valley, Little Rock Wash. Centered on the community of Pearblossom (but excluding developed areas), this takes in large, intact stands of Joshua tree woodland and other desert-edge habitats, and includes the County's Jackrabbit Flat Wildlife Sanctuary.

Numerous plants with highly limited ranges in the county are known from this desert-montane transition area along San Andreas fault, particularly on limestone or gypsum-rich substrates, including *Asclepias erosa*, *A. vestita*, *Calochortus kennedyi*, *Caulanthus inflatus*, *Encelia actoni*, *Eriogonum clavatum*, *E. deflexum*, *Eriophyllum multicaule*, *Erythranthe androsace*, *Mucronea perfoliata*, *Opuntia basilaris* var. *brachyclada*, *Oxytheca perfoliata*, *Perideridia pringlei*, *Quercus palmeri*, *Salvia dorrii*, *Syntrichopappus lemmonii*, and *Xylorhiza tortifolia* (M. Smith, via email).

#### Primary Ecological Justifications:

- **Criterion A:** Burrowing owl; Mojave ground squirrel; Joshua tree woodland.
- **Criterion B/C:** LeConte's thrasher, Scott's oriole; high rare plant richness toward the mountains; pockets of rare butterfly diversity.
- **Criterion F:** The subarea is nearly entirely roadless, with largely undisturbed soils.
- **Criterion G:** The desert-montane transition habitat around Juniper Hills west to Little Rock Wash serve as major montane-desert transition zones for wildlife moving in elevation, as well as laterally out of the washes into adjacent uplands.

### Subarea 3f. Lancaster East

Some of the county's last large agricultural areas are found just east of Palmdale and Lancaster, where ranchyards and alfalfa fields support the few remaining pairs of nesting Swainson's hawks, wintering mountain plovers, and other grassland birds. These modified habitats are interspersed with, and in some cases, reverting to, natural alkali scrub communities (including sand sheet communities or alkali sink, depending on topography). These habitats continue northeast of Palmdale, well east of Lancaster, up to the Edwards Air Force Base boundary.

#### Primary Ecological Justifications:

- **Criterion A:** Swainson's hawk, burrowing owl, tricolored blackbird, Joshua tree woodland
- **Criterion B/C:** Short-eared owl, LeConte's thrasher, mountain plover; several areas of high rare plant richness
- **Criterion D:** Swainson's hawk nesting habitat

- **Criterion G:** The subarea is important for local wildlife movement around the eastern urban edge of Lancaster.

### Subarea 3g. Lancaster North

This large area of alkali scrub is dominated by saltbushes (*Atriplex* spp.) and includes some of the most intact areas of alkali sink scrub habitat in the county, including extensive areas of vernal pools rich in wildflowers during and after rainy winters. The habitat extends on both sides of Highway 14, both south and west of Edwards AFB, and thus serves to connect SEA habitats farther west (i.e., Joshua Tree Woodland SEA). This narrowing corridor of undeveloped land between Lancaster and Rosamond is becoming even more significant as more plant species are recognized as rare at various geographical scales, including being new to science (e.g., *Eriastrum rosamondense*, *E. johnsonii*). In addition, several plant (and invertebrate) species are found only in the county in these alkali scrub habitats, including *Artemisia spinescens*, *Atriplex parryi*, *A. spinifera*, *A. torreyi*, *Calochortus striatus*, *Chorizanthe spinosa*, *Cirsium mohavense*, *Cleomella obtusifolia*, *Eriastrum rosamondense*, *Isocoma acradenia* var. *acradenia*, *Leucosyris carnosus*, *Loeflingia squarrosa* var. *artemisiarum*, *Neokochia californica*, *Psathyrotes ramosissima*, *Stutzia covillei*, *Symphytichum frondosum*, and *Thelypodium integrifolium* var. *affine* (M. Smith, via email).

Numerous bird and other wildlife species with a tenuous foothold in the county occur within this expansion area (or similar habitat in the vicinity), including LeConte's thrasher, short-eared and burrowing owls, and others.

#### Primary Ecological Justifications:

- **Criterion A:** Swainson's hawk, burrowing owl, tricolored blackbird, alkali mariposa lily, *Eriastrum rosamondense*, Joshua tree woodland.
- **Criterion B/C:** Short-eared owl, LeConte's thrasher; pockets of high plant richness throughout, and rare butterflies associated with this habitat, including alkali skipper and San Emigdio blue.
- **Criterion D:** Swainson's hawk nesting habitat.
- **Criterion E:** Alkali sink scrub/vernal pool habitat is unique and has no analogue elsewhere in the County.
- **Criterion F:** The subarea is nearly entirely roadless, with many areas of never-disturbed soil.
- **Criterion G:** Important east-west movement area for species to cross Highway 14, and essentially the largest area with desert-floor habitat on either side of this major freeway in the County.

### Subarea 3h. Barrel Springs

This recommended boundary expansion lies within the desert-montane transition zone between the proposed Liebre-Sierra Pelona SEA and proposed San Gabriel Mountains SEA. It also functions as a linkage between the San Andreas SEA with the Antelope Valley SEA.

The eastern portion of the expansion area shares localized flora characteristic of the San Andreas SEA, as well as the proposed Pearblossom South and Southeastern Antelope Valley subareas.

**Primary Ecological Justifications:**

- **Criterion A:** Burrowing owl, *Opuntia basilaris* var. *brachyclada*.
- **Criterion B/C:** Scott's oriole; high rare plant richness toward eastern portion.
- **Criterion E:** The subarea represents a unique convergence of desert, montane, and coastal-slope ecosystems (via Acton Wash, which drains to the Santa Clara River)
- **Criterion G:** Important east-west movement area across Highway 14, and a linkage between Liebre – Sierra Pelona and San Gabriel Mountains ecosystems.

**Ballona Wetlands SEA (Subareas 4a – 4b)**

**Recommendation:**

Extend the SEA downstream to incorporate Del Rey Lagoon and Toes Beach Dune, and upstream to include the Bluff Creek riparian corridor. These additions expand the SEA to capture connected coastal wetland, dune, and riparian habitats that function as an integrated ecological system within the lower Ballona Creek watershed.



**Primary Ecological Justifications:**

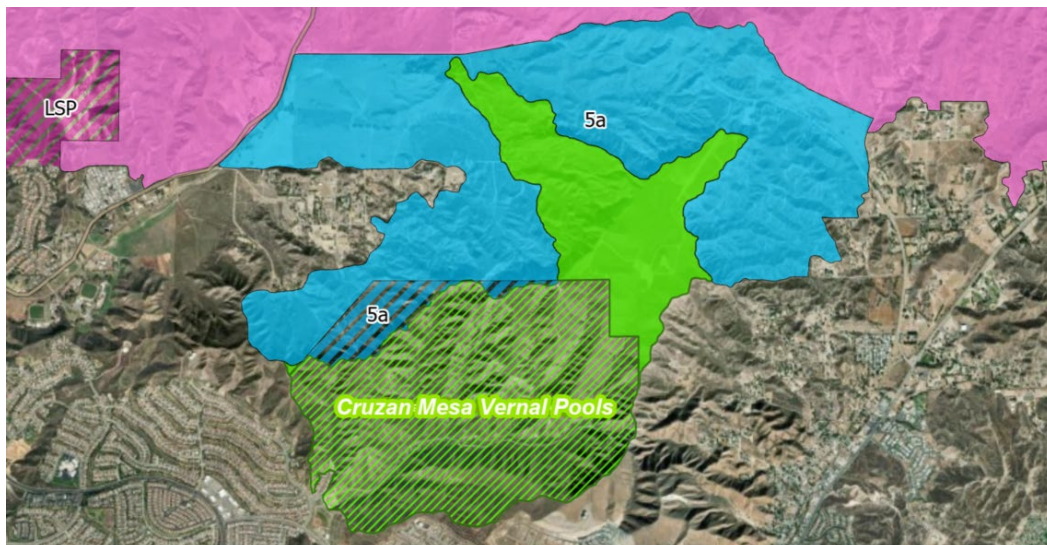
- **Criterion A:** Least Bell's vireo nests within the Bluff Creek riparian corridor.
- **Criterion B/C:** Least bittern and northern yellow warbler, both California Species of Special Concern, over-summer and likely nest within the Bluff Creek corridor.

- **Criterion D:** Del Rey Lagoon functions as a significant congregation and foraging area for waterbirds; over 218 avian species have been documented, including egrets and herons that nest nearby in Marina del Rey, as well as wintering and migratory ducks, shorebirds, gulls, and other waterbirds.
- **Criterion E:** Coastal riparian woodlands, lagoons, and dune systems are rare and severely depleted habitat types in Los Angeles County.
- **Criterion F:** Inclusion of restored dune and riparian habitats reduces fragmentation and improves functional connectivity within the lower Ballona Creek ecosystem.
- Toes Beach Dune, while too small to warrant standalone SEA designation, represents a restored coastal dune system that gains ecological relevance through its connection to the expanded Ballona Wetlands SEA.

### Cruzan Mesa Vernal Pools SEA (Subarea 5a)

#### Recommendation:

Expand the SEA northward to major roads to encompass the full Cruzan Mesa landscape, including the complete vernal pool complex and adjacent uplands. The expansion captures associated unusual habitats, including eroding cliffs and adjacent alluvial plain features that contribute to the area's ecological diversity.



#### Primary Ecological Justifications:

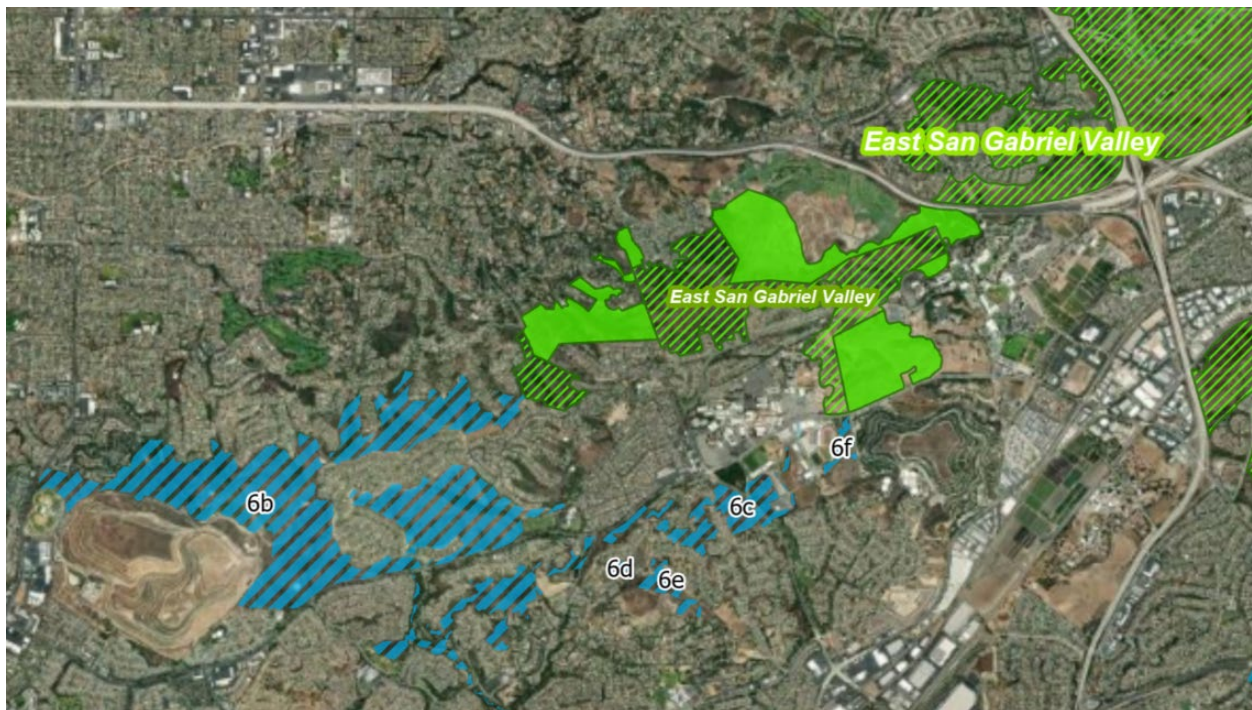
- **Criterion A:** Documented occurrences of tricolored blackbird, western spadefoot, *Calochortus clavatus* var. *gracilis*, and unarmored threespine stickleback (along Bouquet Canyon, per CNDDDB).

- **Criterion B/C:** Concentrations of rare plants and wildlife associated with vernal pools, open grasslands, and wash habitats.
- **Criterion E:** Eroding sandstone cliffs provide unique nesting habitat for raptors and support specialized plant assemblages; the adjacent alluvial plain along Bouquet Canyon represents an uncommon grassland-wash complex within the Santa Clarita region.
- Expansion improves representation of the full ecological setting supporting the vernal pool system, rather than isolating pools from their surrounding upland and geomorphic context.

### East San Gabriel Valley SEA (Subareas 6a – 6f)

#### Recommendation:

Expand SEA to capture large blocks of open space with substantial areas of grassland, cactus scrub, coastal sage scrub, oak/walnut woodland, and riparian woodland. The hillsides south of Amar Road are especially valuable as expanses of intact cactus scrub occupied by a little-known population of coastal California gnatcatchers and cactus wrens (multiple pairs of both species documented in field visits). Extending the existing SEA just west of Grand Avenue to include Galster Wilderness Park and then south across Amar Road will incorporate a sycamore-willow riparian corridor that runs along North Lemon Avenue, which connects to a series of intact cactus scrub-covered hillsides that extend east back across Grand Avenue to the campus of Mt. San Antonio College. Recommended adjustments also add a 41-acre hillside of cactus scrub north of Puddingstone Reservoir.



### Primary Ecological Justifications:

- **Criterion A:** Presence of coastal California gnatcatcher.
- **Criterion B/C:** Suitable habitat for numerous sensitive wildlife species now uncommon in coastal southern California, including cactus wren, burrowing owl, grasshopper sparrow.
- **Criterion E:** This cluster of several extensive stands of intact cactus scrub, occupied by multiple pairs of cactus wrens, is now unusual in the region, following years of intensive development, numerous wildfires, fuel modification actions, invasions of non-native plants, and, in some areas, overtopping of cactus by native and non-native plants, all of which continue to degrade the remaining areas of cactus scrub habitat.
- **Criterion G:** Designation would reduce habitat fragmentation and increase connectivity in an area that appears highly vulnerable to ongoing habitat loss around the edges (ongoing loss observed during field visits).

### El Segundo Dunes SEA (Subarea 7a)

#### Recommendation:

Expand the existing El Segundo Dunes CRA by adding an SEA that incorporates additional areas of native dune habitat that have been restored since the 2000 SEA update. The proposed expansion captures contiguous habitat that is ecologically similar to the currently designated SEA and supports the same suite of dune-dependent species and processes.



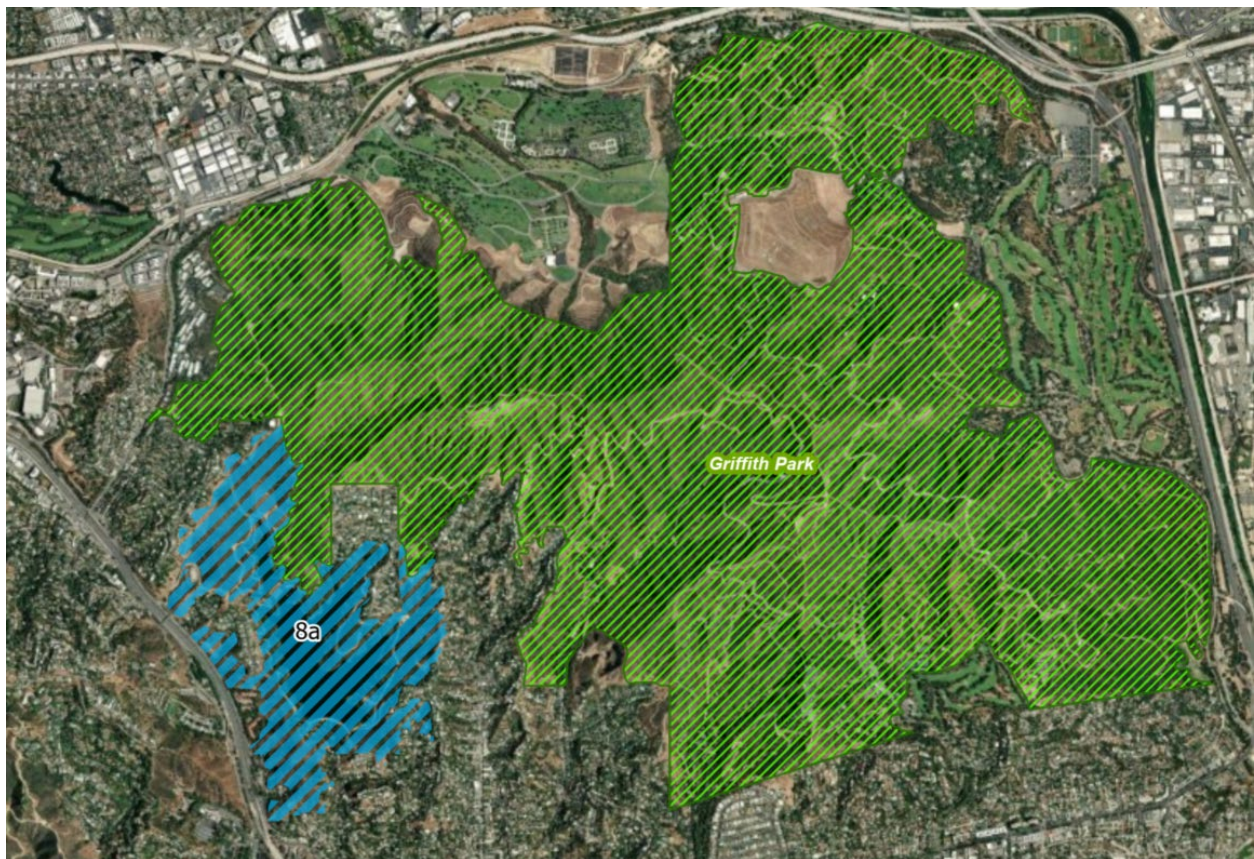
**Primary Ecological Justifications:**

- **Criterion A:** The expanded area represents a continuation of the same coastal dune habitat type that supports the endangered El Segundo blue butterfly.
- **Criterion B/C:** Restoration efforts have reestablished native southern dune scrub vegetation in this area, which is very uncommon in the southern California region, and represents an expansion of one of the rarest and most heavily impacted habitat types in Los Angeles County.
- **Criterion D:** The El Segundo Dunes support a concentration of species adapted to sandy, well-drained coastal dune habitats that depend on these environments to complete their full life cycles. The restored areas expand the extent of this specialized habitat and reinforce the ecological function of the existing SEA.

**Griffith Park SEA (Subarea 8a)**

**Recommendation:**

Expand the SEA to include Hollywood Reservoir and surrounding hillsides and extend the boundary northward toward the Mulholland Drive Viaduct and Pilgrimage Bridge along Cahuenga Boulevard. These locations represent potential wildlife crossing points over the U.S. 101 Freeway.



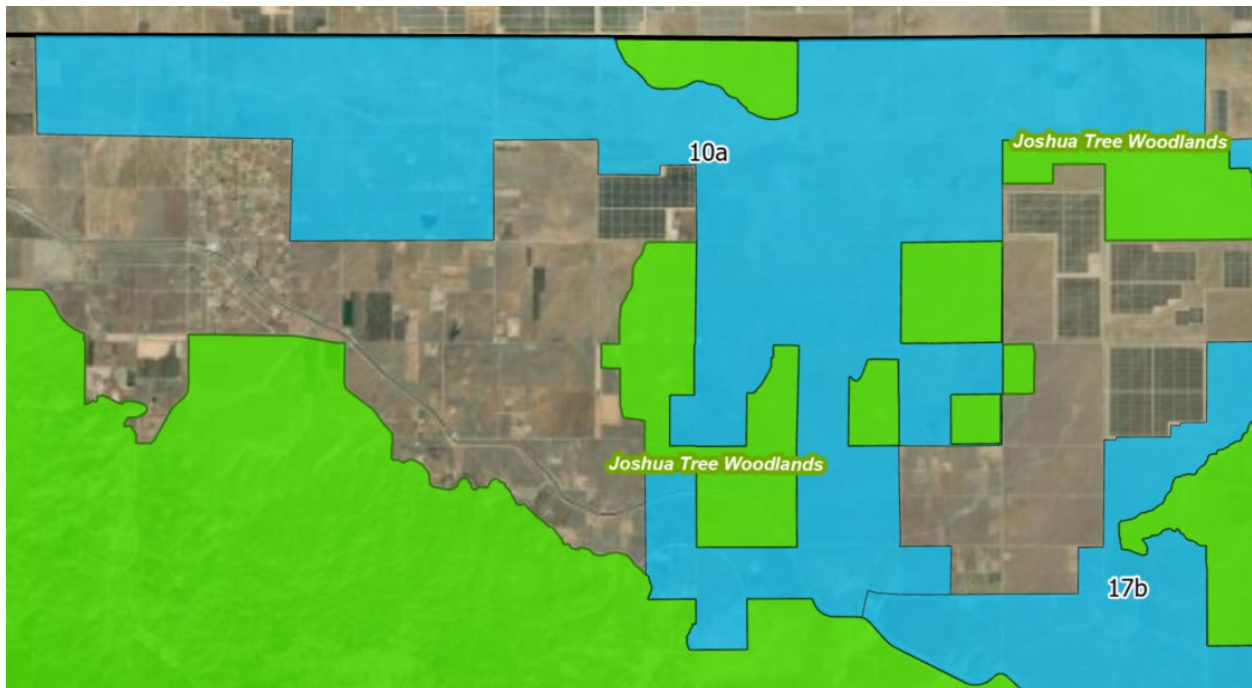
### Primary Ecological Justifications:

- **Criterion B/C:** Presence of locally rare plant species, including *Juglans californica*, and the ecological importance of open-water habitat within an otherwise upland-dominated landscape.
- **Criterion D:** Hollywood Reservoir supports a high concentration of water-dependent birds; over 200 avian species have been documented via eBird, substantially exceeding the species richness recorded for Griffith Park as a whole.
- **Criterion G:** The proposed expansion strengthens connectivity across Cahuenga Pass, supporting wildlife movement between Griffith Park and the eastern Santa Monica Mountains.

### Joshua Tree Woodlands SEA (Subarea 10a)

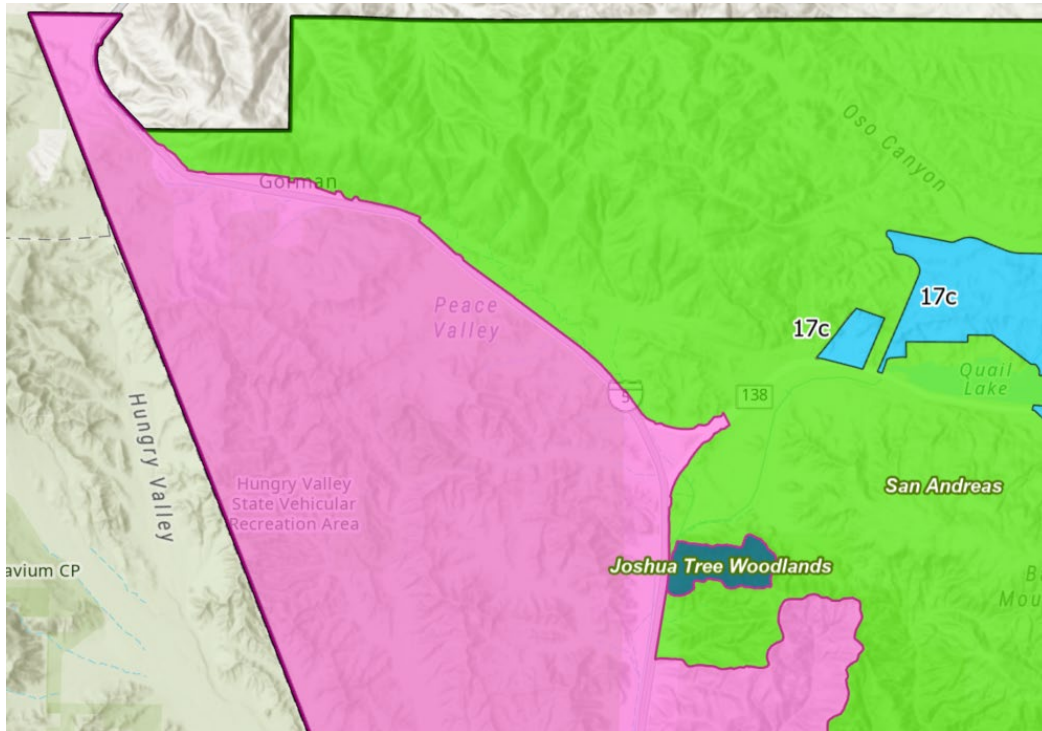
#### Recommendation:

Expand the SEA to include additional large parcels supporting intact Joshua tree woodland, areas with potential for natural regeneration, and adjacent habitat necessary to maintain ecological connectivity among currently fragmented habitat blocks and across the surrounding desert landscape. The current SEA consists of several fragmented blocks rather than a single contiguous area. The proposed expansion highlights key Joshua tree woodland parcels while improving linkage among disjunct habitat areas.



In addition, one small, isolated portion of the existing Joshua Tree Woodlands SEA near the northeast corner of the County is geographically separated from the primary woodland core and is surrounded by the San Andreas SEA and the proposed Liebre – Sierra Pelona

SEA. Given its isolation and closer ecological relationship to these adjacent areas, this portion is recommended for reassignment to the Liebre – Sierra Pelona SEA. Consolidating this area, together with the proposed expansion, would allow for the remaining Joshua Tree Woodlands SEA to act as a more cohesive habitat block that supports existing woodland, regeneration potential, and habitat connectivity.



**Primary Ecological Justifications:**

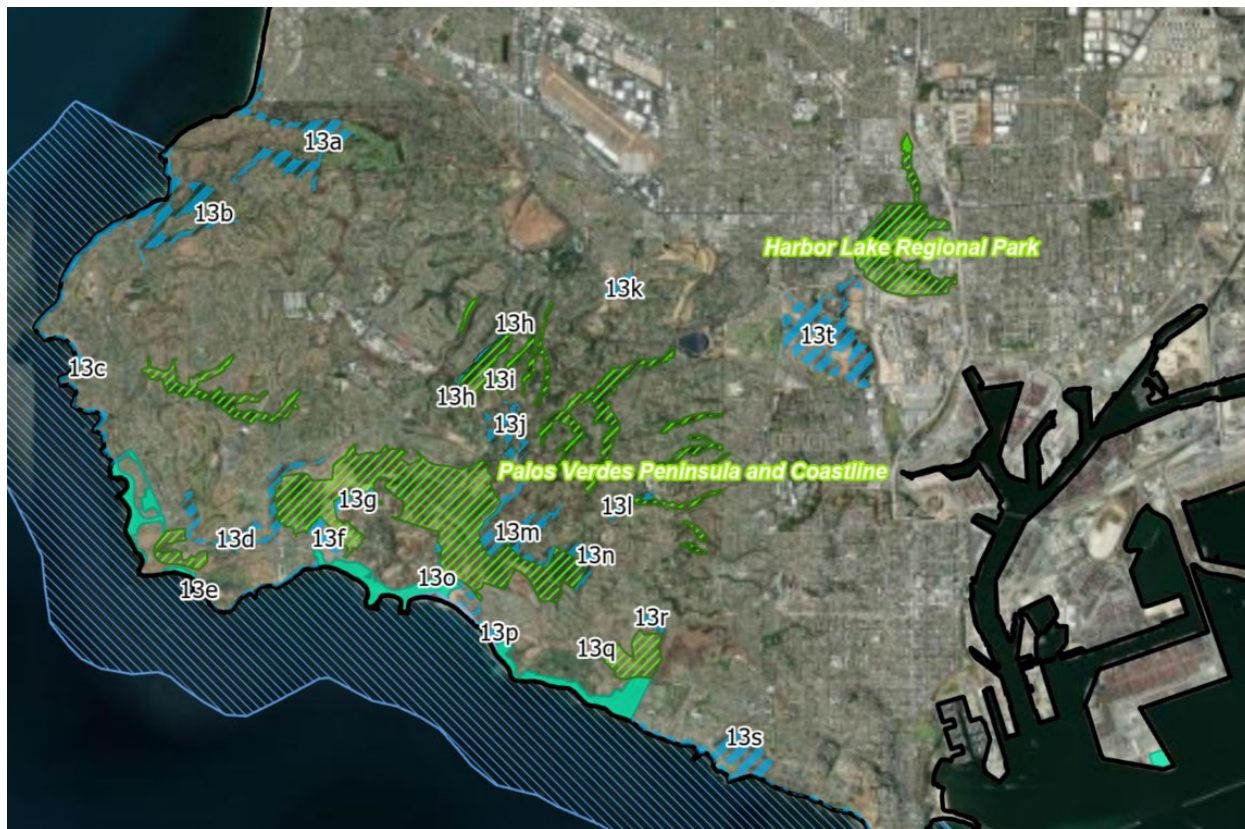
- **Criterion A:** Documented occurrences of burrowing owl, Swainson's hawk, and Joshua tree woodland; tricolored blackbird may also occur in associated habitats.
- **Criterion B/C:** Supports numerous rare and locally uncommon species, including LeConte's thrasher and Scott's oriole.
- **Criterion E:** Represents the westernmost expression of clonal Joshua tree (formerly *Yucca brevifolia* var. *herbertii*) woodland, along with sandy wash systems containing scattered riparian elements such as large cottonwoods that are uncommon in the central Antelope Valley.
- **Criterion G:** Provides important east – west connectivity and movement opportunities for wildlife, particularly in a landscape increasingly constrained by industrial-scale solar development in adjacent Kern County.

**Palos Verdes Peninsula & Coastline SEA (Subareas 13a – 13t)**

**Recommendation:**

Expand existing coastal SEA boundaries to improve continuity along the peninsula, connect

isolated inland canyon SEAs, and incorporate additional biologically significant areas. Proposed expansions include all extant populations of the Palos Verdes blue butterfly (i.e., Malaga Dunes, the Chandler Preserve, and the former Defense Fuel Support Point site); White Point Preserve, which supports coastal California gnatcatchers and a wide variety of raptors; and coastal bluff habitats that support rare plants and sensitive natural communities.



#### Primary Ecological Justifications:

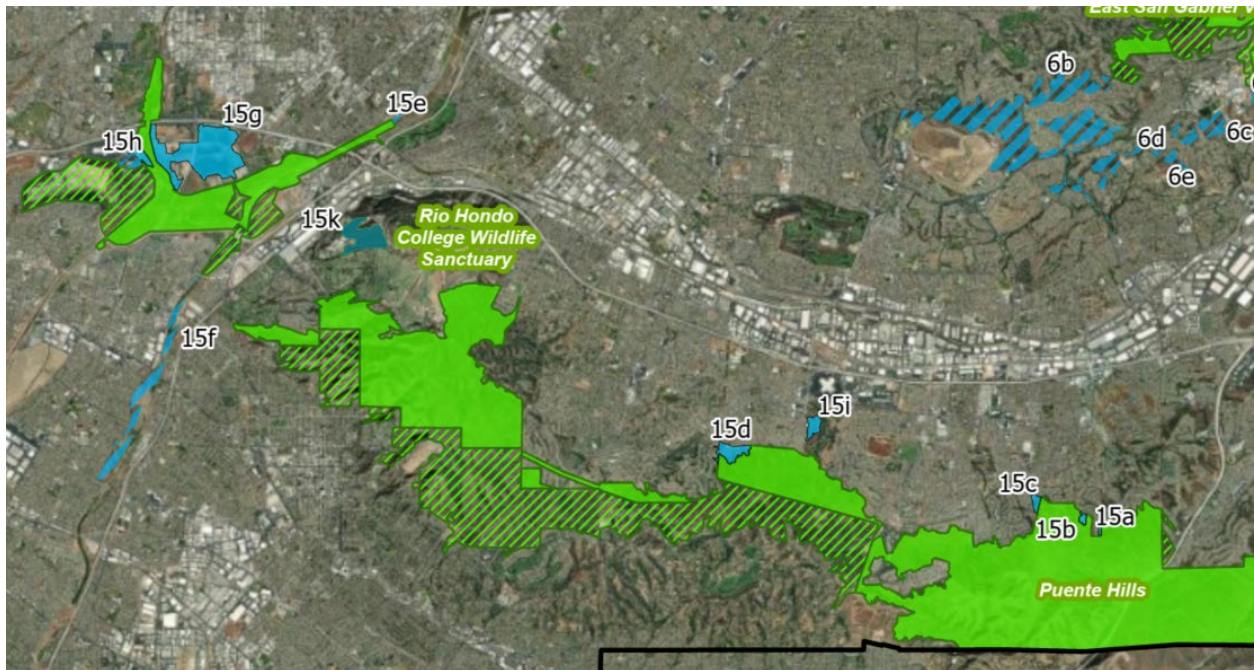
- **Criterion A:** Presence of coastal California gnatcatcher at several sites and all known extant populations of the Palos Verdes blue butterfly (three sites).
- **Criterion B/C:** Coastal bluff habitats support rare plant species and natural communities, such as *Aphanisma blitoides* and *Atriplex pacifica*. Slopes of cactus scrub may be occupied by cactus wrens.
- **Criterion E:** The expanse of sandy soils well inland from the coast at Malaga Dunes, vegetated with *Acemison glaber* and *Croton californica*, is a unique habitat in the County that supports a wide variety of insect life, including the critically endangered Palos Verdes blue butterfly.
- **Criterion G:** Several biologically important areas currently fall outside existing SEA boundaries, resulting in fragmentation and exclusion of key resources.

- Natural canyon systems with intact vegetation provide opportunities to connect small, isolated SEA polygons and improve functional ecological continuity across the peninsula.
- Boundary refinements improve representation of the full coastal – upland ecological gradient characteristic of the Palos Verdes Peninsula.

### Puente Hills SEA (Subareas 15a – 15j)

Recommended adjustments to the Puente Hills SEA occur in several geographically distinct areas along the northern, eastern, and western portions of the existing SEA. Subareas areas are described below and correspond to the labeled subareas areas shown on the map below.

Note that Interstate 605 forms a substantial geographic and anthropogenic barrier between the western and eastern portions of the existing SEA. As a result, the habitats associated with the Whittier Narrows / San Gabriel River corridor and those associated with the Puente Hills uplands function as largely separate ecological systems within the current designation.



Subareas 15a – d and 15i. Colima Rd to SR 57

**Recommendation:**

Add four small areas, totaling 59 acres, along the northern border of the SEA, containing oak woodlands and non-native grassland comparable to nearby designated areas (Subareas 15a – d). Adding these four areas of SEA-quality habitat that were previously excluded for unknown reasons increases the intactness of the SEA by making the boundary

more uniform and consistent with the edge of urban development (no apparent justification exists for excluding them).

Add the undisturbed part of Schabarum Park, consisting of 23 acres of intact cactus scrub and coastal sage scrub (15i). This would expand rare habitat (cactus-rich coastal sage scrub) for two protected bird species, the coastal California gnatcatcher and the cactus wren, and expand habitat protection for the intermediate mariposa lily.

#### **Primary Ecological Justifications:**

- **Criterion A:** Presence of coastal California gnatcatcher and cactus wren in existing parkland located close to the currently designated SEA (Schabarum Park). Habitat for mountain lion, white-tailed kite and intermediate mariposa lily.
- **Criterion B/C:** Habitat occupied by cactus wren (pair observed during field visit near Schabarum Park) and likely other special-status species occur in expansion areas, including grasshopper sparrow and red diamond rattlesnake.

#### Subareas 15e – f. San Gabriel River

##### **Recommendation:**

Above Whittier Narrows, add 8.3 acres of the San Gabriel River channel that supports willow scrub habitat indistinguishable from adjacent habitat that is designated as SEA. The justification for this small addition is to include an area of vireo-occupied riparian habitat that is contiguous with the existing SEA.

Downstream of Whittier Narrows Dam, add a 1.6-mile segment of the river channel, most of which is vegetated with riparian vegetation consistently occupied by nesting least Bell's vireos and other special-status birds (e.g. yellow-breasted chat and northern yellow warbler). Also add the spreading grounds between Washington and Whittier Boulevards (Subarea 15f).

With these two additions, the SEA would include the full range of important bird habitats along the middle segment of the San Gabriel River, from Washington Boulevard north through Whittier Narrows to just above the confluence with San Jose Creek. Farther upstream, riparian habitat is less contiguous and varies in its distribution from year to year, and this area is not recommended for addition.

##### **Primary Ecological Justifications:**

- **Criterion A:** Least Bell's vireos nest in all riparian vegetation recommended for addition.
- **Criterion B/C:** Yellow-breasted chats and northern yellow warblers are special-status birds that also nest in the riparian woodlands recommended for addition.
- **Criterion D:** The San Gabriel River spreading grounds host large concentrations of ducks, shorebirds, and gulls, seasonally. A total of 243 bird species has been

recorded at the spreading grounds (eBird), attesting to their significance as stopover habitat for many species and wintering habitat for others.

- **Criterion E:** Riparian woodlands occupied by least Bell's vireos and large expanses of shallow water usable by large numbers of birds are both rare habitats in the County.
- **Criterion G:** The San Gabriel River channel is an important conduit for the movement of wildlife through the region, with high potential for restoration (including "Emerald Necklace" planning process).

#### Subareas 15g – h. Legg Lake to Montebello Hills

##### **Recommendation:**

Expand the SEA from Rio Hondo east and west to include approximately 334 additional acres of valuable natural habitats, including the three Legg Lake basins, thereby bolstering habitat connectivity through the somewhat fragmented segment of the Puente Hills SEA lying between Whittier Narrows and the Montebello Hills.

Coastal California gnatcatchers are found in the proposed addition areas both east and west of Rio Hondo. The area east of Rio Hondo supports least Bell's vireo, yellow-breasted chat, northern yellow warbler, and coastal California gnatcatcher, and a population of *Centromadia parryi* ssp. *australis* (CRPR 1B.1). Legg Lake has important heron and cormorant rookeries and provides habitat for a wide variety of resident, wintering, and migratory birds.

##### **Primary Ecological Justifications:**

- **Criterion A:** Documented occurrences of least Bell's vireo, coastal California gnatcatcher, and *Centromadia parryi* ssp. *australis*.
- **Criterion B/C:** Presence of riparian woodland, moist meadow, and associated wetland habitats that are uncommon within the urbanized Los Angeles Basin. Yellow-breasted chat and northern yellow warbler also nest in this area.
- **Criterion D:** Legg Lake supports significant waterbird nesting and roosting activity, including heron and cormorant rookeries.
- **Criterion G:** The proposed expansion strengthens connectivity between the Whittier Narrows, Rio Hondo corridor, and downstream open-space networks, facilitating wildlife movement into and through the Los Angeles Basin.
- Inclusion of Legg Lake integrates an ecologically functional wetland complex that complements the existing SEA and enhances its landscape-scale value.

#### Subarea 15j. Diamond Bar/Tres Hermanos

**Recommendation:**

Expand the SEA to incorporate large, contiguous open-space areas including Tres Hermanos Ranch, Pantera Park, Summitridge Park, Sycamore Canyon Park.

**Primary Ecological Justifications:**

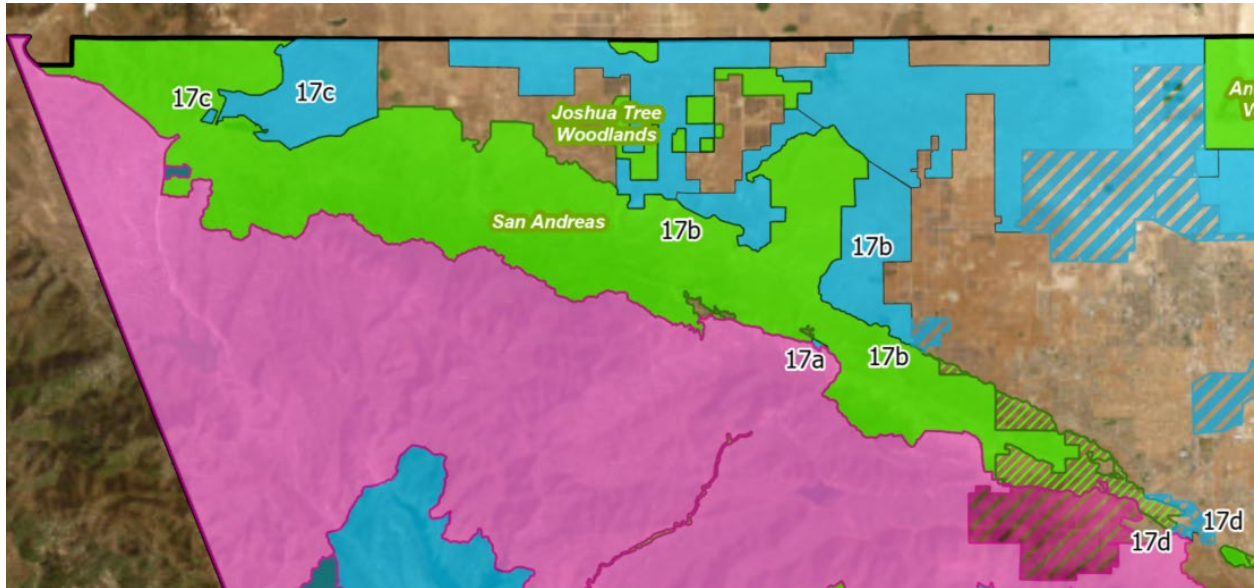
- **Criterion A:** Presence of coastal California gnatcatcher and tricolored blackbird.
- **Criterion B/C:** Habitat for numerous sensitive wildlife species now uncommon in coastal southern California, including golden eagle, northern harrier, grasshopper sparrow, cactus wren, and historically, long-eared owl and burrowing owl; potential habitat for western spadefoot toad in grasslands and western pond turtle in and around wetlands.
- **Criterion D:** Supports nesting tricolored blackbird colonies in some years.
- **Criterion E:** Captures extensive grassland, freshwater wetland, and un-channelized riparian habitats that have largely disappeared from coastal southern California.
- **Criterion G:** Represents a major landscape-scale connectivity opportunity linking the Puente Hills SEA to the San Gabriel Mountains, including headwaters of Tonner Canyon.
- Tres Hermanos Ranch functions as important golden eagle foraging habitat and anchors the southern portion of the proposed expansion.

**San Andreas SEA (Subareas 17a – 17d)****Recommendation:**

Substantially expand and refine the boundaries of the San Andreas SEA to incorporate large, ecologically intact landscapes associated with the San Andreas Rift Zone and adjacent desert – montane transition areas. Proposed changes include two minor boundary adjustments: 17a extends the SEA to encompass restored wet meadows and former golf course lands east of Elizabeth Lake where decommissioning of the golf course allows reestablishment of riparian and meadow habitats that were historically displaced; and 17d extends the boundary eastward to Highway 14 west of Lake Palmdale, incorporating a critical movement barrier with high potential for enhanced connectivity. The proposed expansion also addresses a long-standing gap between the San Andreas SEA and Joshua Tree Woodlands SEA and incorporates extensive open space that remains lightly developed. Portions of the landscape extend toward Tejon Ranch and include contiguous, high-quality habitat that was previously excluded.

Two larger areas are proposed for expansion to more fully include the flatter portions of the open grassland and wildflower field habitats protected within the Antelope Valley California Poppy State Reserve: Subarea 17b, which forms a broader band surrounding the existing SEA, and Subarea 17c, which extends east and northeast of Quail Lake to include extensive, undisturbed habitats of the southern Tehachapi Mountains.

Many of the grassland species—particularly birds—for which this SEA was established, prefer flat terrain rather than hilly or mountainous topography. Examples include special-status species such as Swainson’s hawk, short-eared owl, burrowing owl, and tricolored blackbird, as well as species of local interest such as wintering flocks of mountain bluebirds, horned larks, and vesper sparrows, breeding western meadowlarks, and a variety of wintering raptors. Expanding the SEA to include these flat areas would help ensure adequate habitat as development continues to expand in the Antelope Valley. Subarea 17c east of Quail Lake also contains several areas of high rare plant species richness, among the highest in the county, and supports regular flyovers by California condors.



**Primary Ecological Justifications:**

- **Criterion A:** An exceptional diversity of special-status species is found within the San Andreas SEA, including pond turtle (*Actinemys* sp.; species-level identification uncertain in the contact zone between *A. marmorata* and *A. pallida*) in small montane wet meadows (sag ponds), burrowing owl, Swainson’s hawk, California condor, Joshua tree woodland (throughout), tricolored blackbird (throughout), vernal pool fairy shrimp, and numerous sensitive plant taxa (e.g., *Astragalus leucolobus*, *Calochortus palmeri* var. *palmeri*, *Navarretia setiloba*).
- **Criterion B/C:** Supports diverse and often declining plant and wildlife assemblages, including rare grassland birds, uncommon herpetofauna and mammals, an exceptional diversity of locally rare plants, and high-value riparian wildlife communities with strong restoration potential.
- **Criterion D:** Constructed wetlands and riparian areas provide critical habitat in an otherwise arid landscape, acting as focal resources for wildlife.
- **Criterion E:** Represents the western edge of Joshua tree woodland (clonal form), extensive sandy wash systems with scattered riparian elements (including large

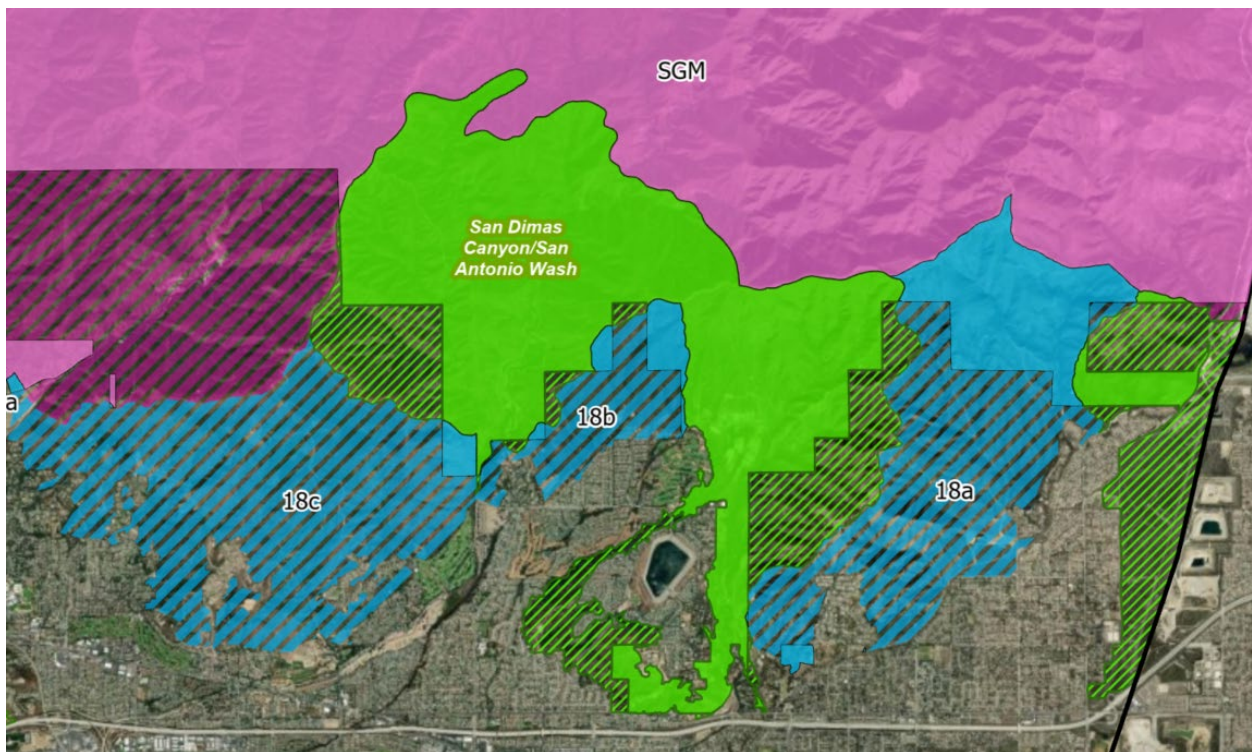
cottonwoods), rare riparian woodlands in arid settings, and one of the most significant remaining native grassland systems in Los Angeles County.

- **Criterion F:** Encompasses large, remote, and largely undeveloped landscapes with little recent human disturbance, supporting wide-ranging species and intact ecological processes.
- **Criterion G:** With the recommended adjustments, this SEA will better function as a major regional connectivity hub, facilitating wildlife movement between the Antelope Valley, San Gabriel Mountains, and Tehachapi Mountains, including crossings over the California Aqueduct and Interstate 5. The area can also accommodate climate-driven range shifts and lateral movement across desert, grassland, and montane habitats.

### San Dimas Canyon/San Antonio Wash SEA (Subareas 18a – 18c)

#### Recommendation:

Expand the SEA to include Padua Hills, filling the gap between Marshall Canyon and San Antonio Wash; extend coverage downslope from the U.S. Forest Service boundary to include high-value riparian, coastal scrub, chaparral, and oak woodland habitats at the urban edge near La Verne; and extend coverage into the eastern Glendora foothills (see Cooper Ecological Monitoring 2021 for ecological information).



The existing gap between Marshall Canyon and San Antonio Wash excludes large, contiguous areas of chaparral, oak woodland, and riparian habitat, including protected

lands such as Claremont Wilderness Park. Incorporating Padua Hills and adjacent parcels (including the Anabi parcel) would extend SEA coverage into areas supporting important biological resources and improve continuity between currently designated areas. Extending the boundary downslope from the U.S. Forest Service lands to the urban edge would also capture intact habitat mosaics that currently occur between the national forest boundary and developed areas, improving continuity of habitat rather than leaving isolated fragments.

#### **Primary Ecological Justifications:**

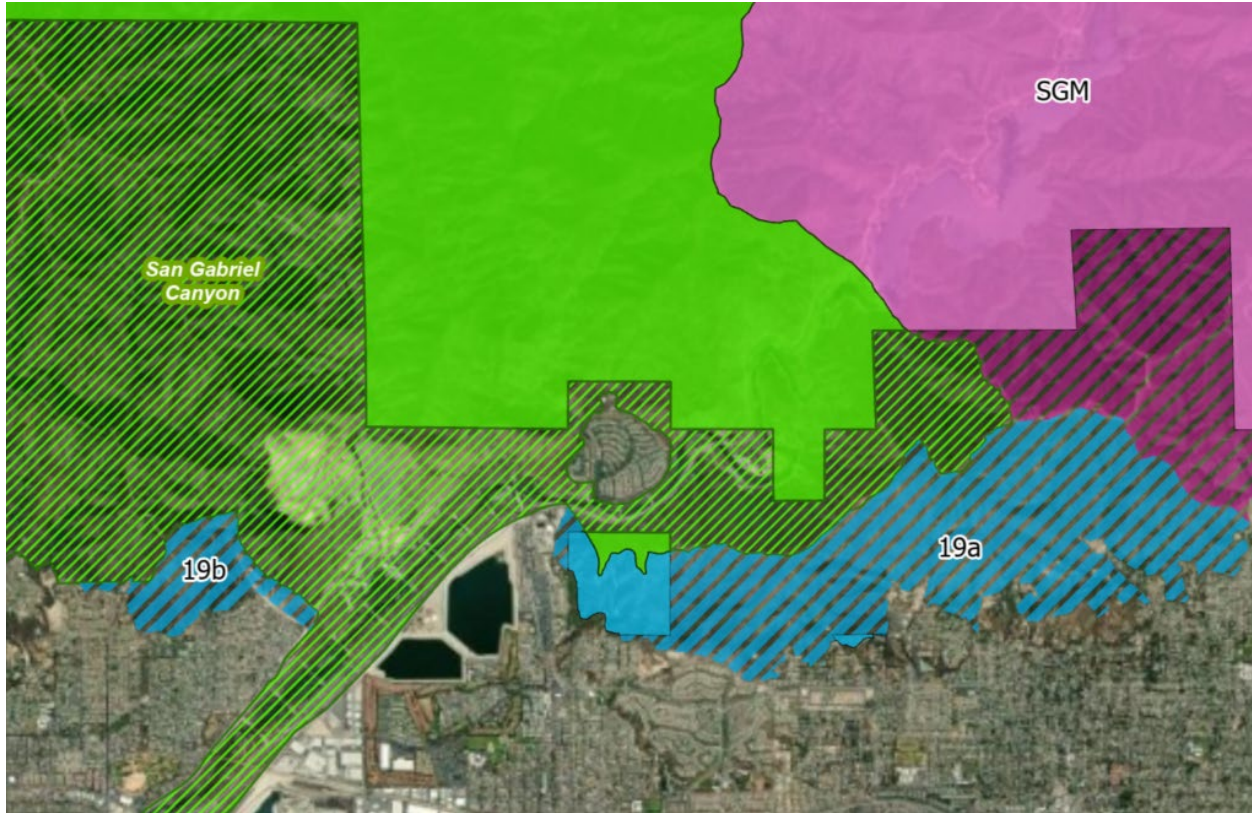
- **Criterion A:** Occurrences of sensitive plant and wildlife species, including *Berberis nevinii*, *Calochortus clavatus* var. *gracilis*, *Brodiaea filifolia*, coastal California gnatcatcher, and other regionally important taxa.
- **Criterion B/C:** Supports strong populations of sensitive wildlife and plant communities, including cactus wren, Engelmann oak, and extensive walnut woodland.
- **Criterion E:** Contains unique clay-soil grasslands supporting brodiaea and hybrid oak assemblages that are uncommon in the County.
- **Criterion F:** Portions of the proposed expansion remain relatively undisturbed due to limited public access and lack of intensive development.
- **Criterion G:** While not a primary long-distance movement corridor, the area contributes to local connectivity by maintaining continuity between canyon, foothill, and riparian habitats.

#### **San Gabriel Canyon SEA (Subareas 19a – 19b)**

##### **Recommendation:**

Expand the SEA westward to include the western Glendora foothills extending through Azusa, and extend coverage downslope to include alluvial fan and wash-associated habitats adjacent to the San Gabriel River, including Van Tassel Canyon.

The existing SEA boundary leaves a substantial gap between the national forest and the urban edge, excluding ecologically connected foothill and wash habitats. Expanding the boundary downslope would incorporate these connected landscapes and improve continuity between upland habitats and the San Gabriel River wash. Inclusion of Van Tassel Canyon and adjacent alluvial areas further strengthens ecological linkage between the river corridor and surrounding foothills, addressing a long-standing omission in SEA coverage.



**Primary Ecological Justifications:**

- **Criterion A:** Documented occurrences of sensitive plant species such as *Brodiaea filifolia* and *Symphyotrichum greatae*, with potential occurrences of additional sensitive *Dudleya* taxa.
- **Criterion B/C:** Supports a diverse assemblage of sensitive wildlife and plant communities, including cactus wren, Engelmann oak, walnut woodland, and rare alluvial fan scrub habitats, despite recent disturbance from wildfire.
- **Criterion E:** Contains unique clay-soil grasslands with brodiaea and hybrid oak swarms, along with alluvial fan systems that are increasingly rare in the County.
- **Criterion F:** Portions of the area remain relatively undisturbed due to limited access and rugged terrain.
- **Criterion G:** Serves as an important east – west (lateral) movement zone along the base of the San Gabriel foothills, particularly for low-elevation species moving between wash and upland habitats.

**Santa Clara River SEA (Subareas 20a – 20h)**

**Recommendation:**

Refine and expand the SEA to better reflect its role as a countywide connectivity corridor.

Boundary adjustments include capturing open space within the Newhall Ranch development area, which had not commenced at the time of the 2000 SEA study (Subareas 20c, 20d, and 20e). Proposed expansions include currently undeveloped open space south of the Santa Clara River near the county line (much of it within the Newhall Ranch planning area, west of existing development); extending coverage on either side of Highway 14; expanding south into the hills along Golden Valley Parkway; encompassing the undeveloped hills and canyons upslope of Castaic Reservoir and Castaic Lagoon, including a linkage across Interstate 5; and expanding and connecting the Agua Dulce – Acton Wash area to include the Escondido Canyon and Crown Valley Road area north of and beneath Highway 14.

Proposed expansions around the Newhall Ranch area would help maintain continuity of remaining open space and connectivity to the Santa Clara River as development proceeds. Refinements to the Vasquez Rocks and Pico Canyon boundaries align SEA coverage with identifiable landscape features and open-space edges. Expansion of the Castaic Creek and Acton Wash areas broadens historically narrow boundaries that excluded certain habitat types and improves linkage between the Santa Clara River, Ritter Ridge (part of the proposed Liebre – Sierra Pelona SEA), and adjacent desert transition zones. Expansion area 20k represents an overlap of coastal and montane species distributions and may support species such as California condor and coastal California gnatcatcher.



#### Subarea 20a. Newhall Ranch West

The Santa Clara River-associated habitats near the Ventura County line are now recognized as supporting a notable concentration of rare species. Although portions of these resources are expected to be retained as open space within the Newhall Ranch community, this

expansion area acknowledges their presence and ecological importance within a landscape undergoing development.

**Primary Ecological Justifications:**

- **Criterion A:** Western spadefoot, least Bell's vireo, *Calochortus clavatus* var. *gracilis*, *Chorizanthe parryi* var. *fernandina*,
- **Criterion B/C:** Major concentrations of rare plant species richness; several coastal-slope bird species of local concern (e.g., greater roadrunner, loggerhead shrike).
- **Criterion E:** Valley oak savanna occurs near the southern and eastern extent of its range.

Subarea 20b. Golden Valley Rd.

Located near the geographic center of Santa Clarita, the hills and drainages along Golden Valley Road represent a microcosm of habitats found along the Santa Clara River. Despite its location within an incorporated city, this subarea retains relatively intact habitat and includes one of the few remaining vernal pools on the coastal slope of Los Angeles County, supporting species that have been widely lost elsewhere.

**Primary Ecological Justifications:**

- **Criterion A:** Western spadefoot, vernal pool fairy shrimp, *Navarretia fossalis*, *Calochortus clavatus* var. *gracilis*.
- **Criterion B/C:** Scattered occurrences of rare plants such as *Calochortus plummerae* (no concentrated richness hotspots); several coastal-slope bird species of local concern (e.g., greater roadrunner, loggerhead shrike).
- **Criterion D:** The vernal pool habitat in this subarea represents a limited habitat type within the County and region and serves as seasonal breeding habitat.
- **Criterion G:** Important local movement area for species moving from the Santa Clara River wash into adjacent hills and tributaries, providing connectivity through an urbanizing landscape.

Subareas 20c – e. Newhall Ranch boundary (Adjustments)

These boundary adjustments incorporate preserved open-space areas within the Newhall Ranch development that were not included in the 2000 SEA boundaries. Including these areas improves continuity along the Santa Clara River corridor and reflects retained habitat and connectivity within the developed landscape.



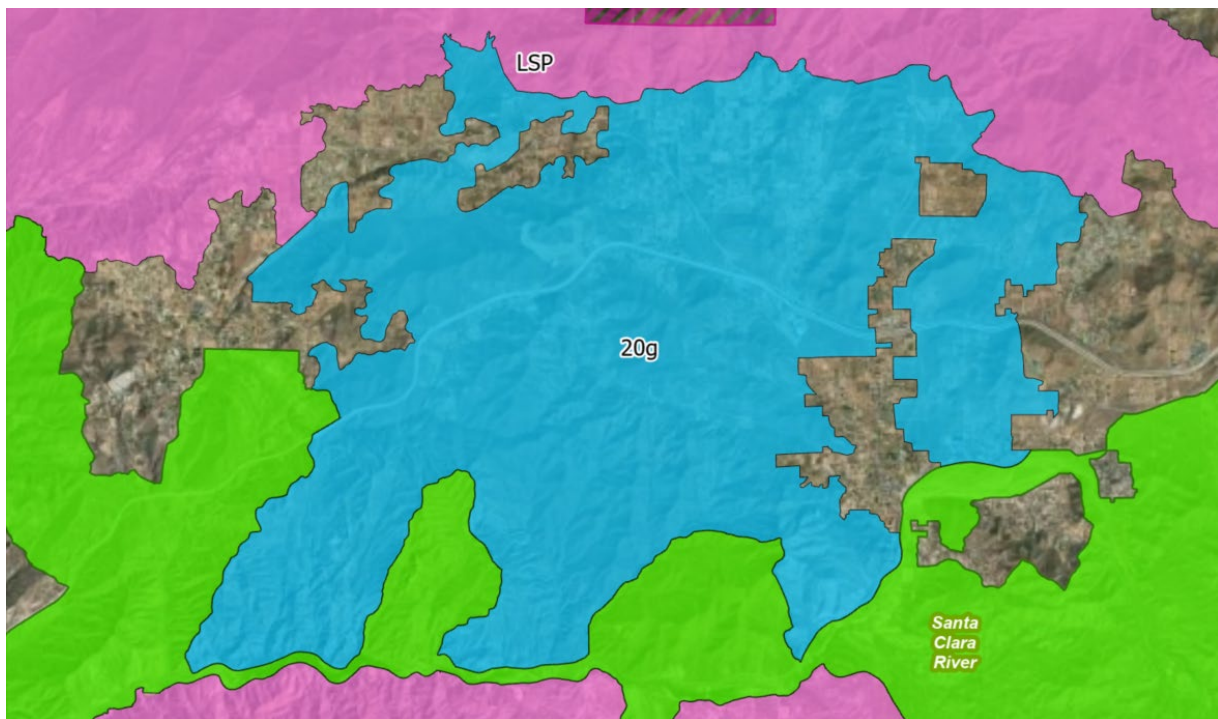
### Subarea 20f. Castaic North (Subarea 20f)

Castaic Lagoon, and to a lesser extent Castaic Reservoir, support large numbers of waterbirds, particularly during winter. The rugged hills and canyons surrounding Castaic Reservoir and Castaic Lagoon are now recognized as supporting a diverse assemblage of sensitive natural communities and species, ranging from California condor to coastal California gnatcatcher. Recent biological surveys associated with proposed development have documented numerous rare plant species within the grassland and scrub communities, many of which have experienced substantial losses farther south in the Los

Angeles Basin. Much of this area remains difficult to access, and its full ecological significance is not yet fully documented.

**Primary Ecological Justifications:**

- **Criterion A:** Western spadefoot, California condor, burrowing owl, coastal California gnatcatcher, least Bell's vireo, *Calochortus clavatus* var. *gracilis*.
- **Criterion B/C:** Major concentrations of rare plant species richness; several coastal-slope bird species of local concern (e.g., greater roadrunner, loggerhead shrike).
- **Criterion D:** Castaic Lagoon supports concentrations of waterbirds; rock outcrops provide raptor nesting habitat.
- **Criterion E:** Major transition area between coastal and montane ecosystems (e.g., coastal sage scrub, chamise chaparral)
- **Criterion F:** Extensive roadless areas, including some of the most rugged backcountry areas close to Los Angeles (upper Castaic Creek, Fish Canyon)
- **Criterion G:** Important wildlife movement area across Interstate 5 for species with a range of ecological requirements.



Subarea 20g. Agua Dulce – Acton

This large expansion area would primarily improve ecological connectivity between the Sierra Pelona and the San Gabriel Mountains, both proposed as new SEAs. Substantial areas of natural habitat remain, including alluvial washes, juniper woodland, rock outcrops, and

wildflower fields. Although these resources are more widely distributed than those in some other proposed expansion areas, the subarea occupies an important coastal – desert transition zone also represented in portions of the Barrel Springs subarea (3i) and the broader Santa Clara River SEA. Accordingly, the primary function of this expansion is to enhance wildlife movement and ecological connectivity between mountain ranges, rather than to capture unique or localized resources.

#### **Primary Ecological Justifications:**

- **Criterion B/C:** Scattered occurrences of rare plants (no concentrated richness hotspots); several coastal-slope bird species of local concern (e.g., greater roadrunner, loggerhead shrike).
- **Criterion D:** Rock outcrops scattered throughout the subarea provide nesting habitat for raptors.
- **Criterion E:** Western extent of Mojave Desert flora and fauna transitioning toward the coastal slope (Acton Wash and associated drainages and slopes).
- **Criterion G:** Large contiguous open-space area connecting the Liebre – Sierra Pelona and San Gabriel Mountains, including remaining open space on both sides of Highway 14

#### Subarea 20h. Valley Oaks Savannah

Subarea 20h incorporates the former Valley Oaks Savannah SEA into the expanded Santa Clara River SEA. This area supports a remnant stand of valley oak woodland and represents an ecologically important component of the broader Santa Clara River landscape, improving continuity between riverine and adjacent upland habitats.

## 5.4 Recommended New SEAs

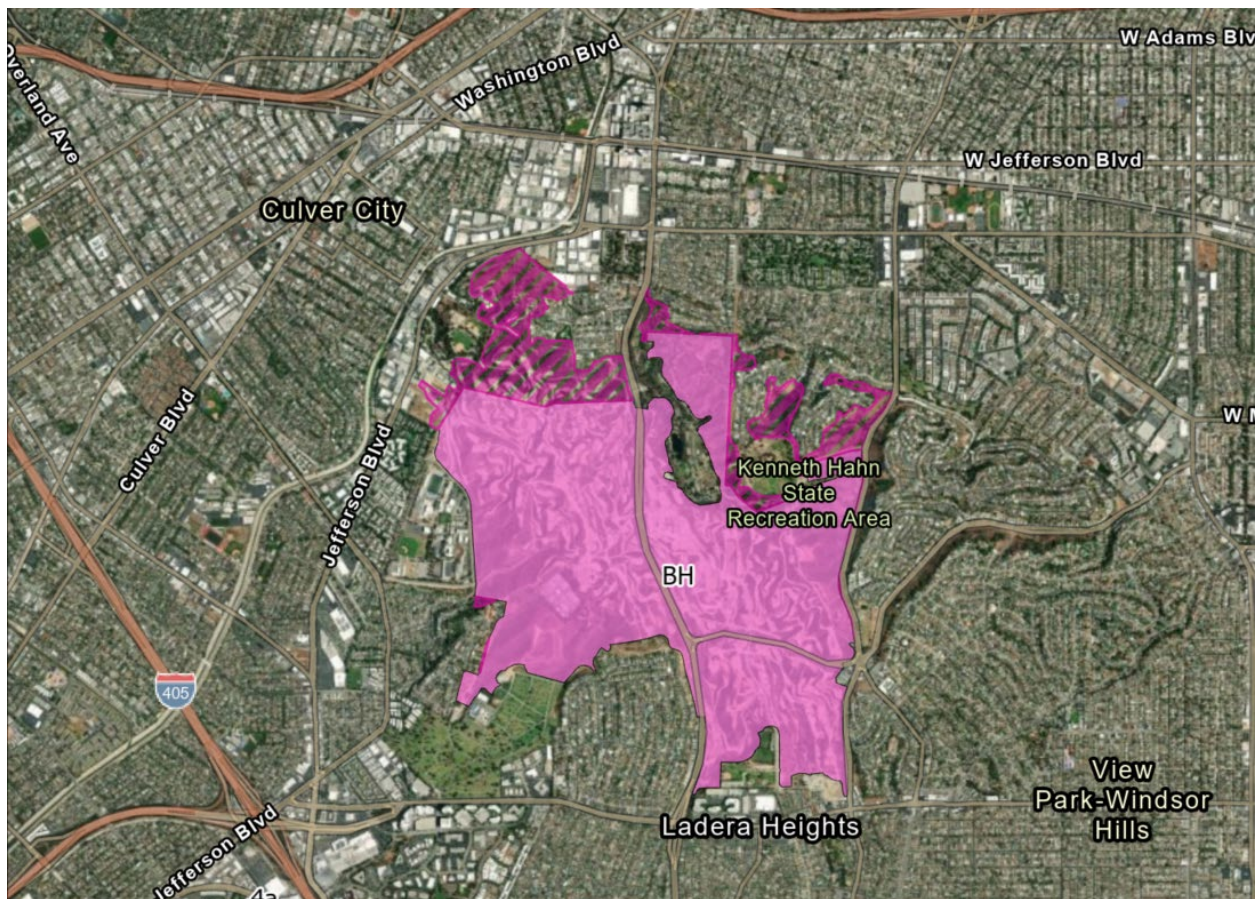
Evaluation of the existing SEA network also identified areas that were not previously designated but warrant consideration based on application of the SEA Selection Criteria in conjunction with new biological information, updated research, and changes in land use or conservation context. These areas represent landscapes that support high biological value, sensitive resources, or important ecological functions that may not be fully captured within the current SEA framework.

Recommendations for new SEAs are intended to address gaps in representation across habitat types and regions, and to recognize landscapes that contribute to biodiversity, ecological resilience, or connectivity at the countywide or regional scale. As with recommended changes to existing SEAs (adjustments, expansions, and consolidations), identification of these areas supports informed future planning and does not presuppose specific regulatory outcomes or development constraints.

The evaluation also identified the montane and foothill lands of the San Gabriel Mountains and the adjacent Liebre – Sierra Pelona ranges, located primarily within Angeles National Forest with a small portion of Los Padres National Forest, as a contiguous landscape supporting broad-scale ecological processes, intact watersheds, and diverse native communities. These areas function as connected systems that contribute to regional biodiversity and wildlife movement across Los Angeles County.

Accordingly, this study recommends consideration of two large SEAs encompassing these Transverse Range landscapes within Los Angeles County. This approach recognizes ecological continuity across the mountain ranges, including transition zones and privately owned inholdings, and helps address gaps in the current SEA framework. Detailed descriptions and justification for all proposed new SEAs are provided in the subsections that follow.

### **Baldwin Hills Proposed SEA (BH)**



#### **General location and landform**

The Baldwin Hills extends over roughly two square miles on the floor of the Los Angeles Basin, just east of Los Angeles International Airport. It is located within the lower Ballona Creek Watershed south of the creek channel, which historically formed a large complex of sloughs

and marshes (“ciénegas”) centered east of the hills. The hills themselves were uplifted from the sedimentary soil of the basin floor, and form the northern terminus of a series of low hills extending north along the Newport – Inglewood Fault. The northern face of the hills is steep, while the southern edge features low ridges and incised canyons.

Coastal scrub vegetation within the 1,000-acre Inglewood Oil Field has been free of most human disturbance for more than a century, as this entire property is fenced. From the outside, one may see large cactus patches, *Dudleya* (cf. *lanceolata*), and other elements that have been lost in other open space patches on the Los Angeles Basin floor. So, while oil operations have continued, most other impacts, such as trampling and human disturbance, have been minimal.

The proposed SEA is located within the Beverly Hills, Hollywood, Venice, and Inglewood United States Geological Survey (USGS) 7.5' California Quadrangles.

Surrounded by dense urban development, the Baldwin Hills represent a mosaic of ownership and land uses, including the following areas with native/natural vegetation:

- Inglewood Oil Field (c. 1000 acres, a mix of active oil extraction areas and pockets of native coastal sage scrub and seasonal wetland vegetation).
- Kenneth Hahn State Regional Park (401-acre recreational area with considerable reserves of native coastal sage scrub habitat, east of La Cienega Blvd.).
- Baldwin Hills Scenic Overlook State Park (8.5-acre park with active habitat restoration program, south of Jefferson Blvd.).
- Stoneview Nature Center (5-acre park west of La Cienega Blvd.).
- Holy Cross Cemetery (200-acre, largely manicured area of lawn and planted trees, but with a portion of undeveloped habitat toward the back/northern end).

## **Biological Resources**

### ***Vegetation and natural communities***

The Baldwin Hills represent the most significant reserve of low-elevation coastal scrub habitat in Los Angeles County away from the Palos Verdes Peninsula. Although this scrub contains little sage (*Salvia* spp.), it does have a strong component of California buckwheat (*Eriogonum fasciculatum*) and a prickly-pear cactus (*Opuntia* cf. *littoralis*). A more mesic scrub is present on north-facing slopes and at seeps, notably containing blue elderberry (*Sambucus mexicana*), giant wildrye (*Elymus condensatus*) and western poison-oak (*Toxicodendron diversilobum*). Notable plant occurrences include relict stands of purple needlegrass (*Stipa pulchra*), greenbark ceanothus (*Ceanothus spinosus*), and the only documented occurrence of Nuttall's scrub oak (*Quercus dumosa*), a CNPS Rare plant, in Los Angeles County.

While the hills still support isolated populations of many lowland wildlife species, including gray fox (*Urocyon cinereoargenteus*), regionally-rare wildlife species have been extirpated over time, with notable losses including San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)—last recorded in 2000—and cactus wren (*Campylorhynchus brunneicapillus*), last seen in 1996. However, the Federally Threatened coastal California gnatcatcher (*Poliioptila californica californica*) appears to be established now, with regular sightings of multiple individuals. The red coachwhip (*Masticophis flagellum piceus*) also maintains a small population in the hills based on photos uploaded to iNaturalist, completely isolated from nearest populations in the Long Beach and Whittier Narrows area. The Trask shoulderband snail (*Helminthoglypta traskii*) appears to be common here, which has a NatureServe Rank of S2 (Imperiled, at high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors), as is Crotch's bumblebee (*Bombus crotchii*), a Candidate for State listing. Southern California black walnut (*Juglans californica*, CNPS Rank 4) also occurs, within mesic scrub, isolated from nearest occurrences by several miles.

Many raptor nests are present, with all the known species found in the Los Angeles area present and either nesting, or suspected of doing so (e.g., American kestrel (*Falco sparverius*), American barn owl (*Tyto furcata*)).

**Wildlife Movement**

Major connectivity opportunities exist along the Ballona Creek channel to and from the Ballona Wetlands/El Segundo Dunes (both SEAs), which otherwise would be completely isolated. In addition, the entire Baldwin Hills are the largest patch of habitat between the Palos Verdes peninsula and the Santa Monica Mountains, so function as a “stepping stone” between these two largely protected areas.

**Designation Criteria**

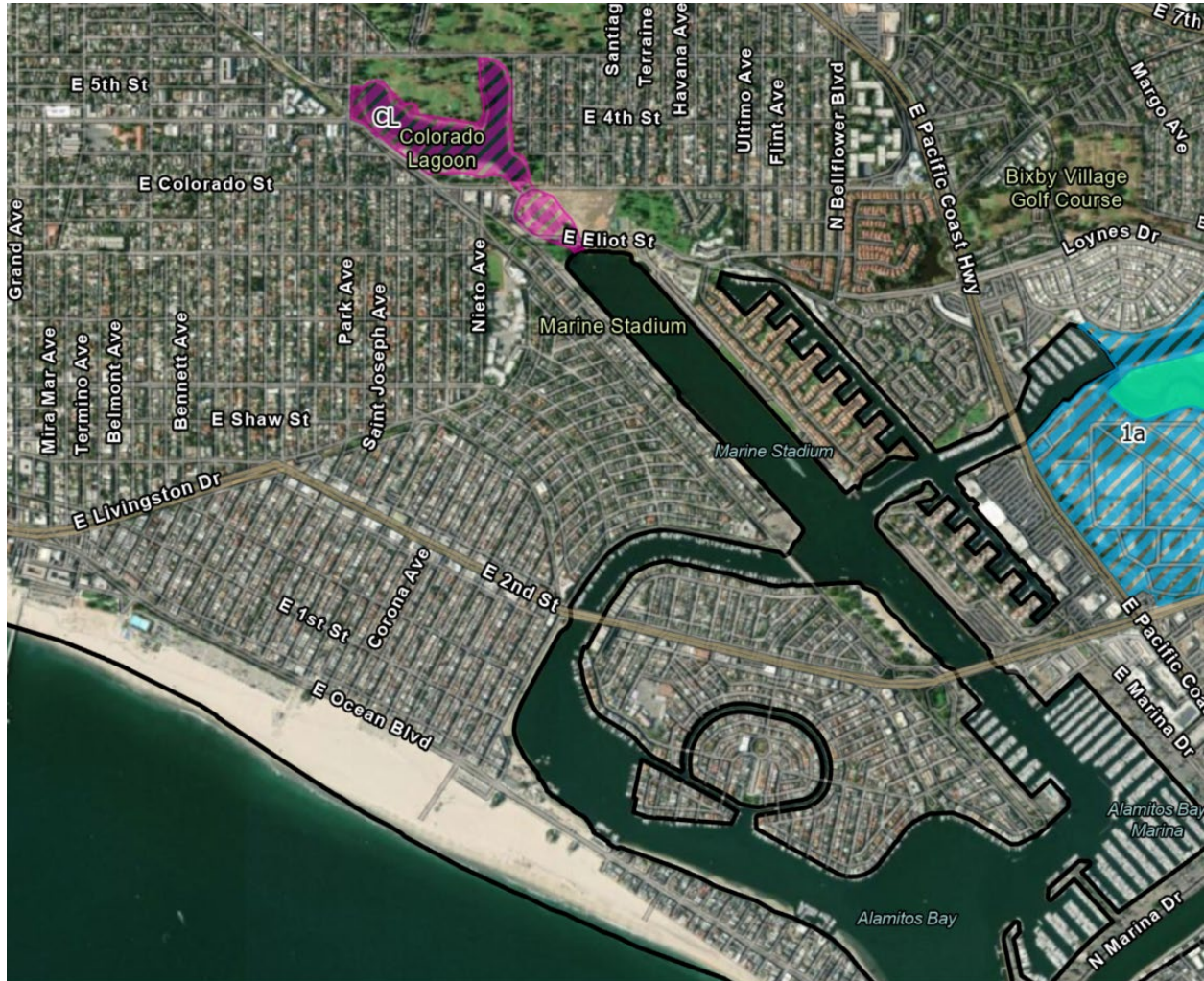
The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

**CRITERIA SUMMARY OF THE PROPOSED BALDWIN HILLS SEA**

Criterion	Status	Justification
A) The habitat of core populations of endangered or threatened plant or animal species.	Met	<ul style="list-style-type: none"> <li>- Coastal California gnatcatcher</li> <li>- Nuttall’s scrub oak</li> </ul>

Criterion	Status	Justification
<p>B/C) On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.</p>	Met	<ul style="list-style-type: none"> <li>- Low-elevation coastal scrub on basin floor</li> <li>- Nuttall's scrub oak occurrence (county-unique)</li> <li>- Trask's shoulderband snail (S2)</li> <li>- Crotch's bumble bee (Candidate)</li> <li>- Southern California black walnut (isolated population)</li> <li>- Red coachwhip (isolated population)</li> <li>- Relict purple needlegrass stands</li> <li>- Greenbark ceanothus</li> </ul>
<p>D) Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.</p>	Not Met	
<p>E) Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.</p>	Met	<ul style="list-style-type: none"> <li>- Isolated basin-floor reptile populations</li> <li>- Isolated mammal populations</li> <li>- Urban-edge remnant coastal scrub system</li> <li>- High raptor nesting density</li> </ul>
<p>F) Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.</p>	Met	<ul style="list-style-type: none"> <li>- Extensive remnant low-elevation coastal scrub</li> <li>- Relatively intact basin-floor scrub habitat</li> <li>- Relict native grassland (purple needlegrass)</li> </ul>
<p>G) Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.</p>	Met	<ul style="list-style-type: none"> <li>- Linkage along Ballona Creek corridor</li> <li>- Stepping stone habitat between Palos Verdes Peninsula and Santa Monica Mountains</li> <li>- Largest habitat block between coastal and inland open space</li> </ul>

## Colorado Lagoon Proposed SEA (CL)



### General location and landform

Historically a component of the greater Los Cerritos Wetlands, Colorado Lagoon is located in the southeastern corner of the City of Long Beach, where it feeds into upper Alamos Bay at Marine Stadium. The existing 18-acre lagoon and six acres of associated natural uplands are currently being expanded by another six acres through an ambitious project to daylight and restore an open channel to Alamos Bay that was filled in decades ago. In addition to expanding the area of natural habitat by 25 percent, the intent of the open channel project is to improve tidal circulation in the lagoon to better support stands of eelgrass that were restored as part of the above-mentioned improvements. At the time of the last SEA update, in 2000, Colorado Lagoon consistently ranked among the most polluted and impaired coastal water bodies in Los Angeles County, and it was not known to have high ecological values. The lagoon has since undergone extensive improvements to remove toxic sediments, filter and re-route urban runoff before it enters the lagoon, and restore

coastal marsh and native upland scrub around the water's edge, actions that have dramatically improved habitat conditions during the last decade.

The proposed SEA is located within the Downey United States Geological Survey (USGS) 7.5' California Quadrangle.

Although not a formal SEA Selection Criterion, it is relevant that wetlands historically associated with the San Gabriel River, including Colorado Lagoon, are considered crucial to the Gabrieleño-Kizh/Tongva and Juaneño/Acjachemen peoples, for whom the permanent coastal settlement of Puvunga, including Motuucheyngna, is recognized as a major, sacred site of emergence. As such, formal recognition of the ecological significance of Colorado Lagoon through SEA designation would be consonant with and respectful of TEK.

The first phase of community-based restoration at Colorado Lagoon lasted from 2008 to 2011, when volunteers manually removed 25,000 pounds of non-native invasive ice plant (various species) and installed 3,500 native plants in about two acres of intertidal wetlands and low-lying uplands on the lagoon's eastern shore. The second and third phases of restoration, addressing the lagoon's western arm, continued through 2014.

## **Biological Resources**

### ***Vegetation and natural communities***

In its improved incarnation, Colorado Lagoon is widely recognized as an important area for avian life. Birders have documented more than 240 bird species there, including regular sightings of Endangered California least terns (*Sterna antillarum browni*) during the summer, when adults bring fish from the lagoon to their colony at nearby Anaheim Bay to the south. On occasion, the terns will bring recently fledged young to the lagoon.

Piscivorous species found at the lagoon year-round include California brown pelicans (*Pelicanus occidentalis californicus*), double-crested cormorants (*Nannopterum auritum*), snowy egrets (*Egretta thula*), and pied-billed grebes (*Podilymbus podiceps*). During winter, dozens of Lesser Scaup (*Aythya affinis*) can be found bobbing on the surface, often accompanied by such species as American wigeon (*Mareca americana*), redhead (*Aythya americana*), bufflehead (*Bucephala albeola*), and ruddy duck (*Oxyura jamaicensis*), and flocks of several dozen gulls congregate along the southern shore daily. Shorebirds utilize the lagoon daily, mainly during migration, when least and western sandpipers pass through along with such larger species as the willet (*Tringa semipalmata*), marbled godwit (*Limosa fedoa*), and long-billed curlew (*Numenius americanus*).

Below the water's surface, the lagoon functions as a natural fish hatchery. It supports approximately 21 species of marine fish, such as the California halibut (*Paralichthys californicus*), yellowfin croaker (*Umbrina roncadora*), and gray smooth-hound (*Mustelus californicus*), as well as bat rays (*Myliobatis californica*) and Haller's round rays (*Urobatis*

*halleri*). These populations benefit from the lagoon's eelgrass beds, which provide essential nursery grounds and hunting territory for predatory species, and which are now very rare in southern California. The benthic environment is equally rich, inhabited by a variety of invertebrates including striped shore crabs, clams, and sea slugs. Visitors often observe moon jellies drifting near the shoreline or washing up on the sandy beaches, a testament to the lagoon's direct tidal exchange with Alamitos Bay. The beaches provide habitat for s-banded (*Cicindela trifasciata*) and wetsalts tiger beetles (*Cicindelidia hemorrhagica*). Also resident is the wandering [saltmarsh] skipper (*Panoquina errans*), with a NatureServe Rank of S2 (Imperiled, at high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors).

Rimming the lagoon is a band of intertidal wetland (a habitat widely lost in the region), including at least 17 native salt marsh plant species. Restoration projects have replaced invasive flora with such southern California natives as coastal goldenbush (*Isocoma menziesii*), California sunflower (*Encelia californica*), dune buckwheat (*Eriogonum parvifolium*), and giant coreopsis (*Leptosyne gigantea*), which provide habitat for a variety of butterflies, bees, wasps, spiders and other invertebrates that provide prey for resident songbirds such as common yellowthroats (*Geothlypis trichas*). Sensitive and noteworthy plant species include woolly seablite (*Suaeda taxifolia*) and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), both California Rare Plant Rank 4.2 (watch list).

**Wildlife movement**

Colorado Lagoon is not located along any terrestrial wildlife movement corridor or habitat linkage, but it does function as an important stopover site for a variety of shorebirds during spring and fall migration periods.

**Designation Criteria**

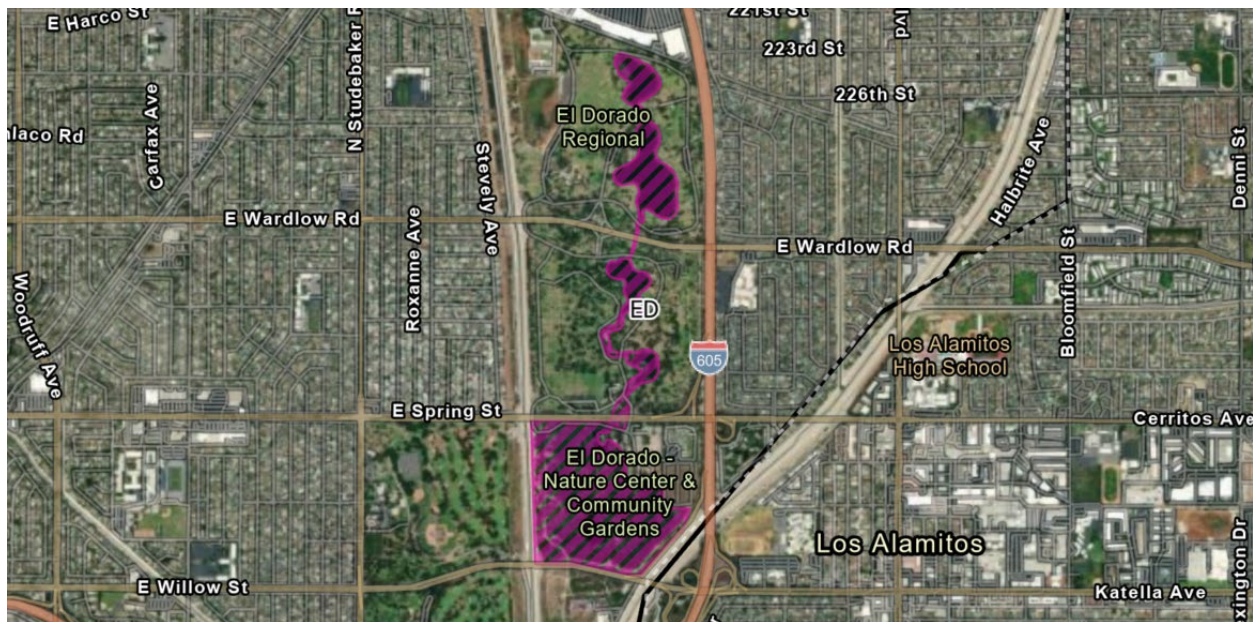
The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

**CRITERIA SUMMARY OF THE PROPOSED COLORADO LAGOON SEA**

	<b>Criterion</b>	<b>Status</b>	<b>Justification</b>
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	
B/ C)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	<ul style="list-style-type: none"> <li>- eelgrass beds</li> <li>- intertidal salt marsh</li> <li>- sandy beach habitat</li> <li>- saltmarsh skipper (S2)</li> <li>- woolly seablite (CRPR 4.2)</li> <li>- southwestern spiny rush (CRPR 4.2)</li> </ul>

D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	<ul style="list-style-type: none"> <li>- wintering waterfowl concentrations</li> <li>- migratory shorebird stopover habitat</li> <li>- waterbird foraging habitat</li> <li>- fish nursery habitat associated with eelgrass beds</li> </ul>
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not met	
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Not met	- restored eelgrass and intertidal marsh habitats; expected to meet Criterion F as restoration matures
G)	Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Not met	

### El Dorado Regional Park Lakes Proposed SEA (ED)



## General location and landform

El Dorado Regional Park, covering more than 600 acres in the City of Long Beach, features a series of natural lakes historically associated with swamps of the lower San Gabriel River, which were extensive prior to its channelization in the mid-twentieth century. The 135 acres of the park that are proposed for SEA designation include six hydrologically connected lakes in Areas 1, 2, and 3 of the park, which constitute rare and especially valuable freshwater wetland habitats in coastal Los Angeles County. The surrounding developed parts of the park are not recommended for SEA designation.

The proposed SEA is located within the Downey United States Geological Survey (USGS) 7.5' California Quadrangle.

Although not a formal SEA Selection Criterion, it is relevant that wetlands historically associated with the San Gabriel River, including those in El Dorado Regional Park, are considered crucial to the Gabrieleño-Kizh/Tongva and Juaneño/Acjachemen peoples, for whom the permanent coastal settlement of Puvunga, including Motuucheyngna, is recognized as a major, sacred site of emergence. As such, formally recognizing the ecological significance of these natural lakes and connecting waterways through SEA designation would be consonant with and respectful of TEK.

## Biological Resources

### Vegetation and natural communities

Considered as a whole, El Dorado Regional Park is known to provide important habitat for birds, with eBird records documenting more than 240 species. Along with large numbers of resident waterfowl, ducks found at the lakes during fall and winter include American wigeon (*Mareca americana*), gadwall (*M. strepera*), northern shoveler (*Spatula clypeata*), and ruddy ducks (*Oxyura jamaicensis*). Three California Species of Special Concern, the least bittern (*Botarus exilis*), Clark's marsh wren (*Cistothorus palustris clarkae*), and northern yellow warbler (*Setophaga aestiva*), nest in and around the lakes. Other wetland-dependent nesting species include great blue (*Ardea herodias*) and green (*Butorides virescens*) herons, and tree swallows. Lucky morning-glory (*Calystegia felix*), a species thought to be extinct until being rediscovered in Chino, San Bernardino County, in 2011, has since been found at Area 1 of El Dorado Regional Park (the Nature Center), where a few small populations persist as reminders of the park's heritage as part of an extensive natural swamp.

The lakes support some extensive stands of emergent freshwater marsh habitat characterized by native California bulrush (*Schoenoplectus californicus*) and broad-leaf cattail (*Typha latifolia*), mixed with smaller amounts of various herbs, such as salt marsh fleabane (*Pluchea odorata*). Native trees growing around the margins of some of the lakes include black and arroyo willow (*Salix gooddingii*, *S. lasiolepis*).

### Wildlife movement

El Dorado Regional Park is contiguous with the paved channel of the lower San Gabriel River. This channel and that of the Los Angeles River, several miles to the west, are the only geographic features connecting the southern coast of Los Angeles County to SEAs and other natural areas located 15 or more miles inland.

### Designation Criteria

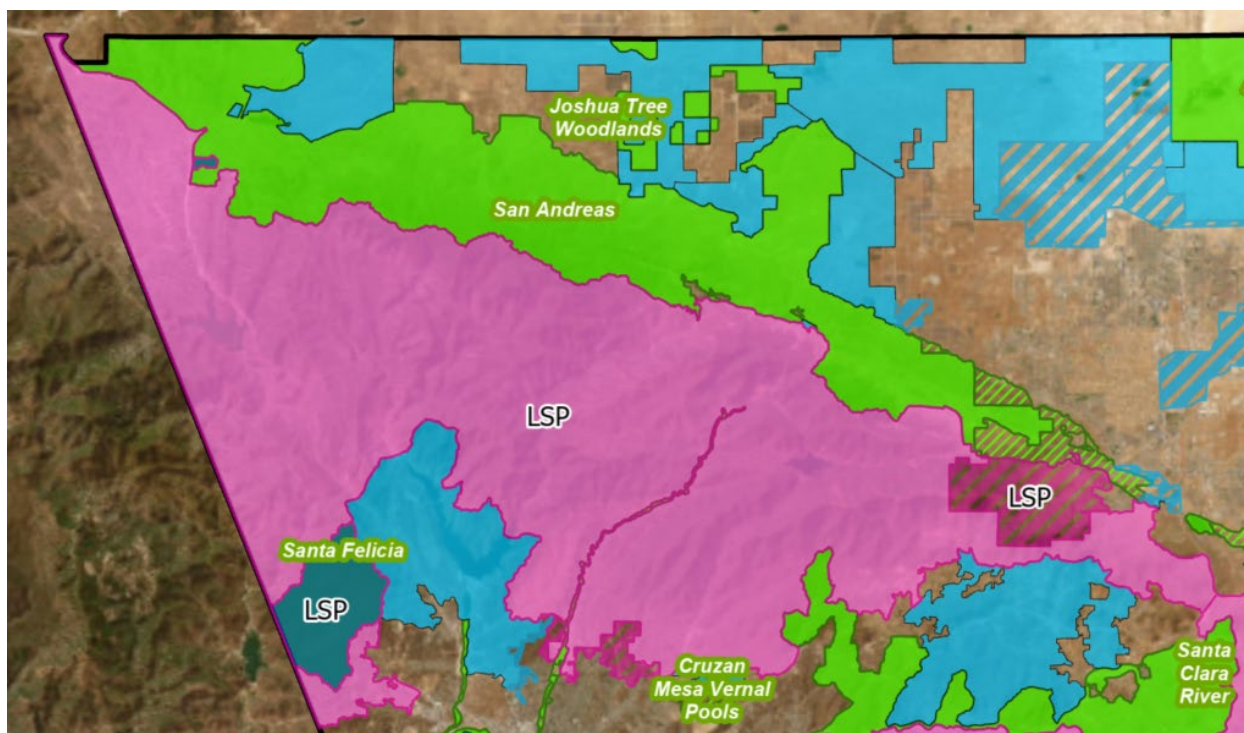
The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

**CRITERIA SUMMARY OF THE PROPOSED EL DORADO REGIONAL PARK LAKES SEA**

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	- Lucky morning-glory
B/ C)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	- Freshwater marsh habitat - Multi-lake freshwater wetland complex - California bulrush-cattail marsh - Least bittern - Clark’s marsh wen - Northern yellow warbler, - Wetland-dependent nesting herons - Rediscovered lucky morning-glory population
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	- Wintering waterfowl concentrations - Nesting waterbird rookeries - Breeding marsh birds
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not met	
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Not Met	

Criterion		Status	Justification
G)	Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Coastal-inland wetland linkage along San Gabriel River</li> <li>- Freshwater wetland stepping-stone along lower San Gabriel River</li> </ul>

### Liebre-Sierra Pelona Proposed SEA (LSP)



#### General location and landform

Located in the northwestern portion of the County, Liebre Mountain and the Sierra Pelona extend the Transverse Range west toward the Coast Ranges that begin in Ventura County.

Together with the San Gabriel Mountains to the east, most of the land here is owned by the federal government and managed by the U.S. Forest Service as four separate Districts comprising Angeles National Forest. The Forest boundary encompasses roughly 700,000 acres of Los Angeles County's 3 million total acres, stretching from the far northwestern corner near Gorman, southeast to Claremont at the San Bernardino County line (the San Gabriel Mountains extend several miles east into San Bernardino Co.). The Forest consists of two large, unconnected blocks of territory, bisected by S.R. 14 and the Santa Clara River. These mountains contain most of the County's undeveloped open space, and nearly all its large roadless areas. Private lands with clusters of houses are limited in the Liebre-Sierra Pelona, but the communities of Green Valley and Bouquet Canyon are exceptions.

Like the San Gabriel Mountains, the Liebre-Sierra Pelona supported a rich Indigenous history, with native peoples taking full advantage of the available game and abundant fruits such as acorns (*Quercus* spp.), chia (*Salvia columbariae*), and manzanita (*Arctostaphylos* spp.). Trading routes and footpaths for seasonal movements were extensive, connecting different portions of the mountains, and villages, with the lowlands to the north and south.

## **Biological Resources**

### ***Vegetation and natural communities***

Like the San Gabriel Mountains to the east, the vegetation of the Liebre-Sierra Pelona is exceptionally diverse. The peaks are lower in this range (none exceeding 6,000', vs. several over 9,000' in the San Gabriel Mountains), with more oak woodland and less truly montane habitat. As in the San Gabriels, small sag ponds forming marshy meadows are located along the northern base of the range, but just one main watershed dominates (Santa Clara River). Many Californian tree and shrub species typical of the Sierra foothills reach the southern extent of their global range within the Sierra Pelona, including California buckeye (*Aesculus californica*), gray pine (*Pinus sabiniana*), blue oak (*Quercus douglasii*), and foothill gooseberry (*Ribes quercetorum*). The oak (*Quercus*) species diversity in particular is exceptionally high here, as the range represents a crossroads of Sierran, Coast Range, Mojave, and southern California woodland flora. Finally, interesting desert extensions of species are frequently encountered here, with populations of western Joshua tree (*Yucca brevifolia*) and Scott's oriole (*Icterus parisorum*) found amid oak woodland and alluvial scrub habitat toward the northwestern corner of the range.

While most of the Threatened and Endangered high montane species of the San Gabriel Mountains are absent in the Liebre-Sierra Pelona, this range supports significant populations of arroyo toad (*Anaxyrus californicus*), California red-legged frog (*Rana draytonii*), California condor (*Gymnogyps californianus*), California spotted owl (*Strix occidentalis occidentalis*), and golden eagle (*Aquila chrysaetos*). Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) historically occurred and have been reintroduced to San Francisquito Canyon. County- and regionally rare bird populations of the Liebre-Sierra Pelona include likely nesting belted kingfisher (*Megaceryle alcyon*) in the upper Piru Creek drainage near the Ventura Co. line.

While the San Gabriel Mountains support more State and Federally protected plant species, Ross pitcher sage (*Lepechinia rossii*) is apparently endemic to the Liebre-Sierra Pelona, which support many regionally-rare plants, and those with small global ranges, including Robbin's nemacladus (*Nemacladus secundiflorus* var. *robbinsii*), Tehachapi monardella (*Monardella linoides* ssp. *oblonga*), Johnson's monkeyflower (*Diplacus johnstonii*), Mount Pinos larkspur (*Delphinium parryi* ssp. *purpureum*), and Peirson's morning-glory (*Calystegia peirsonii*).

The nesting raptor community of the Liebre-Sierra Pelona appears to be highly diverse, with historical nesting sites for California condor (Red Mountain), and breeding-season records of some of the County's rarest nesting raptors, including prairie falcon (*Falco mexicanus*), long-eared owl (*Asio otus*), and northern saw-whet owl (*Aegolius acadicus*).

### ***Wildlife Movement***

Like the San Gabriel Mountains to the east, the Liebre-Sierra Pelona is a largely undeveloped, largely roadless mountain range bordering a megacity to the south. It may likewise be considered a “source” habitat for wide-ranging species such as mountain lion (*Puma concolor*) and golden eagle (*Aquila chrysaetos*) in the County. The freeways that border and cross the range, including Interstate 5 and S.R. 14, are thus of major concern for wildlife movement, and planning is underway to provide and improve wildlife crossing opportunities for these species in the form of underpasses and wildlife bridges.

## Designation Criteria

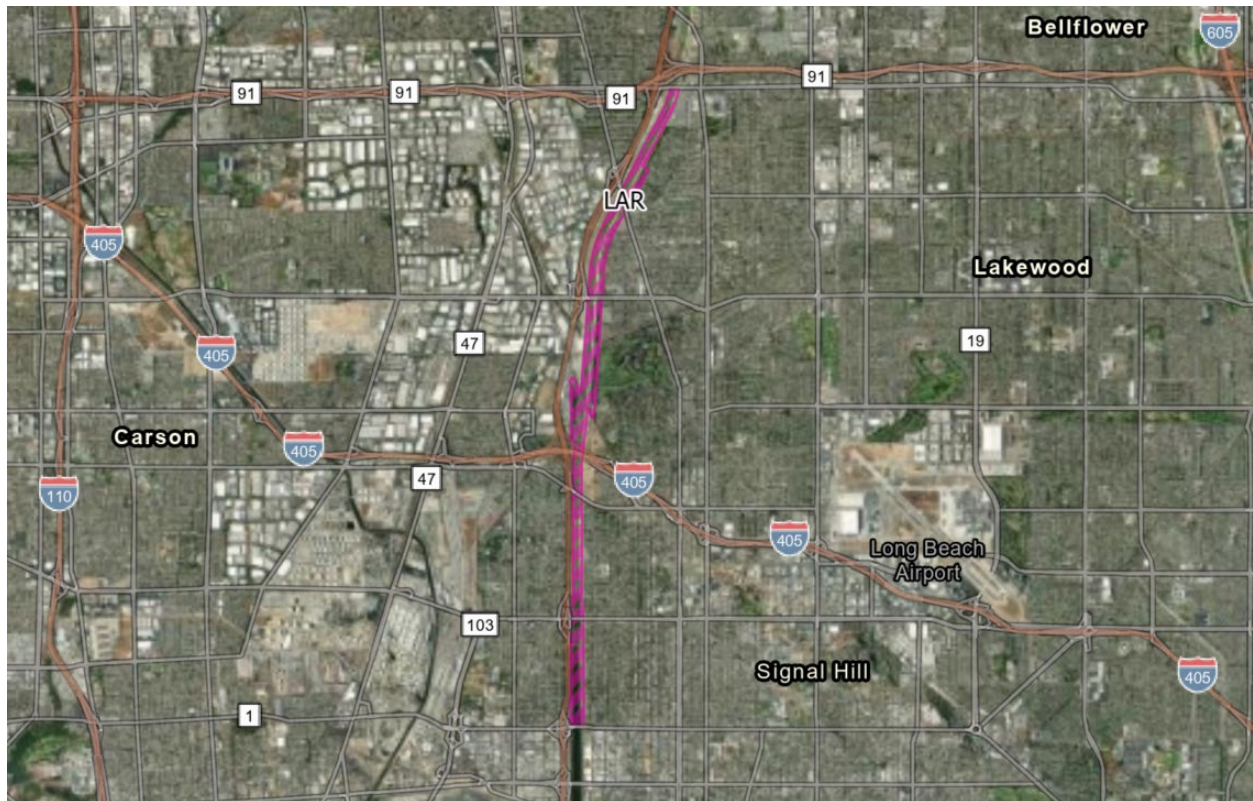
The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

### CRITERIA SUMMARY OF THE PROPOSED LIEBRE-SIERRA PELONA SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	<ul style="list-style-type: none"> <li>- Arroyo toad</li> <li>- California red-legged frog</li> <li>- California condor</li> <li>- California spotted owl</li> <li>- Golden eagle</li> <li>- Ross pitcher sage (endemic)</li> </ul>
B/C)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	<ul style="list-style-type: none"> <li>- Diverse oak woodland assemblages</li> <li>- Regionally rare montane plants</li> <li>- California condor breeding use</li> <li>- Diverse nesting raptor community</li> <li>- Desert-montane vegetation overlap</li> <li>- Joshua tree occurrences in oak woodland</li> </ul>
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	<ul style="list-style-type: none"> <li>- Aquatic breeding habitat for arroyo toad and red-legged frog</li> <li>- Headwater stream habitats for native fish</li> <li>- Nesting raptor habitat in montane terrain</li> </ul>
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	<ul style="list-style-type: none"> <li>- Southern range limits for Sierran woodland species</li> <li>- Exceptional oak species diversity</li> <li>- Desert-montane floristic overlap</li> </ul>

Criterion		Status	Justification
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	<ul style="list-style-type: none"> <li>- Extensive relatively undisturbed montane habitats</li> <li>- Large contiguous oak woodland and chaparral</li> <li>- Intact watershed-scale habitat</li> </ul>
G)	Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Regional source habitat for wide-ranging species</li> <li>- Elevational movement corridors</li> <li>- Large contiguous undeveloped mountain habitat</li> </ul>

### Lower Los Angeles River Proposed SEA (LAR)



#### General location and landform

Extending approximately six linear miles through the City of Long Beach, from Pacific Coast Highway north to Artesia Boulevard, and encompassing approximately 423 acres, the highly modified ecosystem of the lower Los Angeles River provides important habitat for a wide range of birds, and especially migratory shorebirds. The recommended SEA consists of the

channel itself, administered by the Los Angeles County Flood Control District (LACFD), and associated restored wetlands of the Dominguez Gap (52 acres, restored by the LACFD in 2008) and DeForest Park (34 acres, restored by the City of Long Beach in 2018).

The proposed SEA is located within the Downey United States Geological Survey (USGS) 7.5' California Quadrangle.

Although not a formal SEA Selection Criterion, it is relevant that the Gabrieleño-Kizh/Tongva people regard the Los Angeles River—Paayme Paxaayt (“west river”) or Wenot (“the life-giver”)—as a centerpiece of trade, culture, and spirituality. Historically, at least 45 villages flourished along its length, including Ahwaanga near the river’s mouth. As such, formally recognizing the ecological significance of the lower Los Angeles River and associated wetlands through SEA designation would be consonant with and respectful of TEK.

## **Biological Resources**

### **Vegetation and natural communities**

The recommendation to designate this area mainly reflects its unique value as a crucial stopover site for large numbers of shorebirds during fall migration, as summarized by Cooper (2006, p. 1): “The concrete-lined channel of the lower Los Angeles River in Long Beach supports one of the largest concentrations of shorebirds in southern California during fall migration. Each fall, the black-necked stilt (*Himantopus mexicanus*), western sandpiper (*Calidris mauri*), and least sandpiper (*Calidris minutilla*) occur in the thousands of individuals per day, and the American avocet (*Recurvirostra americana*) and long-billed dowitcher (*Limnodromus scolopaceus*) occur in the hundreds. Numbers peak from mid-August through late September, and eight systematic surveys between 9 August and 27 September 2000 yielded in excess of 14,000 birds on four of these counts. Despite the channel’s proximity to the coast, the species composition resembles that at other inland sites in the Southwest more closely than natural coastal wetlands in the region. Because of the channel’s constricted concrete borders, even slight rainfall can raise the water level in the channel, reducing the suitability of the habitat for shorebirds. This effect likely accounts for the area’s relatively light use by shorebirds outside the late summer and fall dry season.”

The Dominguez Gap Wetlands occupy two areas between the 405 freeway and Del Amo Boulevard: a 37-acre basin on the eastern side of the river channel and an 18-acre basin on the west side of the channel. The DeForest Wetlands occupy a basin 2.4 miles long on the eastern side of the river channel, from Del Amo Boulevard to Osgood Street. A review of eBird records show multiple summer records of least bitterns (*Botaurus exilis*), Clark’s marsh wrens (*Cistothorus palustris clarkae*), and northern yellow warblers (*Setophaga aestiva*), suggesting localized nesting by these California Species of Special Concern in the Dominguez Gap Wetlands and possibly in the DeForest Wetlands. Other wetland-dependent nesting species include green heron (*Butorides virescens*) and tree swallow (*Tachycineta bicolor*).

The river channel itself does not support natural communities, but the Dominguez Gap Wetlands and DeForest Wetlands have been restored using a combination of riparian trees, including western sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), and willows (*Salix* spp.), along with mulefat (*Baccharis salicifolia*) and emergent freshwater marsh vegetation, such as California bulrush (*Schoenoplectus californicus*) and broad-leaf cattail (*Typha latifolia*). Upland slopes of the basins have been restored with native coastal sage scrub species, such as California buckwheat (*Eriogonum fasciculatum*), coyote brush (*Baccharis pilularis*), and California sagebrush (*Artemisia californica*).

A small area of the lower channel through north Long Beach supports a rare seasonal alkali wetland community, with patches of southern tarplant (*Centromadia parryi* ssp. *australis*), along with wetsalts tiger beetles (*Cicindelidia hemorrhagica*) and other wetland indicators.

**Wildlife movement**

This channel and that of the San Gabriel River, several miles to the east, are the only geographic features connecting the southern coast of Los Angeles County to SEAs and other natural areas located 15 or more miles inland.

**Designation Criteria**

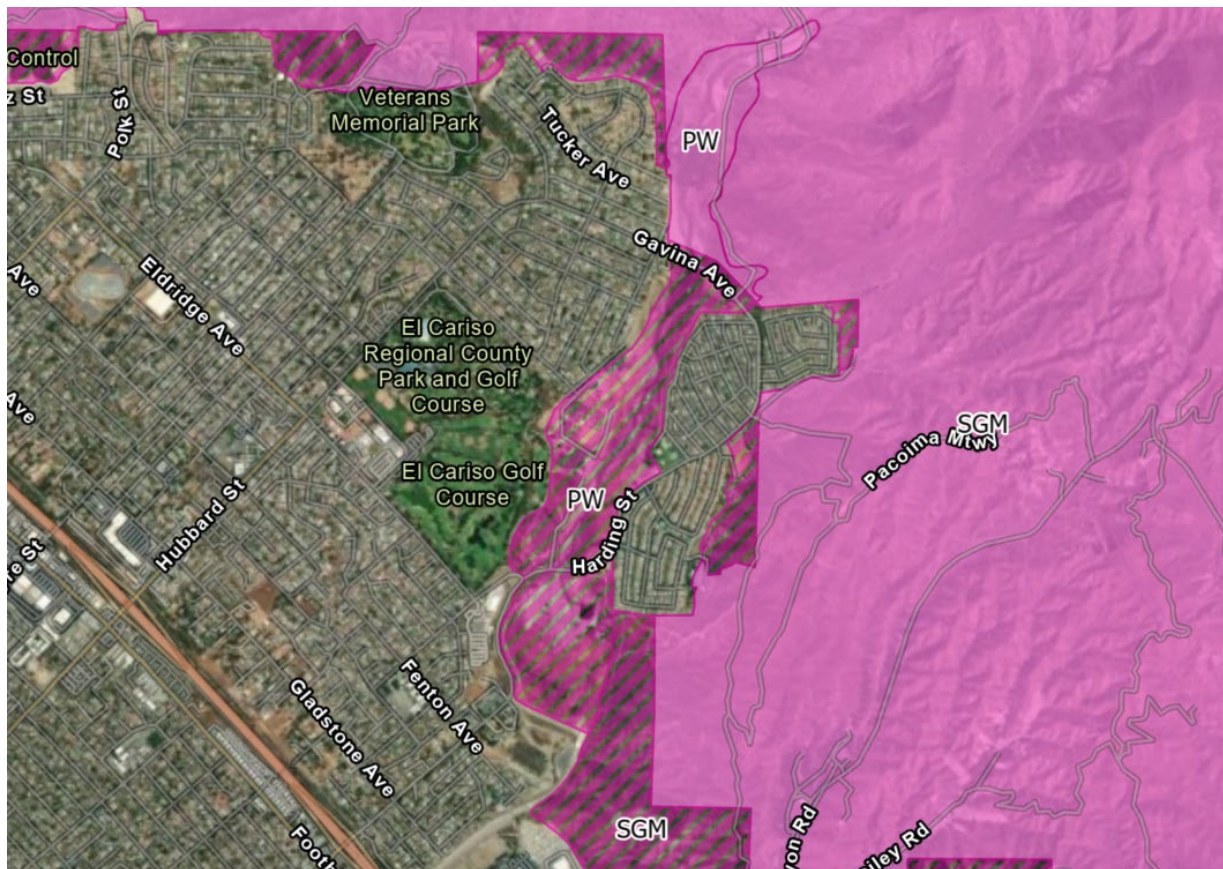
The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

**CRITERIA SUMMARY OF THE PROPOSED LOWER LOS ANGELES RIVER SEA**

Criterion	Status	Justification
A) The habitat of core populations of endangered or threatened plant or animal species.	Met	- Southern tarplant
B/ C) On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	- Restored freshwater marsh - Riparian woodland (sycamore-cottonwood-willow) - Seasonal alkali wetland - Least bittern - Clark’s marsh wren - Northern yellow warbler - Wetland dependent nesting birds
D) Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	- Large migratory shorebird concentrations - Fall migration stopover habitat - Concentrated feeding and resting habitat for shorebirds

Criterion	Status	Justification
E) Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not Met	
F) Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Not Met	
G) Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Los Angeles River coastal-inland linkage</li> <li>- Urban river movement corridor</li> </ul>

### Pacoima Wash (PW) Proposed SEA



## **General location and landform**

Lower Pacoima Wash extends for more than mile downstream of the USFS boundary as an un-channelized, boulder-filled coastal-slope alluvial wash, and is blocked by a large flood-control dam at Maclay St., just east of the 210 Freeway. One of the rarest habitats in the state, alluvial fan scrub is restricted to the remaining natural-floor drainages in the Los Angeles Basin and nearby lowlands, where the Basin meets the foothills of the Transverse and Peninsular ranges (e.g., San Gabriel River, Santa Ana River, San Jacinto River). The alluvial habitats of these sites stand in stark contrast with the surrounding upland habitats, which typically support chaparral and coastal sage scrub (or, more often, disturbed versions of these habitats, filled with non-native grasses and forbs) not associated with seasonal water flow.

The proposed SEA is located within the San Fernando United States Geological Survey (USGS) 7.5' California Quadrangles.

While the habitat at Pacoima Wash is less extensive and more disturbed than that at Big Tujunga Wash, the San Gabriel River, and a handful of other drainages in the eastern part of the County, it nonetheless supports numerous rare species (including many of those also found at Big Tujunga Wash), and thus represents an integral component of the original vegetation of the Los Angeles Basin.

Located at the northeastern edge of the densely urban San Fernando Valley, Pacoima Wash is bordered by El Cariso Community Regional Park to the west, and by dense residential and industrial development to the south; however, the northern connection to Angeles National Forest is still intact, and numerous large corridors into the ANF to the east (Lopez Canyon area) are also still open (including via "Lopez Canyon Sylmar Hiking Trail" and Lime Kiln Canyon (note: a different Limekiln Canyon is located on the southeastern slopes of the Santa Susana range, several miles to the west)).

## **Biological Resources**

### ***Vegetation and natural communities***

The alluvial fan scrub present at Pacoima Wash supports a highly diverse scrub community with California buckwheat (*Eriogonum fasciculatum*) particularly prevalent, and scattered laurel sumac (*Malosma laurina*). Notable plant species present include Tujunga bushmallow (*Malacothamnus davidsonii*), scalebroom (*Lepidospartum squamatum*, an indicator species for this habitat), and cane cholla (*Cylindropuntia bernardina*), all of which are highly restricted in the Los Angeles Basin. All (southern California) areas of alluvial fan scrub feature plants at their extreme physiological range, trying to survive in an extremely harsh environment (boulder-filled floodwaters, searing hot temperatures). Even riparian trees such as western sycamore adopt a distinctive growth form on these bajadas (alluvial fan slopes), stunted and often with multiple trunks.

Sensitive wildlife species known from the wash, or from nearby similar habitat, include San Diegan legless lizard (*Anniella stebbinsi*), Blainville's horned lizard (*Phrynosoma blainvillii*), two-striped garter snake (*Thamnophis hammondi*) and coastal whiptail (*Aspidoscelis tigris stejnegeri*). Numerous rare species are known from upstream of USFS boundary, and may also occur in the lower wash, at least seasonally, including rare fishes, southwestern pond turtle (*Actinemys pallida*) and amphibians such as arroyo toad (*Anaxyrus californicus*). Surveys are urgently needed to document the presence (or absence) of these and other sensitive taxa.

Trask's shoulderband is known from the area, and at least some of these records may pertain to the narrowly-endemic Pacoima shoulderband subspecies (*Helminthoglypta traskii pacoimensis*), which is known only from "Pacoima Canyon" and is believed to be "Critically Endangered"; the subspecies is known from specimens but has not been photographed in life.

**Wildlife Movement**

The natural habitats of Pacoima Wash essentially stop at the edge of urban development and are blocked from the rest of the San Fernando Valley by the massive 210 Freeway. However, a series of flood control channels convey water from the wash southwest to a large complex of settling ponds near Arleta, and then south into the Los Angeles River channel. Numerous pocket parks have been installed or are planned along Pacoima and Tujunga Wash, and the Los Angeles River, emphasizing its importance as an urban wildlife corridor. This includes not just large and mid-sized mammals, but also pollinators taking advantage of native plants (natural or planted), and smaller reptiles supported by strips of dirt (rather than concrete) along the channel right-of-way. These urban habitats are essentially "anchored" by the extensive alluvial scrub habitat of Pacoima Wash, which in turn is ecologically and literally connected to the extensive habitats of the San Gabriel Mountains SEA.

**Designation Criteria**

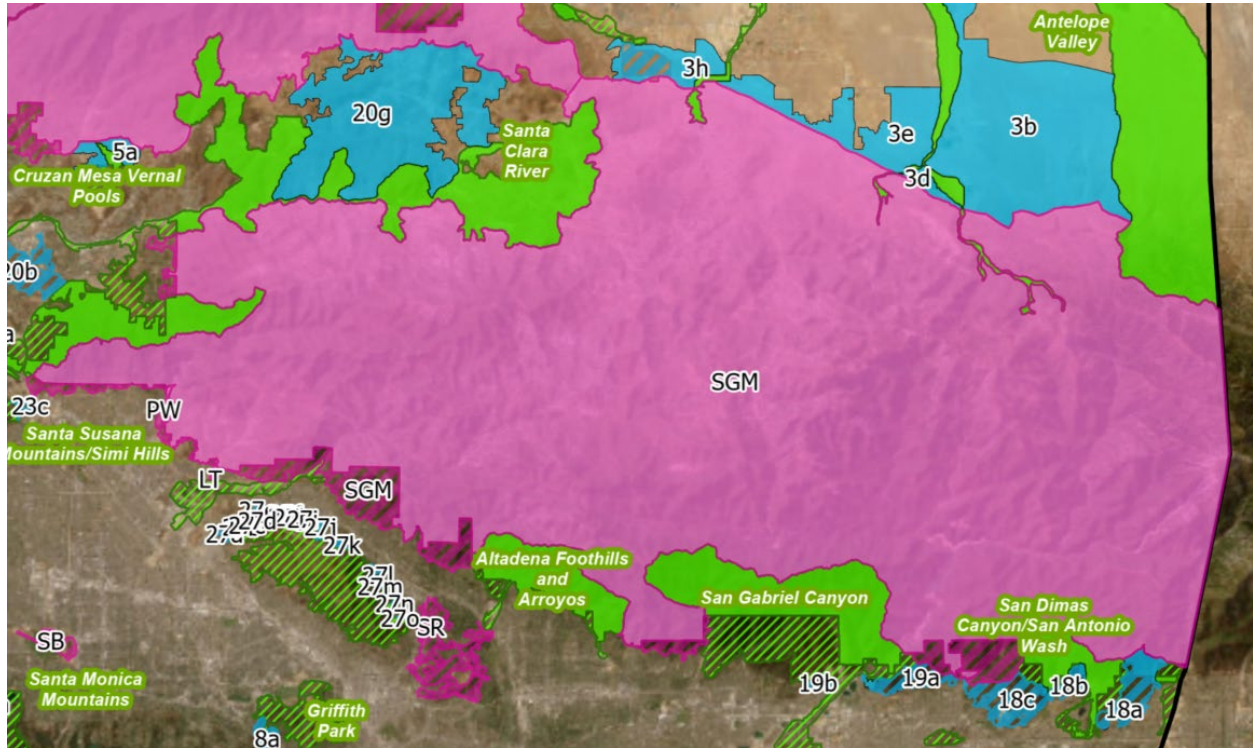
The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

**CRITERIA SUMMARY OF THE PROPOSED PACOIMA WASH SEA**

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	- Tujunga bushmallow

Criterion		Status	Justification
B/ C)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	<ul style="list-style-type: none"> <li>- Alluvial fan scrub</li> <li>- Scalebroom</li> <li>- Cane cholla</li> <li>- San Diegan legless lizard</li> <li>- Blainville's horned lizard</li> <li>- Two-striped garter snake</li> <li>- Coastal whiptail</li> <li>- Trask's shoulderband snail</li> </ul>
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Not Met	
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	<ul style="list-style-type: none"> <li>- Flood-scoured, boulder-dominated alluvial fan scrub</li> <li>- Scalebroom and Tujunga bushmallow adapted to disturbance regimes</li> <li>- Multi-trunk western sycamore growth forms on bajadas</li> </ul>
F)	Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Relatively intact alluvial fan scrub</li> <li>- Remnant natural wash habitat in urban basin</li> <li>- Boulder-dominated natural drainage</li> </ul>
G)	Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Linkage to San Gabriel Mountains SEA and Angeles National Forest</li> <li>- Anchor habitat for urban wash corridors</li> <li>- Connectivity via Pacoima-Tujunga-Los Angeles River system</li> </ul>

## San Gabriel Mountains Proposed SEA (SGM)



### General location and landform

The San Gabriel Mountains, together with the Liebre Mountain and the Sierra Pelona just to the northwest, are part of southern California's Transverse Range, an east-west trending range of high, steep granitic mountains forming the northern edge of the Los Angeles Basin. Most of the land in these mountains is owned by the federal government and managed by the U.S. Forest Service as four separate Districts comprising Angeles National Forest. In addition, considerable areas of private lands are scattered throughout the forest, some including (rural) residential communities such as Green Valley and Kagel Canyon. The Forest boundary encompasses roughly 700,000 acres of Los Angeles County's 3 million acres, stretching from the far northwestern corner near Gorman, southeast to Claremont at the San Bernardino County line (the San Gabriel Mountains extend several miles east into San Bernardino Co.). The Forest consists of two large, unconnected blocks of territory, split by S.R. 14 and the Santa Clara River. Despite covering just under 25% of the County's total land area, ANF contains most of the County's undeveloped open space, and nearly all its large roadless areas.

The San Gabriel Mountains contain some of the highest peaks in southern California, including Mount San Antonio (Mt. Baldy, aka *Joat/Yoát* "Snowy Mountain" to the Tongva, a local tribe), at 10,064', Mt. Baden-Powell (9,339'), and a dozen other peaks over 8,000'.

A massive range containing and straddling multiple biomes (including the Mojave Desert to the north, and the coastal Los Angeles Basin to the south), the San Gabriel Mountains supported a rich Indigenous history, with native peoples taking full advantage of the available game and abundant fruits such as acorns (*Quercus* spp.), chia (*Salvia columbariae*), and manzanita (*Arctostaphylos* spp.). Trading routes and footpaths for seasonal movements were extensive, connecting different portions of the mountains, and villages, with the lowlands to the north and south.

## **Biological Resources**

### ***Vegetation and natural communities***

It is difficult to summarize the vegetation of so diverse an area as the San Gabriel Mountains. Nearly *all* the habitats of mainland southern California may be found within Angeles National Forest, with the exception of desert-floor vegetation (e.g., creosote bush scrub, alkali sink scrub) and coastal scrub vegetation at immediate coastal sites such as the Palos Verdes Peninsula. Microhabitats abound—small sag ponds forming marshy meadows are located along the northern base of the range (natural wetlands along the coastal slope have largely been replaced by urbanization). Several major watersheds originate in the San Gabriel Mountains, producing the major waterways of southern California (including Santa Clara River, Los Angeles River, San Gabriel River, and in the north, Big Rock and Little Rock creeks).

As of 2008—i.e., prior to long-term drought that began in c. 2010, and a series of devastating fires including the Station Fire (2009, 169,000+ acres) and the Bobcat Fire (2020, 115,000+ acres)—the vegetation present in the Angeles National Forest (including the bulk of the Liebre-Sierra Pelona and the San Gabriel Mountains portions) was estimated at more than 50% chaparral, with 23% conifer woodland and 9% “hardwoods” (largely oak woodland) (Schaaf et al. 2008). Since 2020, however, the amount of coniferous forest has plummeted, and oak woodland is similarly reduced, due to fire and drought. Today, the pockets of high-elevation coniferous forest and meadow habitat, rich in rare species, are truly imperiled, both by forces easily managed (e.g., human intrusion and trampling) and largely out of human control (long-term drought and climate change).

In a 1998 analysis (updated with newer taxonomy in 2005), Angeles National Forest was thought to support 23 “Forest Sensitive Plant Species”, most entirely restricted in the County to the San Gabriel Mountains, and dozens of sensitive wildlife species. The San Gabriel Mountains are known to support 24 endemic or near-endemic plant taxa, 15 of which are *only* found here<sup>7</sup>. Many of these are listed as Threatened or Endangered by state or federal agencies or California Native Plant Society, including Greata’s aster (*Symphyotrichum greatae*), San Gabriel manzanita (*Arctostaphylos glandulosa* ssp. *gabrielensis*), Palmer’s mariposa lily (*Calochortus palmeri* var. *palmeri*), San Gabriel linanthus (*Linanthus concinnus*), wooly mountain-parsley (*Oreonana vestita*), Mount Gleason paintbrush (*Castilleja gleasoni*), Bear Valley woolypod (*Astragalus leucolobus*), San Antonio milkvetch

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<sup>7</sup> <https://tchester.org/sgm/plants/species/endemics.html>

(*Astragalus lentiginosus* var. *antonius*), Ewan's woodbeauty (*Drymocallis cuneifolia* var. *ewanii*), southern alpine buckwheat (*Eriogonum kennedyi* var. *alpigenum*), Johnston's buckwheat (*E. microtheca* var. *johnstonii*), San Gabriel Mountains monardella (*Monardella australis* ssp. *gabrielensis*), Brown's Flat monardella (*M. breweri* ssp. *glandulifera*), Abram's oxytheca (*Acanthoscyphus parishii* var. *abramsii*), Rock Creek broomrape (*Aphyllon validum* ssp. *validum*), lemon lily (*Lilium parryi*), gray-leaved violet (*Viola pinetorum* ssp. *grisea*), and Peirson's lupine (*Lupinus peirsonii*). No fewer than 30 rare, but not Threatened/Endangered, plant species are known from the San Gabriel Mountains, many occurring nowhere else in the County, including Jepson's bedstraw (*Galium jepsonii*), urn-flowered alumroot (*Heuchera caespitosa*), California adder's tongue (*Ophioglossum californicum*) and silky lupine (*Lupinus elatus*).

Examples of sensitive wildlife taxa of the San Gabriel Mountains not found anywhere else in the County include the amphibians mountain yellow-legged frog (*Rana muscosa*) and San Gabriel Mountains slender salamander (*Batrachoseps gabrieli*); birds such as nesting bald eagle (*Haliaeetus leucocephalus*), black swift (*Cypseloides niger*), purple martin (*Progne subis*); the rare fish Santa Ana speckled dace (*Rhinichthys gabrielino*) and Santa Ana sucker (*Catostomus santaanae*) are found in the Big Tujunga watershed and locally elsewhere; San Gabriel elfin (*Callophrys mossii hidakupa*; a butterfly) and Nelson's (or "desert") bighorn sheep (*Ovis canadensis nelsoni*) are restricted to rocky habitat in the eastern portion of the range. Several other sensitive species occur primarily in the San Gabriel Mountains in the County, with small, often relict populations in the lower Liebre-Sierra Pelona range (e.g., California spotted owl, *Strix occidentalis occidentalis*).

Dozens of wildlife species that aren't recognized as sensitive at the state level are restricted in the County to the San Gabriels, with many occurring in the County *only* in these mountains. These include birds such as common nighthawk (*Chordeiles minor*), flammulated owl (*Psiloscopus flammeolus*), gray flycatcher (*Empidonax wrightii*), hermit thrush (*Catharus guttatus*), Lincoln's sparrow (*Melospiza lincolnii*), MacGillivray's warbler (*Geothlypis tolmei*), Nashville warbler (*Leiothlypis ruficapilla*), plumbeous vireo (*Vireo plumbeus*), Williamson's sapsucker (*Sphyrapicus thyroideus*) and Wilson's warbler (*Cardellina pusilla*).

Tragically, a localized subspecies of greenish blue, the San Gabriel Mountains blue butterfly (*Plebejus saepiolus aureolus*) was rendered extinct (last seen 1980s) after a water diversion project near Big Pine destroyed its wet meadow habitat. The nearest populations of greenish blue persist in the Piute, San Bernardino and San Jacinto mountains (iNaturalist), all of which are separate subspecies than that which formerly occupied the San Gabriel Mountains.

### **Wildlife Movement**

As a massive, largely undeveloped, largely roadless mountain range bordering a megacity to the south, and surrounded by rapidly urbanizing land, the importance of the San Gabriel Mountains to wildlife connectivity throughout the County (and beyond) cannot be overstated. The San Gabriels may be considered a "source" habitat for wide-ranging

species such as mountain lion (*Puma concolor*) and golden eagle (*Aquila chrysaetos*) in the County, and presumably “supply” many of the individuals dispersing to more urban open space areas such as the Verdugo Mountains and Santa Susana Mountains. Poorly known and rarely seen mammals such as southern California ringtail (*Bassariscus astutus octavus*) and western spotted skunk (*Spilogale gracilis*) likewise would be expected to maintain source populations not in isolated urban open spaces in the Los Angeles Basin, but in the rugged mountains to the north. The freeways that border and cross the San Gabriel Mountains are thus of major concern for wildlife movement, and planning is underway to provide and improve wildlife crossing opportunities for these species in the form of underpasses and wildlife bridges.

### Designation Criteria

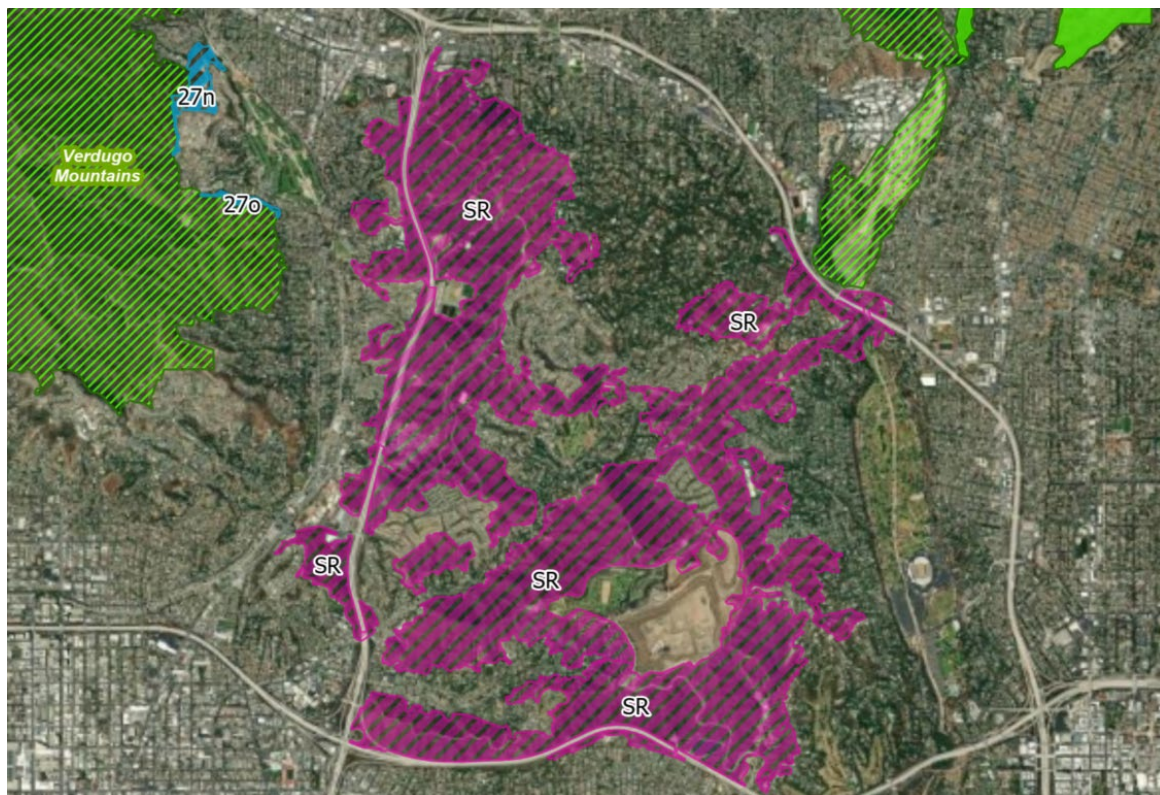
The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

#### CRITERIA SUMMARY OF THE PROPOSED ANGELES NATIONAL FOREST/SAN GABRIEL MOUNTAINS SEA

Criterion	Status	Justification
A) The habitat of core populations of endangered or threatened plant or animal species.	Met	<ul style="list-style-type: none"> <li>- Mountain yellow-legged frog</li> <li>- California spotted owl</li> <li>- Bald eagle nesting sites</li> <li>- Golden eagle nesting sites</li> <li>- Santa Ana sucker</li> <li>- Santa Ana speckled dace</li> <li>- San Gabriel manzanita</li> <li>- San Gabriel linanthus</li> <li>- Mountain Gleason paintbrush</li> </ul>
B/ C) On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	<ul style="list-style-type: none"> <li>- High-elevation conifer forest</li> <li>- Montane meadow and sag pond wetlands</li> <li>- Endemic San Gabriel Mountains flora (multiple taxa)</li> <li>- Localized montane bird assemblages</li> <li>- San Gabriel Mountains slender salamander</li> <li>- San Gabriel elfin butterfly</li> <li>- Nelson’s bighorn sheep</li> </ul>
D) Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	<ul style="list-style-type: none"> <li>- High-elevation meadow and sag pond breeding habitats</li> <li>- Headwater stream habitats for endemic fish and amphibians</li> <li>- Nesting raptors in montane habitats</li> <li>- Microhabitat-restricted endemic species</li> </ul>

Criterion		Status	Justification
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	<ul style="list-style-type: none"> <li>- High-elevation “sky island” habitats</li> <li>- Floristic similarity to northern montane regions</li> <li>- Large mountain stream systems lacking lowland analogues</li> </ul>
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	<ul style="list-style-type: none"> <li>- Extensive roadless montane habitat</li> <li>- Relatively undisturbed chaparral and forest communities</li> <li>- Intact elevational vegetation gradients</li> </ul>
G)	Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Regional source habitat for wide-ranging species</li> <li>- Elevational movement corridors</li> <li>- Linkage to surrounding foothill SEAs</li> <li>- Dispersal source for basin and transverse ranges</li> </ul>

**San Rafael Hills Proposed SEA (SR)**



## General location and landform

The San Rafael Hills are a low-elevation transverse range located in central Los Angeles County, southeast of the Verdugo Mountains and west of the Arroyo Seco. The neighborhoods of Eagle Rock and Glassell Park lie to the south, and the urbanized San Fernando Valley to the west. Elevations range from approximately 720 to 1,889 feet above mean sea level. Two major canyons, Scholl and Sycamore, run east to west. Soils include multiple calcareous types. The San Rafael Hills retain substantial areas of native vegetation, steep rugged topography, incised canyons, and natural drainage systems. Although they are sometimes referred to as an island of open space surrounded by development, tenuous connections remain to the Altadena Foothills and Arroyos SEA (across the 210 freeway through Hahamonga Watershed Park), and to the Verdugo Hills SEA (across North Verdugo Road). The hills cover approximately 7,040 acres, 3,413 of which are recommended for designation as a new SEA. Most of the remaining acreage is low-density housing and other land uses suitable for designation as connectivity overlay.

The San Rafael Hills occur within portions of the United States Geological Survey (USGS) 7.5' quadrangles for Pasadena, Glendale, and Burbank.

Although not a formal SEA Selection Criterion, it is relevant that the San Rafael Hills are part of the ancestral homelands of the Gabrieleño-Kizh/Tongva people, with the historical village of Toviscangna located approximately five miles southeast of the hills near present-day Mission San Gabriel Arcangel. The San Rafael Hills were important as a natural resource area, providing materials that included willow for houses. As such, formally recognizing the ecological significance of the San Rafael Hills through SEA designation would be consonant with and respectful of TEK.

## Biological Resources

The San Rafael Hills support a mosaic of native plant communities characteristic of foothill environments in Los Angeles County, including expanses of chaparral, coastal sage scrub, coast live oak woodland, and localized riparian and oak-sycamore woodland along canyon bottoms and ephemeral drainages. North-facing slopes and shaded ravines tend to support denser chaparral and woodland assemblages, while south- and west-facing slopes are characterized by more open coastal sage scrub and drought-tolerant chaparral species.

Natural communities described for this area include various forms of chaparral, coastal sage scrub, oak woodland, walnut woodland, California sycamore woodland, and mixed riparian woodland (Soza et al. 2013). Sensitive and noteworthy plant species recorded the San Rafael Hills include one plant with a California Rare Plant Rank of 1B.2 (plants rare or endangered in California and elsewhere) and several watch-list plants of limited distribution: chaparral nolina (*Nolina cismontana*), Plummer's mariposa lily (*Calochortus plummerae*), fragrant pitcher-sage (*Lepechinia fragrans*), ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*), southern California black walnut (*Juglans californica*), San Gabriel oak

(*Quercus durata* var. *gabrielensis*) and Engelmann oak (*Q. engelmannii*). The hills are near the western edge of the range of Engelmann oak. A distinctive form of summer lupine (*Lupinus formosus*) is also known from here<sup>8</sup>.

Sensitive and noteworthy wildlife species known from the San Rafael Hills include one Candidate for State listing, Crotch's bumble bee (*Bombus crotchii*), and several California Species of Special Concern: coast range newt (*Taricha torosa*), Blainville's horned lizard (*Phrynosoma blainvillii*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), two-striped garter snake (*Thamnophis hammondi*), and northern yellow warbler (*Setophaga aestiva*). Also present is Trask shoulderband snail (*Helminthoglypta traskii*), which has a NatureServe Rank of S2 (Imperiled, at high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors).

The San Rafael Hills represent the southernmost extent of the Transverse Range flora and fauna into the Los Angeles Basin; as such, they support species like Merriam's chipmunk, black bear, and others that do not (regularly) occur farther south. Mule deer also cannot penetrate the Basin's urban matrix farther south than the San Rafael Hills. For this reason, they are considered to be an important extension of such habitat, providing a stepping-stone from the Basin into the mountains.

### **Wildlife movement**

The San Rafael Hills are situated south of the San Gabriel Mountains, east of the Verdugo Mountains to the west, and the Arroyo Seco to the east, and thus may function as an important linkage for these expansive open spaces. Obstacles to terrestrial movement through the San Rafael Hills include State Route 2, which runs north/south through the eastern part of the range, and the 210 freeway, which separates the San Rafael Hills from the San Gabriel Mountains. They are also the first large open space block of habitat providing a source for dispersal lower into the Basin (e.g., via the Arroyo Seco), and vice-versa. Efforts to identify and protect the remaining connections across these major barriers are warranted.

### **Designation Criteria**

The following table indicates which of the existing SEA Selection Criteria and the one proposed new SEA Selection Criterion are satisfied by the proposed SEA.

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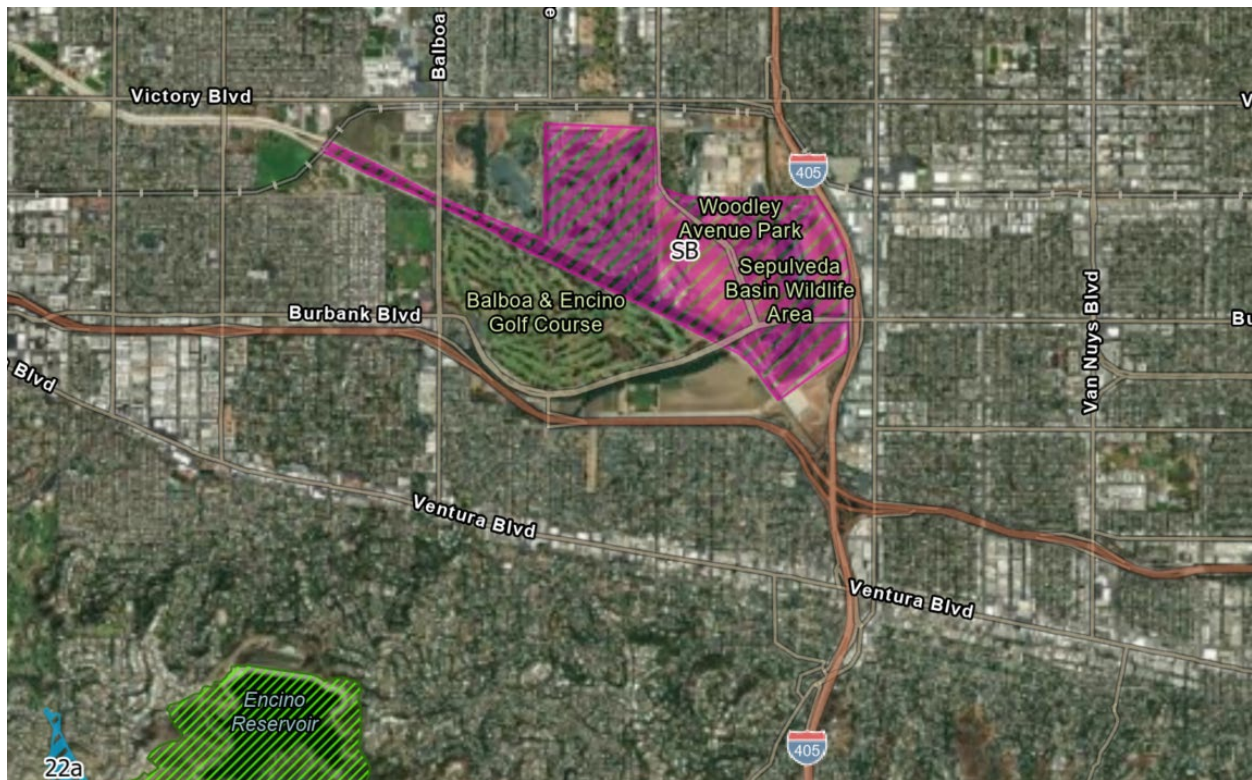
<sup>8</sup> The population of summer lupine occurring from near the base of the San Gabriel Mountains through Verdugo Hills and into the Griffith Park area of the eastern Santa Monica Mountains was originally described as *Lupinus pasadenensis*. This is a perennial herb with a very small range that was subsequently included within *L. formosus*, but which differs in having a much later flowering period than other populations of *L. formosus* in the region (blooms late winter, rather than mid-summer), and occurs not in grassland, but on gneiss, a form of a decomposed granite. Mature plants closely resemble the woody shrub-forming longleaf lupine in the area (*Lupinus longifolius*), which occurs in at least three populations in the County, one in the San Gabriel Mountains foothills, another in the Santa Monica Mountains, and a third in the low hills on the floor of the Los Angeles Basin (DSC, unpubl. data).

**CRITERIA SUMMARY OF THE PROPOSED SAN RAFAEL HILLS SEA**

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	
B/ C)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	<ul style="list-style-type: none"> <li>- Chaparral, coastal sage scrub, and oak woodland mosaic</li> <li>- Walnut woodland and oak-sycamore woodland</li> <li>- San Gabriel oak occurrences</li> <li>- Engelmann oak near western range limit</li> <li>- Chaparral nolina</li> <li>- Plummer’s mariposa lily</li> <li>- Fragrant pitcher-sage</li> <li>- Ocellated Humboldt lily</li> <li>- Southern California black walnut</li> <li>- Crotch’s bumble bee (Candidate)</li> <li>- Coast range newt</li> <li>- Blainville’s horned lizard</li> <li>- Coastal whiptail</li> <li>- Two-striped garter snake</li> <li>- Northern yellow warbler</li> <li>- Trask’s shoulderband snail (S2)</li> </ul>
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Not Met	
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	<ul style="list-style-type: none"> <li>- Southernmost extent of Transverse Range flora and fauna</li> <li>- Range-edge populations (Engelmann oak)</li> </ul>

Criterion	Status	Justification
F) Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	<ul style="list-style-type: none"> <li>- Relatively intact foothill habitat mosaic</li> <li>- Steep, rugged terrain limiting disturbance</li> <li>- Large contiguous native vegetation patches</li> </ul>
G) Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Linkage to Verdugo Mountains</li> <li>- Linkage to San Gabriel Mountains via Arroyo Seco</li> <li>- Stepping-stone habitat into Los Angeles Basin</li> <li>- Constrained concentrations across SR-2 and 1-210</li> </ul>

### Sepulveda Basin Proposed SEA (SB)



#### General location and landform

The Sepulveda Basin comprises more than 2,000 acres of mostly undeveloped land including and alongside the Los Angeles River in the middle of the San Fernando Valley. It occupies the confluences of several tributaries of the Los Angeles River, Bull Creek, Encino

Creek and Haskell Creek, and supports a mix of various bottomland vegetation communities largely lost on the floor of the Basin. It is isolated from the Santa Monica Mountains by a major freeway and residential development; however, Encino Creek provides at least hydrological connection between the Basin and that range. A variety of ownership and management overlays cover Sepulveda Basin, including US Army Corps of Engineers (owns most of the land) and the city of Los Angeles (manages most of the land, with the exception of the "South Reserve" south of Burbank Blvd.).

The proposed SEA is located within the Canoga Park and Van Nuys United States Geological Survey (USGS) 7.5' California Quadrangles.

## **Biological Resources**

### ***Vegetation and natural communities***

The Sepulveda Basin, one of a handful of large remaining open space areas on the floor of the Los Angeles Basin, is a mixed-use recreational area with considerable natural habitats, including:

- A 1-mile natural-floor stretch of the Los Angeles River, with native willow-dominated riparian vegetation;
- "Bull Creek Restoration Area", completed in 2009, located just north and west of Lake Balboa;
- Several marsh-lined ponds located in the designated "wildlife area", as well as on the Woodley Lakes Golf Course;
- Multiple active colonial waterbird rookeries;
- Natural riparian scrub vegetation with scattered Fremont cottonwood and other trees in the "South Reserve" area south of Burbank Blvd.;
- A large constructed (cement-lined) reservoir (Lake Balboa) that supports waterbirds in winter.

Out of the 2,000+ acres within the Sepulveda Basin, 285 acres consisting of Bull Creek, the Los Angeles River, and Haskell Creek with its associated wildlife lake and adjacent undeveloped uplands, are recommended for SEA designation. While physically isolated from other open space areas of the County, its location along the Los Angeles River makes it a crucial component of future restoration efforts (The River Project 2022).

The Los Angeles River channel itself and associated habitats support Fremont cottonwood (*Populus fremontii*), and willows (*Salix* spp.), along with mulefat (*Baccharis salicifolia*) and emergent freshwater marsh vegetation, such as California bulrush (*Schoenoplectus californicus*) and broad-leaf cattail (*Typha latifolia*). This habitat supports numerous wildlife species found only in freshwater marsh, including rails (family Rallidae) and dragonflies/damselflies (order Odonata). Sanford's arrowhead (*Sagittaria sanfordii*), a CRPR 1B.2 plant, was recently discovered along the Los Angeles River channel, and numerous

wetland plant species occur within the basin (Cooper et al. 2022). Since formal botanical surveys have never been conducted here, more may await discovery.

Sensitive and noteworthy wildlife species confirmed as nesting at Sepulveda Basin include the Endangered least Bell's vireo (*Vireo bellii pusillis*) and multiple California Species of Special Concern, including the least bittern (*Botarus exilis*), Clark's marsh wren (*Cistothorus palustris clarkae*), yellow-breasted chat (*Icteria virens*) and northern yellow warbler (*Setophaga aestiva*).

A large rookery consisting mainly of double-crested cormorant (*Nannopterum auritum*) and great blue heron (*Ardea herodias*) is located on a small island within the Wildlife Area, and a smaller great blue heron rookery is located adjacent to the Los Angeles River. Additional rookeries of herons and egrets have been found scattered throughout the Basin, appearing unpredictably from year to year.

The Los Angeles River includes an unchannelized portion, with natural sand/silt banks, just south of Woodley Golf Course. This fragment represents one of the few remaining large examples of a natural riparian zone in the coastal lowlands. Upland slopes of the Los Angeles River levee have been restored with native coastal sage scrub species, such as California buckwheat (*Eriogonum fasciculatum*), coyote brush (*Baccharis pilularis*), and California sagebrush (*Artemisia californica*). American kestrel, an open country species now rare year round, has bred in the Basin at least once in the past 10 years. In grassland areas, both burrowing owl (*Athene cunicularia*) and loggerhead shrike (*Lanius ludovicianus*) are regular in fall and winter, one of the few locales in urban Los Angeles where they still occur.

**Wildlife movement**

The Los Angeles River channel represents a major urban wildlife corridor through the urban Los Angeles Basin.

**Designation Criteria**

The following table identifies which of the six existing SEA Selection Criteria and the proposed new SEA Selection Criterion are satisfied by the proposed SEA.

**CRITERIA SUMMARY OF THE PROPOSED SEPULVEDA BASIN SEA**

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	- Least Bell's vireo - Sanford's arrowhead

Criterion		Status	Justification
B/ C)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	<ul style="list-style-type: none"> <li>- Freshwater marsh habitat</li> <li>- Rare unchannelized river habitat</li> <li>- Least bittern</li> <li>- Clark's marsh wren</li> <li>- Yellow-breasted chat</li> <li>- Northern yellow warbler</li> <li>- Rails (Rallidae)</li> <li>- Odonates (dragonflies and damselflies)</li> </ul>
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	<ul style="list-style-type: none"> <li>- Colonial waterbird rookeries</li> <li>- Breeding marsh birds</li> <li>- Wintering waterbirds</li> </ul>
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not Met	
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	<ul style="list-style-type: none"> <li>- Unchannelized Los Angeles River segment</li> <li>- Natural riparian zone in coastal lowlands</li> </ul>
G)	Areas that provide functionally important habitat connectivity between or within designated SEAs, including relatively intact or lightly disturbed habitat that forms functional linkages or corridors connecting portions of the same SEA or linking one SEA to another.	Met	<ul style="list-style-type: none"> <li>- Los Angeles River wildlife corridor</li> <li>- Linkage toward Santa Monica Mountains</li> <li>- Basin floor movement corridor</li> </ul>

## 5.5 Updated SEA Descriptions

Refinements to SEA descriptions are recommended to improve clarity, accuracy, and consistency with current conditions and available scientific information. Updated descriptions will help ensure that SEA narratives reflect known biological resources, ecological functions, and management considerations, while maintaining consistency with the underlying purpose and regulatory structure of the SEA Program.

This report only provides descriptions for newly recommended SEAs. Updates to descriptions of existing SEAs will be updated in Appendix E of the 2020 General Plan.

## 6. CONNECTIVITY RECOMMENDATIONS

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Maintaining ecological connectivity is essential to the long-term function and resilience of the SEA network; however, connectivity does not always align neatly with the spatial logic of SEA designation. Many functionally important movement areas are diffuse, transient, or extend across developed landscapes where SEA designation would be impractical, overly expansive, or inconsistent with the intent of the SEA Program. In other locations, connectivity is constrained into narrow corridors or pinch points where relatively small areas play an outsized role in facilitating wildlife movement.

Given these characteristics, relying solely on SEA boundary adjustments to address connectivity would, in many cases, either fail to capture important movement areas or require a substantial expansion of SEAs into more urbanized areas that may be neither effective nor appropriate. As illustrated in **Figure 22**, many intensified and channeled movement pathways occur outside existing and recommended SEA boundaries, underscoring the need for connectivity considerations to extend beyond the SEA Program. While SEAs tend to encompass core habitat areas and may capture portions of intensified movement pathways along their edges, fully incorporating all functionally important connectivity areas within the SEA network would require extensive expansion into developed landscapes and would extend beyond the intended scope of the SEA Program. For this reason, a connectivity-focused planning overlay or policy map is recommended as a complementary, stand-alone tool, to address wildlife movement considerations across the entire landscape of the county. SEAs remain critical for protecting core habitat areas, but additional tools are needed to address connectivity across the broader landscape.

A connectivity policy map or overlay would allow the County to apply targeted design recommendations, development standards, and mitigation requirements in areas identified as functionally important for wildlife movement without necessitating full SEA designation. Such an approach would better reflect the variable nature of connectivity across the landscape, protecting and bolstering connectivity using techniques appropriate to different situations. For example, policies for preserving redundant movement routes through low-density residential neighborhoods would differ from those developed to preserve and fortify movement opportunities through critical pinch points at freeway under- or overcrossings.

The connectivity model developed for this study identifies broad movement pathways across the county based on landscape permeability, habitat conditions, and known ecological patterns. Like all regional-scale connectivity analyses, the model represents a snapshot in time and relies on generalized landcover data. The underlying land-cover dataset uses a 30-meter raster resolution, which introduces a degree of uncertainty, inconsistency, and potential error when interpreting conditions at finer spatial scales. Nevertheless, the resulting movement pathways map represents the best currently available countywide information on potential wildlife movement pathways and provides a useful tool for identifying areas where connectivity considerations should inform planning and development decisions. **Figure 22** provides a countywide visualization of these modeled

pathways in relation to existing and recommended SEAs, highlighting the importance of addressing connectivity both within and beyond the SEA network.

Because the model operates at a regional scale, the movement pathway map should be used primarily as a screening and policy-guidance tool rather than a parcel-level regulatory map. Development proposals located within or adjacent to mapped movement pathways should be evaluated based on actual site conditions, including vegetation, topography, existing barriers, and surrounding habitat context, rather than relying solely on mapped designations.

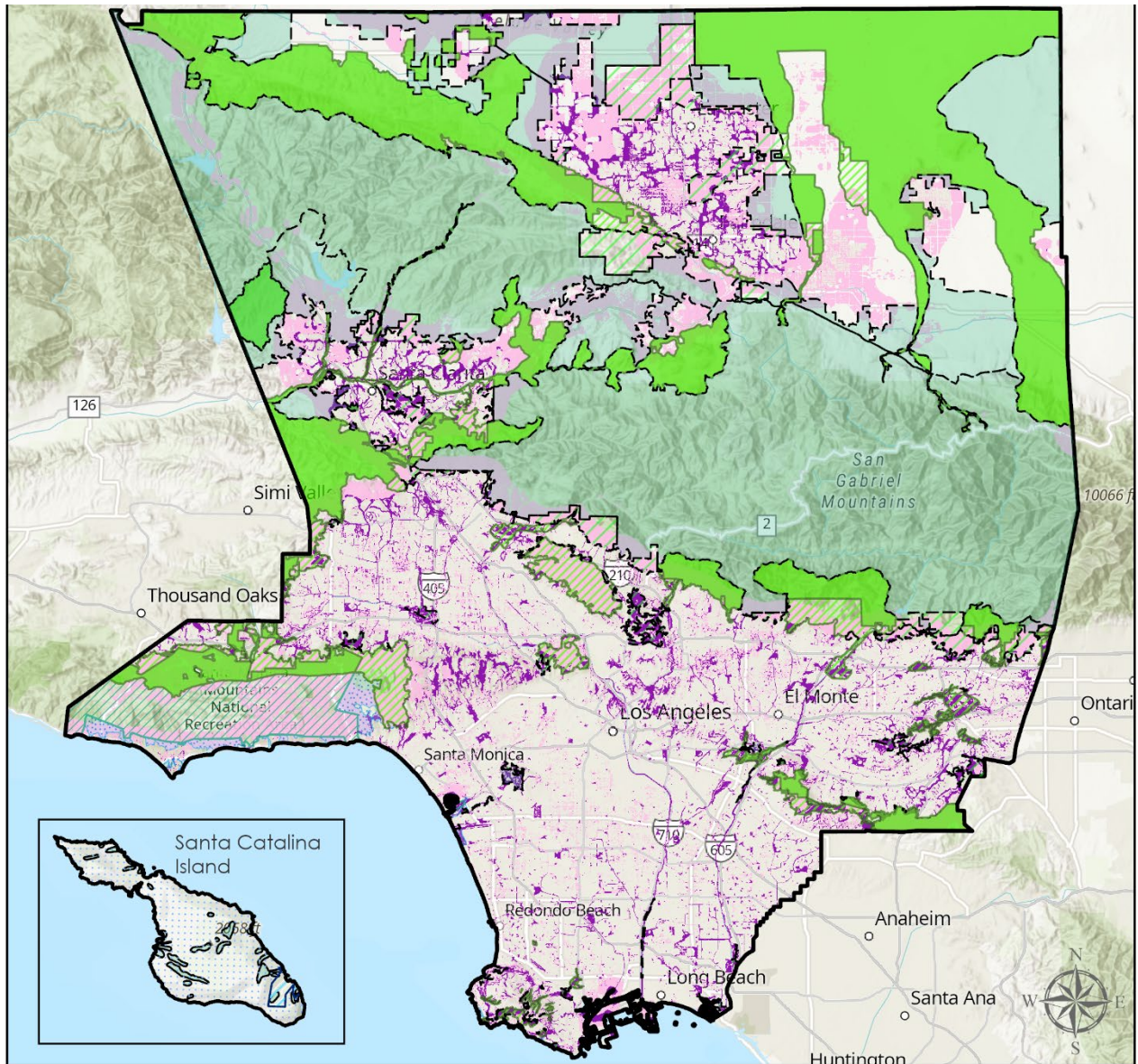
The connectivity analysis distinguishes several general categories of movement conditions across the landscape, each of which may warrant different planning responses.

**Channeled movement areas (purple)** represent locations where wildlife movement is constrained into relatively narrow corridors, often due to surrounding development, infrastructure, or topographic barriers. These areas frequently function as critical “pinch points” in the broader connectivity network. In such locations, development proposals should be carefully evaluated to ensure that projects do not sever existing movement pathways. Avoidance of new barriers should be prioritized, and where impacts are unavoidable, mitigation strategies should focus on maintaining or enhancing connectivity through measures such as wildlife crossings, habitat restoration, or creation of redundant movement opportunities nearby.

**Intensified movement areas (pink)** represent zones where wildlife movement is concentrated but not fully constrained into a single corridor. These areas often occur along the edges of urban development or within semi-developed landscapes where multiple pathways remain available. Planning and development in these areas should emphasize maintaining redundancy in movement routes and incorporating wildlife-friendly design features such as permeable fencing, appropriate lighting design, and preservation of vegetation corridors that facilitate continued movement across the landscape.

**Core habitat and open space areas** are represented in Figure 22 by SEAs (current and recommended adjustments), which support relatively intact habitat conditions and form the backbone of the regional connectivity network. Development proposals within or adjacent to these areas should carefully consider potential impacts on habitat integrity, ecosystem services, and long-term landscape connectivity.

In practice, the movement pathway map could serve as a County connectivity policy map, helping to identify areas where additional review or design considerations may be appropriate. For example, the presence of a mapped channeled corridor in the vicinity of a proposed development site could trigger review to ensure that project design avoids creating new barriers or severing important movement routes. At the same time, the County should recognize that the model is not intended to define precise corridor boundaries at the parcel scale and should be applied flexibly in conjunction with site-specific evaluation.



**Figure 22. Current and Recommended SEAs with Constrained Movement Pathways.** Ecological network for Los Angeles County showing existing SEAs, proposed SEA boundary adjustments and additions, and areas of constrained wildlife movement identified through the connectivity analysis. Constrained movement pathways highlight locations where wildlife movement is intensified or channeled by surrounding landscape conditions including many areas occurring outside existing and proposed SEAs.

## 7. SEA BOUNDARY CONTRACTIONS

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No contractions to existing SEA boundaries are recommended as part of this study. Areas within some SEAs that have experienced localized development or disturbance were evaluated; however, these areas were retained based on their continued contribution to the overall function of the SEAs. No single development density threshold was used to determine inclusion or exclusion. Instead, areas were retained where they continued to support biological resources, landscape permeability, or connectivity between habitat blocks. In some locations, inclusion of partially developed lands helps maintain corridor width and redundant movement opportunities—providing multiple potential routes for wildlife movement—thereby reducing reliance on a single pathway and lowering the likelihood that future development will create bottlenecks or sever movement pathways.

The addition of the Connectivity Criterion broadened the evaluation of ecological function beyond intact habitat alone, recognizing the importance of landscape permeability and linkage among habitat areas. This approach emphasizes maintaining continuous and functionally connected landscapes, even where portions of those landscapes have experienced disturbance or partial development.

The analysis therefore focused on ensuring that existing SEAs continue to effectively capture ecological resources, maintain habitat connectivity, and support long-term resilience consistent with the intent of the SEA Program.

While no contractions are recommended at this time, future boundary adjustments may be appropriate under limited circumstances. Any such changes should be guided by clear, objective criteria demonstrating that an area no longer supports the ecological functions or resources for which it was originally designated.

Future evaluations should consider whether an area continues to meet SEA criteria and contribute to the overall function of the network. Relevant factors may include:

- **Substantial Loss of Biological Resources:**

Areas that no longer support native habitat, special-status species, or sensitive natural communities due to conversion or disturbance. This may include areas where the resources or species for which the SEA was originally designated are no longer present, or where the area no longer meets applicable SEA criteria due to habitat degradation or loss of ecological function.

In evaluating such areas, a distinction should be made between temporary disturbance (e.g., wildfire) and permanent conversion (e.g., urban development). Areas affected by fire may continue to support important ecological functions, including early successional habitats and associated species, and often retain the capacity to recover to pre-disturbance conditions over time. As such, fire-affected areas should not, in isolation, be considered justification for SEA contraction. In contrast, permanent conversion that results in the long-term loss of habitat and ecological function may warrant consideration for removal.

- **Extent and Intensity of Development:**

Large areas of urban or suburban development—such as fully built-out subdivisions of sufficient size and density—that substantially reduce habitat value and disrupt ecological processes. As a general guideline, areas on the order of 40 – 100+ acres may warrant consideration for removal where ecological function has been substantially diminished; however, size alone should not be determinative, and areas that continue to support connectivity or buffering functions should be retained.

- **Loss of Connectivity Function:**

Areas that no longer contribute meaningfully to wildlife movement, linkage, or broader landscape connectivity due to fragmentation or surrounding land use. This may include areas where features such as high road density, fencing and other barriers, intensive lighting, noise, and human activity create conditions that substantially impede or preclude wildlife movement. Even in the absence of complete habitat loss, these factors can reduce permeability and disrupt movement patterns, particularly for sensitive or wide-ranging species.

- **Level of Human Activity and Disturbance:**

High levels of ongoing human use or disturbance that preclude the area from functioning as viable habitat. This may include areas with intensive recreational use, high trail density, frequent human presence, or chronic disturbance from adjacent development. Associated factors—such as lighting, noise, domestic animals, and routine maintenance—can degrade habitat quality, alter species behavior, and reduce suitability for sensitive or disturbance-intolerant species. Where these conditions are sustained, they may substantially limit ecological function.

In applying these considerations, maintaining the spatial integrity of the SEAs is critical. Contractions should:

- Avoid creating fragmented “Swiss cheese” conditions or internal gaps (“donut holes”) within existing SEAs;
- Generally be limited to edge refinements that do not compromise overall continuity;
- Avoid removing areas that, while altered, continue to provide connectivity, buffering, or supporting ecological functions; and
- Maintain consistency with natural landscape features or logical development edges, rather than introducing irregular or arbitrary boundaries.

Any future contraction or removal should be supported by site-specific analysis and documentation demonstrating that the area no longer meets applicable SEA criteria.

## 8. CONCLUSION: STRENGTHENING THE SEA NETWORK AND LANDSCAPE CONNECTIVITY

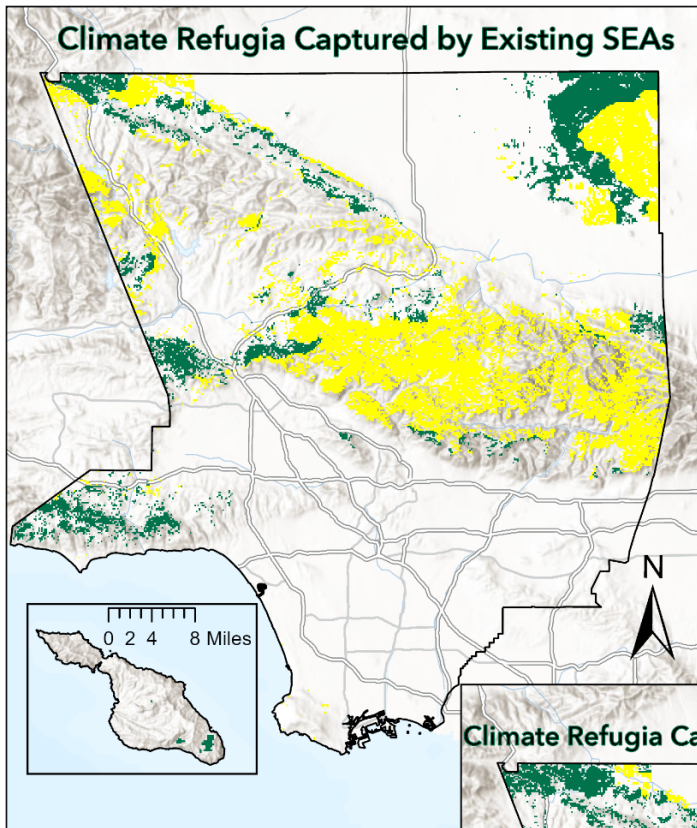
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The recommended SEA boundary adjustments, newly proposed SEAs, and the connectivity analysis together establish a more comprehensive and ecologically coherent conservation framework for Los Angeles County. Rather than functioning as independent recommendations, these elements collectively advance a landscape-scale approach to biological resource planning that recognizes both the importance of protecting high-value ecological cores and the need to maintain functional connections among them.

The SEA boundary recommendations refine and expand the County's existing network of Significant Ecological Areas to better capture landscapes that meet the SEA Selection Criteria, including areas supporting rare species, sensitive habitats, and relatively intact ecological systems. When viewed together with the connectivity analysis, these recommendations reveal an integrated ecological network consisting of core habitats and the connective landscapes that sustain wildlife movement and ecological processes across the region.

The recommended SEA configuration also substantially improves the County's ability to conserve areas identified as climate refugia—locations expected to remain relatively buffered from climate change and therefore critical for long-term biodiversity persistence. As illustrated in **Figure 23**, the existing SEA network captures approximately 30 percent of mapped climate refugia within Los Angeles County. Incorporation of the recommended SEA expansions, adjustments, and the proposed montane SEAs (Liebre – Sierra Pelona and San Gabriel Mountains) increases that coverage to approximately 90 percent, significantly strengthening the role of the SEA network in supporting climate resilience.

Together, these recommendations establish a more complete ecological framework that better reflects the spatial structure and functional dynamics of natural systems across Los Angeles County. By strengthening both habitat protection and landscape connectivity while capturing key climate refugia, the recommended SEA network provides a foundation for long-term biodiversity conservation, climate adaptation, and resilient ecosystem function across the region.



## Climate Refugia Comparison

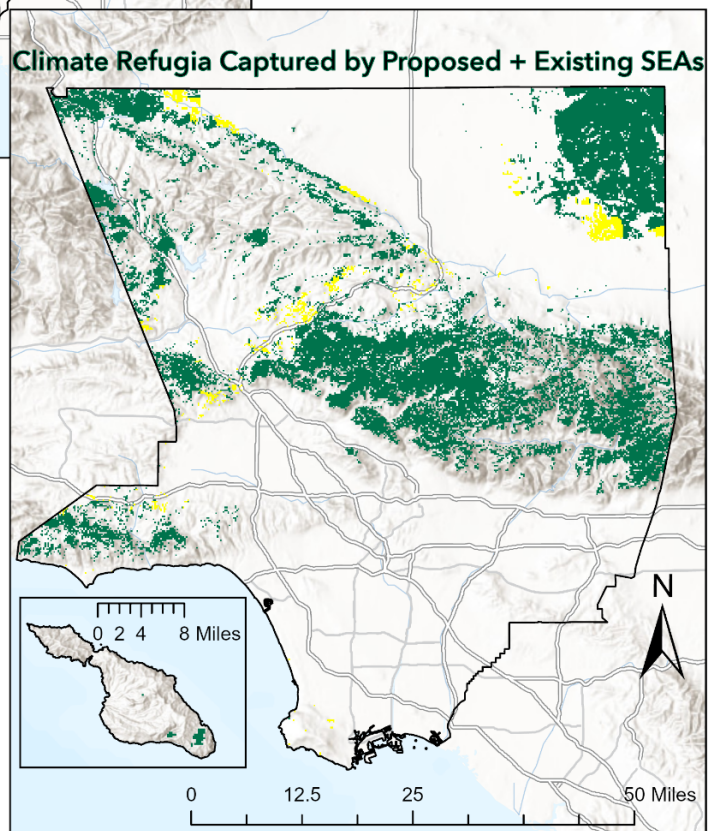
The proposed adjustments, expansions, and the creation of the two new montane SEAs (Liebre-Sierra Pelona + San Gabriel Mountains) increase the Climate Refugia captured from approximately 30% to approximately 90% within Los Angeles County.

### Legend

□ Los Angeles County Boundary

#### Climate Refugia

- Captured
- Uncaptured



See Thorne et al. (2020) for original Climate Refugia analysis of California  
<https://doi.org/10.1002/fee.2208>

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS, Esri, CGIAR, USGS, Esri, HERE, Garmin, FAO, USGS, EPA, NPS, County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri.

**Figure 23. Climate Refugia Captured by Existing and Proposed SEA Network.** Comparison of climate refugia captured by the current SEA network and by the recommended SEA configuration, showing an increase from approximately 30 percent to approximately 90 percent of mapped refugia in Los Angeles County.

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