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ENVS 188

16 March 2025

Habitat Protection in California

The purpose of my project was to analyze the overlap between urban areas, vulnerable wildlife habitats, and protected areas in California. As urbanization expands, it often leads to habitat fragmentation and degradation, threatening biodiversity and putting vulnerable species at risk. This project categorizes protected areas by access level, open access, restricted access, and off-limits, while ranking habitats based on the concentration of vulnerable species, with higher rankings indicating greater ecological risk.

By mapping these factors together, this analysis provides a clearer picture of where urban expansion poses the greatest threat to biodiversity and where existing protections may be insufficient. This information can help guide conservation efforts, land-use planning, and policy decisions to better balance development and ecological preservation.

Metadata:

California State Shapefile

→ US Census Bureau, TIGER/Line Shapefiles, 2024 States & Equivalent

Used to outline the state of California.

Urban Areas

→ US Census Bureau, TIGER/Line Shapefiles, 2020 Urban Areas

Used to display the urban areas in California and analyze intersections and buffers with vulnerable habitats and protected areas.

Significant Habitats

→ California Department of Fish & Wildlife, Statewide Areas of Conservation

Emphasis: Significant Habitats

“Biodiversity ‘hotspot’ assessment of species richness, rarity, and endemism and sensitive habitat occurrences.” The Significant Habitat datasets offer comprehensive information on aquatic and terrestrial habitats to evaluate the likelihood of the presence of habitats or vegetation protected by state, national, or local conservation laws. These datasets also identify key habitat areas essential for the survival of species of conservation concern. The data are derived from vegetation, land cover, and species-specific habitat information.

California Protected Areas

→ California Natural Resources Agency, California Protected Areas Database 2024b release

Provides an easy view of various levels of protected areas across the state of California.

Coordinate System/Projection: WGS 1984: Used to display online. It is pretty accurate and the system used for each of the datasets I downloaded. Therefore, it was a convenient choice for displaying the information.

Data Analysis:

I first trimmed down the state layer and urban layer to just the state of California. I then used the significant habitat layer to create a buffer of 100 m around urban areas to show the overlap between these two. Finally, I added the protected areas layer and displayed them by access type to show the different levels of protection and how much they overlap urban habitats.

Bibliography:

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U.S. Census Bureau. *Shapefiles: 2020 Urban Areas*. U.S. Census Bureau, 2020, www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2020&layergroup=Urban+Areas. Accessed 13 Mar. 2025.

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