Collaborative Conservation Planning for the Gaviota Region

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Spring 2023

James S. Bower Foundation
Re-envisioning.

UC Santa Barbara
Bren School of Environmental Science & Management

The Nature Conservancy

Environmental Problem

Regional conservation plans are crucial for protecting the environment and preserving natural resources. However, various problems can arise when engaging in these efforts. One of the major issues is the lack of resources needed to effectively implement and monitor conservation efforts, such as funding, staff, time, and technology. This can result in insufficient protection of critical habitats and inadequate restoration of degraded ecosystems.

Another problem is the lack of coordination and cooperation among different stakeholders and rightsholders, including government agencies, non-governmental organizations, local communities, Indigenous groups, and private sector actors. Collaboration is essential for successful conservation efforts, but competing interests and power imbalances can lead to disagreements and resistance.

Finally, climate change and other global environmental threats pose significant challenges to regional conservation plans. Climate change is altering the distribution and behavior of species, as well as affecting ecosystem functions, such as water availability and soil health. Conservation plans must adapt to these changing conditions and incorporate climate adaptation strategies to be effective in the long term.

These issues are especially prevalent in the Gaviota Region of California (Figure 1). One major landholder in this area is The Nature Conservancy (TNC), which owns and operates the Jack and Laura Dangermond Preserve (JLDP) and therefore has a vested interest in the long-term sustainability of the region. To preserve and protect the important conservation values of the region, a collaborative regional conservation plan must be developed. This project explores collaborative opportunities and provides a crucial stepping stone toward a regional plan.

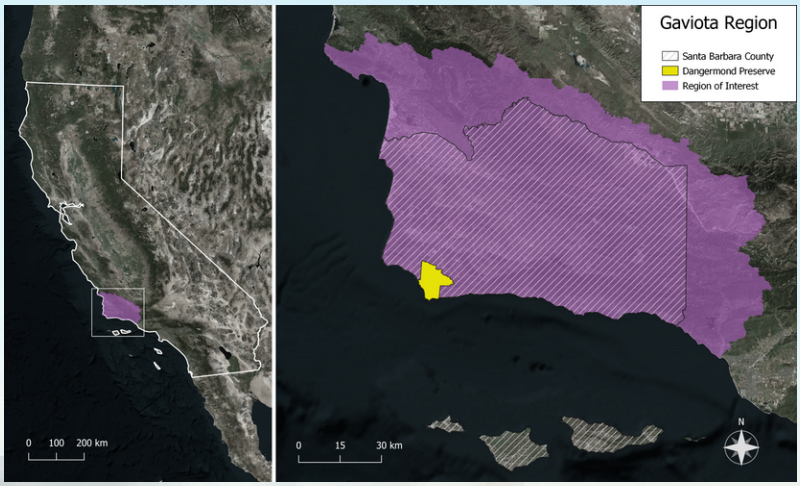

Figure 1. The Gaviota Region. Our area of interest for this project includes the Jack and Laura Dangermond Preserve in yellow.

Objectives

- Identify high-priority conservation values for JLDP and neighboring agencies within the Gaviota Region
- Quantify the importance of various conservation values based on stakeholder and rightsholder input
- Highlight areas in the Gaviota Region that provide opportunities for conservation action and collaboration

Findings

The first step towards developing a collaborative decision-making tool was interviewing various stakeholders and rightsholders throughout the region. Through these interviews, we deduced that the common conservation priorities were water resources, soil health, climate resilience, and biodiversity. We then sent a follow-up survey to all of the interviewees in which we asked them to quantify their priorities through pairwise comparisons.

We utilized a method called Analytic Hierarchy Process (AHP) to analyze the survey responses from the 21 stakeholders and rightsholder groups within the Gaviota region. Government groups held a preference for biodiversity. Farms and ranches had a strong preference for soil conservation. Indigenous groups prioritized climate resilience. Nonprofits held both biodiversity and water conservation as their top priorities (see Figure 2).

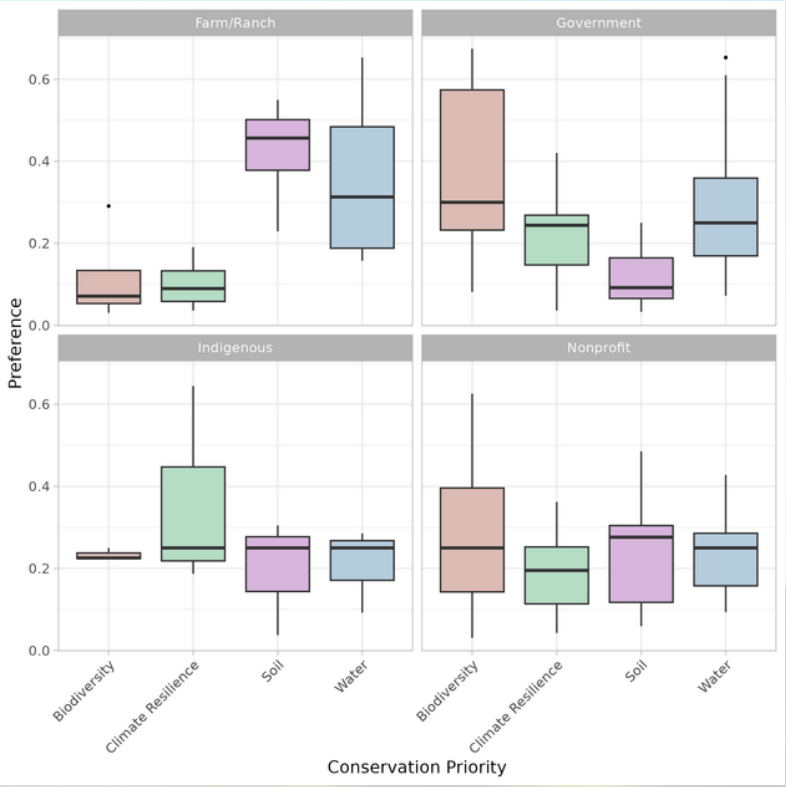

Figure 2. Aggregated preferences from the Analytic Hierarchy Process within the organization subsets for the four conservation priorities.

To visualize the high-priority conservation areas in the region, we built an interactive planner to serve as a collaborative tool. We focus on three areas of interest: natural resources, natural threats, and diversity equity and inclusion/environmental justice. Figure 3A displays inequities in relation to DEI/EJ data. The northeast portion of the Gaviota region has the highest aggregate score for inequities, including pollution burden, isolation from nature, and other limiting socioeconomic factors. Figure 3B highlights the highly threatened areas within the Gaviota Region, specifically areas that are at high risk of droughts, floods, and wildfires. Higher areas of concern are focused on the mountainous terrain and floodplains. Figure 3C shows that natural resource values vary greatly throughout the region, but high-priority areas are especially focused near water sources.

Impact and Recommendations

The AHP analysis is informative for constructing future partnerships based on the evenness of preferences within groups. Groups with high evenness of priorities are well-suited to general conservation partnerships. Groups with high variability are best suited to partner on projects that cater to their highest conservation priority. This analysis also results in a clear identification of what each organization's highest priorities are, which can aid TNC and others in the pursuit of collaborative opportunities.

Modern planning tools, such as an interactive planner and AHP analysis, can improve stakeholder engagement and communication, facilitate collaborative decision-making, and provide better information to decision-makers in regional conservation planning. JLDP has a crucial role in future regional management for Gaviota, so we recommend the use of this tool to expand partnerships with other stakeholders and rightsholders in the region. Specifically, we recommend that future conservation efforts prioritize collaborative approaches that involve a wider range of stakeholders and rightsholders, particularly indigenous communities. The tool we built can facilitate that process by revealing areas of common priorities and highlighting where stakeholder priorities diverge in order to encourage dialogue. In addition, we suggest improving the AHP analysis by including a more diverse range of participants, providing real-time feedback to highlight logical inconsistencies, and limiting extraneous questions to prevent response fatigue. We propose that the information gathered from this project be used to guide future efforts and improve collaboration with new and existing partnerships through actions such as scheduled meetings and focus groups with regional stakeholders and rightsholders.

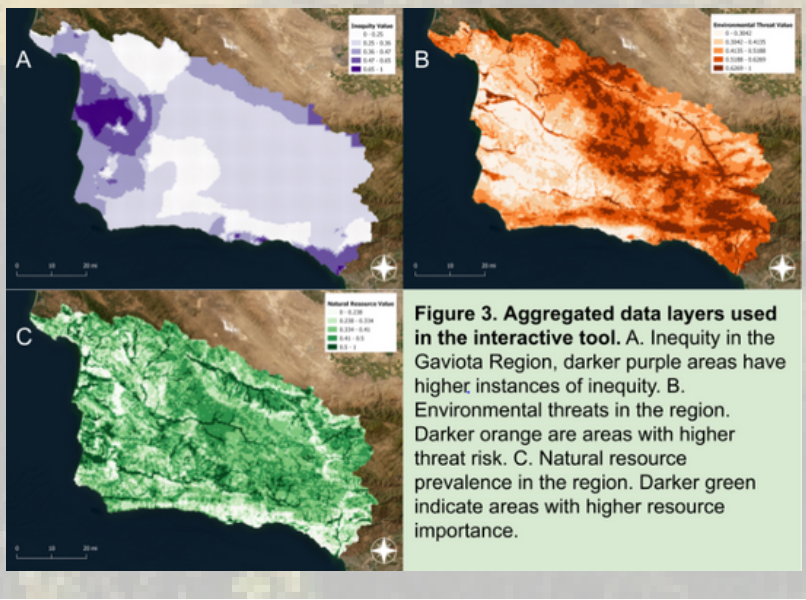

Figure 3. Aggregated data layers used in the interactive tool. A. Inequity in the Gaviota Region, darker purple areas have higher instances of inequity. B. Environmental threats in the region. Darker orange are areas with higher threat risk. C. Natural resource prevalence in the region. Darker green indicate areas with higher resource importance.