Oct 2025

Ecosystem Services and Benefits of Multi-benefit Restoration in the Bay-Delta

An Equity Informed Analysis

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Delta Stewardship Council
A CALIFORNIA STATE AGENCY

Outline

1. What characterizes multi-benefit restoration projects in the Bay Delta?

   Wide range of ecosystem services

2. How are project attributes associated?

   Social and environmental tradeoffs; Bay focus on disadvantaged comm; Delta on supporting services

3. What are the benefits of multi-benefit restoration projects to disadvantaged communities?

   Disadvantaged receive more $, but other benefits are limited

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What are multi-benefit restoration projects?

- Designed to achieve multiple, interconnected goals, such as increasing flood protection and improving public access
- Contrast to a single-purpose project (e.g., fish ladder).
- Wetland restoration is key strategy for sea level rise adaptation and flooding (Bay Adapt, 2021).
- Limited funding for restoration we need to leverage win-win projects

Why analyze and synthesize multi-benefit restoration projects?

- It remains to be seen how multiple benefits impact investment decisions when they are complementary or conflicting.
- Goal: Highlight multiple environmental and social benefits of these project
- To help with coordination and integration across restoration funders

Research Questions

(1) What characterizes multi-benefit restoration projects in the Bay Delta?
(2) How are project attributes associated?
(3) What are the benefits of multi-benefit restoration projects to disadvantaged communities?

What did we do?

- Requested planning implementation multi-benefit proposals from 6 agencies:
  - CA Dept. Fish and Wildlife
  - CA Natural Resources Agency
  - Ocean Protection Council
  - State Coastal Conservancy
  - SF Bay Restoration Authority
  - The Delta Conservancy
- Conducted a team-based review of 104 proposals:
  - Project goals
  - Funding
  - Acreage
  - Benefits to disadvantaged
  - Provisioning (e.g. crops)
  - Regulating (e.g. hazard mitigation)
  - Cultural (e.g. education)
  - Supporting (e.g. connectivity)

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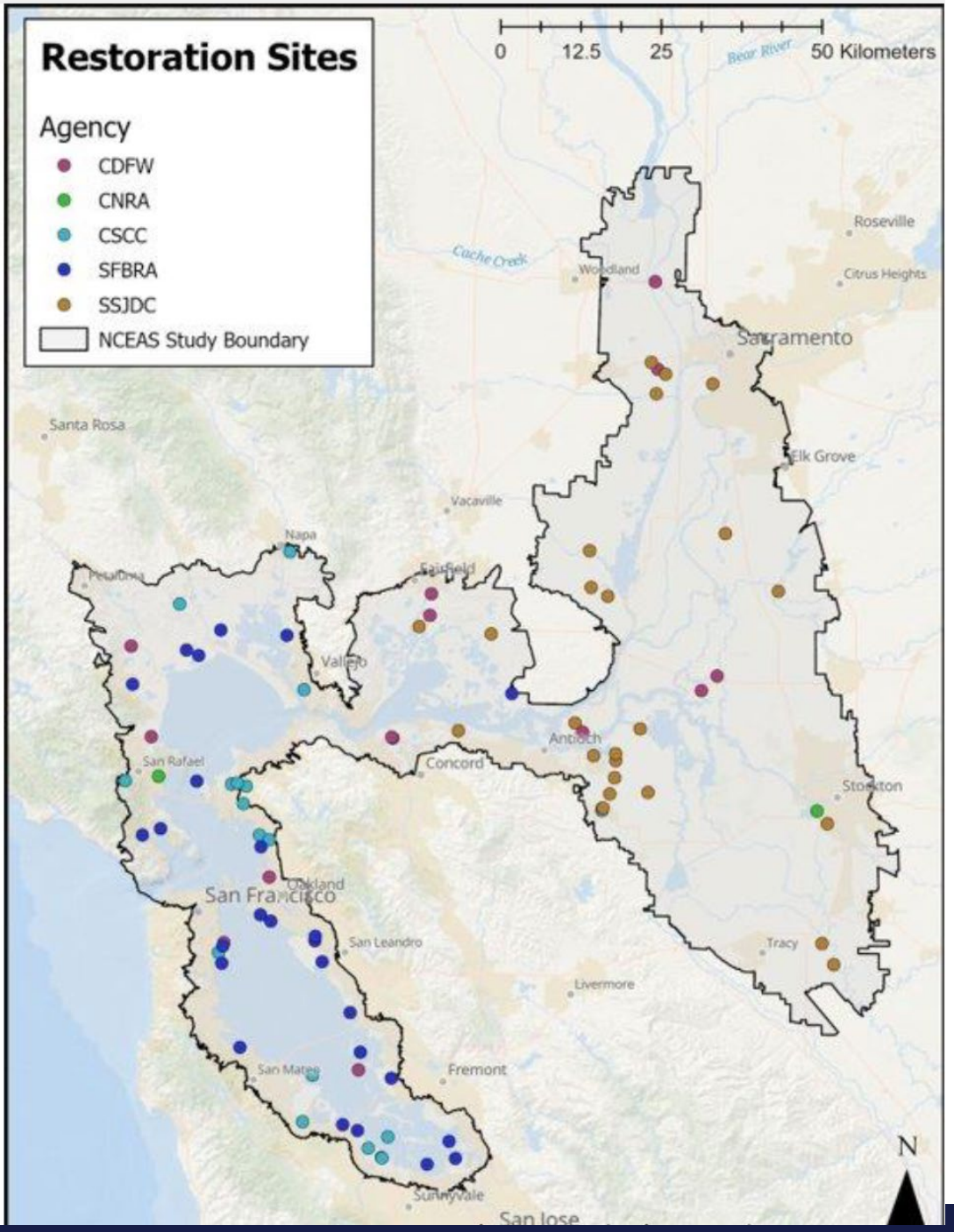

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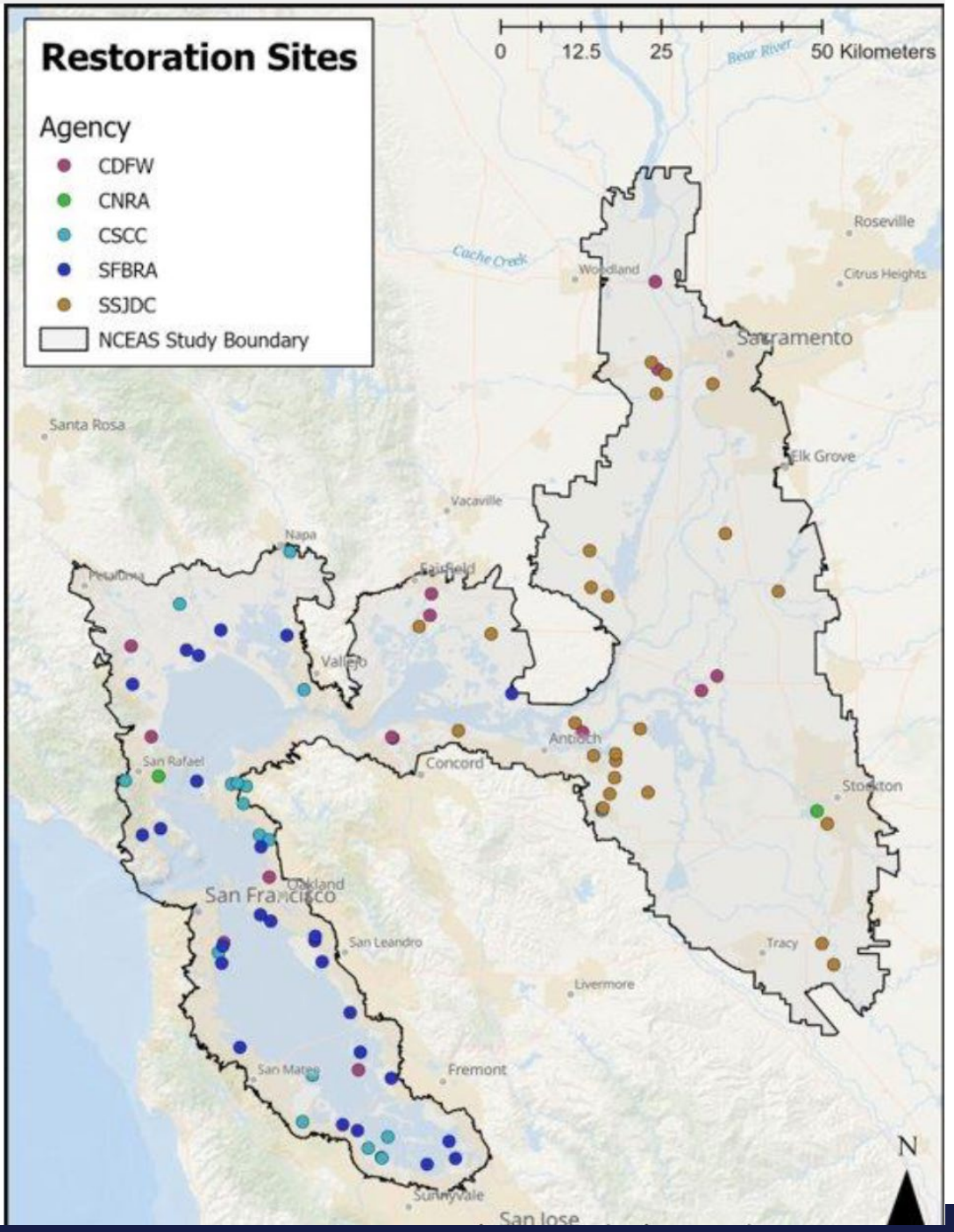

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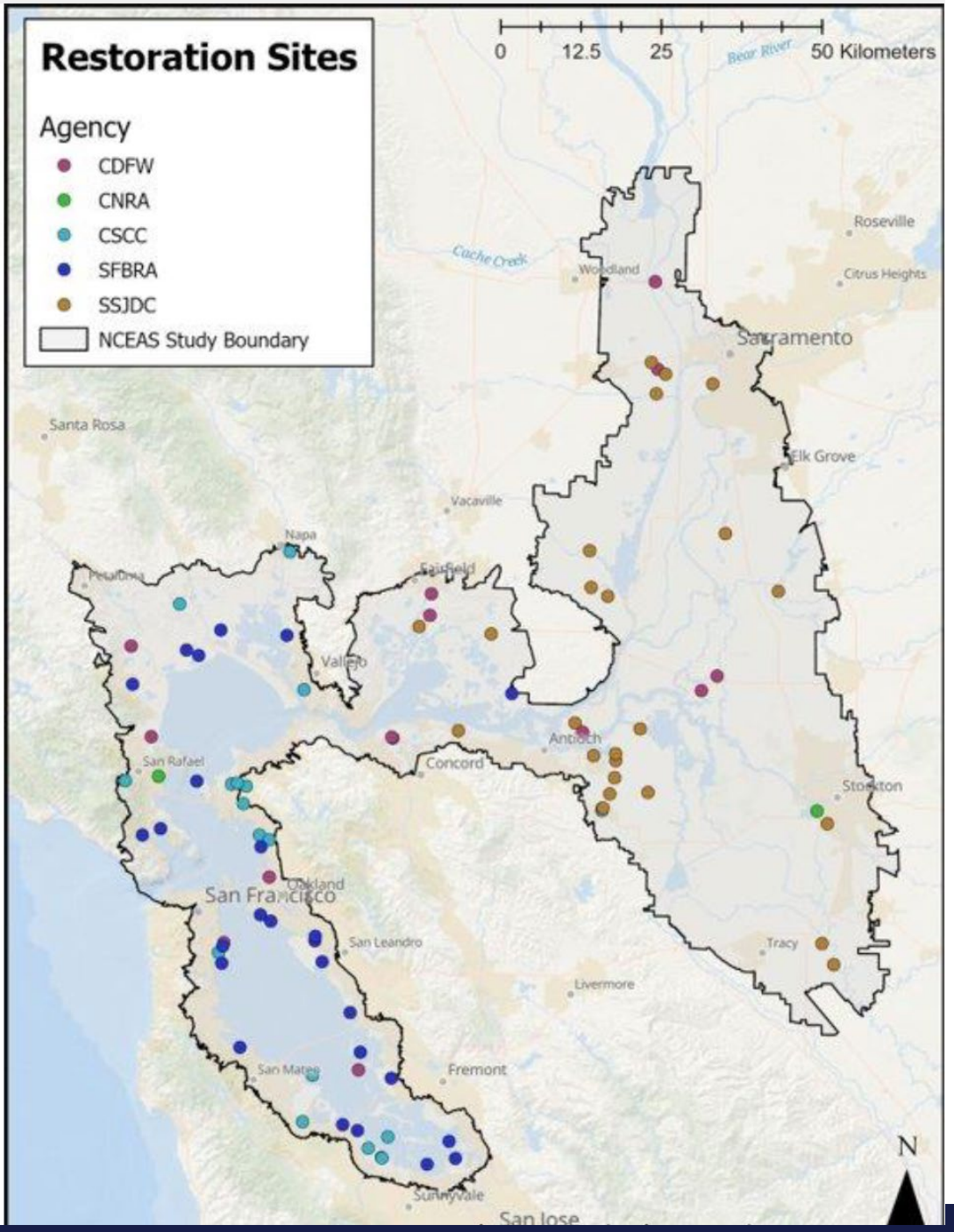
- Delta-Suisun funder
  - Yellow - The Sacramento-San Joaquin Delta Conservancy
- Bay funders
  - Dark Blue = SF Bay Restoration Authority
  - Light Blue = California State Coastal Conservancy
- Cross scale
  - CNRA, CDFW



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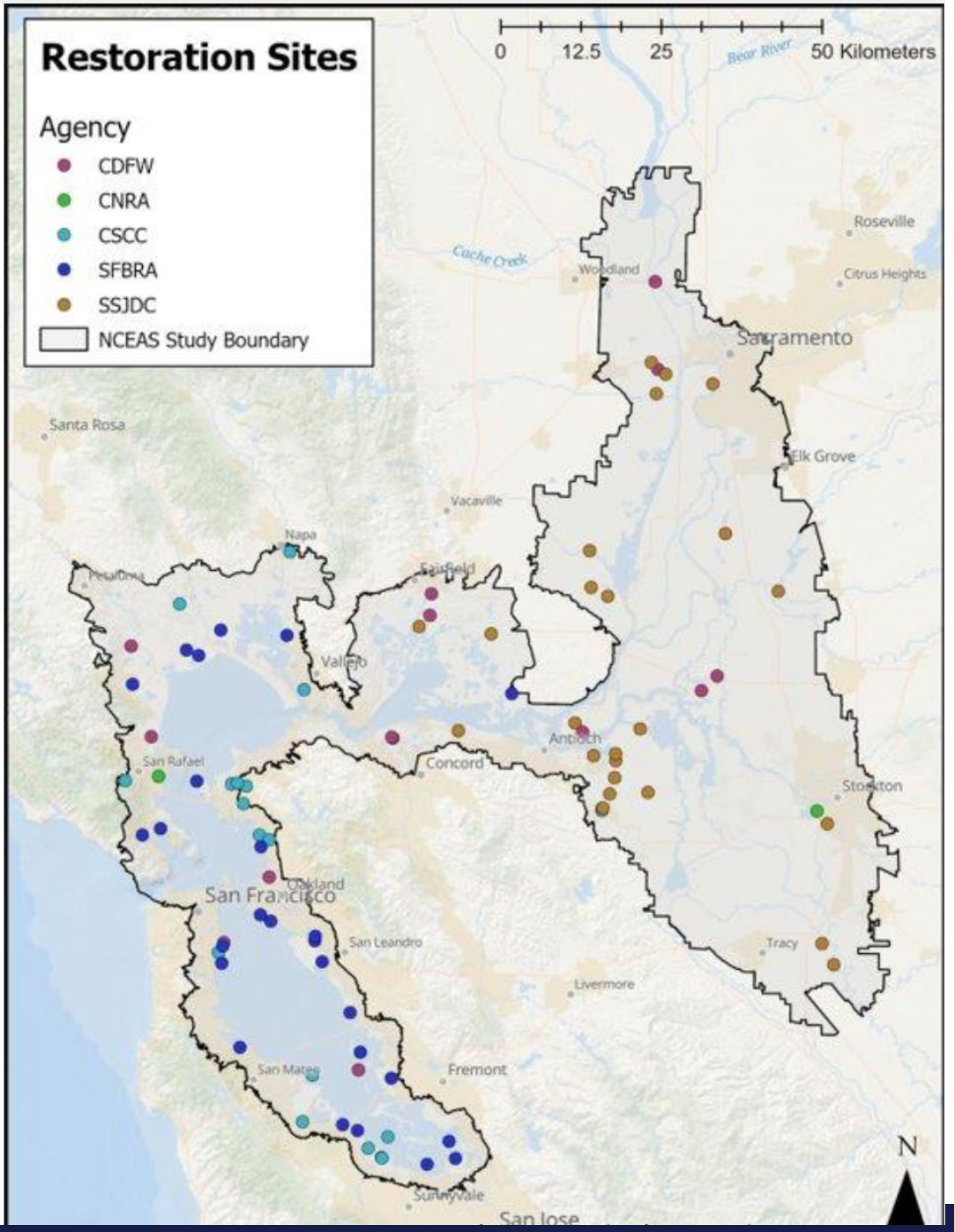

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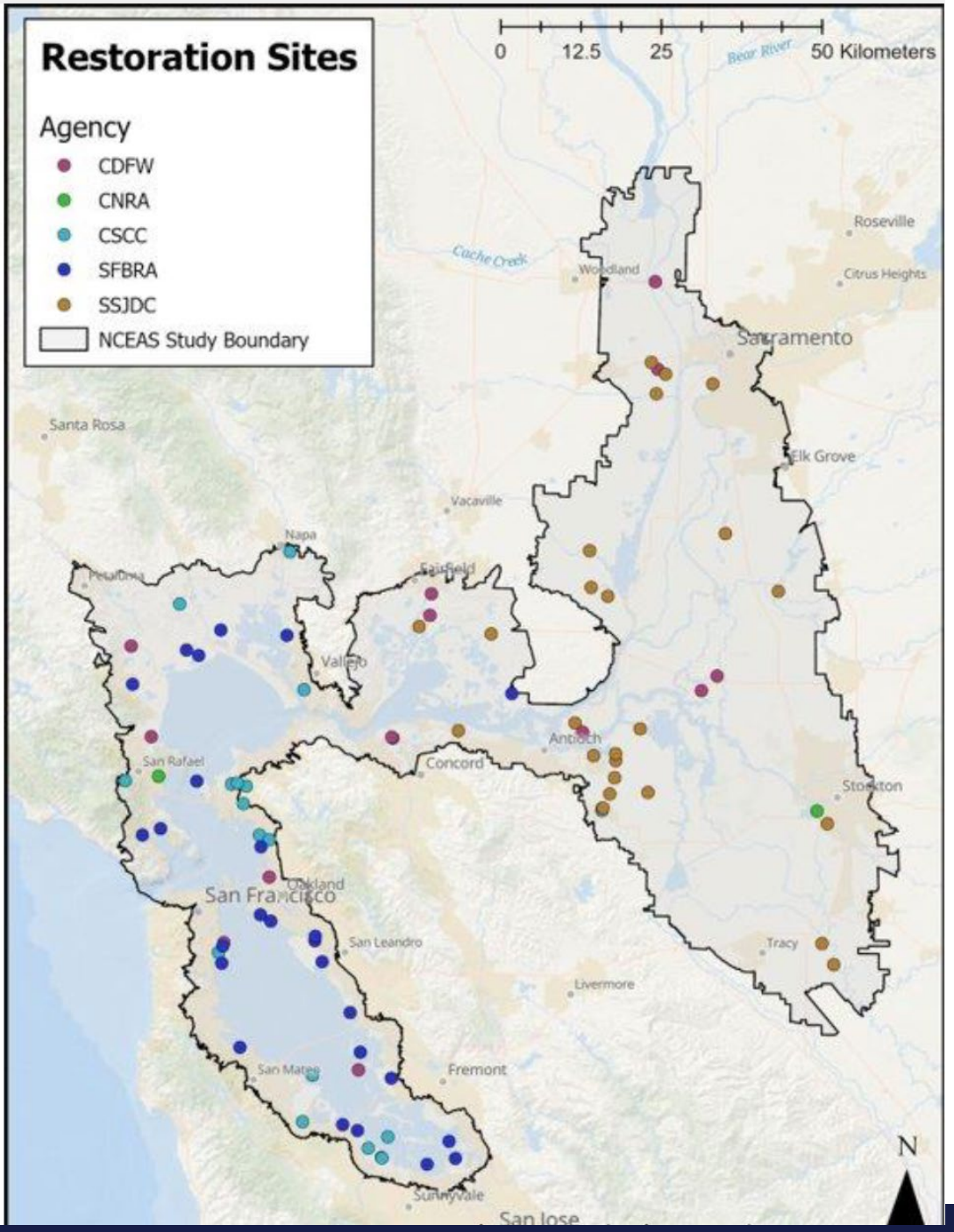

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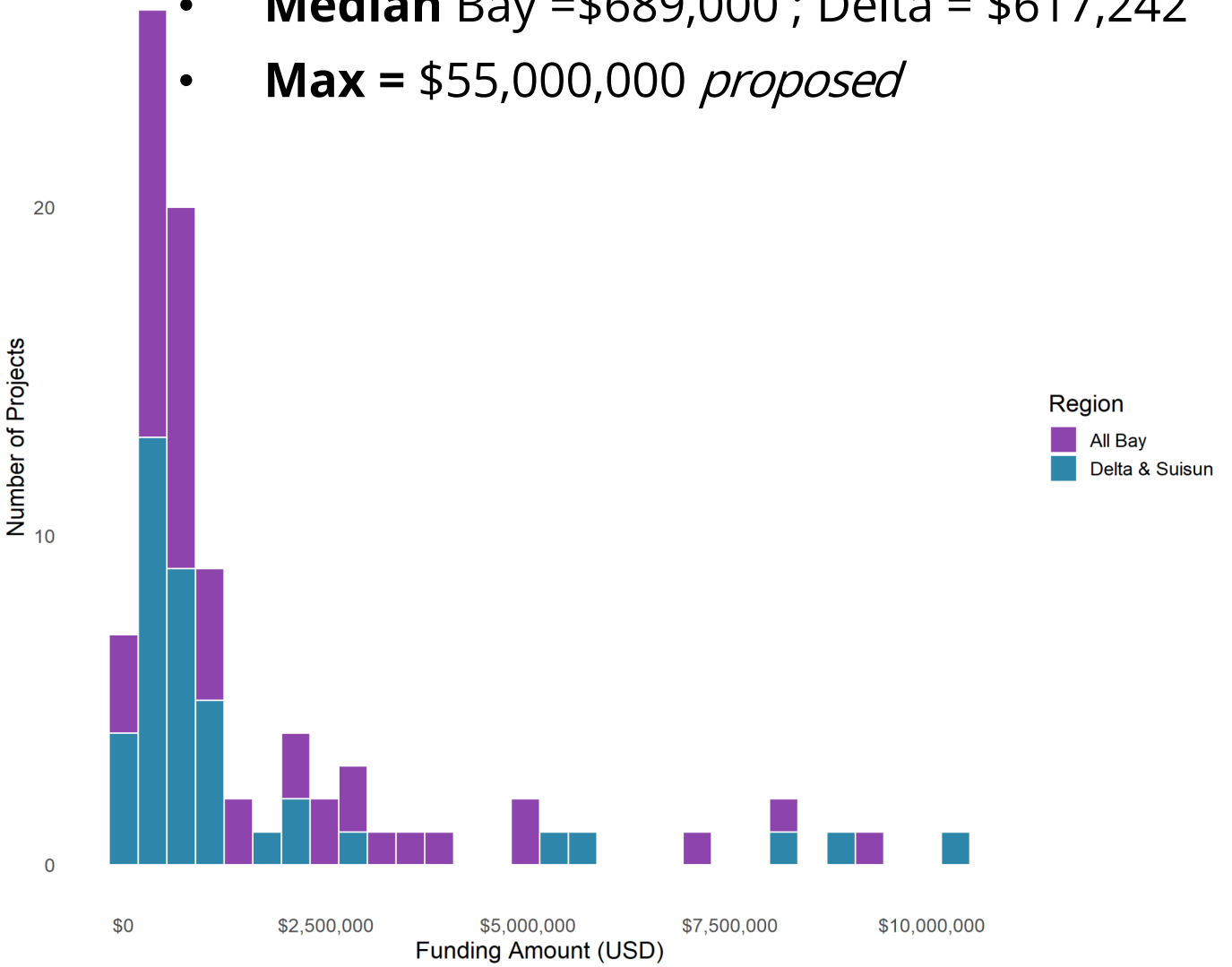
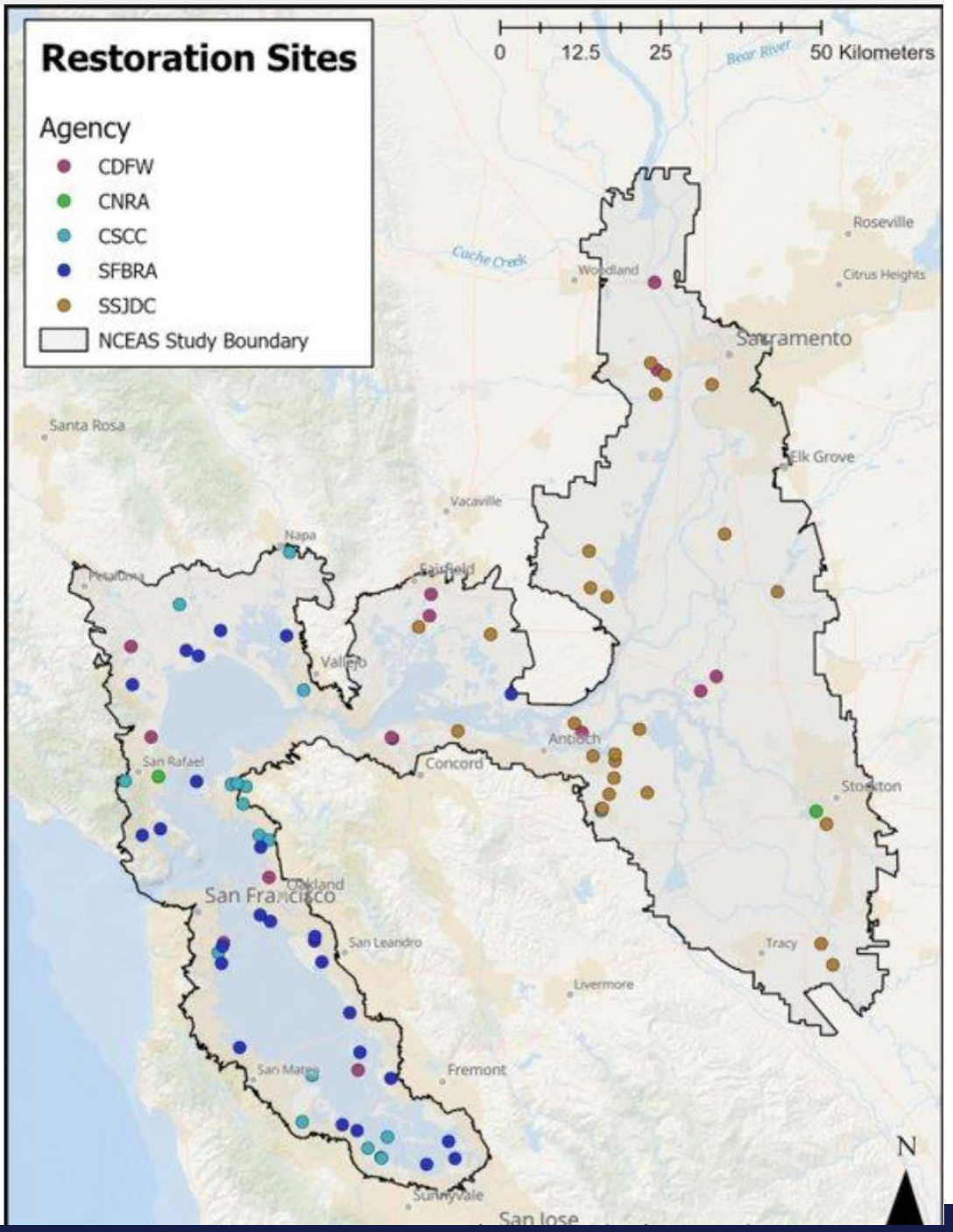
- **Max =** $55,000,000 *proposed*





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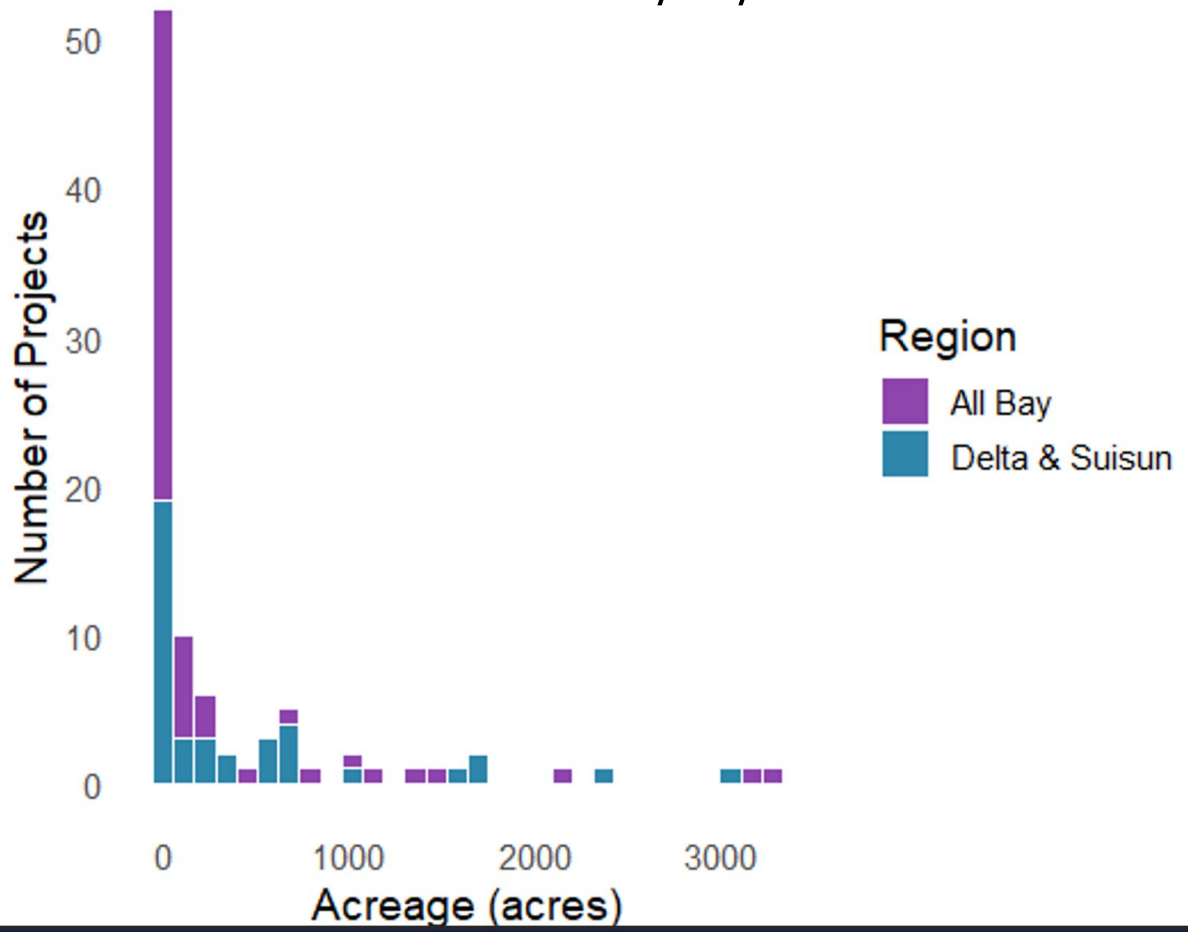
- **Median** Bay = 9 ac. ; Delta = 91ac.*(p<0.01)
- **Max** = 70,000ac. *proposed*



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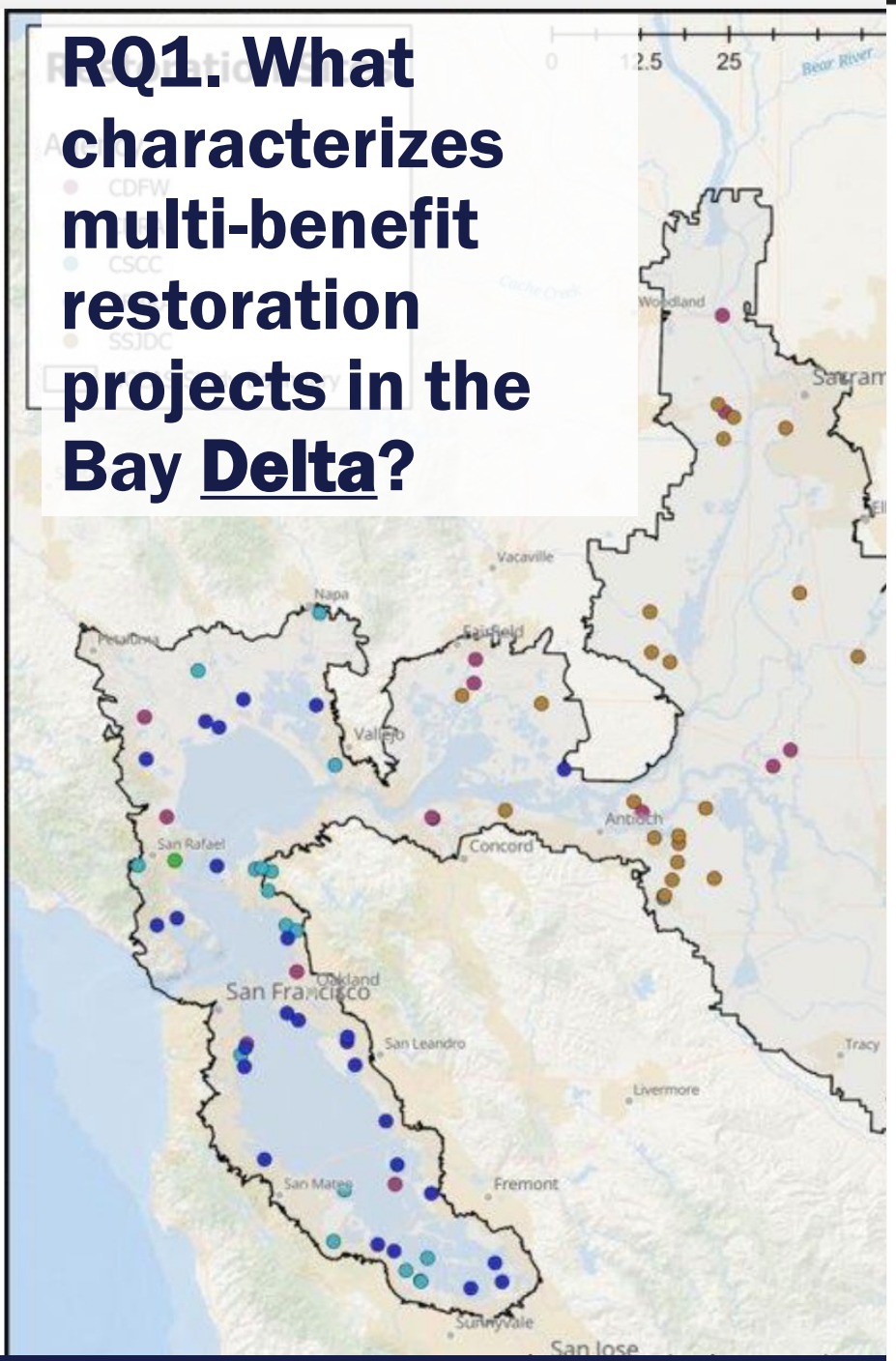

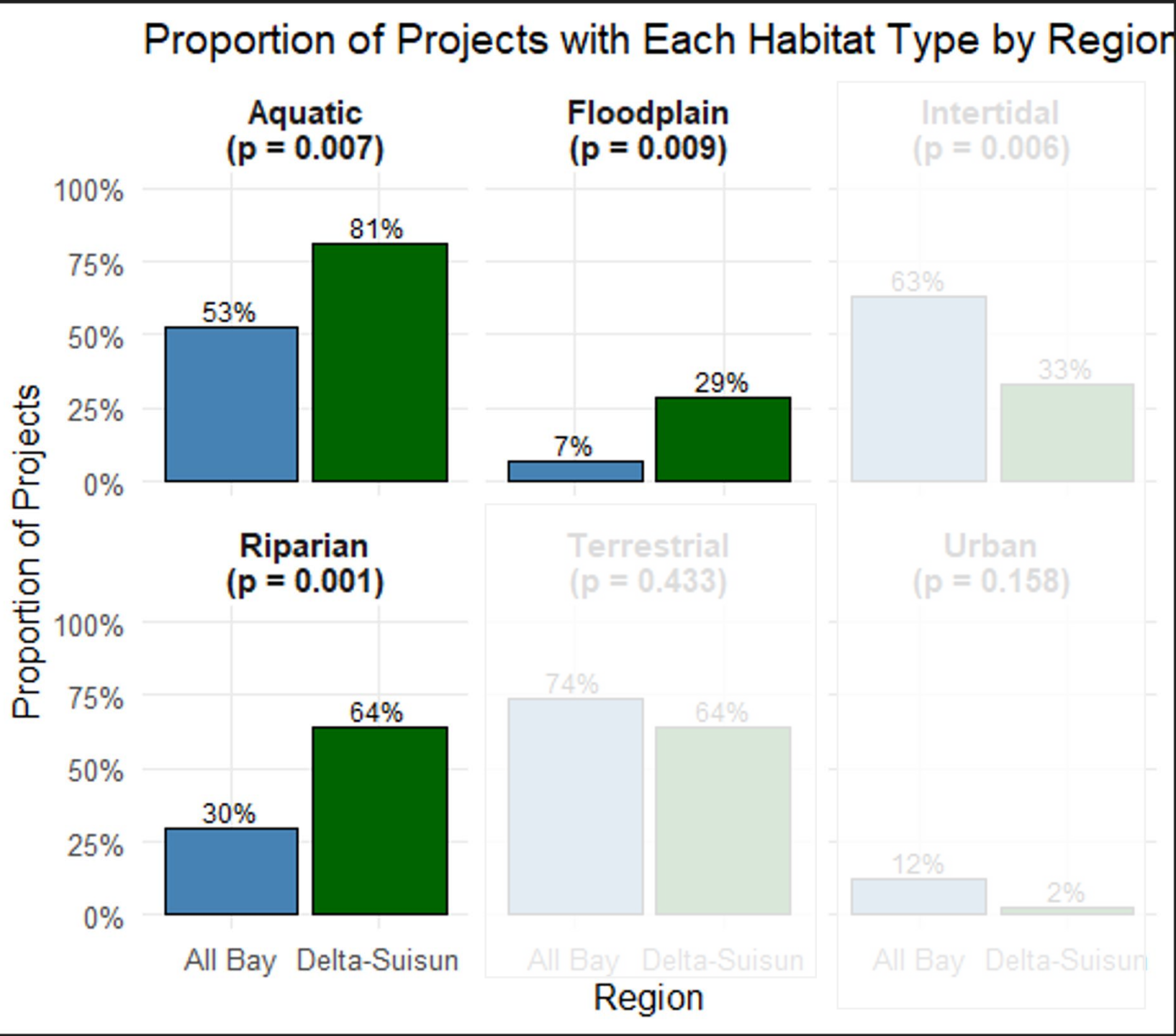

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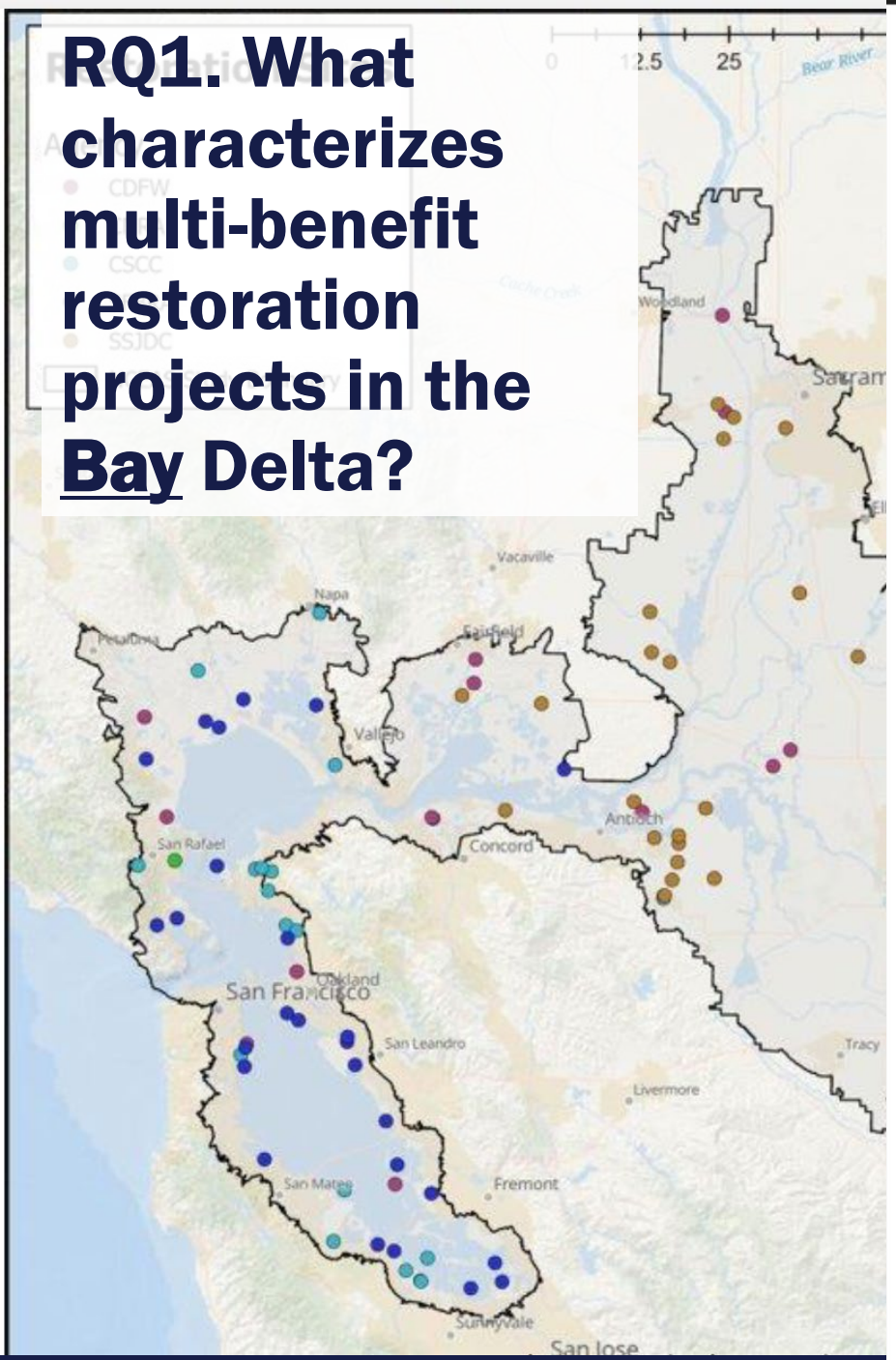

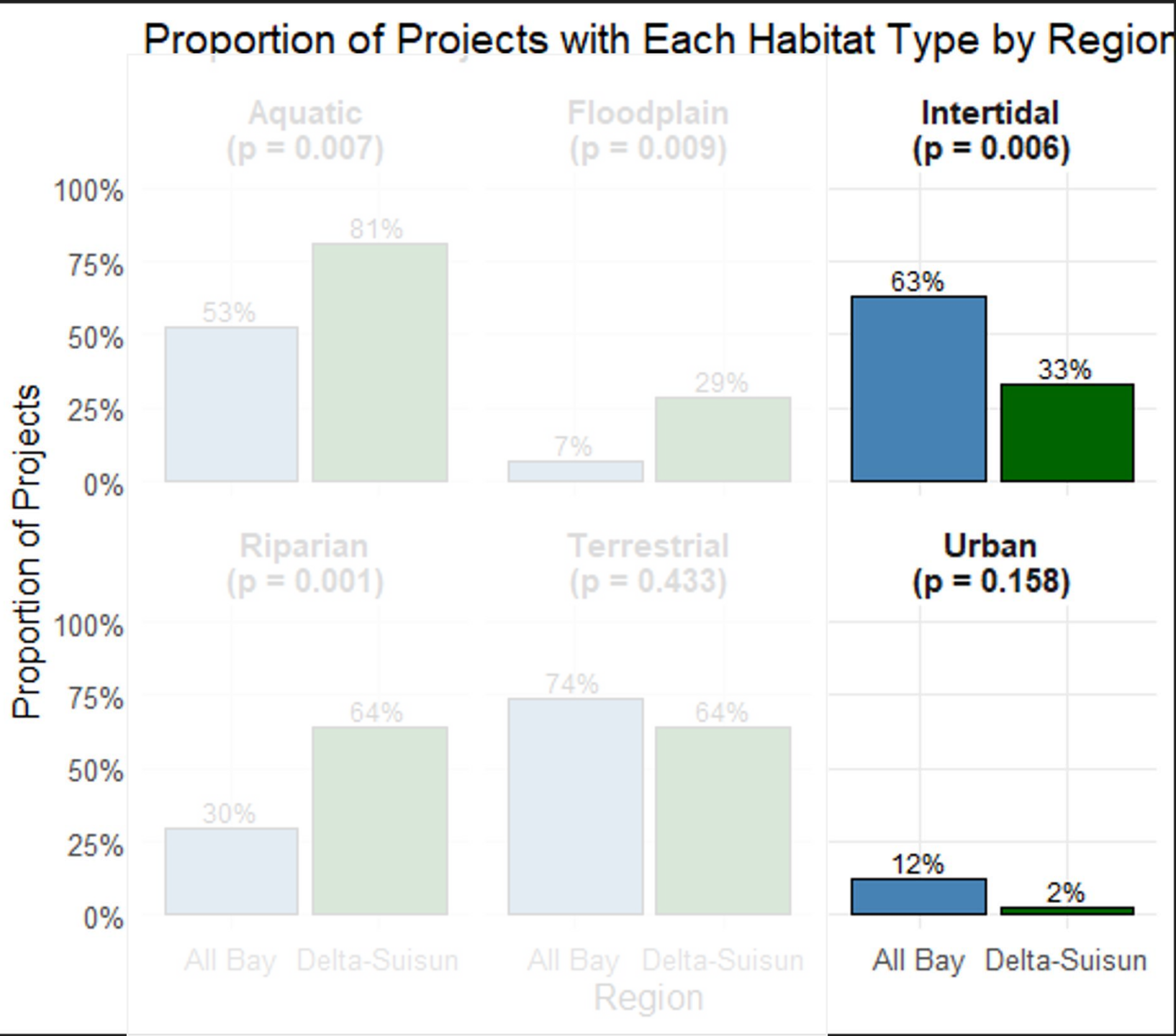

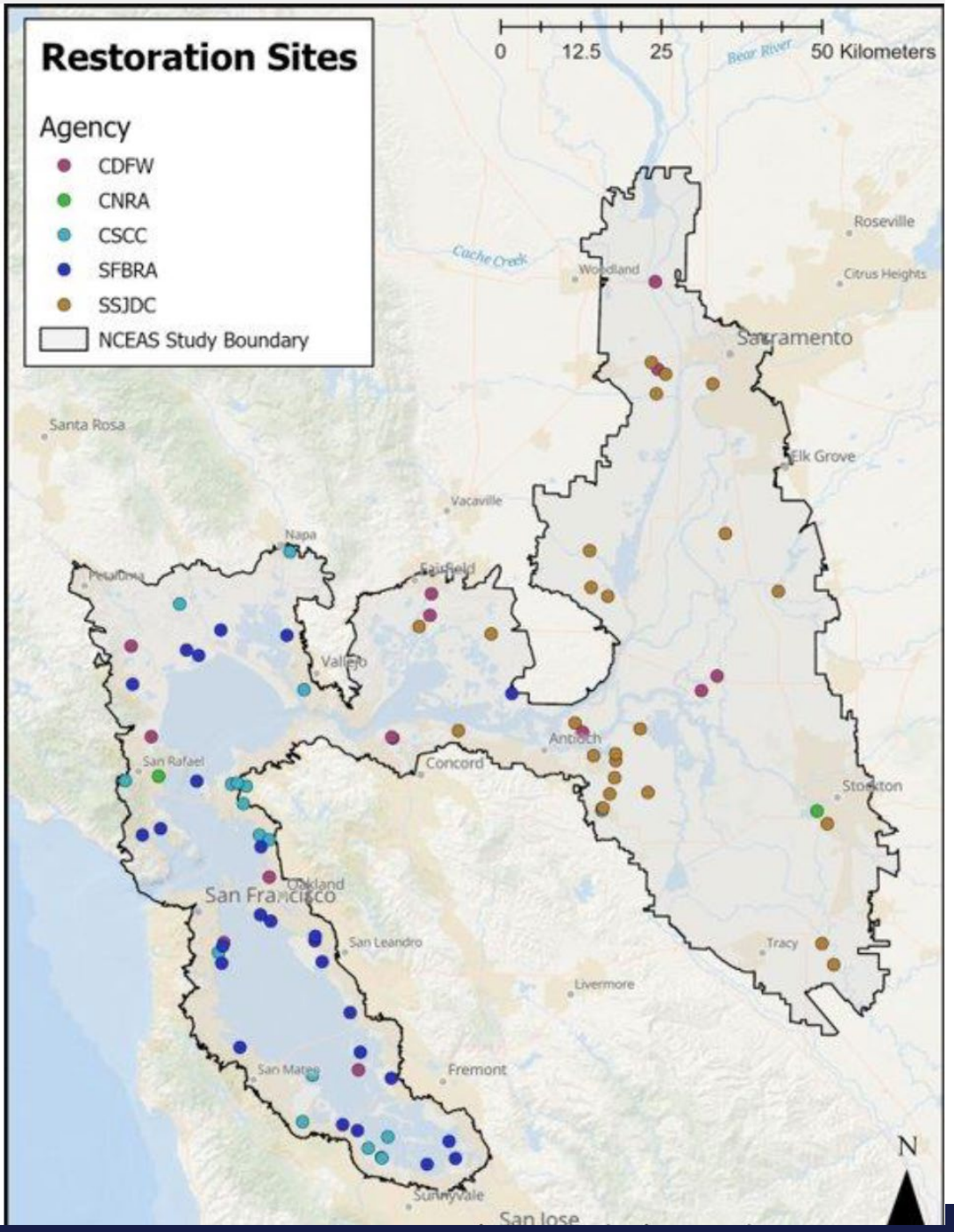

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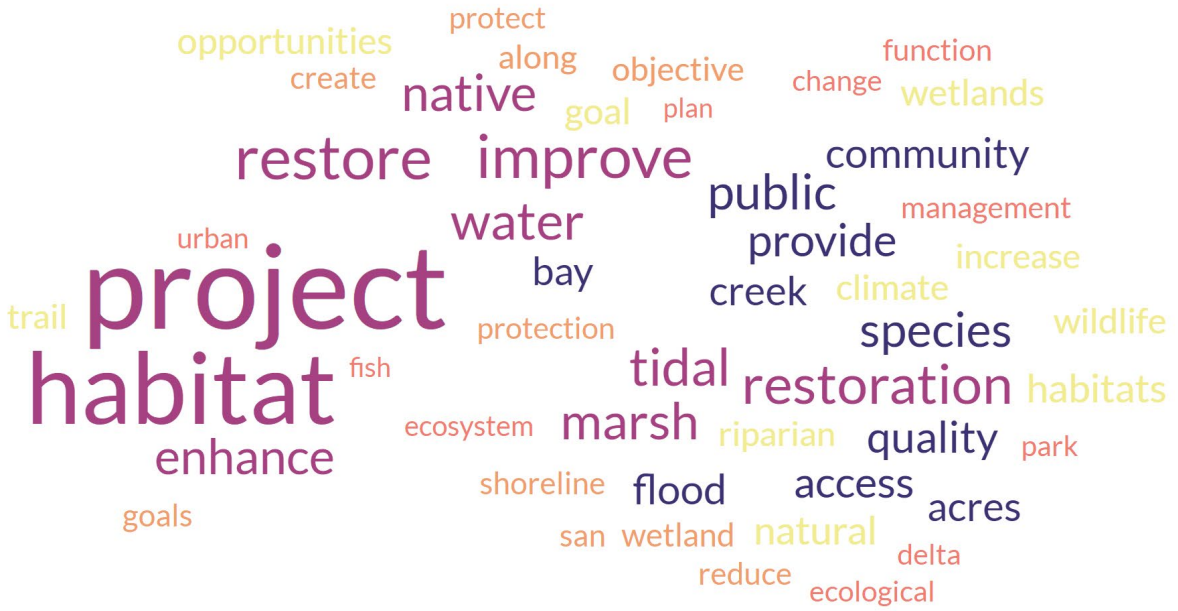

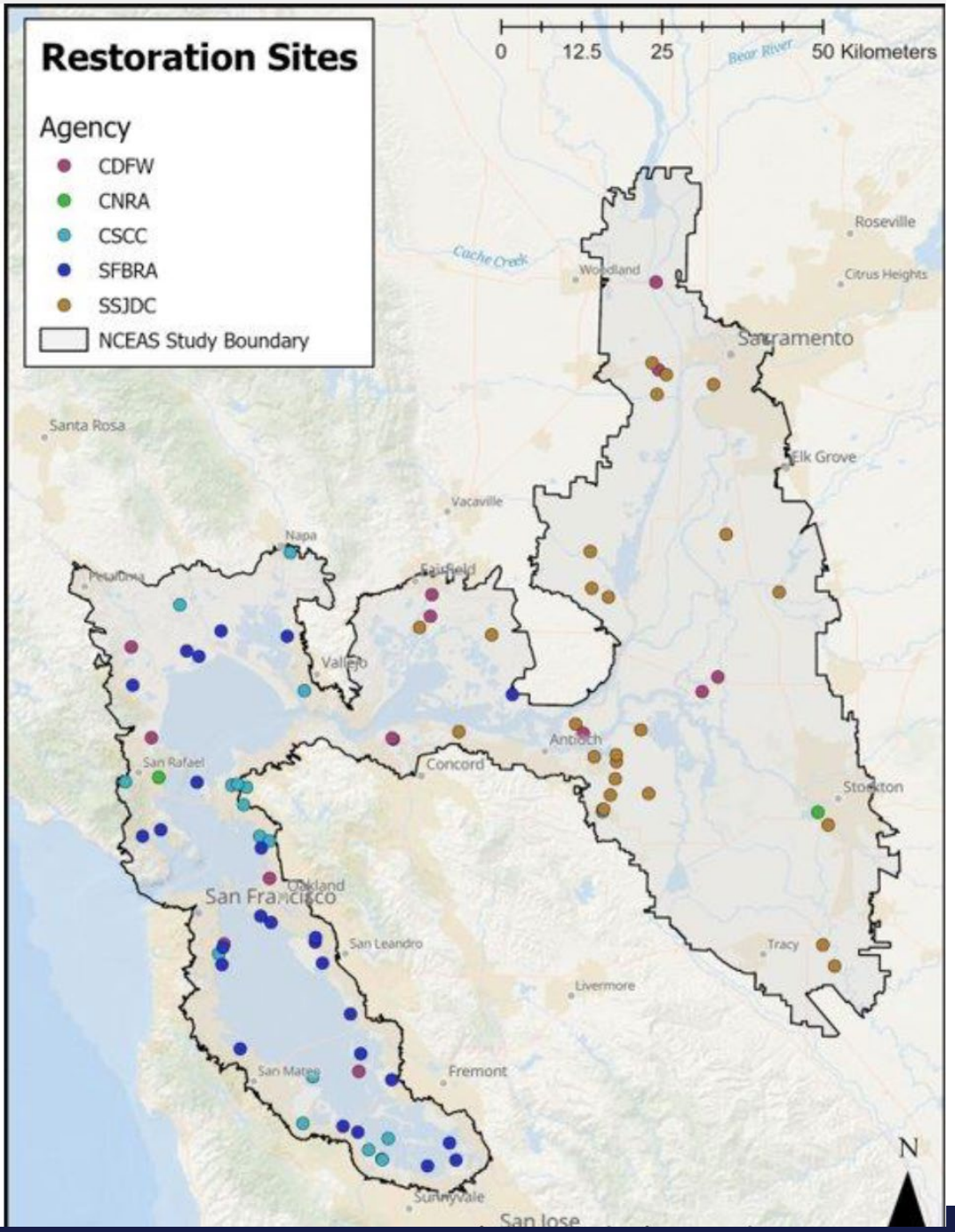

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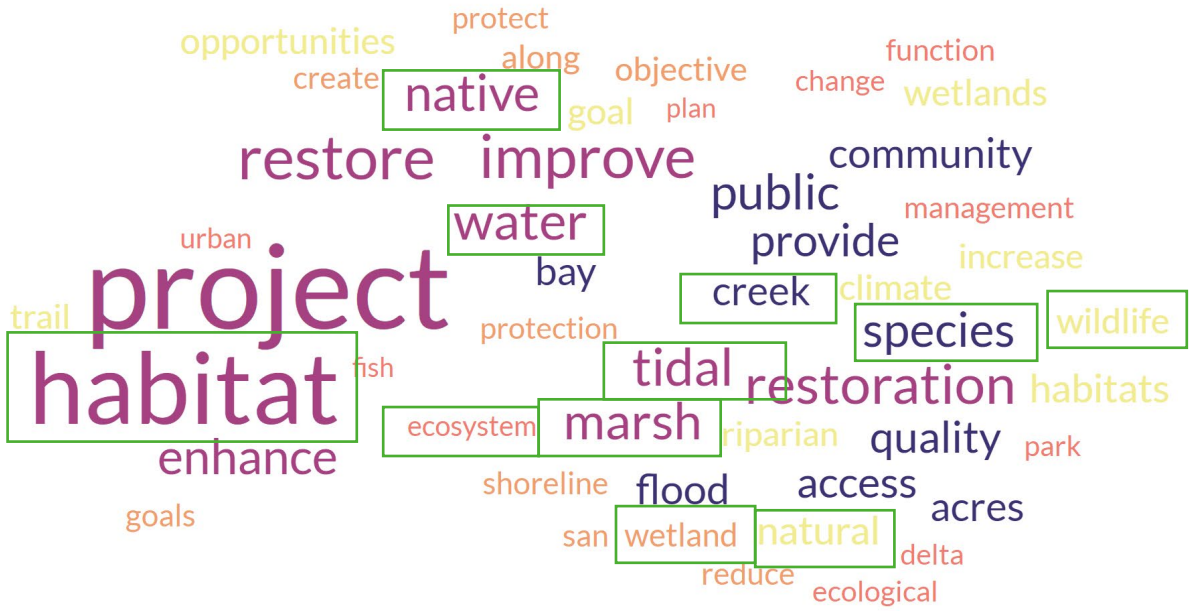

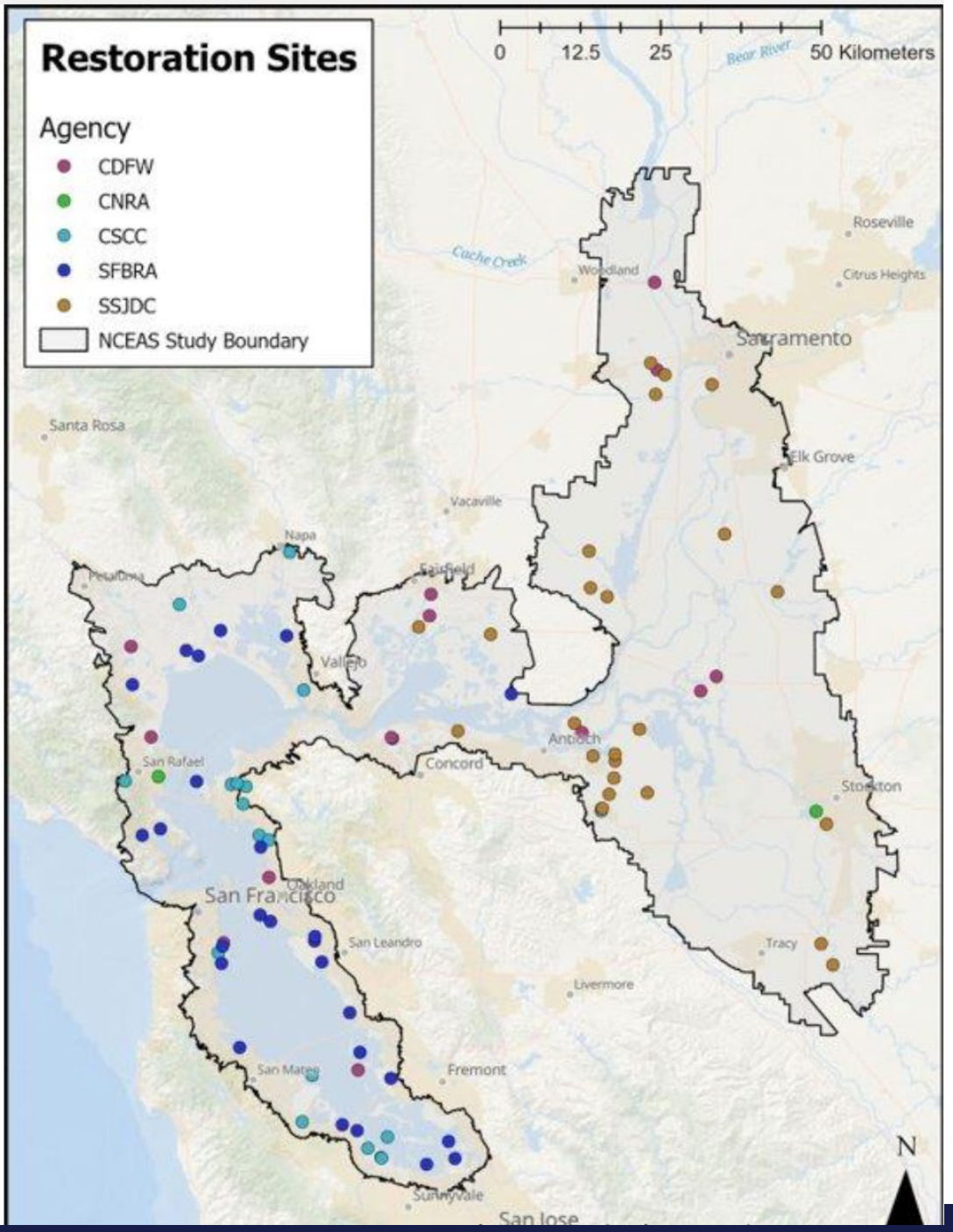

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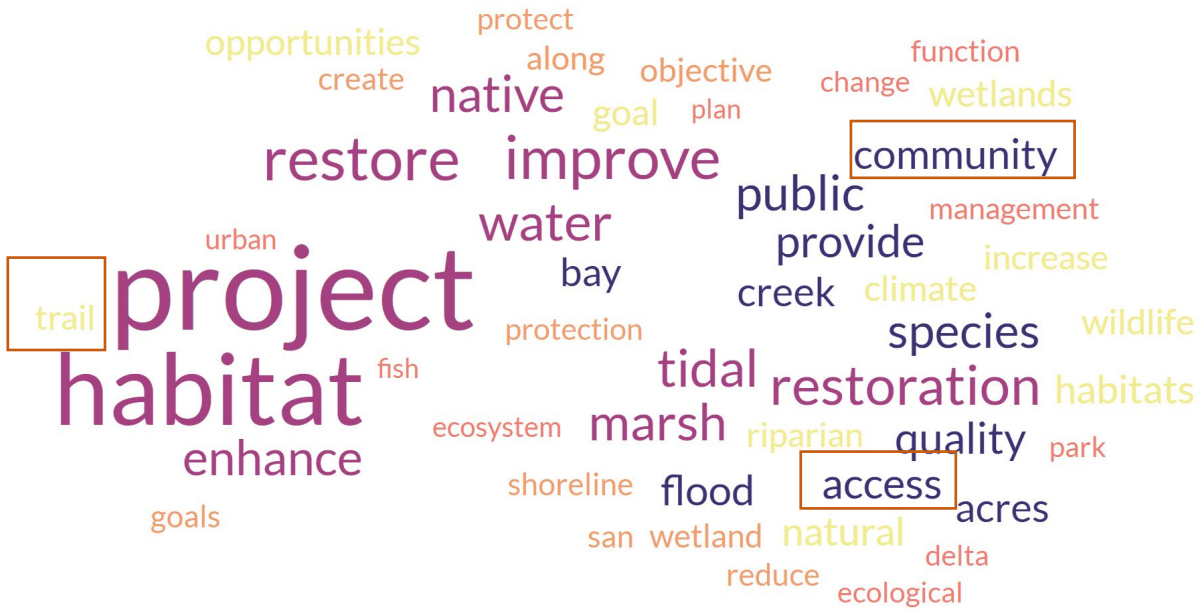

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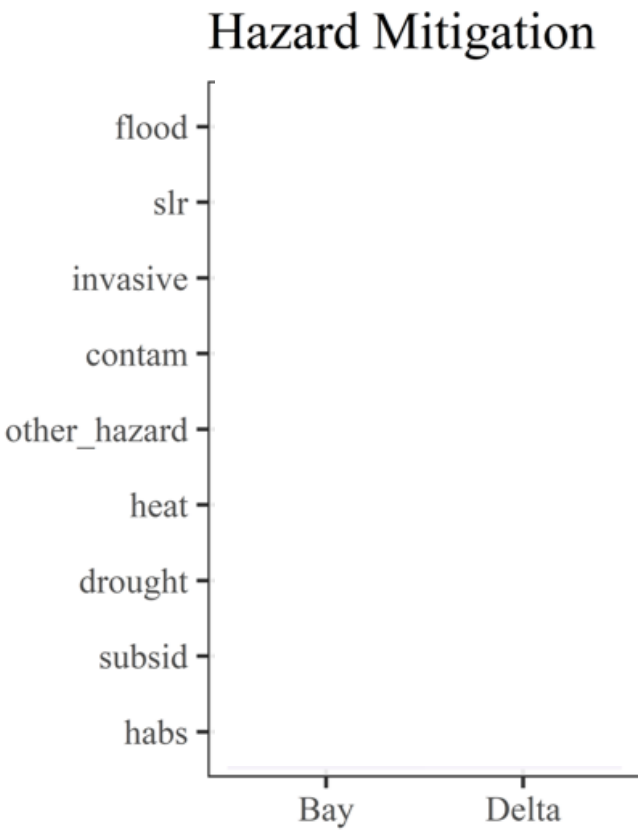

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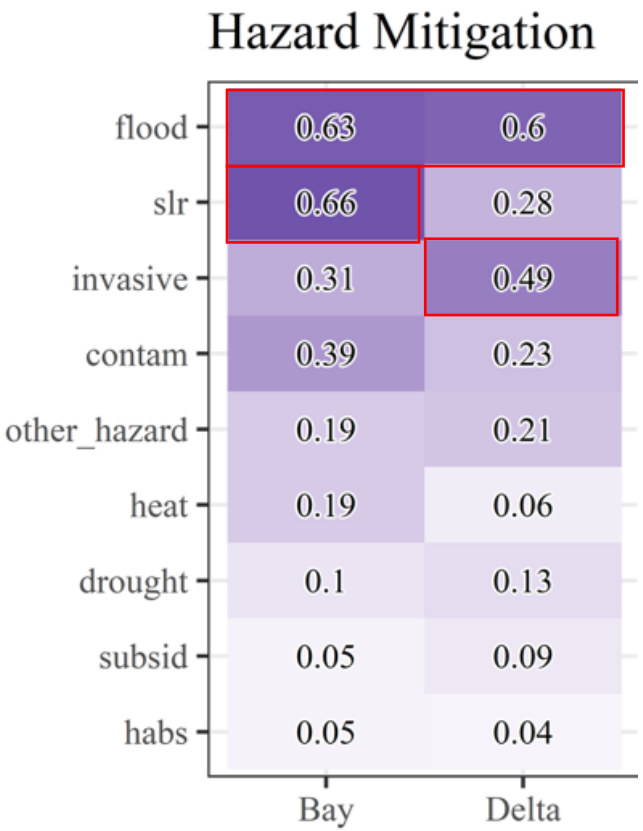

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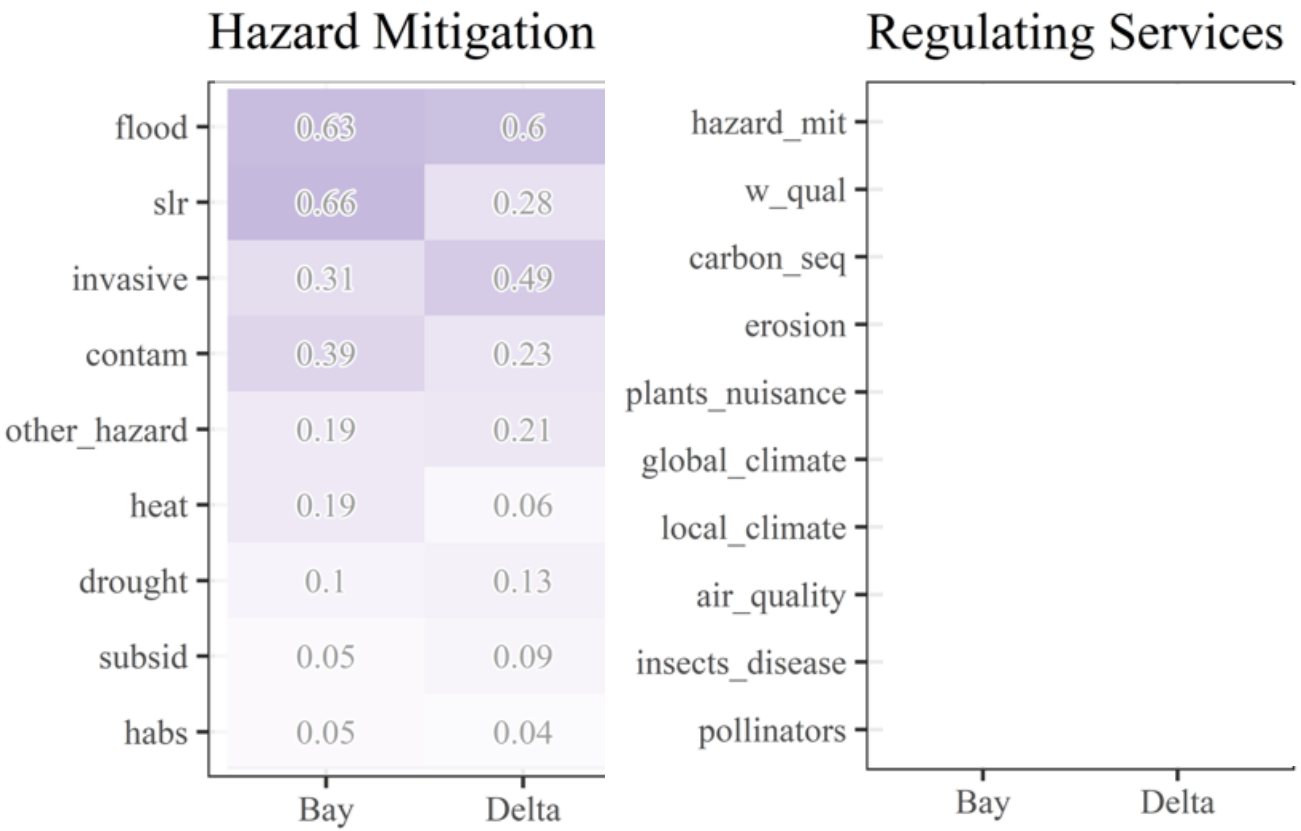

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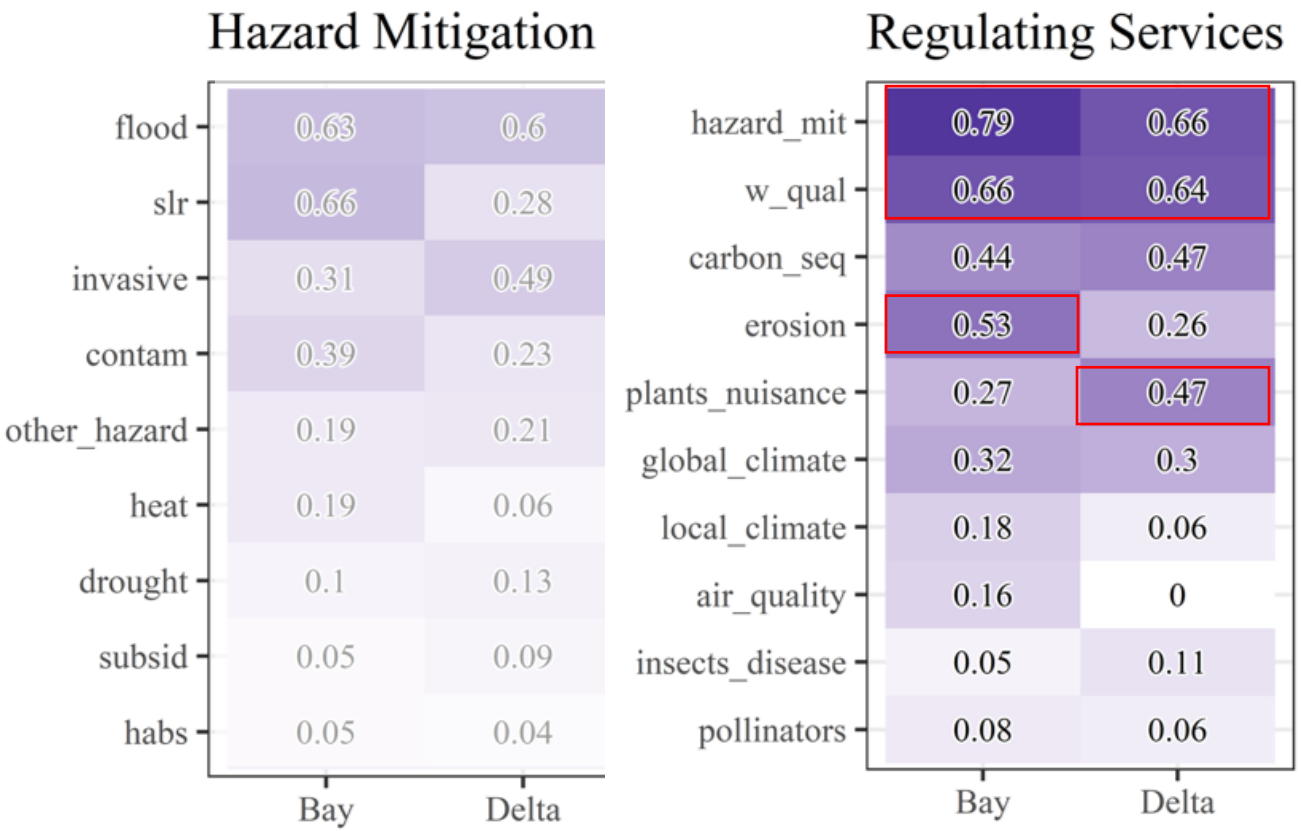

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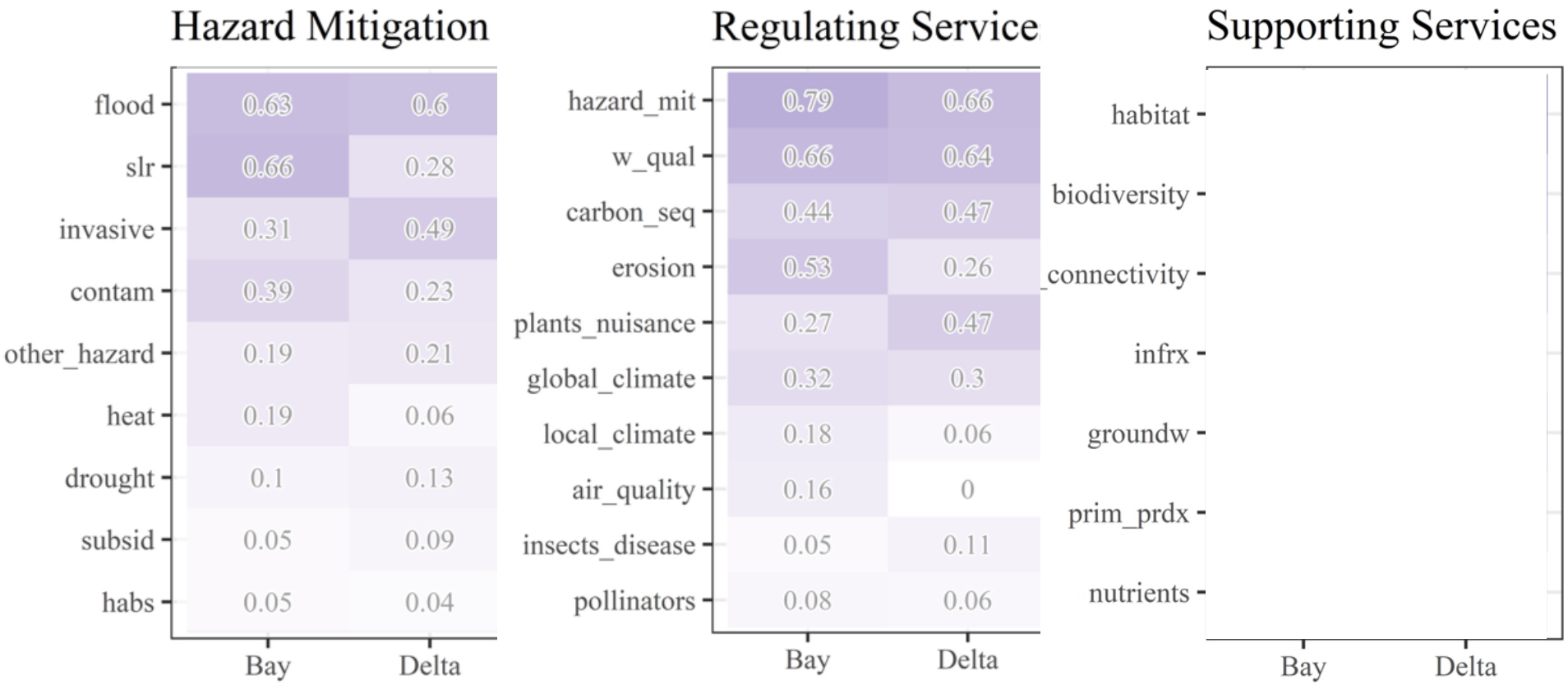

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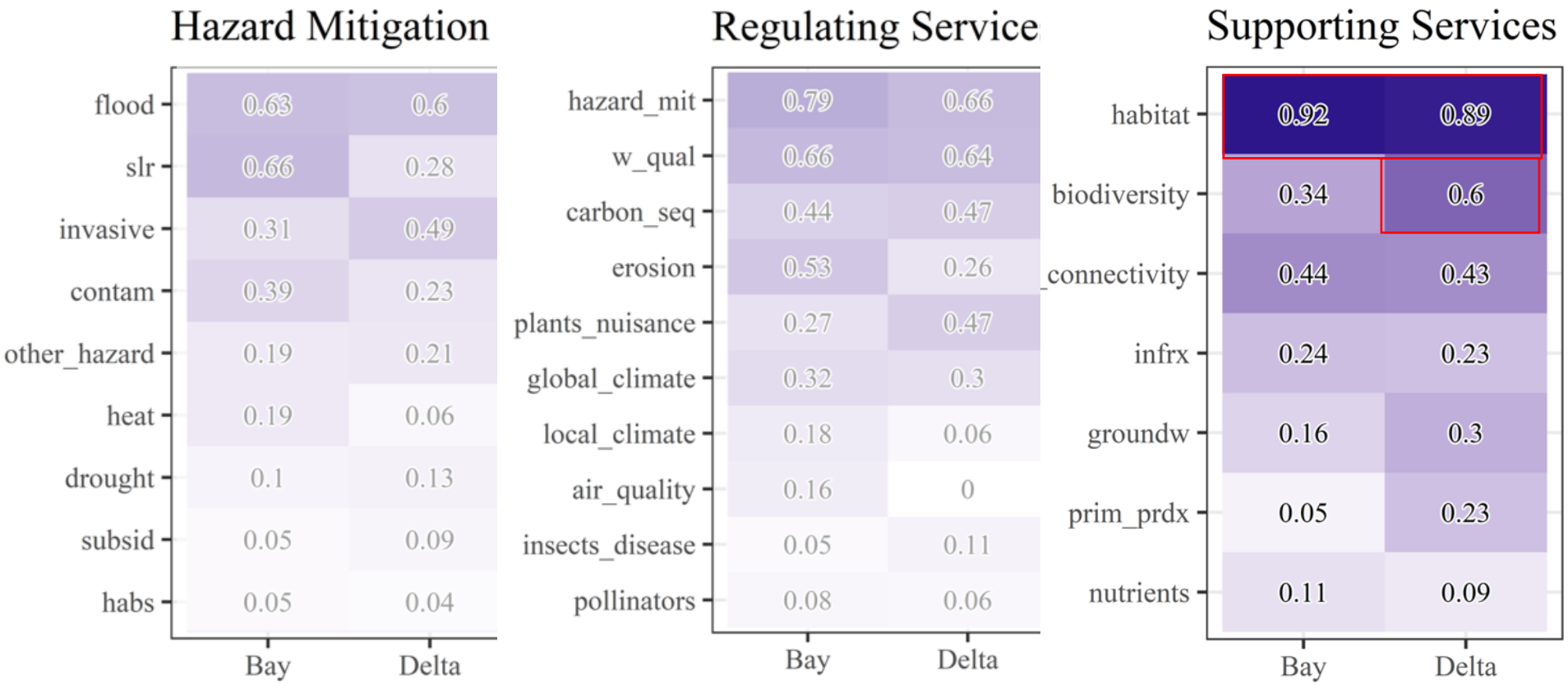

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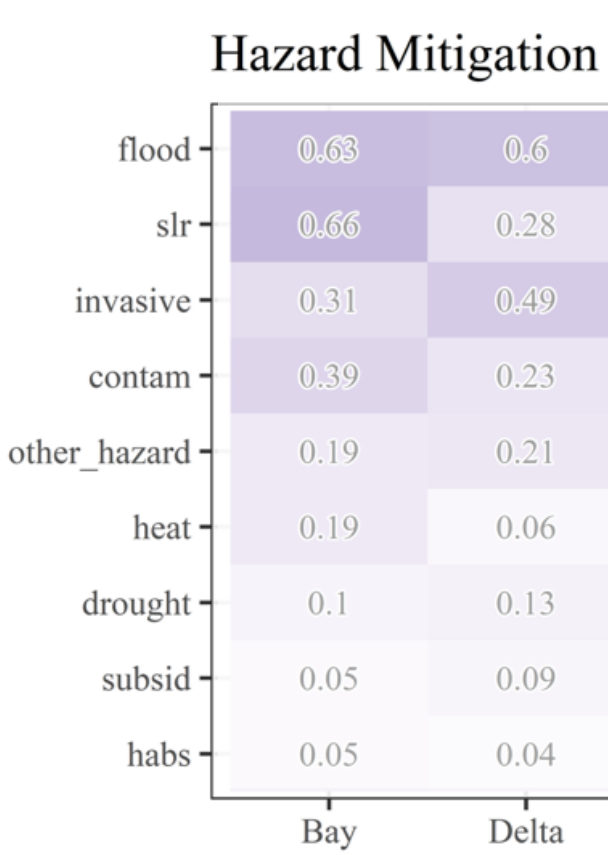

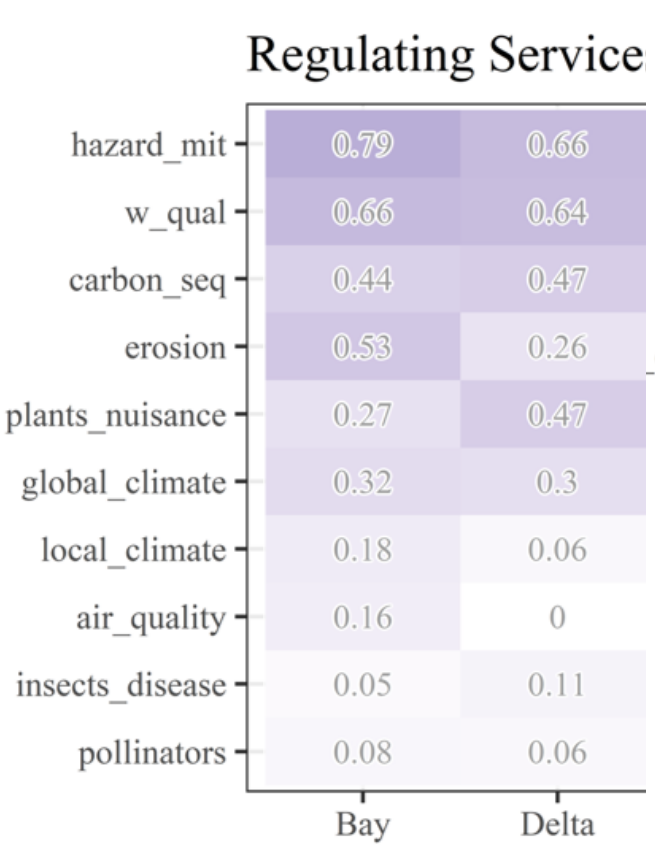

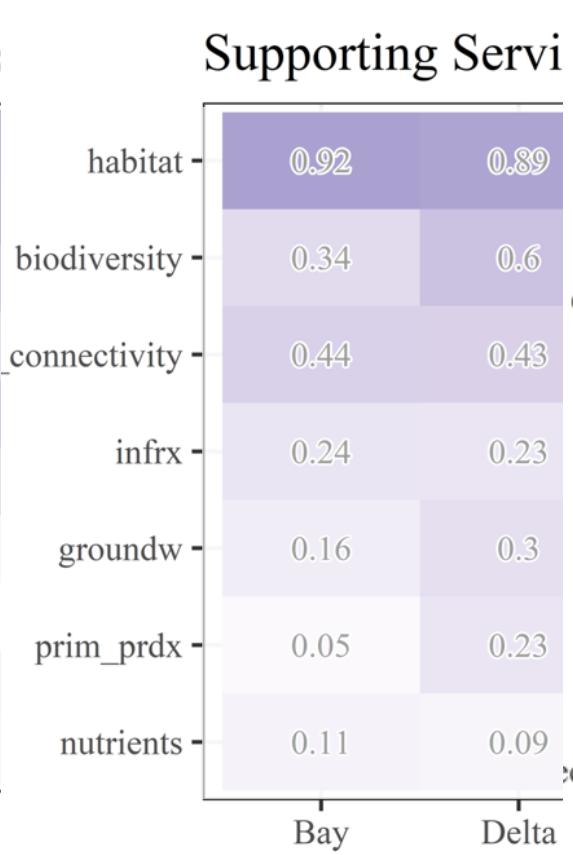

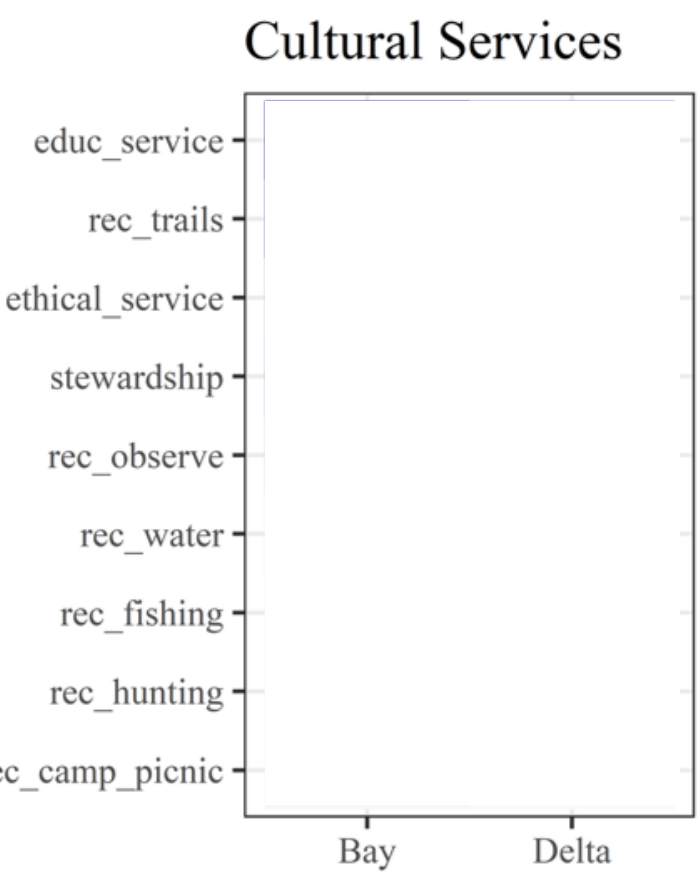

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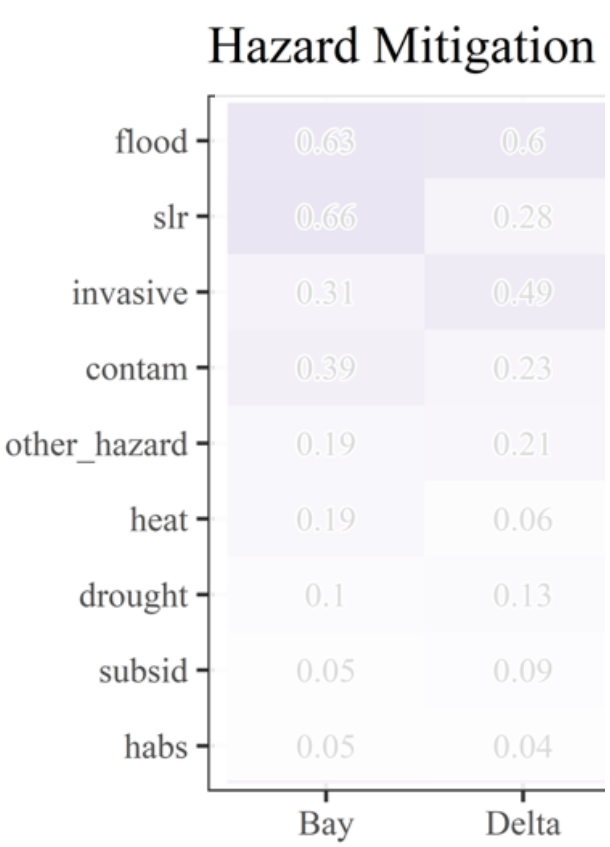

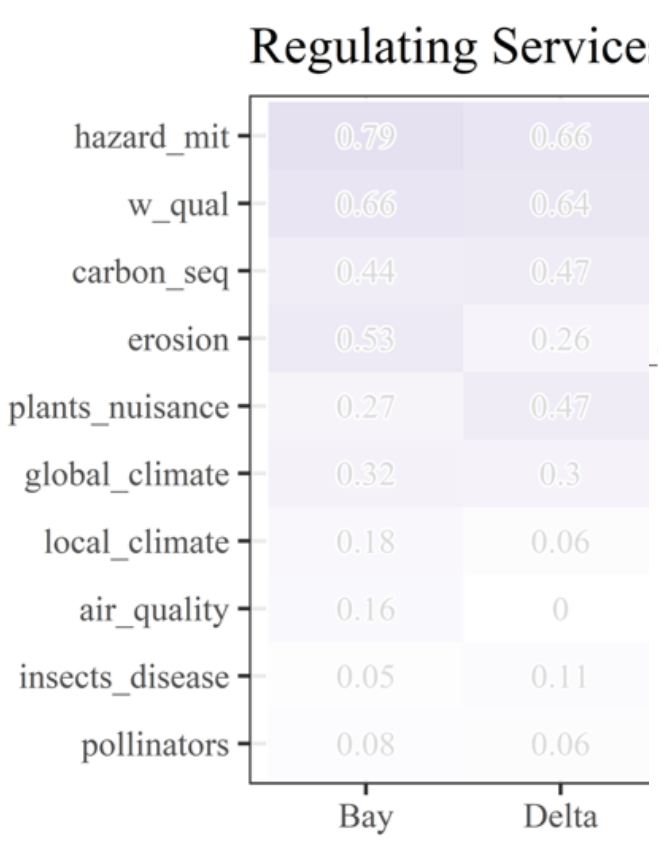

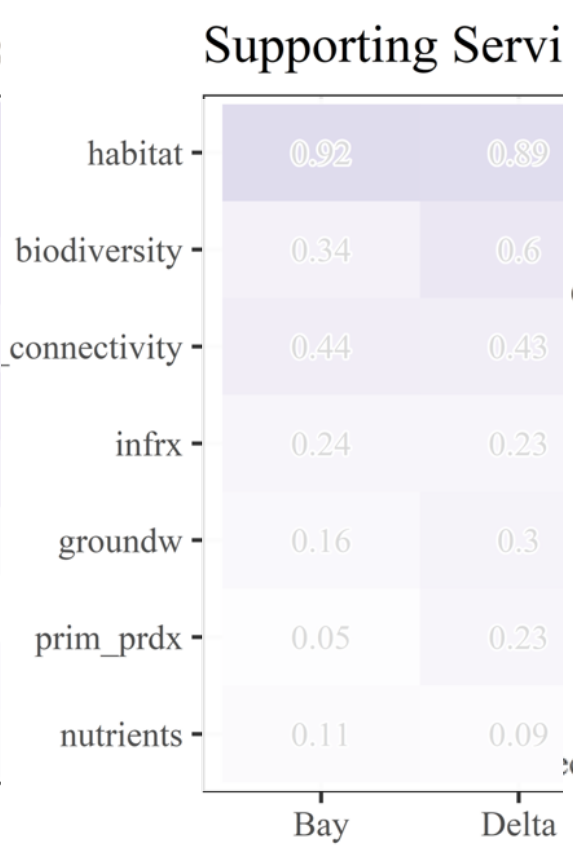

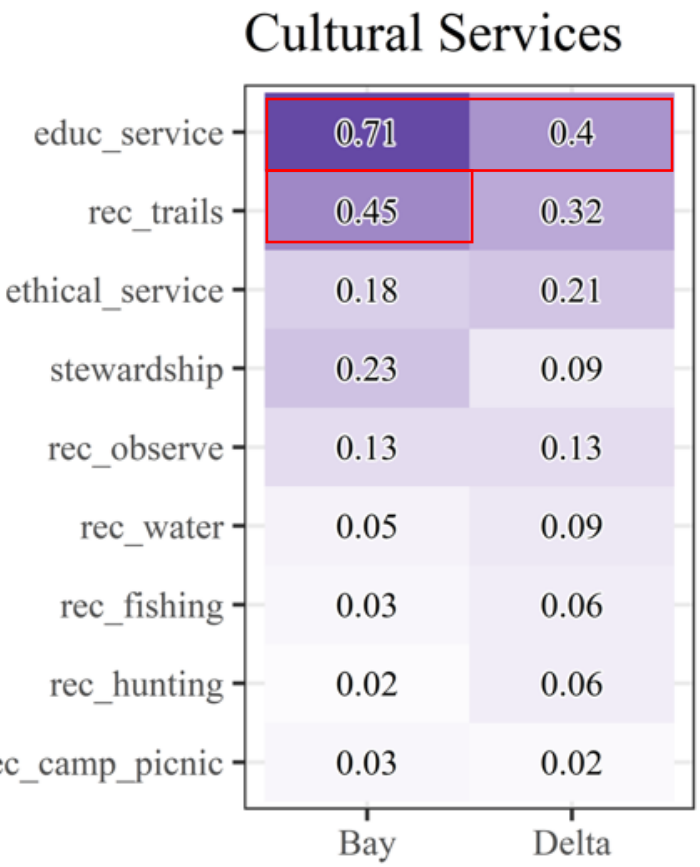

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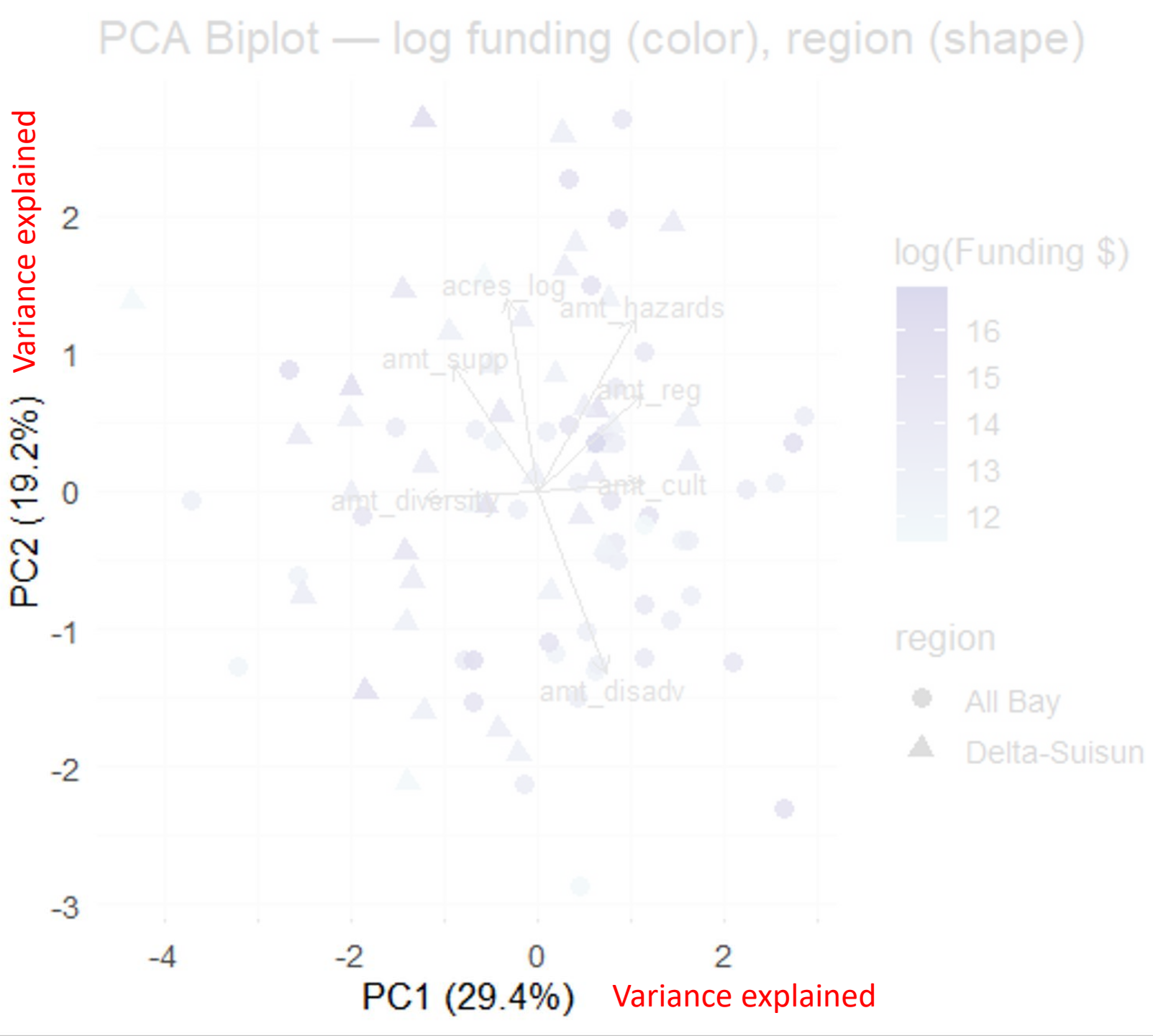

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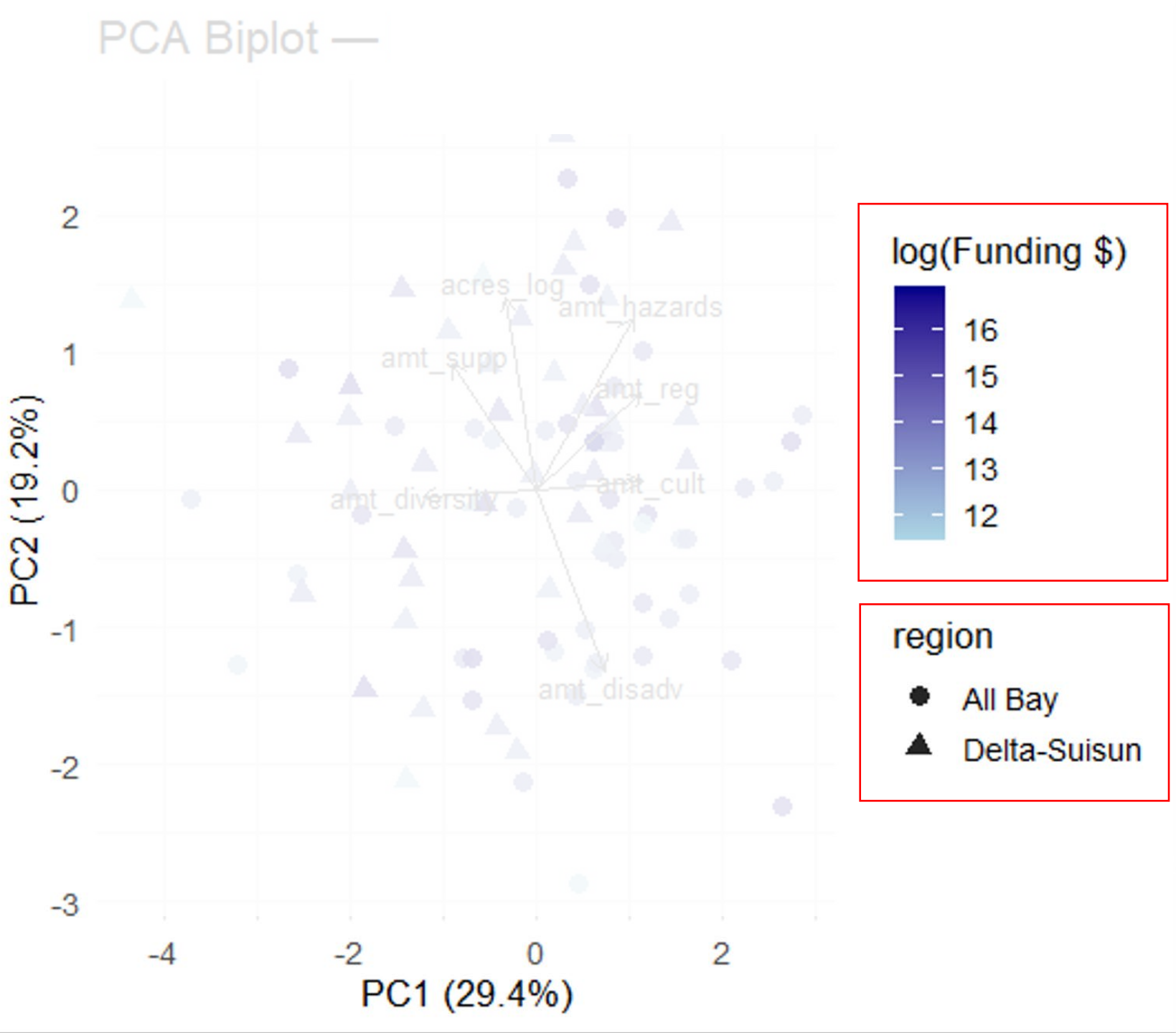

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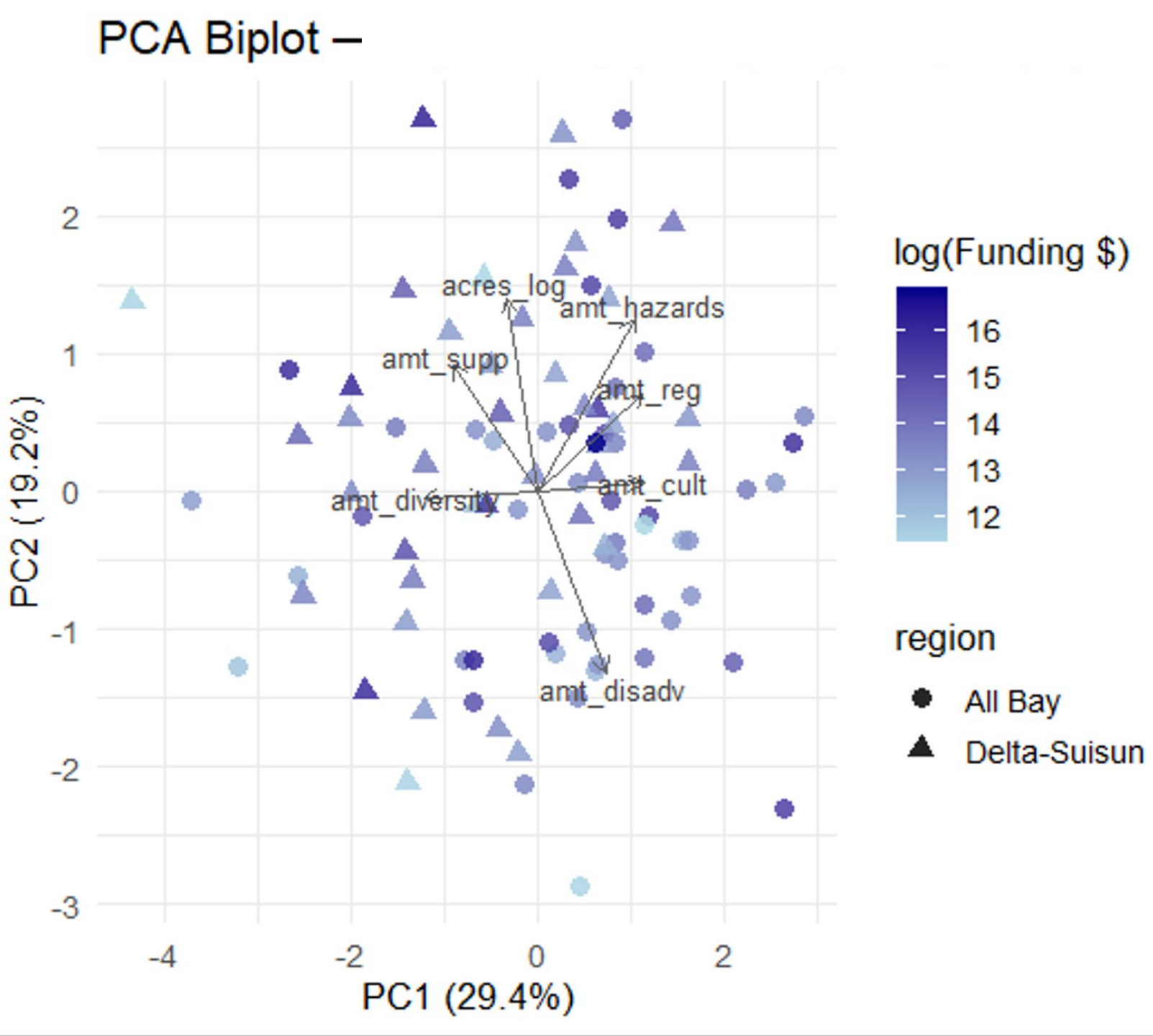

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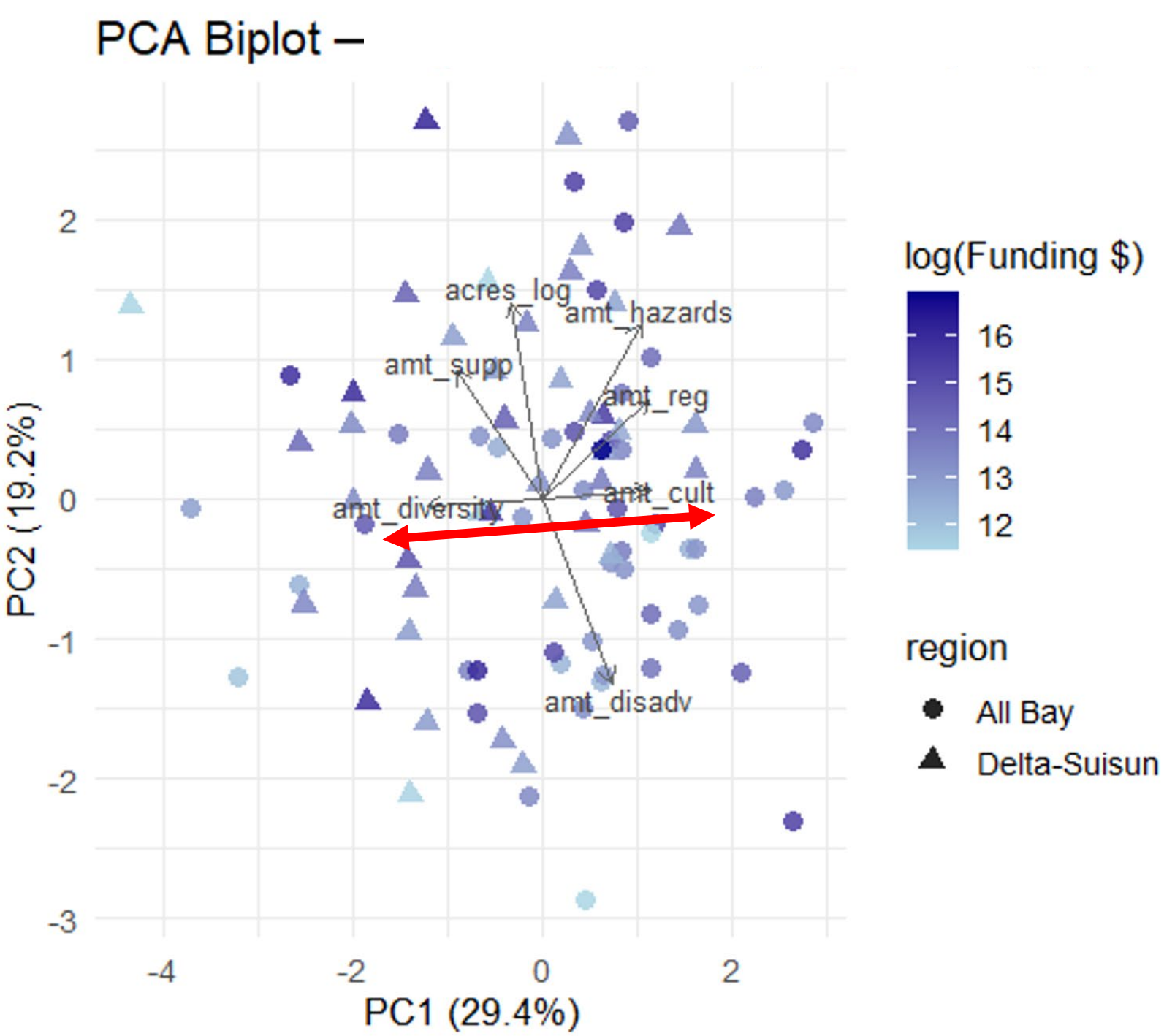

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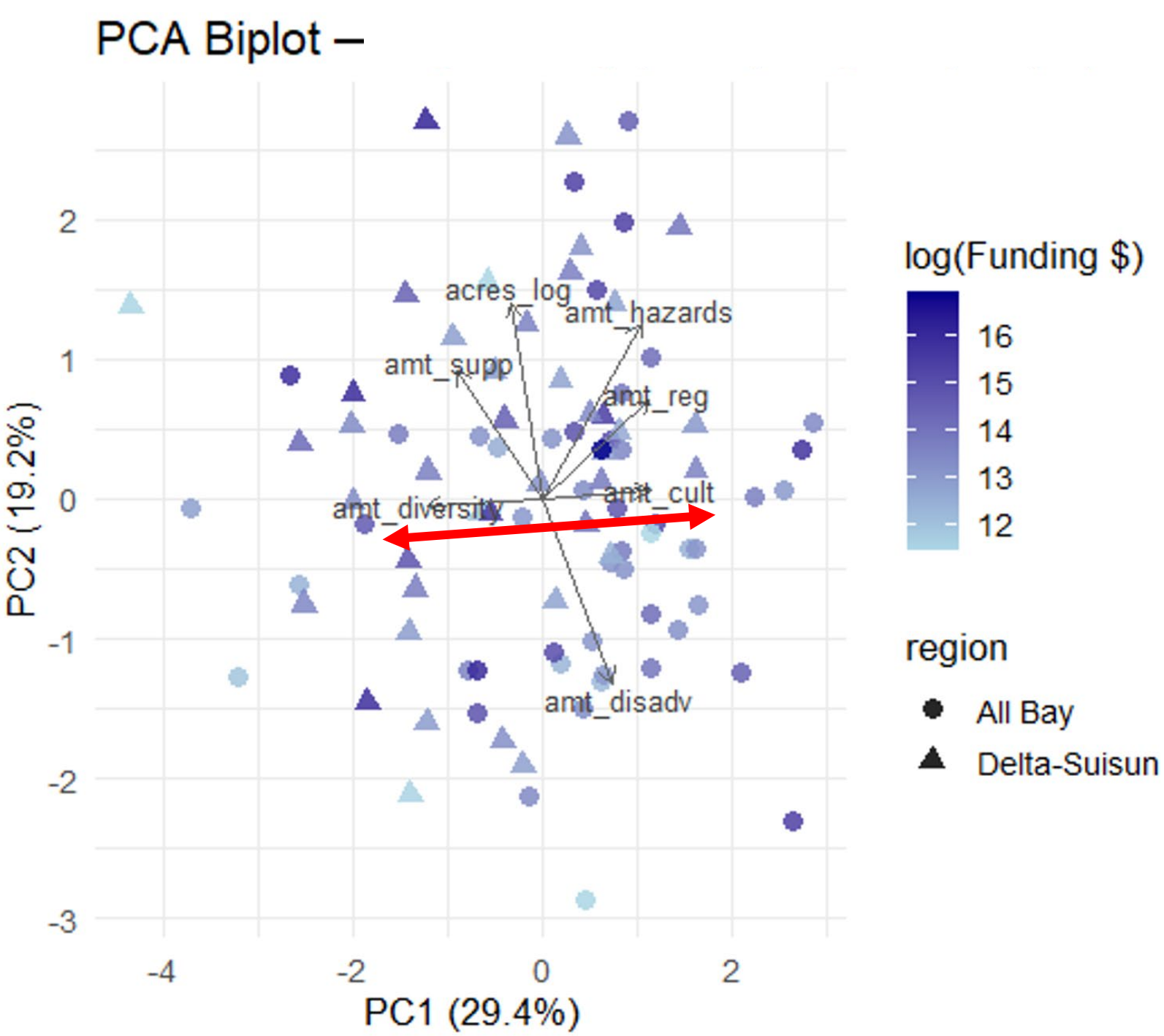

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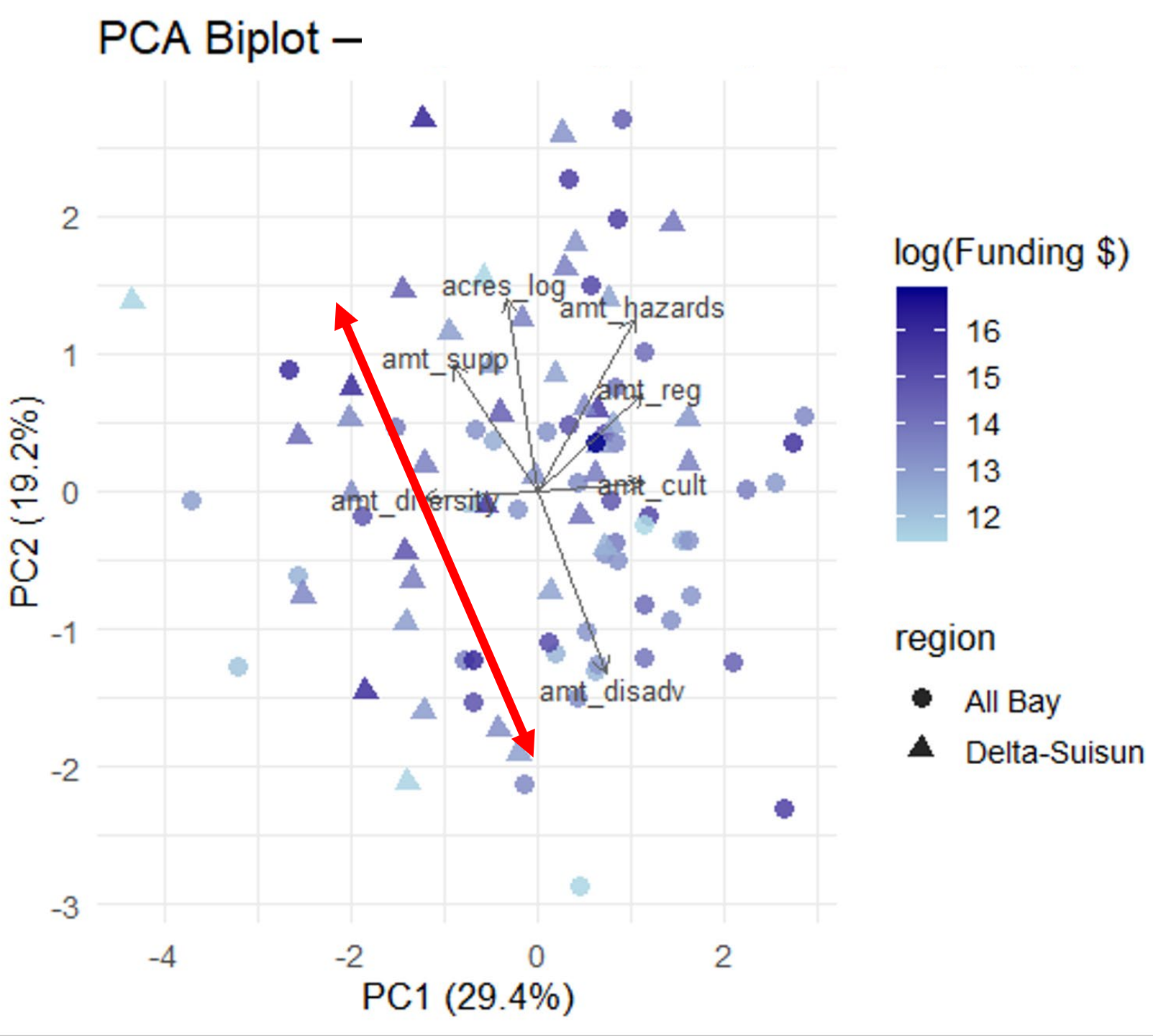

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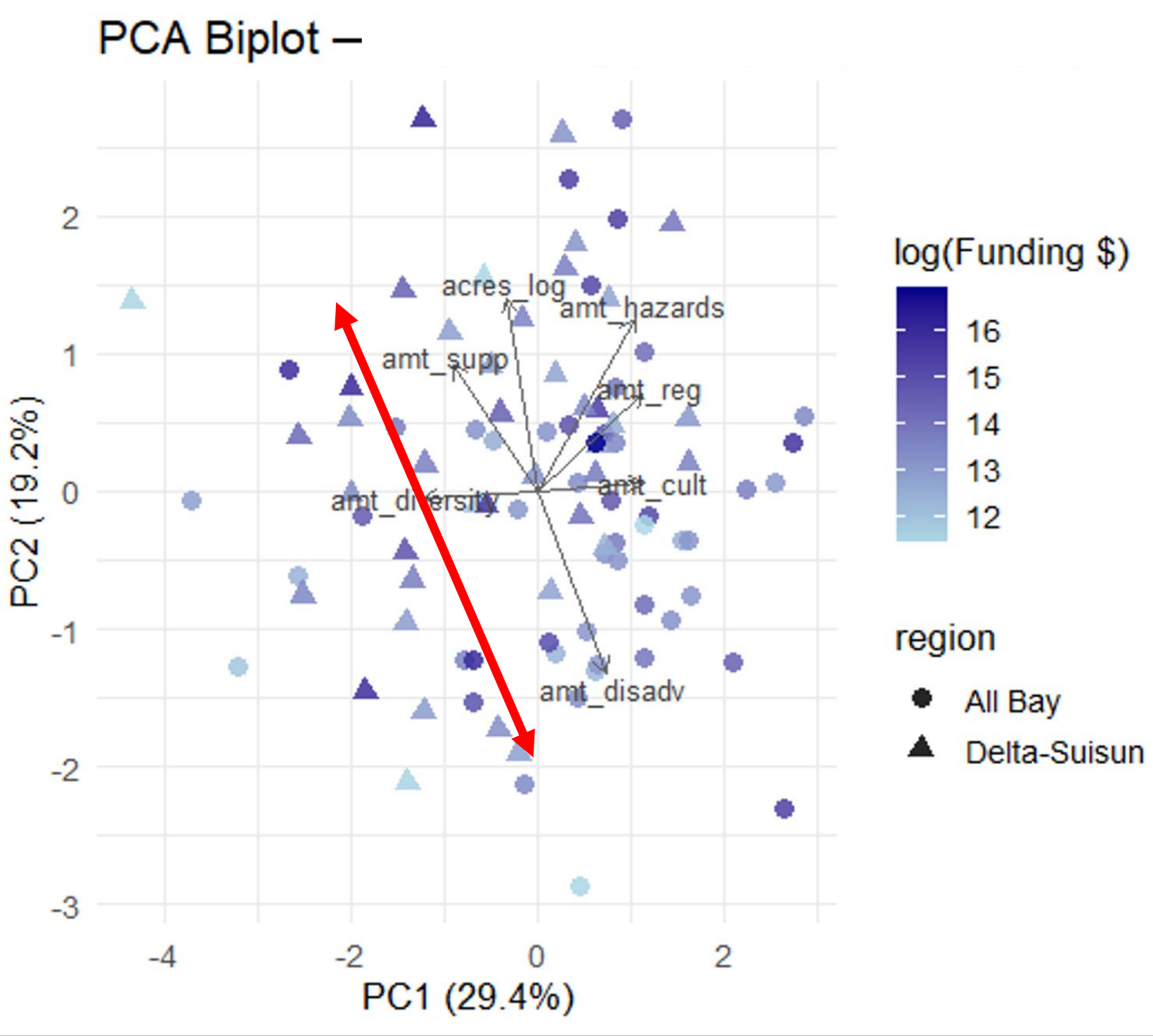
- Bay > disadvantaged
- Delta > acreage, # of supporting services



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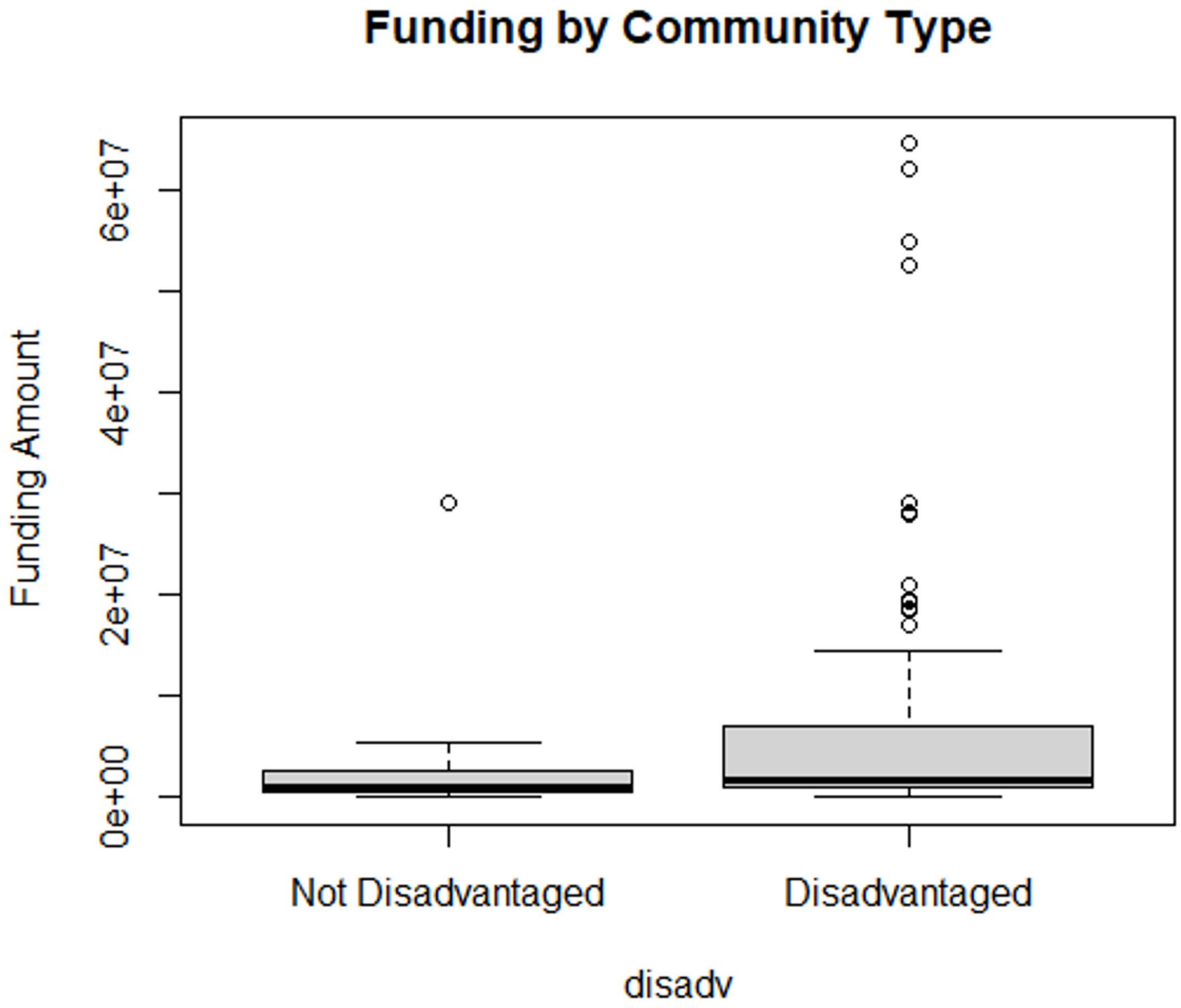
- **Disadvantaged** community median = $804,000*
- **Non-disadvantaged** community median = $459,928* (p<0.01)



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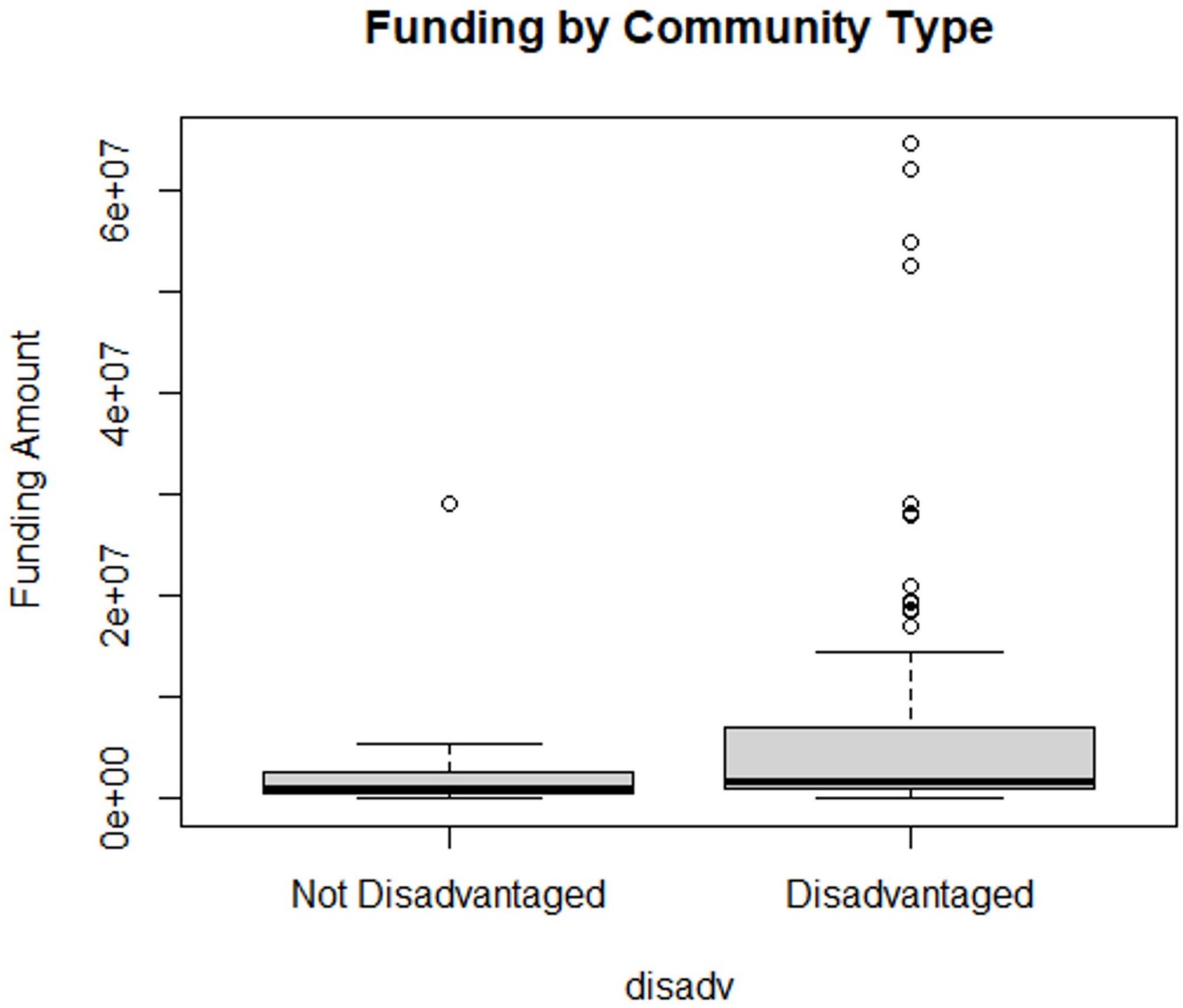
- **Disadvantaged** community median = $804,000*
- **Non-disadvantaged** community median = $459,928* ($p<0.01$)
- Few projects (n=16) said they were **not** benefiting disadvantaged communities



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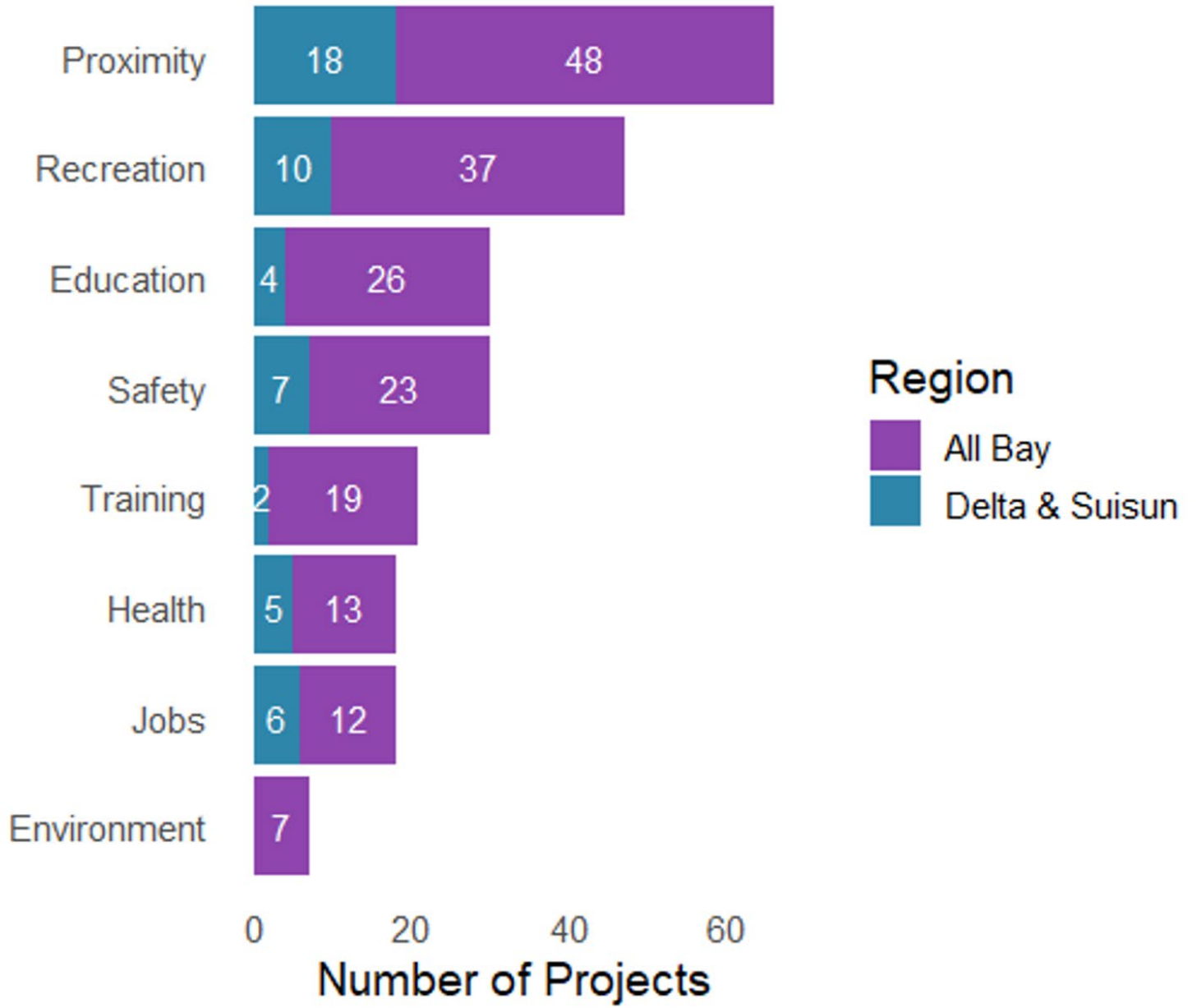

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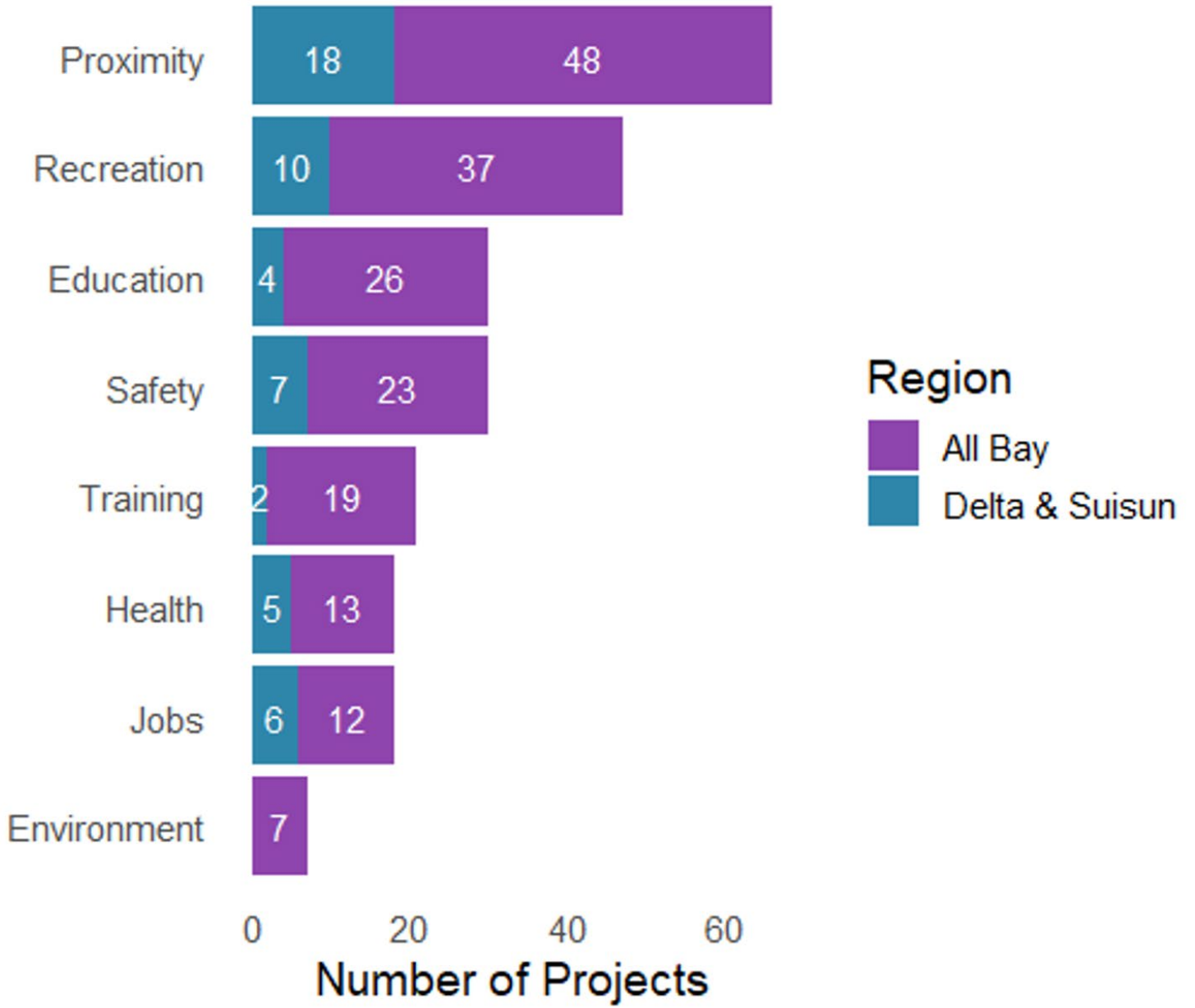
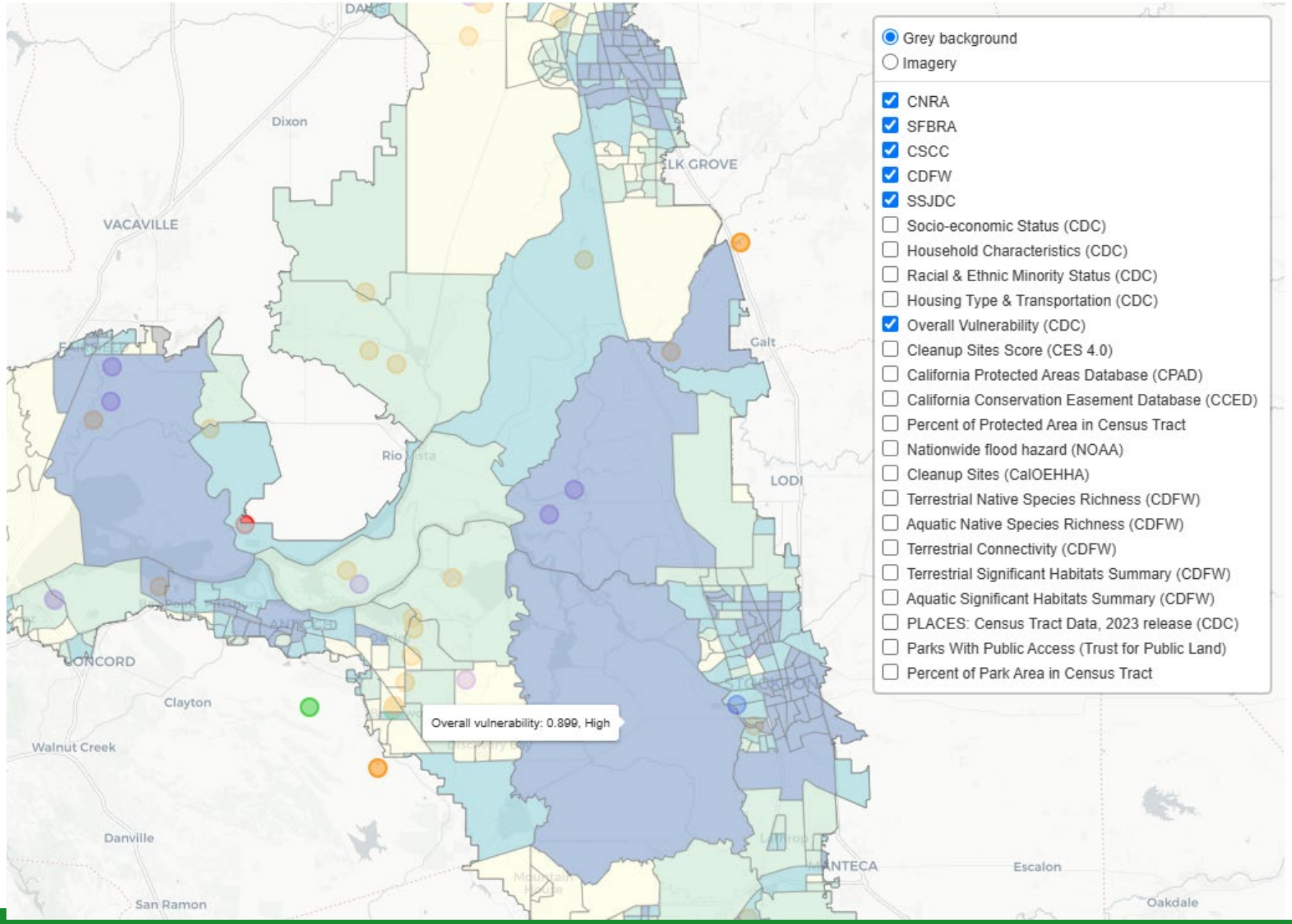
- Wide range of (potential) benefits yet the most commonly referenced benefit is “proximity”

- Suggests that proposals are checking the required box but haven’t explicitly considered various ways they could benefit



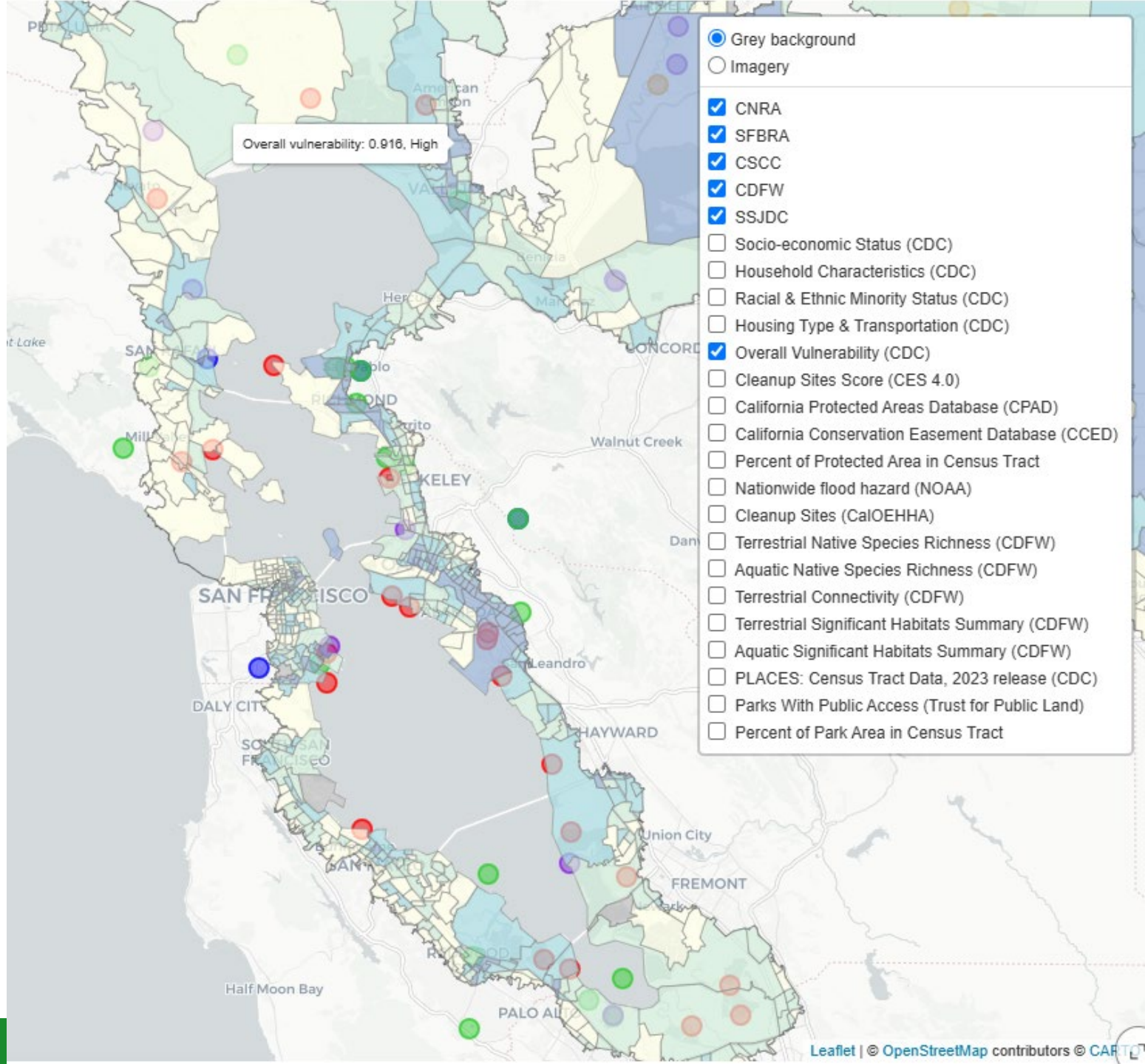
R3. What benefits do multi-benefit restoration projects provide for disadvantaged communities?

- **Delta-Suisun** - Gaps in the Stockton Area, ranked very high social vulnerability but have no multi-benefit projects



R3. What benefits do multi-benefit restoration projects provide for disadvantaged communities?

- **Bay** – Gaps in the Vallejo area which are ranked very highly for social vulnerability (CDC) and only has one multi-benefit project



Caveats and Challenges

- These are **preliminary** analyses
- Since 2022 many **more projects built** or planned that were not captured
  - Lookout Slough Tidal Restoration and Flood Improvement Project
- Results are based on **proposed** rather than demonstrated benefits
- **Other socio-political factors** likely play an outsized role in project investment
    - e.g., project locations may be selected based on opportunistic land ownership or acquisition opportunities (Gmoser-Daskalkis, 2025)

Conclusions

1. What characterizes multi-benefit restoration projects in the Bay Delta?

   Wide range of ecosystem services

2. How are project attributes associated?

   Social and environmental tradeoffs; Bay focus on disadvantaged comm; Delta on supporting services

3. What are the benefits of multi-benefit restoration projects to disadvantaged communities?

   Disadvantaged receive more $, but other benefits are limited

Thank you! Questions?

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