

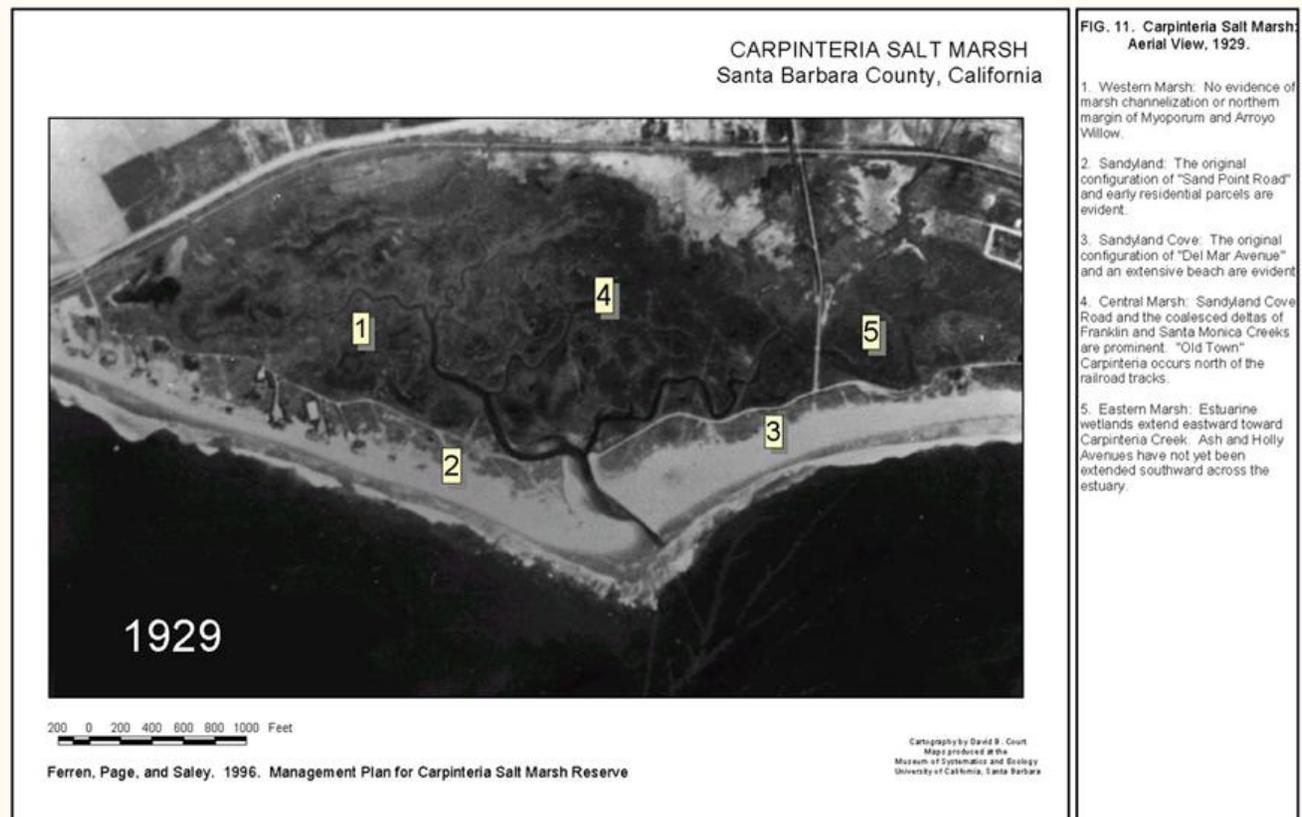


Aquatic Invertebrate and the Restoration of the Carpinteria Salt Marsh

By Stella Freedberg

El Estero has a 9000 year old history

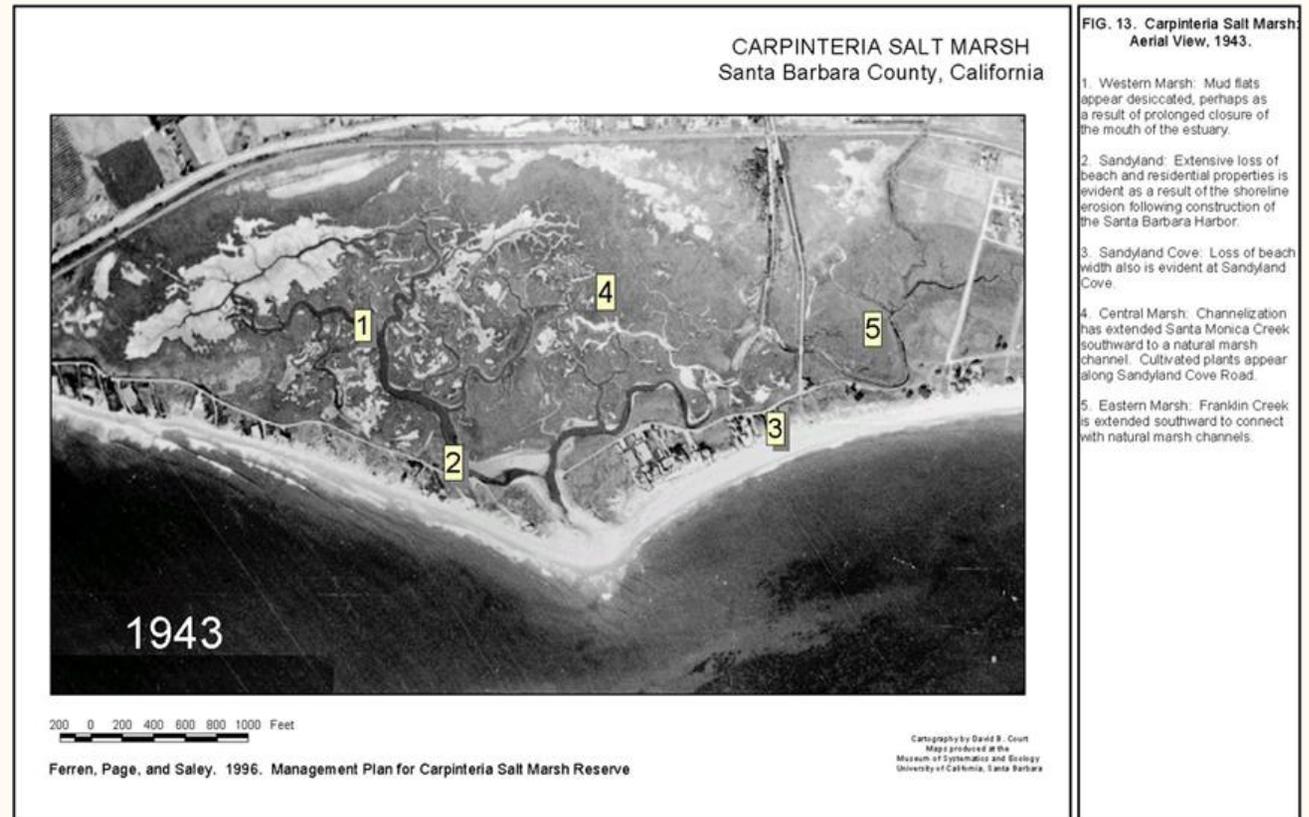
- Canalino Peoples are stewards of the land
- CA becomes a state and claims the land as theirs



<https://csmr.nrs.ucsb.edu/figures/>

El Estero has a 9000 year old history

- Sandyland Cove Trust buys rights to the land
- Development of housing on sand spits
- Construction of roads throughout the estuary
- Infilling of wetlands for golf course



<https://csmr.nrs.ucsb.edu/figures/>

El Estero has a 9000 year old history

- Soil is too salty and golf course fails
- UC Natural Reserve buys the land back



<https://csmr.nrs.ucsb.edu/figures/>

UC Natural Reserve System renames El Estero to the Carpinteria Salt Marsh

Research

University of California (UC) funds long term sample collection and analysis to monitor wetland progress



Management

Land taken care of through stewardship and protective policies. Management plan is written and implemented.



Restoration

Soil and sand are dug up from the wetland. Native shrubs and grasses are planted.



Measuring restoration using aquatic invertebrates as environmental indicators



What are they?

- Characterized by a lack of spine
- Found in a wide range of aquatic environments

Ecosystem functions:

- Help cycle nutrients
- Common prey across the food web



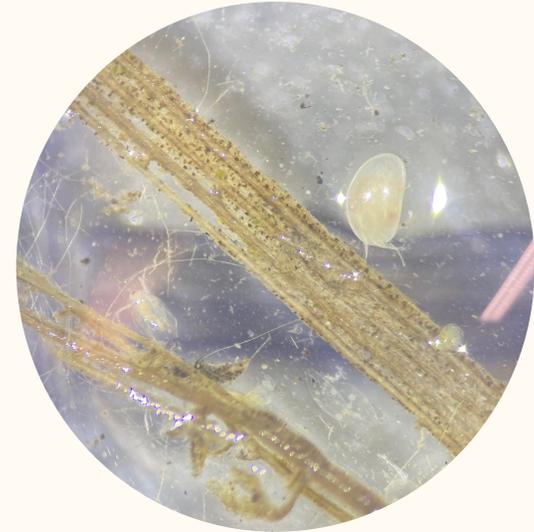
Why are they important?

- They are considered an indicator species, so they are a decent reflection of the overall environment

Collecting and studying aquatic invertebrates for long term studies

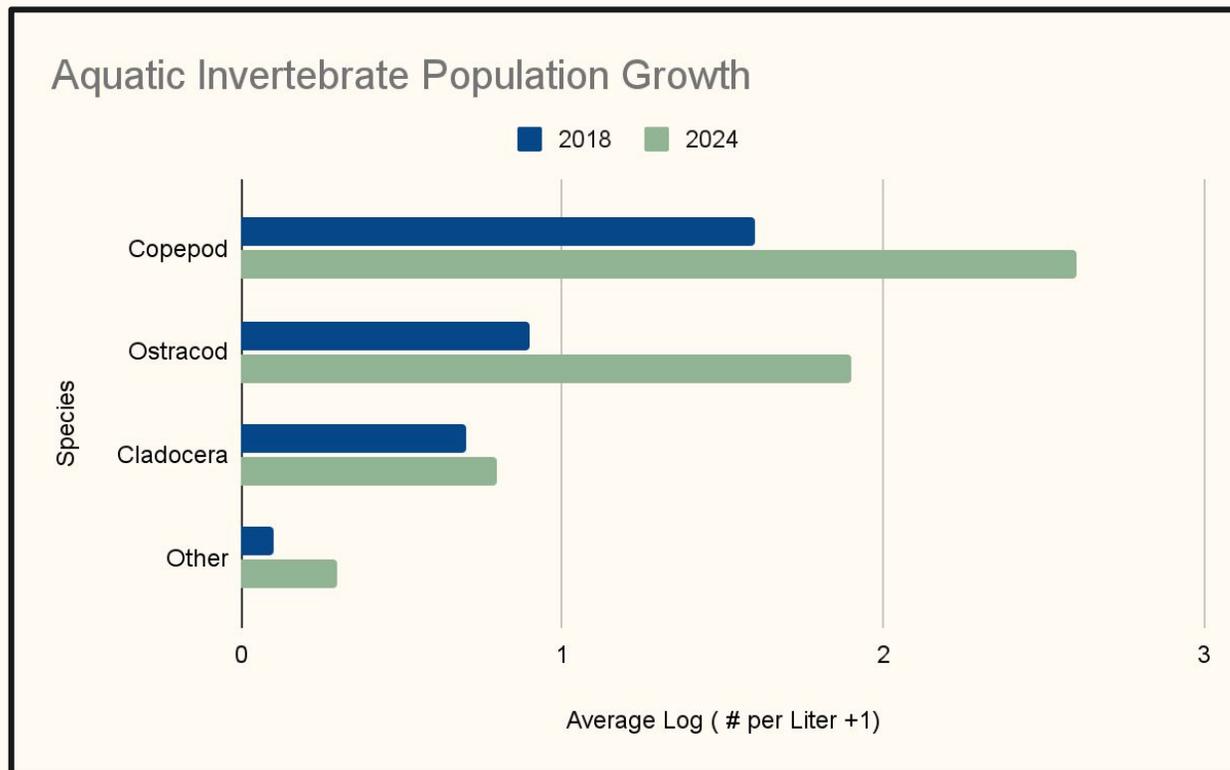
- Cheadle Center Aquatic Invertebrate Lab
- 14 sample sites
 - Salinity
 - Depth
 - Sediment
- Filtered bucket or dip net collection
- 150 mL sample bottle storage
- Isopropyl wash before sorting





**My involvement in the lab:
sorting and identifying**

Research shows that native aquatic invertebrate populations are recovering



Increasing aquatic invertebrates means the wetland is healing



- Strengthening of the food web due to increased predation
- Long term resilience of these creatures shows stability
- Thriving population means water quality, hydrology, vegetation, and sediment are all healthy

Future hopes for the wetland and how we can get there

- Complete restoration
- Increased education
- Long term surveillance projects
- Learn from past mistakes to prevent future loss



**Come visit the Carpinteria Salt Marsh
at the North Campus Open Space!**

Questions?



What are the next steps for restoration?



- Several more years of data collection
 - Drought-like conditions cause number of years to vary
- Continued hands on restoration
 - Frequent monitoring of wildlife present
 - Monitor plants to help prevent invasive species
- Expanded educational programs
 - More UCSB student outreach

Supplemental Materials

- [BRINGING BACK OUR WETLAND \(UCSB Cheadle Center\) on Vimeo](#)
- [North Campus Open Space Restoration Project As-Built Grading and Hydrology Report](#)
- [North Campus Open Space Restoration Project: Restoration Plan](#)
- [ArcGIS Documentation Map](#)