

Characterizing the Seabeach Amaranth Population at Rockaway Beach

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Introduction

Seabeach amaranth (*Amaranthus pumilus*) is a rare, federally threatened plant native to the sandy beaches of the Atlantic Coast. While a poor competitor with other vegetation, its main threats are believed to be coastal development and recreation.

At the Rockaways, its population has declined significantly in recent years, coinciding with beach nourishment and construction of a reinforced dune.

Questions

- Question 1:** How has the distribution and abundance of seabeach amaranth at Rockaway Beach changed recently?
- Question 2a:** What is the condition of individual seabeach amaranth plants at Rockaway Beach?
- Question 2b:** What correlates with the habitat and growth of seabeach amaranth?



Left: the largest individual found during the study. Most plants were smaller and hard to detect. Seeds can be buried or blown anywhere on the beach.

Methodology



We collected data on location, width, # of leaves, presence of invertebrates, flowers, and damage for each plant. With a quadrat, we measured the density and composition of surrounding plants and other features.

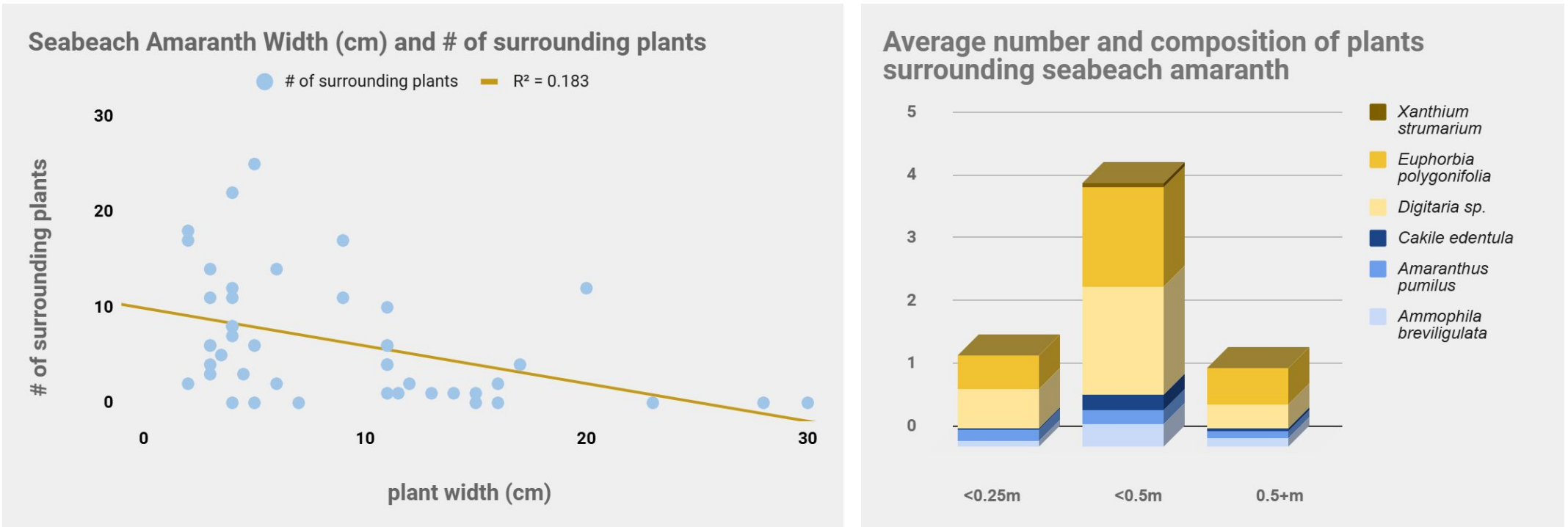


Above: The map indicates the change in the population of seabeach amaranth from 2017 - 2025. We can see that there is a drastic decrease in the plant’s abundance.

Results

Seabeach amaranth continues to be very rare at Rockaway Beach (<200 plants), following its 2017-2019 peak abundance and later construction projects. The area at Beach 57-38 Sts seasonally closed to protect shorebirds contains the most and largest plants.

Almost all plants found were flowering, but insect damaged. We quantified a negative relationship between density of surrounding plants and the size of seabeach amaranth plants. While seabeach amaranth was often in vegetated areas that avoid trampling or disturbance, it may still succeed best in bare patches.



Conclusion

Seabeach amaranth at Rockaway Beach persists despite extreme change, likely due to measures that protect nesting shorebirds. More work can be done to restore it to areas from where it has disappeared and mitigate the effects of development and recreation.

References

- Endangered and Threatened Wildlife and Plants; *Amaranthus pumilus* (Seabeach Amaranth) Determined To Be Threatened, 58 FR 18035 (April 7, 1993)
- Seabeach Amaranth (*Amaranthus pumilus*) at Rockaway Beach: Monitoring and Conservation Report. NYC Parks (2022)
- QGIS.org, 2025. QGIS Geographic Information System. QGIS Association. <http://www.qgis.org>

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