

**Recommendation for the Designation of  
Sea-beach Amaranth**  
*Amaranthus pumilus* Rafinesque  
as a Virginia Species of Greatest Conservation Need

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The Virginia Department of Wildlife Resources, with support from the Virginia Department of Conservation and Recreation-Division of Natural Heritage, recommends the addition of Sea-beach Amaranth (*Amaranthus pumilus* Rafinesque) to Virginia's list of Species of Greatest Conservation Need as a tier **L-B\*** species (Appendix 1).

Justification

Species Summary

*Amaranthus pumilus* (Sea-beach Amaranth; G2/S1, Fed LT/State LT) (Appendix 2) was listed as Federally Threatened by the U.S. Fish and Wildlife Service in April 1993 due to habitat impacts and steep declines (USFWS, 1993). *Amaranthus pumilus* is ranked G2 (imperiled) by NatureServe and the Natural Heritage Network, meaning that it is at high risk of extinction on a global scale. (NatureServe, 2023). This annual member of the Amaranth family (Amaranthaceae) is found on dynamic barrier island beaches from Massachusetts to South Carolina, although the populations in Massachusetts, Rhode Island, and (potentially) Connecticut are considered historical. Threats include dune stabilization, shoreline hardening, development, heavy recreational use, storm-related erosion, and the natural succession of dune vegetation (USFWS 1993). Of these impacts, storms and plant succession are natural processes but their effects are more worrisome in the context of human-caused declines. Indirect impacts can be equally serious, including changes in sediment transport caused by shoreline hardening. Sea level rise may be a factor, particularly if the accretion of new land cannot keep pace with the rate of inundation.

Trends

There are two extant populations of *Amaranthus pumilus*, one historical population, and an additional population thought to be extirpated. Recent attempts to discover populations of *Amaranthus pumilus* on the barrier islands of Virginia's Eastern Shore were not successful. Due

to the remoteness and inaccessibility of the area, populations could be missed due to sporadic inventory (Stanley 2021, VA DCR 2023). From 30-50 element occurrences currently exist range wide. An exact number is not known due to the inconsistent use of data standards and to the highly variable distribution of colonies in space and time (Natureserve 2023). Population size and location can be quite variable between years, presumably due to beach dynamics and the species' annual habit. However, a consistent and steep decline in numbers has occurred across all populations since 2000. The boom years of the early 2000s were preceded by many years of relatively low population sizes, reaching back to at least 1987. Data from the 1980s and 90s is of questionable value however due to a relative lack of survey effort (USFWS 2018).

Reintroduction projects have generally created upward trends in plant numbers, but declines follow soon after such efforts. In exceptional cases, beach renourishment can cause temporary upward trends in population size as well. In the case of New York, unprecedented numbers of plants appeared after beach renourishment projects on Long Island (New York Natural Heritage Program 2023). On the other hand, negative impacts from renourishment include the burial of seed banks or direct smothering of live plants during the growing season (USFWS 2018).

### Conservation Action

Conservation actions recommended for *Amaranthus pumilus* include protecting the dynamic beach habitat favored by the species. This includes discouraging shoreline hardening or stabilization projects, including those with direct impacts as well as those that induce off-site impacts through sediment diversion. Impacts from trampling and vehicle traffic must be minimized (USFWS 2018). Luckily, the only extant Virginia population is on National Park property where protecting the plants from human impacts is a priority.

Very sporadic inventories have been done for this species on Virginia's barrier islands (Stanley 2021). It has only been seen once outside of Assateague Island despite extensive available habitat. Most field work on the islands has been focused on other species and at times of year when *Amaranthus* may not be visible, lessening the chance of discovery. Future surveys must cover a large percentage of each island and be intensive enough to locate such a small plant within the complex dune landscape.

### Summary

*Amaranthus pumilus* (Sea-beach Amaranth) is proposed for inclusion in the Virginia State Wildlife Action Plan as a tier 1-B species due to direct and indirect human impacts to its beach front habitat and long-term population declines.

**This species occurs only in the Accomack-Northampton Planning District Commission.**

### References

NatureServe. 2023. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. [https://explorer.natureserve.org/Taxon/ELEMENT\\_GLOBAL.2.141860/Amaranthus\\_pumilus](https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.141860/Amaranthus_pumilus) [Accessed: Mar. 27, 2023].

New York Natural Heritage Program. 2023. Online Conservation Guide for *Amaranthus pumilus*. Available from: <https://guides.nynhp.org/seabeach-amaranth/>. Accessed March 28, 2023.

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United States Fish and Wildlife Service (USFWS). 2018. Sea-beach Amaranth (*Amaranthus pumilus*) 5-Year Review. June 2018. Raleigh Ecological Services Field Office, Raleigh, North Carolina.

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**\*Rank Tier 1-B based on FT/S1 status and on the ground conservation strategies have been identified but not implemented. Specifics of "B" rank: the most important potential conservation actions are known but they are challenging since they involve policy (shoreline hardening regulations, siting of houses, etc). Efforts such as reintroduction and prohibition of beach vehicle use may help but the main driver of healthy populations is the presence of dynamic shoreline habitat. Without that, smaller-scale efforts will not succeed for long.**