

Surveys for the Federally-Listed Threatened Plant Species, Seabeach Amaranth (*Amaranthus pumilus*), in Keansburg, NJ

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Jay F. Kelly, Ph.D.
Round Mountain Ecological LLC
74 Old Highway 28
Whitehouse Station, NJ 08889
r.m.ecological@gmail.com
(908) 534-0053

Introduction

Seabeach amaranth (*Amaranthus pumilus* Raf.) is an herbaceous annual plant in the Amaranthaceae that occurs on sandy, ocean beaches in eastern North America. The habitat of *A. pumilus* is restricted to the narrow strip of land between the high tide line and the base of the dunes, and significant impacts to these areas by coastal development, hard shoreline stabilization, incompatible land use practices, and severe storms have resulted in major declines in the species' populations throughout its range (USFWS 1996). The species is currently listed as Threatened by the U.S. Fish and Wildlife Service (USFWS 1996), and Endangered by the New Jersey Department of Environmental Protection (NJDEP 2010).

Although there are no historic records documenting the presence of seabeach amaranth in Keansburg, NJ, this portion of the Raritan Bay contains ample suitable habitat for the species and is in close proximity to the largest populations of the species in the State, in Sandy Hook. Although surveys of these areas in 2010-2011 found no *A. pumilus*, the exceptional seed banking and dispersal capabilities of this annual plant species make repeated surveys necessary to effectively document the presence or absence of the species in a given area.

Results - *Amaranthus pumilus*

This report presents the results of surveys conducted for seabeach amaranth in Keansburg, NJ, prior to the beach replenishment planned for May 2012. Surveys were conducted in all areas of potential habitat for seabeach amaranth in Keansburg on May 18, 2012, from 1 PM to 3 PM. All vegetation occurring seaward of the dunes was inspected and identified to species. Identification follows Gleason and Cronquist (1991), and state-listed plants species are identified according to Snyder (2010).

No seabeach amaranth individuals were observed in these surveys. However, given that individuals tend to germinate in late June through early July, the optimum time for surveying the species is from July to September (Kelly 2007). Thus, while no individuals were found during these surveys in Keansburg, it is possible that a viable seed bank may yet exist onsite, and that germination could occur later in the growing season. However, given the absence of seabeach amaranth in Keansburg in the prior two years of surveys (Kelly unpublished data) and the lack of historical records for the species on the Raritan Bay (Snyder 1996), its presence seems unlikely at this time. Mechanical raking of beach surfaces observed during this visit reduced the potential habitat for the species to some extent at the site. Such raking of the upper beach surfaces (above the high tide line) should be avoided during the growing season in order to prevent any further impact to this species or its habitat in the future.

Other Rare Beach Species

While no *A. pumilus* was found in Keansburg, there were large numbers of a state-listed plant, Beach Wormwood (*Artemisia campestris* ssp. *caudata*). Less than 20 populations of this species are known in New Jersey and the population at Keansburg is highly significant, being second in size only to the largest population occurring at Sandy Hook (Kelly pers. obs.). This species occurs primarily in the dunes and any impacts to individuals of the species or its habitats should be avoided during construction or subsequent beach maintenance operations. Photographs of the species, which occurs immediately adjacent to sand roads crossing the dunes and throughout the dune ecosystems in Keansburg, are provided below. Any expansion or widening of dune roads, parking of vehicles, or position of equipment or materials in the dune environment stands to potentially impact this species and its habitat, and should therefore be avoided. I would be happy to provide further information on this species, regarding its proper protection and management, upon request.

Literature Cited

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NJDEP. 2010. List of endangered plant species and plant species of concern. New Jersey Department of Environmental Protection, Division of Park and Forestry, Office of Natural Lands Management.

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USFWS. 1996. Recovery Plan for Seabeach Amaranth (*Amaranthus pumilus*). U.S. Fish and Wildlife Service. Southeast Region. Atlanta, Prepared by G.A. Weakley, A., M. Bucher, and N. Murdock.

Photographs – Beach Wormwood (*Artemisia campestris* ssp. *caudata*) at Keansburg, NJ, in May 2012

