

Amaranthus pumilus Raf. (Seabeach Amaranth, Amaranthaceae) Rediscovered in Sussex County, Delaware

In August of 2000, *Amaranthus pumilus* was rediscovered in Sussex Co., Delaware after 125 years without a sighting. It was first collected in Delaware in 1875 by Albert Commons (10 September 1875, *A. Commons*, s.n., "seabeach, Baltimore Hundred, Delaware," PH).

Amaranthus pumilus was federally listed as threatened by the U.S. Fish and Wildlife Service in 1993. Historically, this species was known from Massachusetts south to South Carolina (Weakley et al. 1996). *Amaranthus pumilus* was reported as rediscovered at Assateague Island National Seashore, Worcester County, Maryland in 1998 (Ramsey 2000). Prior to rediscovery on Assateague Island and in Sussex County, *A. pumilus* was extant on Long Island, New York, and in North Carolina and South Carolina.

Lisa Marie Kendall of the Delaware Natural Heritage Program, Division of Fish and Wildlife, Delaware Department of Natural Resources discovered the first plants on 7 August 2000. Subsequent surveys revealed a total of 41 individuals scattered over 22 kilometers of Atlantic shoreline. All plants found are within the boundaries of Delaware Seashore and Fenwick Island State Parks. The largest number of plants (28) was found within a 1.5-km stretch of shoreline near the swimming beach at Delaware Seashore State Park. This section of beach is the only area where *A. pumilus* was found that is off-limits to vehicular traffic. This area provides the best habitat for the long-term survival of *A. pumilus*.

Individual plants were found growing on relatively open sand near the base of the primary foredune. Though overall plant cover was quite sparse, common associates include *Ammophila breviligulata*, *Cakile edentula* (most prevalent), *Cenchrus tribuloides*, *Chamaesyce polygonifolia*, *Salsola kali*, and *Triplasis purpurea*. Plants of *A. pumilus* were often associated with a wrack line, which appeared to be composed primarily of broken and decomposing canes of *Phragmites australis*. Chris Lea, ecologist at Assateague Island National Seashore, speculates that wrack lines may be acting as a seed trap for *A. pumilus* (pers. comm.).

Soon after the rediscovery of *A. pumilus*, seeds were collected from August to September and sent to the Mt. Cuba Center for the Study of Piedmont Flora in Greenville, Delaware. Rick Lewandowski, Director of the center and his staff will attempt to germinate and rear plants of this annual species for planting next season in the areas where seeds were collected.

In addition to seeds, fresh leaf material was also collected from several plants and sent to Dr. Kim Hunter at Salisbury State University where comparative DNA studies will be done. The rediscovery of *A. pumilus* on the Delmarva Peninsula (Worcester County, Maryland and Sussex County, Delaware) could be the result of propagules being deposited from southern populations (currents run south to north), or from the unearthing of dormant soil seed banks. DNA studies may help to answer these questions.

In addition to the rediscovery of *A. pumilus* in Sussex County, another exciting find was made by Frank Hudson, ecologist at Assateague Island National Seashore. Frank, along with others from Assateague Island were visiting the Sussex County population and found *Polygonum glaucum* growing near individuals of *A. pumilus*. *P. glaucum* is considered to be globally rare by The Nature Conservancy and was last collected in Delaware in 1936 (31

August 1936, *E. Larson*, 1216, "sandy beach, 3 miles north of Broadkill Beach," Sussex County, Delaware, PH).

The Delaware Natural Heritage Program performs annual surveys for listed and candidate plant species in Delaware using funds from the U.S. Fish and Wildlife Service.

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