



New York Field Office Long Island Field Office

Seabeach Amaranth

Walk along the ever-changing beach between ocean and land. Smell the salt of the sea and hear the constant motion of the waves. Examine the shifting sand at the base of the dunes just above the high tide line. You may see a low clump of sprawling, fleshy, reddish branches with spinach-green leaves – seabeach amaranth (*Amaranthus pumilus*).

Once found along beaches of the Atlantic Coast in nine states from Massachusetts to South Carolina, seabeach amaranth was gone from two-thirds of its historic range by 1993. For this reason, it was listed as a threatened species under the Endangered Species Act. The Act protects endangered and threatened plants on federal land and ensures activities authorized, funded, or conducted by the federal government are not likely to jeopardize the continued existence of those species.

Description

Seabeach amaranth is an annual plant. The plants germinate as small, red sprigs between June and July in New York State. Later, a rosette of small, wrinkled spinach-green leaves forms, branching out fleshy reddish stems that spread low to the ground. Plants mature between August and September, bearing inconspicuous flowers, and can grow up to three feet (one meter) in diameter. Seed production begins in August and peaks in September. The plant continues growing, blooming, and producing seed until it dies, sometimes as late as November in the North, even later in the South.

Biologists considered seabeach amaranth extirpated (extinct) in New York, when, in 1990, 13 populations totaling 357 plants were rediscovered on Long Island, New York, beaches. The plant had not previously been seen in New York since 1950! Several hurricanes, including Hugo, preceded the plants' reappearance. These storms may have uncovered preserved seedbanks deep in the sand, or they may have resulted in long-distance seed dispersal from the surviving populations in the Carolinas.

Habitat

Seabeach amaranth is a plant of the dynamic barrier beach landscape, often colonizing areas just above the high tide line on accreting shorelines—areas where the beach is building up or expanding. Established plants trap sand and one large plant can create a sand mound of two to three cubic yards (1.5-2.3 cubic meters). Seabeach amaranth shares this habitat with other threatened and endangered species, such as piping plovers and roseate terns. The plant has also been found growing along Long Island's bay shores, suggesting it is a fugitive species, of mobility and adaptability that will occupy suitable habitat, if available.

Why is the species threatened?

Seabeach amaranth is threatened because of the continued loss of barrier beach habitat along the Atlantic Coast. Beach stabilization by bulkheads, seawalls, or riprap, and artificial dune construction, fencing, or vegetation planting favor the establishment of other plants at the expense of this threatened species. Also, off-road vehicles can crush the plant's brittle stems and can destroy the seed.

Natural factors can also play a role. For example, moth caterpillars called webworms feed heavily on the plant, reducing the production of flowers and seeds. Although a native species, webworms are probably more abundant on barrier islands due to human activities. As an annual plant, seabeach amaranth depends upon seed production and dispersal as well as favorable germination conditions to reestablish populations. It is therefore subject to natural conditions such as temperature, rainfall, and storms. However, again, human activities play a role. The plant's habitat is stabilized and fragmented by development, and existing populations are widely dispersed, lessening the likelihood that populations will establish naturally on new or recovered habitat.

Seabeach amaranth has recently returned to several states after years of extirpation, now occurring in New York, New Jersey, Delaware, Maryland,

Virginia, North Carolina, and South Carolina. Although the expansion is encouraging, the species remains at risk. Habitat remains fragmented, many populations are small and declining, and most occur on private land where the Endangered Species Act has limited authority to ensure their future.

Why should we be concerned?

More than 500 species, subspecies, or varieties of our nation's plants and animals have become extinct since 1620, the year the Pilgrims landed at Plymouth Rock. In contrast, it is estimated that in North America only three species were lost every 100 years during the Pleistocene ice age. As of 2002, there are approximately 1817 threatened or endangered species protected by the Endangered Species Act in the United States. Because each and every species has a valuable ecological role in the balance of nature, the accelerated loss of species destabilizes this natural balance and reduces biological diversity.

Many plant species have properties beneficial to humans. Approximately 25 percent of all prescriptions written annually in the United States contain chemicals obtained originally from wild plants. For instance, a chemical compound derived from the Pacific Yew tree shrinks cancerous tumors. Chemical compounds derived from the Madagascar periwinkle have increased the survival rate of children with leukemia from 20 percent to 80 percent. The World Health Organization has estimated that 80 percent of the world's health problems are treated by plant-based medicines. Unfortunately, only a fraction of the world's known plant species have been investigated for pharmaceutical properties. We lose a potential resource for improving the quality of life for all humanity with the extinction of each plant species.

The group of plants to which seabeach amaranth belongs has many representatives native to the Americas. Many are high in nutritional value and are grown throughout the world as important grain and vegetable crops. Amaranth grain was the staple of the Aztec diet and a focal point of Aztec culture. Researchers are investigating seabeach amaranth for its ability to survive in a hot, dry environment and for potential as a gene donor in crop improvement. It is a promising grain for food production on salt-contaminated soils in developing countries. The loss of a single *Amaranthus* species removes valuable traits and the potential for those traits to be used to improve our social or economic conditions.

What can you do to help?

Keeping coastal beaches in their natural condition benefits seabeach amaranth and other threatened or endangered species sharing this habitat, including piping plovers and roseate terns. Also, it protects beaches for a wide variety of human recreation. Beach armoring with riprap or seawalls not only threatens these rare species, but often eliminates the beach by accelerating erosion.

Beach landowners and beach users should learn to recognize and appreciate seabeach amaranth as an attractive, interesting, and valuable part of the beach community. Beach users should minimize off-road vehicle use on beaches, particularly in the areas where the plant may occur. This will help protect the beach from erosion and avoid running over plants. It will protect these and other plants that maintain wide beaches and dunes naturally.

When beach stabilization is necessary, use beach nourishment in the winter as a substitute for structural shoreline stabilization. Avoid walking on or damaging seabeach amaranth. Enjoy the plants gently and realize you have had a rare look at a threatened species in the coastal beach ecosystem.

Persons interested in obtaining more information or in volunteering to assist Service staff conduct an annual census may contact the office listed below:

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