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Saving the seabeach amaranth

SEABEACH AMARANTH IS AN ANNUAL VASCULAR plant species that grows in sparsely vegetated coastal beach habitats, which are created and maintained by natural disturbances such as storms and extreme high tides (see fig. 4, page 46). Seabeach amaranth is federally listed as threatened with extinction in large part because coastal development has eliminated much of its critical habitat throughout its range (Massachusetts through South Carolina). After an absence of more than 30 years, seabeach amaranth was rediscovered on Assateague Island National Seashore in 1998 (Ramsey et al. 2000), after which the park initiated a species restoration project that took place from 2000 to 2002 (Lea et al. 2003).

Monitoring during the restoration project revealed that average plant size was exponentially correlated with seed production (Lea et al. 2003). In other words, larger plants produce disproportionately more seeds.

Therefore, successful management strategies for this species should encourage increased plant size. Following restoration, monitoring revealed a sharp decline of more than 40%, from 912 individual plants in 2002 to 503 in 2003. Though ORV (off-road vehicle) use and other activities may limit seabeach amaranth expansion, further monitoring revealed that ungulate herbivory was the primary cause of the observed decline. In 2006 a comparative study that paired 70 caged (i.e., protected) and uncaged seabeach amaranth plants revealed that ungulate herbivory reduced average survival throughout the growing season by 27% and reduced plant size by an average of 58%. This represents an estimated 500% reduction in seed productivity. During this study the type of ungulate herbivory (horse or deer) was documented whenever possible, and horses and deer were roughly equally responsible for the observed reductions in amaranth survival and average plant size. After three years of deploying 150 to 220 protective cages (fig. 7), Assateague Island National Seashore's seabeach amaranth population has rebounded, numbering 2,179 in 2007.

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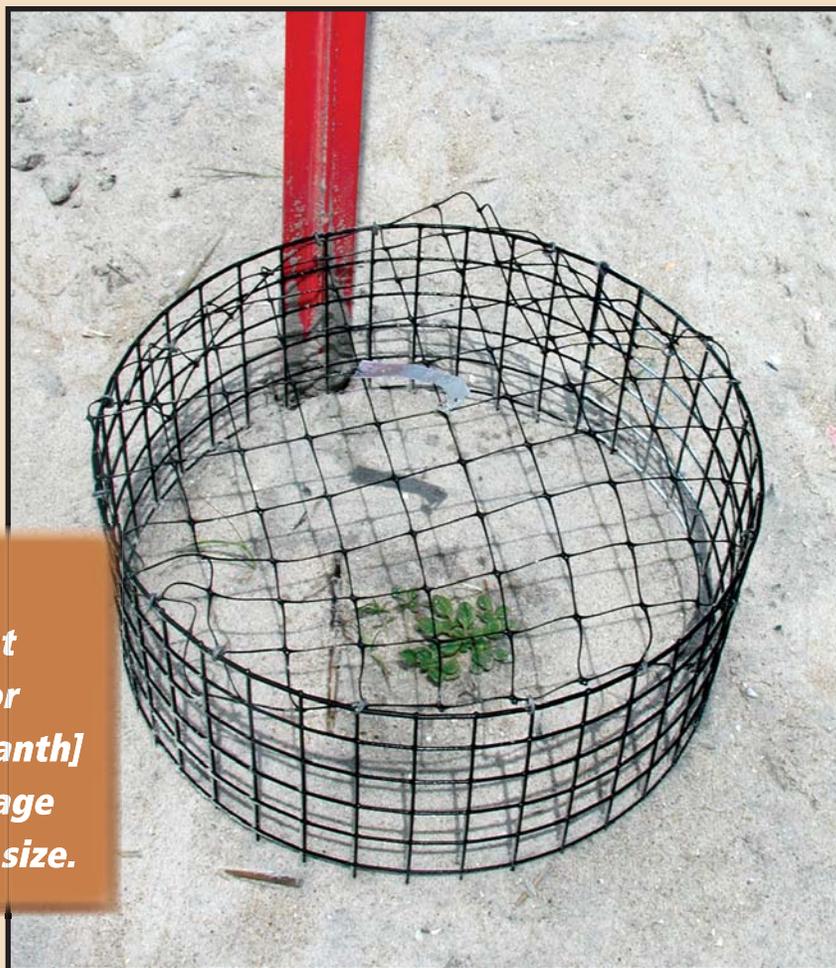


Figure 7. A sensitive species, seabeach amaranth is aided at Assateague Island National Seashore by a management program that protects a portion of the annual population from being eaten and trampled by horses and deer so they can mature and produce seeds. Conservation efforts have helped the plant population increase to nearly 2,200 individuals in 2007.

NPS PHOTO

References

- Lea, C., M. Sturm, H. Hamilton, S. Weller, S. King, and B. McIntyre. 2003. Assateague Island National Seashore seabeach amaranth restoration final report—2002. National Park Service, Assateague Island National Seashore, Berlin, Maryland, USA.
- Ramsey, S., R. W. Tyndall, and C. Lea. 2000. The federally threatened *Amaranthus pumilus* Raf. (seabeach amaranth, Amaranthaceae) rediscovered on Assateague Island in Maryland after 31 years. *Castanea* 65:165–167.