



Experimental Introduction of an Endangered Freshwater Wetland Grass

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The Question: What can be learned about conserving wild populations of Sonoma alopecurus through experimental introductions?

Introductions of rare or endangered species can be designed as scientific experiments that provide ecological knowledge and lead to better-informed management decisions. Sonoma alopecurus is a federally-endangered, freshwater wetland grass endemic (lives nowhere else) to the San Francisco Bay Area. The species had declined in number and range due to development, invasive species, and other human-influenced habitat changes. There are only 6 known wild populations remaining, 5 of which are located at Point Reyes National Seashore.

The Project: Sonoma alopecurus was introduced to four new sites with moisture manipulation and aboveground competition from other plants.

To understand how environmental factors such as moisture and competition from other plants affects the ability of Sonoma alopecurus to persist, we introduced Sonoma alopecurus to four new sites at Point Reyes National



The Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*) is a federally endangered, freshwater wetland grass endemic (lives nowhere else) to the San Francisco Bay Area.

Seashore in 2002 and manipulated moisture and aboveground competition from other plants. Our goals were: 1) to better define the habitat requirements and ecological niche of this poorly understood species, and 2) to determine if introductions are a practical part of a long-term management strategy for its recovery.

Preliminary Results: A deeper understanding of what is required for Sonoma alopecurus establishment and conservation.

In year one (2002), increased soil moisture was correlated strongly with aboveground growth



Volunteers and Point Reyes National Seashore staff assist researcher with experimental introductions of Sonoma alopecurus.



A ranch within Point Reyes National Seashore, near Abbotts Lagoon, hosted the successfully reintroduced plants.

and reproductive output. The effects of reduced competition varied by and interacted with site. By year four all but one introduced population were extinct. We conclude that saturated soils during the growing season are a necessary but not sufficient requirement for establishment. Competition does not appear to be a limiting factor in the first year but clearly other obstacles to establishment remain. Our results support a cautionary approach: conservation of wild populations and potential habitat may prove a more reliable recovery strategy for *Sonoma alopecurus* than introductions.