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Habitat manipulation stimulates natural regeneration of Prickly Raspwort (*Haloragis eyreana*) on Eyre Peninsula (South Australia)

Key words: *endangered, threatened, plant conservation, translocation, recruitment, soil moisture*

Prickly Raspwort (*Haloragis eyreana*) is an endangered herb endemic to southern Eyre Peninsula, South Australia. Its habitat extends through rich agricultural land and remnant populations are now restricted to roadsides and rail reserves. The plant is usually found on heavy clay-loam soils in low lying, disturbed areas subject to inundation or runoff during winter. Regeneration is usually from seed, although regrowth from root suckers has also been observed. However, both plant density and cover at five monitoring sites have steadily declined over the last 10 years.

As part of a study on the effects of soil moisture on growth and recruitment of the plant, a series of five trenches were excavated at each of four locations along the Bratten Way, a road that runs through the natural population. Each trench was about 6 m long, 400-500 mm deep and approximately 600 mm wide and was left unfilled. Excavated soil was removed from the site. Trenches were spaced about 400 mm apart, separated by undisturbed remnant soil columns (crests). Ten Prickly Raspwort plants were planted at natural soil-surface level along each of the four interstitial crests in 2003, a total of 40 transplants per location. Survival and regeneration was monitored annually at soil surface level and within the trenches.

Numbers of surviving transplants declined steadily over time, so that by the fourth year after transplantation, none remained. However, during the third year, the first regenerants (from seed and/or suckers) were observed around the original transplants and in trenches. By year 7, the frequency of regenerants averaged 1.9 plants/m² at soil level and 16.1 plants/m² within the trenches. Trench plants were more likely to survive from year to year than surface plants. Measurements of soil moisture content revealed that trench soils had consistently higher moisture levels than surface soils, regardless of time-of-year. Trenches occasionally flooded with water during wet winter periods, but the ensuing submergence of Prickly Raspwort regenerants did not seem to adversely affect their subsequent survival, growth or flowering.

We conclude that natural regeneration of Prickly Raspwort can be significantly enhanced through the artificial modification of its habitat. Construction of low-lying drains, trenches or swales can create suitable micro-habitats that retain and conserve soil moisture to support the successful germination and proliferation of this plant.

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