

Science on the Land: Suisun thistles get a helping hand at Rush Ranch

Aleta George, Vistas Editor



Rosa Shira Schneider and Ben Wallace at Rush Ranch

Photo: Aleta George

For the past two years, Rosa Shira Schneider has spent many hours in the Suisun Marsh where few have been. Whether in hot sun, cheek-reddening wind, or cold tule fog, she has walked through pickleweed and pepperweed, tules and saltgrass, to learn more about a diminutive plant endemic to the Suisun Marsh, the Suisun thistle.

Schneider is a master's degree candidate at San Francisco State University's Romberg Tiburon Center for Environmental Studies. For her master's thesis, she is asking why the federally-endangered Suisun thistle is rare, and if invasive, non-native pepperweed has anything to do with it.

Suisun thistle bears the scientific name of *Cirsium hydrophilum* var. *hydrophilum*. It is a biannual weed in the sunflower family that was listed as endangered in 1997. It occurs only in a few spots at Grizzly Island Wildlife

Refuge, Peytonia Slough Ecological Reserve in Suisun City, and at Rush Ranch. This rare plant with rosy-purple flowers grows close to the water in the tidal zone near sloughs. Pepperweed, or *Lepidium latifolium*, which grows as thick as thieves and displaces desirable natives, likes the same zone. When pepperweed first marched into Rush Ranch more than a decade ago, it spread up First and Second Mallard Slough with equal vigor. These days, however, it has become an infestation in First Mallard Slough.

For her two-year study, Schneider chose six, two-by-two meter plots near First Mallard Slough. Each plot had about 60 percent pepperweed and up to four thistle plants. Through observation and testing, she learned that even though thistle seeds (which are only slightly larger than grains of sugar) have little umbrella-like pappus attached to them, most of the seeds fall directly below the parent plant. She also demonstrated that the seeds are viable when soaked in water. "Dispersal by water is a possibility," she says, "which makes sense for a wetland endemic plant."

During two growing seasons, Schneider manually removed pepperweed from the plots and she is excited by the results. The first month she clipped pepperweed at its base in all six plots. The next month she found "a million restarts" and clipped those at their bases, too. On the third month she found less restarts, and by the following year there were only a few here and there. Schneider's tenacity won out; the plant was exhausted. The Suisun thistle, as well as other native plants, did better in the plots where the pepperweed had been removed, and where they were able to receive more light.

Schneider's study is helpful to Solano Land Trust's conservation director, Ben Wallace, who is working on a long-term management plan for Rush Ranch. Just as it has in many wetlands throughout the US and Mexico, pepperweed has become an invader here. Even with Schneider's hopeful findings based on manual removal, several questions remain: If pepperweed could be eradicated by a team of volunteers who clipped the weeds monthly during their growing season, wouldn't it be just as harmful to have those volunteers disturbing the marsh soil to get at the pepperweed? And what of sea-level rise? Wallace says that coastal ecologists speculate that over the long term (50 years or so) pepperweed won't survive the flooding of the deeper portions of the marsh or the channel edges. But Wallace and other land managers aren't banking on eradication by flooding. Wallace would like to remove pepperweed in priority conservation areas where densities are low, and where it overlaps with the endemic Suisun thistle.

That goal may give the little thistle a fighting chance.



Suisun thistle in flower

Photo: Rosa Shira Schneider

According to several sources on the web, the leaves, shoots, and roots of perennial pepperweed are edible. That may be, but pepperweed isn't something I'm likely to find in my veggie box that I pick up every Friday from the Shooting Star CSA in Suisun Valley (run by Rosa Schneider's sister, Lily Schneider, and her partner Matthew McCue). I've sautéed kale and spinach from the box, but never once prepared a batch of pepperweed!

A.G.