

Agricultural Invasions and "Superweeds" | The Characterization of Herbicide Resistance of a Central Valley Weed

Research in the Waselkov lab focuses on the genetic basis of adaptation, population genetics, and phylogenetic systematics of plant groups at the tips of the tree of life (genera and species). Currently, there are several major projects, including the population genomics of invasion and herbicide resistance evolution in the problematic agricultural weed Palmer amaranth (*Amaranthus palmeri*), and an investigation of the recent California invasion of its congener waterhemp (*Amaranthus tuberculatus*).

The most agriculturally problematic species in the weedy plant genus *Amaranthus* is *A. palmeri* (Palmer amaranth), which has rapidly evolved herbicide resistance: populations of the species are now insensitive to herbicides that target six different biological pathways. Agricultural research has focused on understanding the genetic mutations underlying the resistance mechanisms in Palmer amaranth. However, there has been no population genetic investigation of the species' remarkable range expansion out of the desert Southwest and aggressive invasion into agricultural fields in Central California, and very little genetic investigation of herbicide resistance evolution in these areas. Romy Lum's masters thesis research explores the incidence and genetic basis of resistance to four different chemical classes of herbicides in the Central Valley and southwestern U.S.



The Palmer Amaranth Project

**Dr. Katherine Waselkov
and Romy Lum**

Friday November 15 2019

3:00 – 4:00 PM

Science 2, room 109

for further information:
www.csufresno.edu/biology