

INTERLOPER'S LEGACY: INVASIVE, HYBRID-DERIVED CALIFORNIA WILD RADISH (*RAPHANUS SATIVUS*) EVOLVES TO OUTPERFORM ITS IMMIGRANT PARENTS. Caroline E. Ridley, Rosamond F. Tsao and Norman C. Ellstrand, Graduate Student, Undergraduate Student and Professor of Genetics, Department of Botany and Plant Sciences, University of California, Riverside, CA 92521.

Hybridization between species and subspecies may lead to the evolution of invasive weeds by enhancing survival and reproduction in hybrid-derived lineages. California wild radish (*Raphanus sativus* × *Raphanus raphanistrum*) is a hybrid-derived species that has spread prolifically within the last 150 years, replacing all pure parental populations throughout California. Though highly plausible, a link between hybridization and invasiveness in California wild radish has never been empirically tested. In field experiments, we compared the survival and reproduction of several populations of California wild radish with that of populations of its pure parents in multiple years and varied environments. California wild radish has high survivorship and generally produces more fruits per plant, more seeds per fruit and more seeds per plant than either of its progenitors. In year one in Riverside, CA, it produced 3-times more seeds per plant than *R. raphanistrum* and *R. sativus*. In Irvine, CA, reproduction was higher overall and California wild radish produced 2-times and 20-times more seeds per plant than *R. raphanistrum* and *R. sativus*, respectively. Individual populations of California wild radish also display a strong genotype-by-environment interaction, indicating genetic diversity may be partly responsible for the weed's ability to invade California's vast and varied landscape. Our results demonstrate that by limiting the introduction and subsequent hybridization of congeners, we may be able to prevent the evolution of new invasive lineages.