

Weedy rice (*Oryza* spp.) is a type of rice that invades cultivated rice (*O. sativa*) fields and competes with the crop everywhere around the world. Weedy rice has evolved many times independently, most often from crop ancestors. Studies to date suggest that all weedy rice populations have evolved seed shattering (i.e. seed dispersal), and this is one of the most important traits that differentiates weedy from cultivated rice. I am studying the genetic bases of seed shattering in weedy rice and how evolutionary processes have shaped the shattering phenotype in independently evolved populations. By examining how populations of weedy and cultivated rice differ in spikelet base morphology, I aim to determine the extent of morphological convergence leading to the shattering phenotype. Using QTL mapping and RNA-seq, I will try to determine whether the same genes are involved in the evolution of shattering in separate weedy rice populations. My studies will contribute to our understanding of how crops can become de-domesticated weeds and how 'repeatable' adaptive evolution can be at phenotypic and genetic levels.