A large fraction of the world’s species diversity is of recent evolutionary origin, and has evolved as a by-product of divergent adaptation in heterogeneous environments. Recent research suggests that homogenizing environments may cause the rapid loss of such species through a reversal of the speciation process. Practical conservationists have paid attention to the problem of loss of diversity through homogenization of previously differentiated gene pools in the context of human-induced range changes. However, they have put less attention to the problem of ecological homogenization of previously ecologically heterogeneous environments despite the fact that natural environments are becoming homogenized rapidly all around us. I will review the evidence for speciation reversal in such human-altered environments, will discuss evolutionary and ecological mechanisms that are involved, and begin to develop a predictive conceptual framework.

Sentence describing how this research could be used to inform conservation planning or policy: Identifying the evolutionary mechanisms of speciation and its reversal will help to develop a conceptual framework to predict consequences of changes in the environment for species coexistence.