# Untangling the effects of niche and fitness differences on invasion success and impact in the long-term observation field

**Abstract**

A major quest in invasion ecology has been centered on understanding how the evolutional and ecological differences between invaders and natives regulate invasion success and impact. There are complex processes from these differences to invasion outcomes and remain unclear. Modern coexistence theory provides a bridge between the two, condensing these complex processes into two indicators: niche and fitness differences. However, studies that use these two indicators to unravel how phylogenetic distance affects invasion outcomes have still been rare. Here, by parameterized models of community dynamics from a long-time observation field in which exotic plants are constantly being introduced, established, or extinct, we assessed the role of these two indicators and phylogenetic distance for the success of invaders and their impact on native community structure. We primarily found that the higher the fitness of the invaders over the natives at the community level, the more likely it is to become dominant.

