Multiple introductions and population structure during the rapid expansion of the invasive Sahara mustard (Brassica tournefortii)

Daniel E. Winkler1,2 | Kenneth J. Chapin3,4 | Olivier François5 | J. David Garmon6 | Brandon S. Gaut1 | Travis E. Huxman1

Abstract
The specific mechanisms that result in the success of any species invasion case are difficult to document. Reproductive strategies are often cited as a primary driver of invasion success. As many invaders have at least one reproducing stage, understanding the strategies that allow for successful establishment becomes a critical question. Herein, we review the multiple introductions and population structure of the invasive Sahara mustard (Brassica tournefortii) in southwestern United States. This species has spread from a known single introduction point to the current distribution in less than a century. Our understanding of the invasion and colonization process, as well as future scenarios, are limited by the paucity of genetic and spatial information on the early stages of the introduction. Using a combination of genetic and spatial data, we demonstrate the role of multiple introductions and characterize the population structure of this invasive plant.