

Are invasive species drivers or passengers of succession?

Jan Thiele¹, Maike Isermann²

¹ University of Muenster, Institute of Landscape Ecology, Muenster, Germany (corresponding author: jan.thiele@uni-muenster.de)

² University of Bremen, Vegetation Ecology and Conservation Biology, Bremen, Germany (maike.isermann@uni-bremen.de)

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Invasive plant species can build up dominant stands, particularly in successional plant communities, such as abandoned grasslands and coastal dunes. Dominant invaders might block successional progress by excluding native colonisers or they might change successional trajectories acting as novel filters or transformers. We studied the relationships of two invasive species, *Heracleum mantegazzianum* Somm. et Lev. and *Rosa rugosa* Thunb., with community composition and richness of different plant groups using regression models and ordination (DCA, CCA). Invaders correlated negatively with early-successional species, but not with later-successional ones. Hence, invaders do not seem to exclude native colonisers. In dominant stands of *H. mantegazzianum*, juvenile growth of native tall herbs and trees could be observed suggesting that the invader does not block succession. But post-invasion establishment of shrubs and trees has not been observed in dominant stands of *R. rugosa*. The major gradients of community composition resembled successional sequences from white dunes to scrub (*R. rugosa*) and from grasslands to tall-herb communities and woodlands (*H. mantegazzianum*), although we used place-for-time substitution. Along these gradients, cover percentages of invaders showed bell-shaped distributions with maxima in plant communities representing intermediate successional stages, while early-successional species continuously decreased and later-successional species increased. Absolute maxima of *R. rugosa* were not found directly on the major successional gradient, but at the upper end of a secondary gradient toward Rhamno-Prunetea communities. If the gradients corresponded to real trajectories, *R. rugosa* would modify the course of succession transforming open dunes into shrub communities, though it remains unclear whether its dominant stands are transient or stable. In contrast, *H. mantegazzianum* had absolute maxima centered on the main successional gradient, suggesting that it declined again during succession without altering trajectories. We conclude that *H. mantegazzianum* is likely a passenger, whereas *R. rugosa* could be a driver of successional change.