

Higher seedling mortality of conspecific seedling compared to heterospecific ones beneath the adults for three hardwood species (Biological Interactions in Arable Land-Grassland-Forest Continuums and their Impact on the Ecosystem Functions, 7th International Symposium on Integrated Field Science)

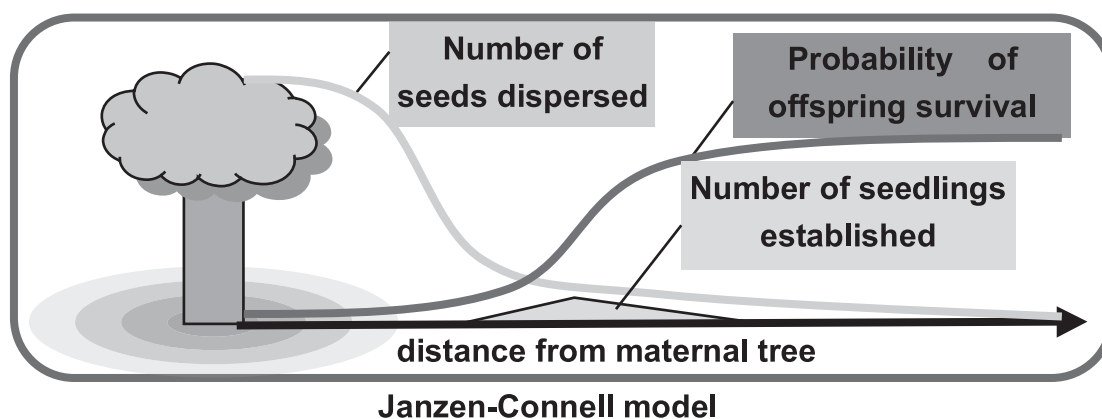
著者	UENO M., YAMAZAKI M., SEIWA K.
journal or publication title	Journal of Integrated Field Science
volume	7
page range	124-124
year	2010-03
URL	http://hdl.handle.net/10097/48869

Higher seedling mortality of conspecific seedling compared to heterospecific ones beneath the adults for three hardwood species

M. UENO¹, M. YAMAZAKI² and K. SEIWA¹

¹Laboratory of Forest Ecology, Graduate School of Agricultural Science, Tohoku university, Japan;

²Miyagi Prefectural Forestry Technology Institute, Japan



Janzen-Connell model is one of the most important models explaining the species diversity in forests. The model suggests that conspecific progeny which dispersed beneath the adults can't establish because species specific natural enemies (e.g., pathogens, herbivores) attack the progeny in negative-density and/or positive-distant dependent manner. Thereby, the mechanism freeing space for other species, resulting in species diversity. There are increasing evidences in the Janzen-Connell model even in temperate forests. However, little is known in the mechanism of the replacement from conspecific to heterospecific juveniles beneath the adults. Particularly, little is known whether conspecific seedlings show higher mortality compare to heterospecific ones beneath the adults.

Seeds of three hardwood species were sown beneath each of the adults of the three hardwood species. We investigated the seedling survival and the causes of the mortality during three years after germination.

Conspecific seedlings suffered most severe damage by pathogenic fungi compare to the two heterospecific species beneath the adults. As a result, seedling mortality was higher for the conspecific compare to the two heterospecific species. This species-specific attack would lead to promote the species replacement nearby the adult generating species diversity in forest communities.

