

Patterns of *Prunus serotina* invasion in two contrasting forests on sandy soils

Vanhellemont Margot¹, Baeten Lander¹, Hermy Martin², Verheyen Kris¹

¹ Laboratory of Forestry, Ghent University, B-9090 Gontrode, Belgium

² Division Forest, Nature and Landscape, K.U.Leuven, B-3001 Leuven, Belgium

Prunus serotina, a North-American tree species, is considered an aggressive invasive species in Western Europe. Opposite to prior studies, which focused mostly on areas heavily invaded by *P. serotina*, we studied long-term (70 years) forest development in two forest reserves in areas with a low propagule pressure: the forest reserves Liedekerke (Belgium) and Ossenbos (the Netherlands). Based on cadastral maps and aerial photographs, tree ring analysis, forest inventories and regeneration data, we reconstructed the *P. serotina* invasion in both forests. Long-distance dispersal events and windows of opportunity triggered the invasion of *P. serotina*, while further colonization was directed by connectivity to seed sources and light availability. The presence of native shrub species, the quick canopy closure, and the recalcitrant herb layer seemed to hamper further *P. serotina* establishment. Conversely, high herbivore pressure was found to favour *P. serotina* above native species, which resulted in *P. serotina* dominance. The outcome of the *P. serotina* invasion process contrasted sharply between the two studied forests: *P. serotina* was omnipresent and very abundant in the Ossenbos while the species did not act as an aggressive invader in the Liedekerke forest reserve. Consequently, it appears to be important to study an invasive species and the recipient ecosystem jointly and to formulate differentiated management approaches conditional upon the characteristics of the recipient ecosystem.

Verheyen K, Vanhellemont M, Stock T, Hermy M (2007) Predicting patterns of invasion by black cherry (*Prunus serotina* Ehrh.) in Flanders (Belgium) and its impact on the forest understorey community. *Diversity and Distributions* 13:487–497.

Vanhellemont M, Verheyen K, De Keersmaecker L, Vandekerkhove K, Hermy M. Does *Prunus serotina* act as an aggressive invader in areas with a low propagule pressure? *Biological Invasions*. Published online first, September 23, 2008. DOI 10.1007/s10530-008-9353-8.

Vanhellemont M, Wauters L, Baeten L, Bijlsma R-J, De Frenne P, Hermy M, Verheyen K. *Prunus serotina* unleashed: invader dominance after 70 years of forest development under high herbivore pressure. Submitted to *Ecological Applications*.

