

Growth performance of invasive alien *Landoltia punctata* and invasive alien *Lemna minuta* in monocultures and mixtures under different nutrient conditions

G rard Jo lle^{1*}, Njambuya Josphine^{1*} and Triest Ludwig^{1*}

Plant Biology and Nature Management, Vrije Universiteit Brussel, Pleinlaan 2, B-1050 Brussels, Belgium * Corresponding author at: Plant Science and Nature Management (APNA), Vrije Universiteit Brussel, Pleinlaan 2, B-1050, Brussels, Belgium. Tel.: +32 2 629 34 11; Fax: +32 2 629 34 14. E-mail address: jgerard<at>vub.ac.be, njambuy<at>vub.ac.be, ltriest<at>vub.ac.be

A controlled indoor experiment was conducted to compare the performance of two alien Lemnaceae species both in monocultures and mixtures along a nutrient gradient. *Lemna minuta* is an invasive aquatic macrophyte native to America but has spread in Europe and has invaded ponds and ditches in Belgium. *Landoltia punctata* on the other hand is a native to Australia and Southeast Asia that has been reported in The Netherlands. Lemnaceae can be transported over short distances by waterbirds and therefore, *L. punctata* will potentially invade ponds in Belgium. Relative growth rate (RGR) of the two species and relative growth rate difference (RGRD) between the species was modelled to (1) reveal which of the two alien species is a superior competitor (2) determine what is the role of species identity, species initial biomass and nutrient enrichment in determining the composition change of these two species in mixture. Preliminary results indicated stronger intraspecific relative to interspecific effects on the RGR of either species. As a result, species effects greatly influenced the difference in growth rate of both species. High nutrient level favoured *L. punctata* relative to *L. minuta* and even at low nutrient level *L. punctata* had a relative advantage over *L. minuta*. Increasing the initial biomass of *L. minuta* enhanced RGRD while increasing the initial biomass of *L. punctata* had the opposite effect. These preliminary results indicate that species influence was the main determinant

