

Comparative performance between invasive alien *Eichhornia crassipes* and native *Ludwigia stolonifera* under nutrient non-limiting conditions: Lake Naivasha, Kenya

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The ability of *Ludwigia stolonifera* to thrive in the presence of *Eichhornia crassipes* was investigated in Lake Naivasha, Kenya. *L. stolonifera* (indigenous) and *E. crassipes* (invasive) were grown in outdoor experimental boxes in monocultures and mixtures under nutrient non-limiting conditions. An additive series experiment with eight combinations of planting densities and four replicates was used. Competitive interactions between the two species were determined by assessing the final total biomass and the above-below ground biomass allocation after 98 days of growth. Biomass accumulation and allocation were significantly affected by competition in relation to species identity, with *L. stolonifera* accumulating more biomass than *E. crassipes*. ANOVA results indicate that there was no significant difference in Relative Growth Rate (RGR) and root/shoot ratio between monocultures and mixtures of *E. crassipes*. However, significant differences in RGR's were observed between monocultures and mixtures of *L. stolonifera*. Moreover, doubling the initial biomass of *E. crassipes* resulted to a significant increase in *L. stolonifera* roots relative to shoots allocation. Multiple regressions on species RGR's revealed that, increasing initial biomass of a conspecific neighbour resulted to a greater reduction in species RGR relative to increasing initial biomass of a heterospecific neighbour. This indicates a stronger intraspecific than interspecific competition which, coupled with the significantly higher RGR of *L. stolonifera* relative to that of *E. crassipes*, enabled *L. stolonifera* to outperform *E. crassipes*. This emphasizes the relative importance of species identity in determining the outcome of competition.