sfécologie 2018

International Conference on Ecological Sciences

22-25th October 2018

Couvent des jacobins, Rennes, France



Biological Invasions

Climatic regeneration niche of an invasive species (*Ulex europaeus* L.) assessed by a reciprocal transplant experiment along an altitudinal gradient

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Biological invasion is an important component of global change, as invading species can alter the biodiversity and functioning of ecosystems. For the efficient allocation of management of invasive species, we need to understand why these species succeed in becoming established, and which factors limit or prevent them.

Assessing the climatic niche of invasive species is a first step to predict species invasion at regional scale.

Reciprocal transplant experiments according to altitudinal gradients have been used to investigate the limits of climatic range tolerance of invasive plant species, and to detect local adaptation and phenotypic plasticity.

As a species model we used gorse (*Ulex europaeus*, L.), one of the most invasive plant species in the world outside its native European range.

We studied the survival and the relative growth rate (RGR) of gorse seedlings from populations of both native (France and Spain) and invasive (New Zealand, Tenerife -Canary islands- and Reunion island) origins.

To accomplish this, we set up a reciprocal transplant experiment with seedlings from all these regions, one in a native area (Asturias) and another in an invasive area (Tenerife). For each transplant experiment 4 common gardens were installed along an altitudinal gradient: 100, 400, 800 and 1100 meters above sea level with four blocks in each site. Growth and mortality measures were taken monthly. The same experimental design was set up in Tenerife (779