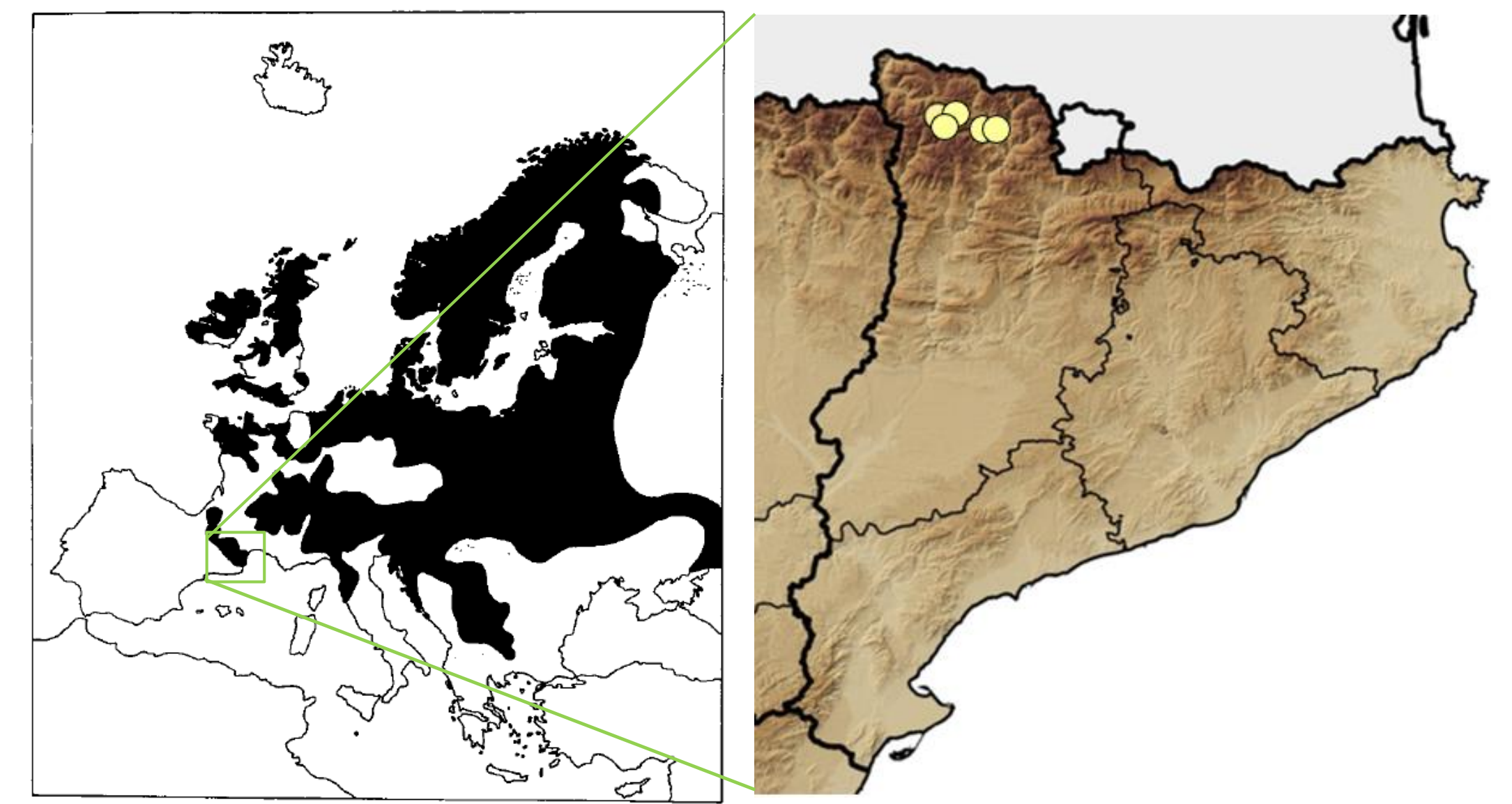


INTRODUCTION

Mire landscapes have a high conservation interest. In Catalonia (Spain) are exclusively in the Pyrenees, linked to places where the topography or circulation of water is favorable.

In the case of the Pyrenees, these habitats are often altered by floods. On the other hand, they have also been locally affected by the construction of hydroelectric dams in their basin that have altered the natural hydrological cycle. Because of the degradation of the mires, the restoration of these systems has become an important issue over the last decades. The restoration of mires seeks to restore a vegetation cover and hydrological conditions dominated by peat mosses (*Sphagnum* spp.), which play an important role in this process.



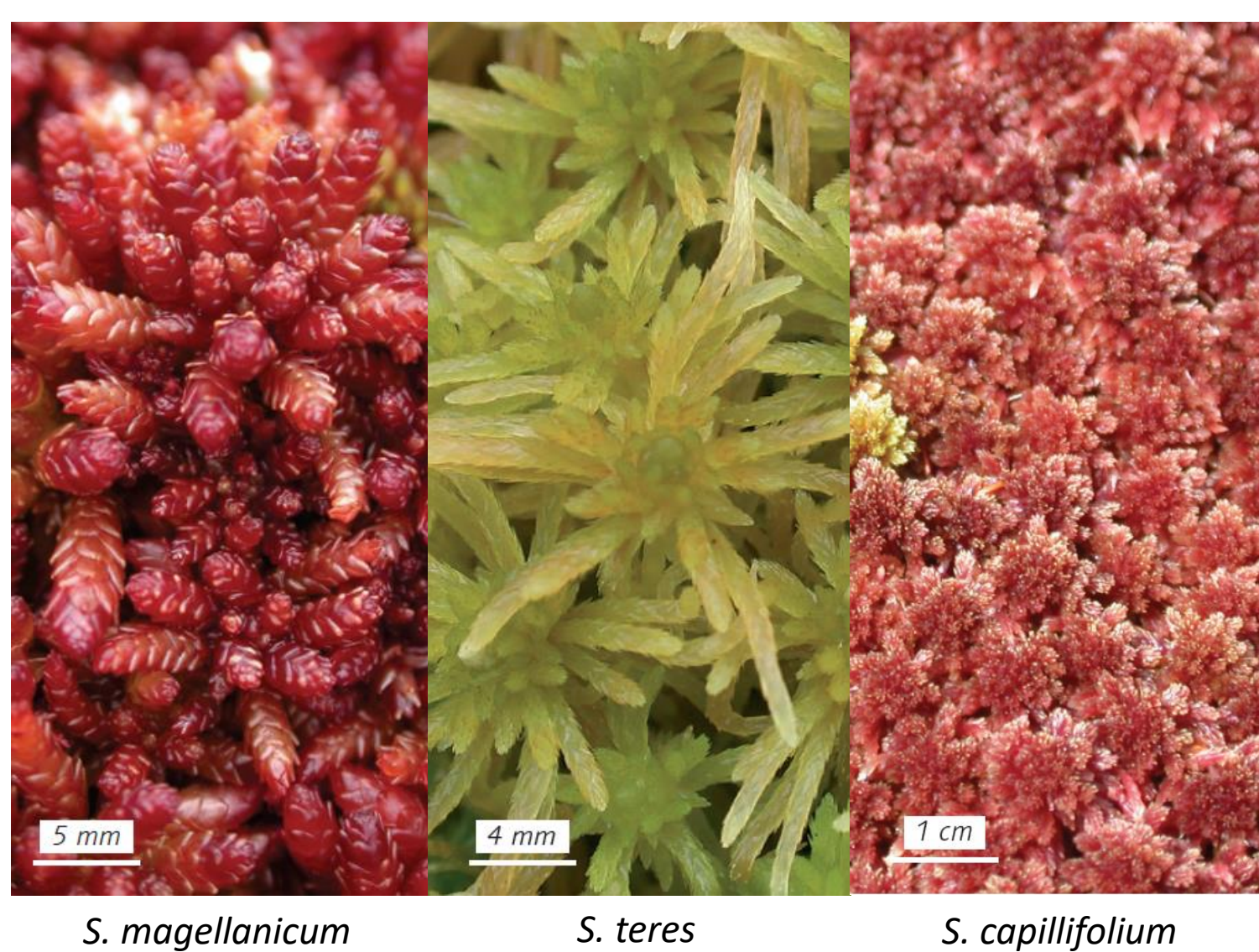
Distribution of *S. magellanicum* in Europe (left). Distribution of *S. magellanicum* in Catalonia (right).

OBJECTIVES

The aim of the study is to identify in which experimental conditions a greater response is obtained in the survival and growth of *Sphagnum magellanicum* and to establish the bases for the restoration of their populations.

MATERIAL AND METHODS

In order to carry out the objective of this work and to study interspecific interaction we selected two *Sphagnum* species that often share part of their habitat with *S. magellanicum*: *S. teres* and *S. capillifolium*.



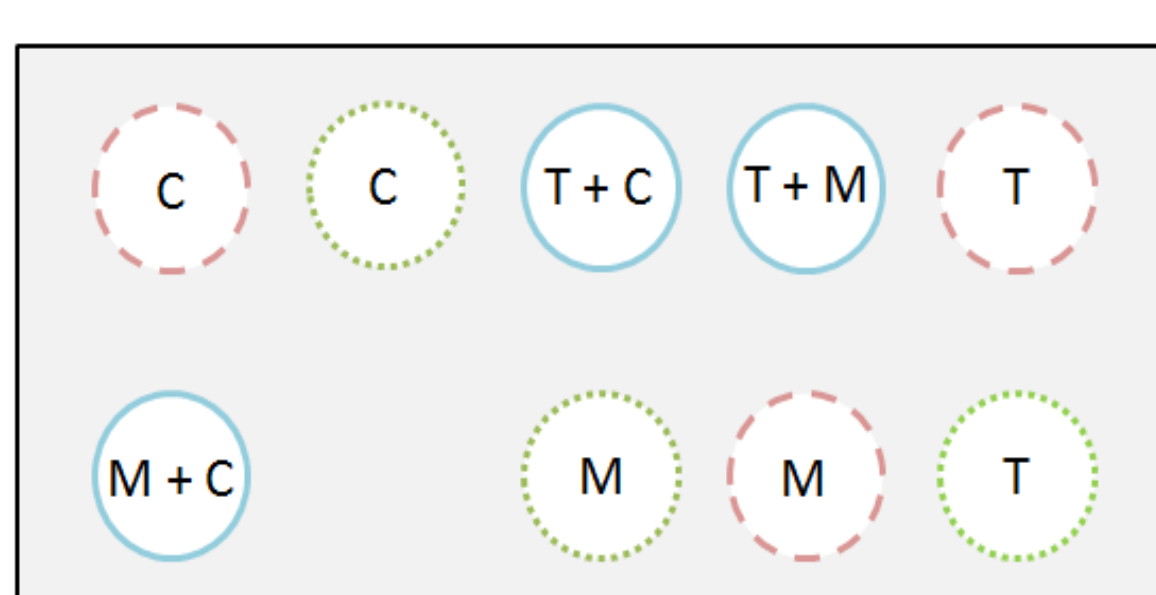
S. magellanicum *S. teres* *S. capillifolium*

EXPERIMENTAL DESIGN

Different flood situations and the interaction of species were combined.

- Interaction
 - Interspecific: three individuals of each species were planted in an interspersed manner in the same container, obtaining a total of three containers; one for each combination of species.
 - Intraspecific: six individuals of the same species were planted, obtaining three more containers (one for species).
 - Control: three individuals of the same species were planted, also obtaining three containers more.
- Substrate: peat
- Water level: three levels with respect to the surface of the container were established: dry level (-5 cm), level at the height of the container (0 cm), and a flood situation (+3 cm).

The duration of the experiment was 119 days, from the end of December 2017 until the end of April 2018



Example of distribution of containers of one tray (T = *S. teres*, C = *S. magellanicum*, C = *S. Capillifolium*).

Five replicas of each situation of interaction for each water level were created, obtaining a total of 15 trays

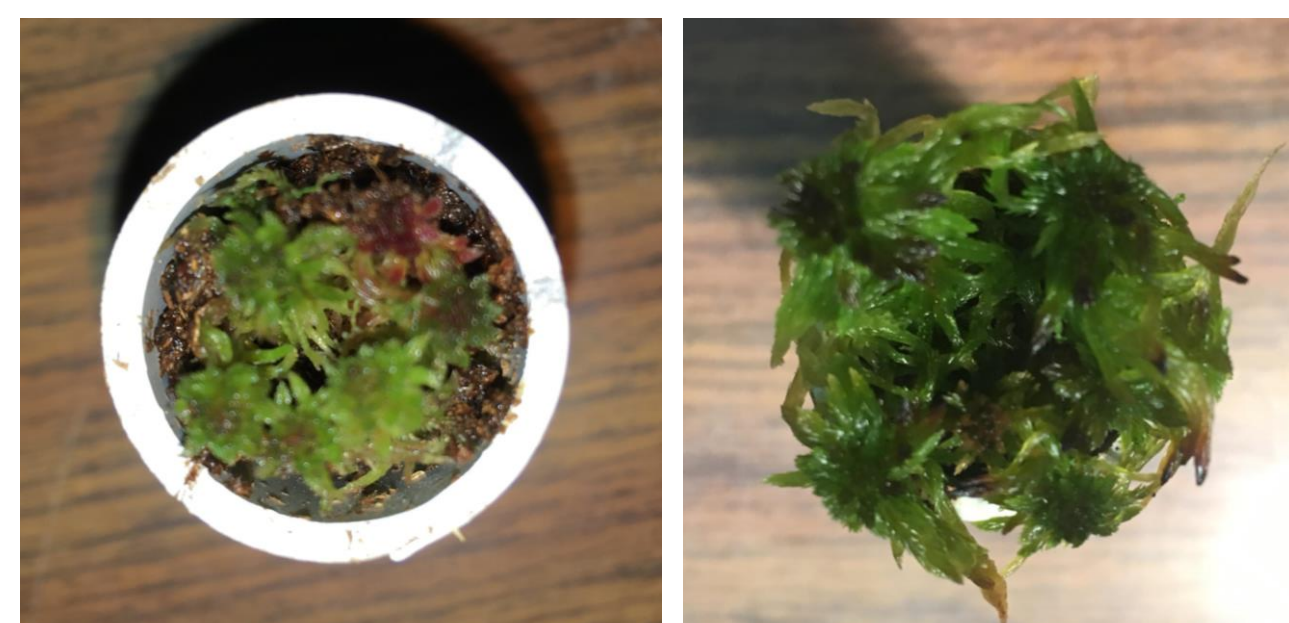
Each tray contained the 9 containers with the different combinations of species interaction.

- Control
- Intraspecific
- Interspecific

RESULTS

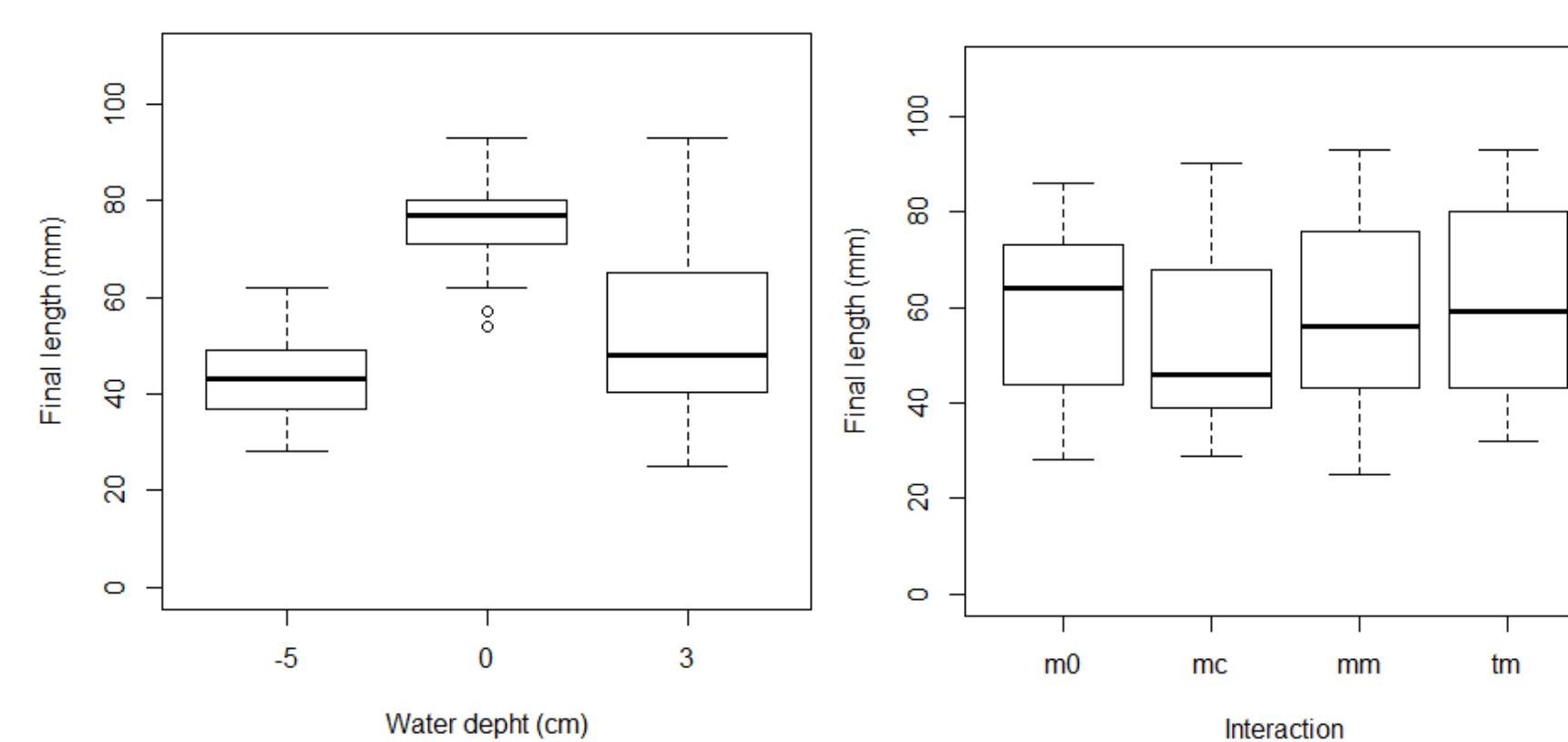
In order to analyze the data, three response variables that could explain the growth of *Sphagnum magellanicum* were selected.

- Final length
- Final dry weight
- Number of final total shoots.

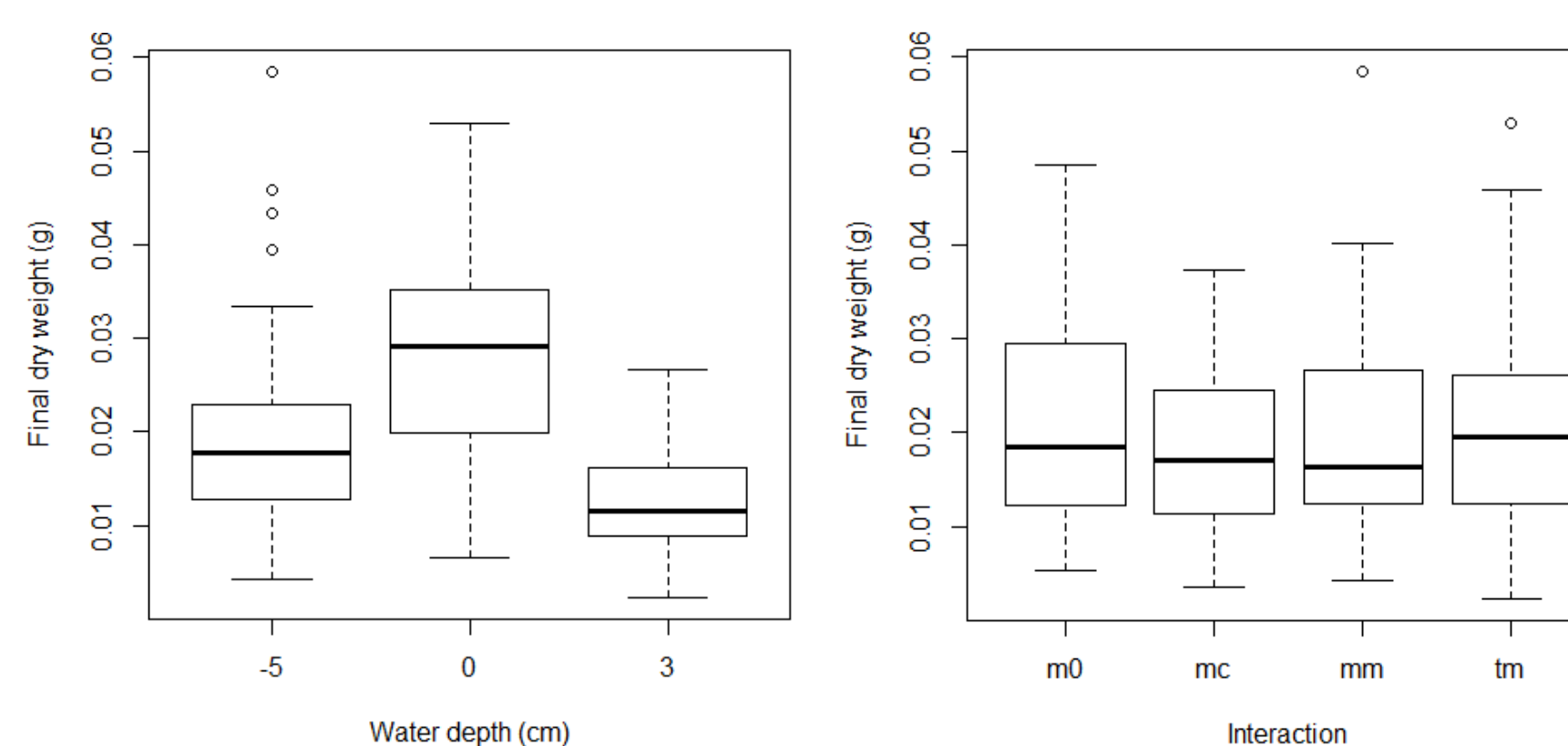


Container with intraspecific interaction situation with individuals of *S. capillifolium* at the beginning of the experiment (left) and at the end of the experiment (right).

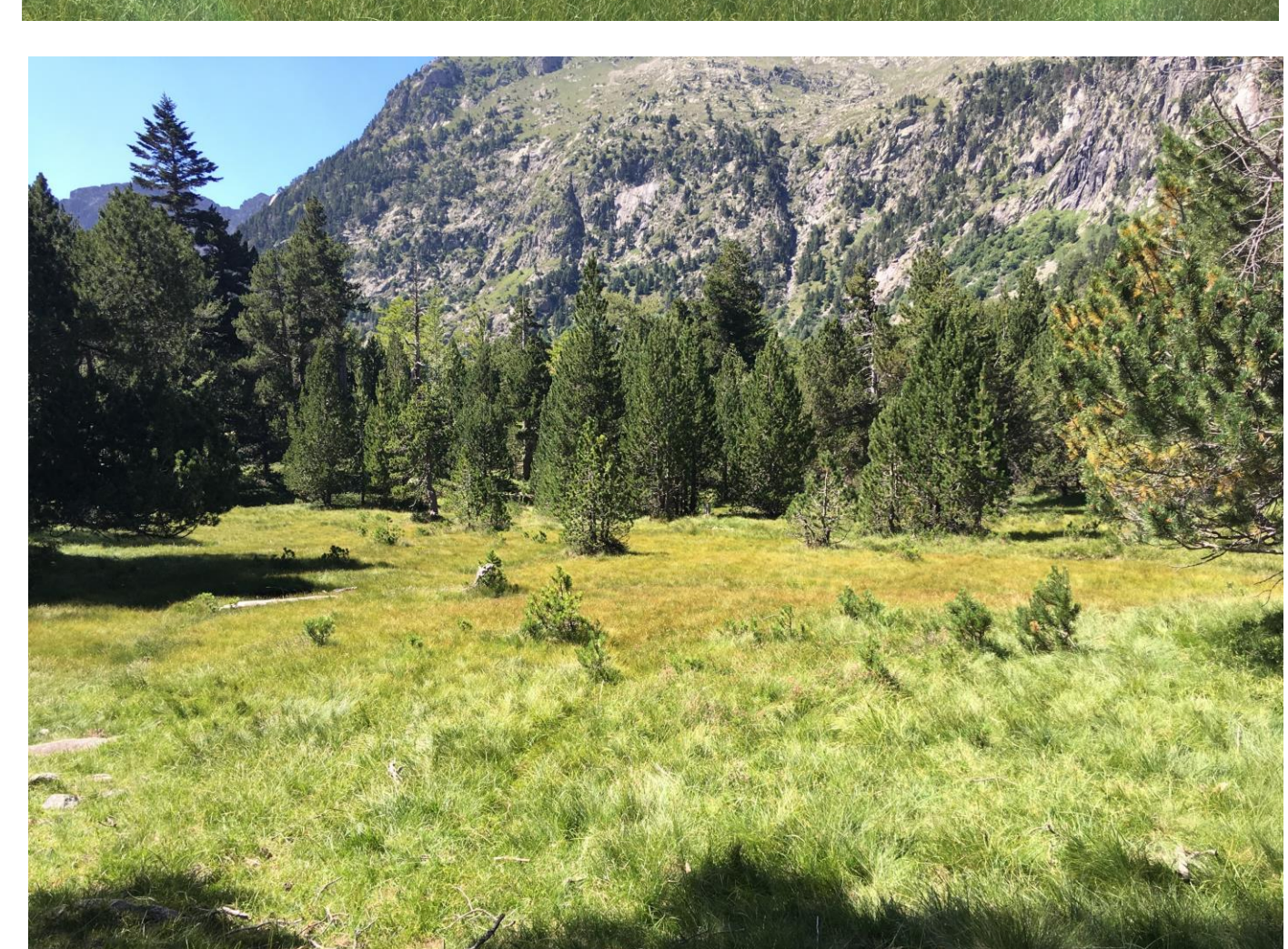
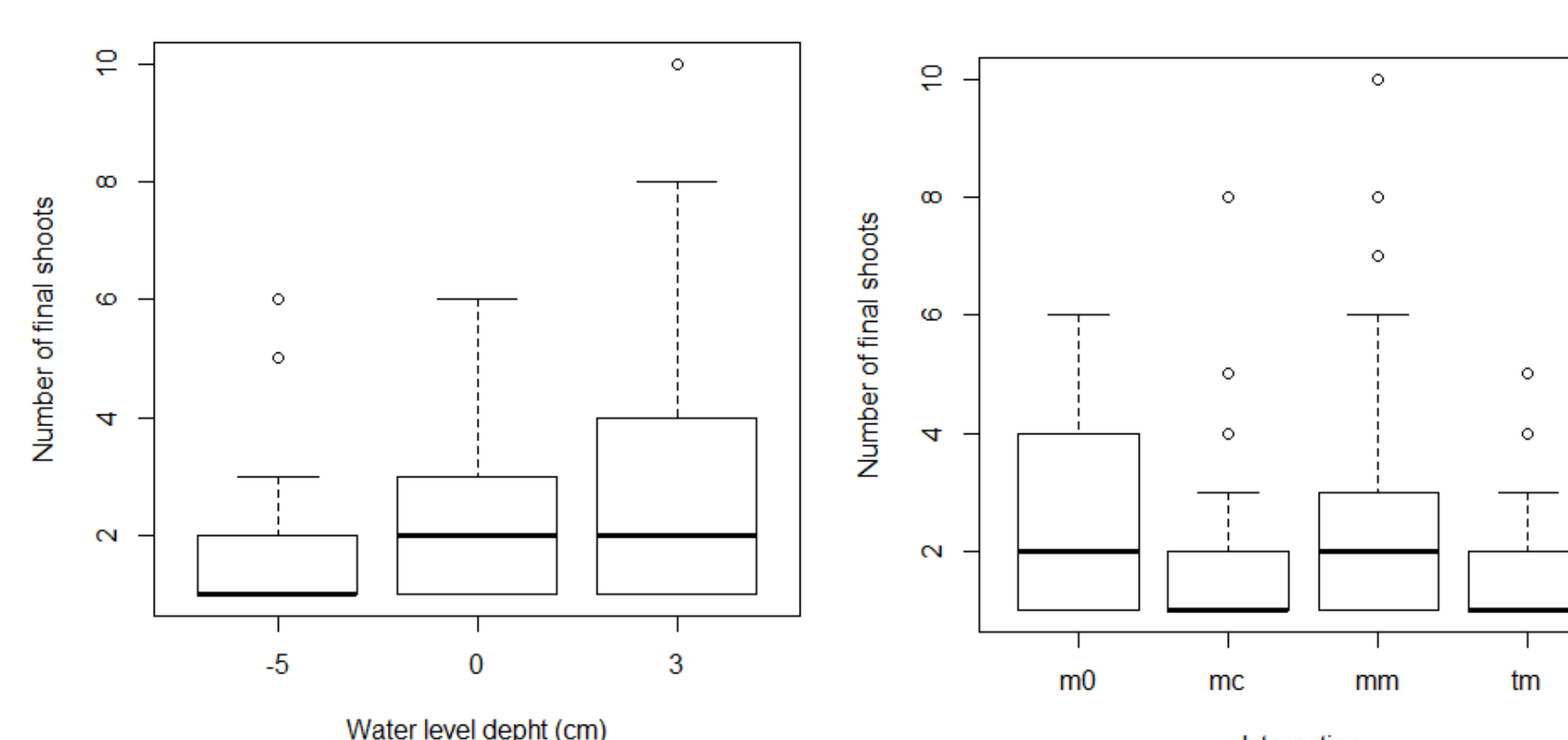
i. Final length



ii. Final dry weight



iii. Number of final shoots



CONCLUSIONS

Significant effects were observed on the growth of *Sphagnum magellanicum* with regard to the water level, although interaction between species did not cause growth differences in the study cases. We conclude that the growth of *Sphagnum magellanicum* is significantly favored by the intermediate water level. However, it has shown a wide ecological niche through response mechanisms that have facilitated its adaptation both in flooded and dry water levels showing a very high survival in all the proposed treatments.