Task 9

Theoretical integration of ecological traits promoting invasion in exotic aquatic Invertebrates

Outline*:* We will build a theoretical quantitative model, encompassing important ecological traits of both the exotic and autochthonous species studied, in order to identify the traits that are the most important determinants of colonisation and invasion abilities, and the effect of environmental changes on these abilities.

Methods*:* Once tasks 1-8 are near completion, the ecological data obtained on the area occupied, reproductive mode, dispersal abilities, environmental tolerance, survival and reproduction rates under particular conditions, genetic diversity and time since introduction (Fig. 1), together with other buffering data from the literature, will be used to build quantitative models estimating invasive capacities of the exotic species studied related to the expected spread rate in particular environments. These estimations will be compared with the same type of models for indigenous species, and the effect of disturbance and changing environments, such as eutrophy, desertification, temperature increase on the modelling results will be evaluated. The relative importance of each of the studied ecological traits on the final outcome will be tested. Models will be developed following Jorgensen & Bendoricchio (2001) by means of the Stella v.9 program.

Milestones*:* Evaluate theoretically, based on empirical data, which are the most important ecological traits that facilitate invasive behaviour of exotic ostracods, and what is the effect of changing environmental envelopes on these.

Deliverables*:* Quantitative simulation model relating ecological traits important for colonising new habitats, with special emphasis on the ability to spread quickly in the invaded area.

Centers	UV, USDF
Responsible	Mezquita
Researchers involved	Butlin

Acronym:
UV: University of Valencia, **UZ**: University of Zaragoza, **JRC**: Joint Research Center, **USFD**: University of Sheffield, **UKZ**: University of Kanazawa, **LBM**: Lake Biwa Museum

2009	
2010	
2011	Jul-Nov