



# UNIVERSITÀ DI PAVIA

## Corso di Dottorato in Scienze della Terra e dell'Ambiente

### FORM PER PROGETTI BANDO DOTTORATO

#### 1. Project title

Human-mediated effects of climate change on amphibian populations at a lowland-mountain interface

#### 2. Proposer

Surname	Mangiacotti
Name	Marco

#### 3. Research Unit

Surname	Name	Institution
Mangiacotti	Marco	University of Pavia
Sacchi	Roberto	University of Pavia
Zucca	Francesco	University of Pavia

#### 4. Key words

(Max. 5 – at least 2)

Climate change; land abandonment; landscape ecology; amphibians; remote sensing

#### 5. Abstract

(Max.1.500 characters with spaces)

Amphibians are globally threatened by habitat loss and climate change. Mediterranean Europe is experiencing a widespread pattern of land use change (urbanisation and intensification phenomena in lowlands; abandonment and afforestation in mountain areas) which can negatively affect biodiversity, notably amphibians. Moreover, the general increase in temperatures, and the change in the rainfall regime associated with global warming is causing stress on amphibian populations, range shifts, and changes in community composition. Predicting how amphibians may simultaneously respond to both issues is a challenging but necessary task, pivotal to plan effective conservation actions. By combining high resolution, in space and time, remote sensing data, habitat suitability and connectivity models, and landscape genetics, this project aims at predicting if and how amphibian species and communities may respond to both anthropogenic land cover change and climate change, with the objective of obtaining information useful for conservation. The Oltrepò Pavese will be set as the study area, for its transitional character between the Po Valley and the North-western Apennine, where the effects of climatic change and land abandonment of the territory are well represented, and the composition of the batrachofauna reflects both mountain (e.g., *Rana italica*; *Rana temporaria*; *Ichthyosauria alpestris*) and lowland elements (e.g., *Phelophylax* syn. *esculentus*, *Bufo viridis*, *Hyla intermedia*). The proposed approach may be generalised to other areas experiencing similar dynamics, in Europe and in the World.