**Grupo de investigación (si procede):**

**Institución:** Departament de Biologia Evolutiva, Ecologia i Ciències Ambientals

Secció Ecologia
Universitat de Barcelona

**Director del trabajo:** Núria Cid, DOlors Vinyoles

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**Título del proyecto:** Identification of priority habitat refugia for fish conservation in Mediterranean intermittent streams

**Tareas a desarrollar:** Field work will consist on fish sampling using electrofishing standardized techniques and, in some selected sites, fish will be marked with alphanumeric tags using an injector for the study of fish movement (check this link for more information on this technique).

**Lugar de trabajo:** The work will be conducted in Sant Llorenç del Munt i l’Obac Natural Park

**Requisitos formativos del estudiante:**

**Resumen del proyecto:**

Intermittent rivers (IRs) are those river ecosystems that recurrently cease to flow at some point in time and/or space or may dry out completely, and are the most common fluvial ecosystems in Mediterranean-climate regions. For example, flow intermittence is present in 64% of water bodies of the Catalan River Basin District. Flow cessation and drying of the riverbed presents challenges to the aquatic biota inhabiting these systems, especially for strictly aquatic organisms. In the case of fish, the dry season is a bottleneck period because they depend on remnant habitats containing water as a refuge to survive (i.e. isolated set of pools). Thus, the identification and conservation of these refugia is an important aspect to be integrated in the management of Mediterranean streams since they enhance the resilience of these systems. Another aspect is fish movement, which may be indicative of the way that fish use these refugia over time and space.

Considering that streams and rivers from the Mediterranean Basin present alarming biodiversity declines over the last decades, and that the frequency and magnitude of drying is expected to increase under the effects of climate change, knowledge on the role of refugia is crucial. Despite the extended literature that highlights the role of refugia as key ecological features in IRs, there are few studies aimed at planning for their conservation. In addition, there is little information on fish movement in relation to the spatial distribution of refugia in IRs. The river network of many protected areas in Catalonia is composed by intermittent flow regimes, posing a challenge to the conservation of freshwater biodiversity. The work will be conducted in Sant Llorenç del Munt i l'Obac Natural Park, where three species of native cyprinids are present: two barbels (the Mediterranean barbel *Barbus meridionalis* in the River Besòs basin, and the redtail barbel *Barbus
haasi in the River Llobregat basin) and the catalan chub (Squalius laietanus). Recent studies have shown a decline in fish populations in the park and urgent measures are needed to improve their conservation.

The main **objective** of this study is to understand the role of habitat refugia in the maintenance of fish populations and investigate the movement behavior of native fish in IRs from the Mediterranean region. This information is expected to serve for the identification of **conservation priority areas** in the park and improve the efficacy of current protected areas in the context of global change.

**Observaciones:**

This project will be conducted under the supervision of Dr. Núria Cid (ecology) in collaboration with Dr. Dolors Vinyoles (animal biology). It requires the participation of the student in field work campaigns in the study area during 2017-2018 (field work for several full days). Timetables for field campaigns will be decided according to environmental conditions of the river (i.e. flow conditions) and time availability of the team.

A good level of English will be positively valued.