صندوق محمد بن زايد
للمحافظة على الكائنات الحية
The Mohamed bin Zayed SPECIES CONSERVATION FUND

Mohamed bin Zayed Species project number 192521809

RESEARCH PROGRESS STATUS

Title of the project: "Concrete conservation actions for the Etruscan chub *Squalius lucumonis* and the Italian nase *Protochondrostoma genei* in central Italy"

Target species: the Etruscan chub *Squalius lucumonis* and the Italian nase *Protochondrostoma genei*

Reporting period: November 2019 - April 2020

Project participants: Antonella Carosi, Silvia Carletti, Massimo Lorenzoni.

For each of the following preliminary actions carried out within the first six months of the project, the progress reports, the methodologies adopted, and the results obtained are described in detail. Moreover, the identification of any problems that emerged during the execution of the project and possible solutions are reported. The actions 1-3 were based on the analysis of meta data collected in occasion of previous monitoring.

***Action 1: Identification of 5 Etruscan chub populations in good conservation status from which to collect wild specimens for restocking activities in the eradicated sites*.** This action was based on the analysis of the demographic data reported in the Regional Fish Map of the Umbria Region. The Fish Map is an institutional monitoring conducted continuously from 1989 to today in a total of over 150 sampling sites located on the whole hydrographic network of the Tiber river basin. The five source populations, selected on the basis of the high population density ($0.2 < \text{ind } m^{-2} < 0.95$) and standing crop ($3.94 < \text{g } m^{-2} < 13.79$), inhabit the following watercourses: Fersinone, Nestore, and Serpolla creeks (Nestore basin) and Rasina creek (Chiascio river basin). The sites were coded as FERS1, FERS2, NEST1, SERP1 and RASI1. The location of the sites is reported in Figure 1.

***Action 2: Selection of 2 suitable sites for eradication activities of the alien species present, and consequent improvement of the conditions of Etruscan chub populations occurring in these sites*.** The two sites were selected on the basis of the following parameters: i) isolation from the rest of the basin thanks to the presence of barriers insurmountable from the fish fauna (height > 80 cm), ii) presence of alien species, iii) presence of declining Etruscan chub populations, according to what reported in the Fish Map above mentioned. The presence of weirs located downstream and upstream of each site was detected, and their geographical coordinates were derived using a GARMIN global positioning system (GPS) map 62 s with accuracy <10 m. The sites has been coded as CARP1 (located on the Carpina creek, in the Tiber river basin) and ARGE1 (located on the Argento creek, Paglia river basin). The location of the sites is showed in Figure 1. In

addition to *P. genei*, the other alien species that are expected to be eradicated on these sites are *Padogobius bonelli* and *Pseudorasbora parva*. In order to test the effectiveness of the eradication activities, two control sites, in which alien species will not be removed, have been included in the study design. Both sites were chosen on the basis of proximity to the eradicated site CARP1, and the similarity of morphological characteristics.

Action 3: Identification of 5 declining populations in the Esino river basin (Marche Region). This action was based on the analysis of the demographic data reported in the Regional Fish Map of the Marche Region (Lorenzoni et al., 2010). Since the sites are located along the main channel of the Esino river, they were coded as ESIN1-5, proceeding from the water source to the mouth (Figure 1).

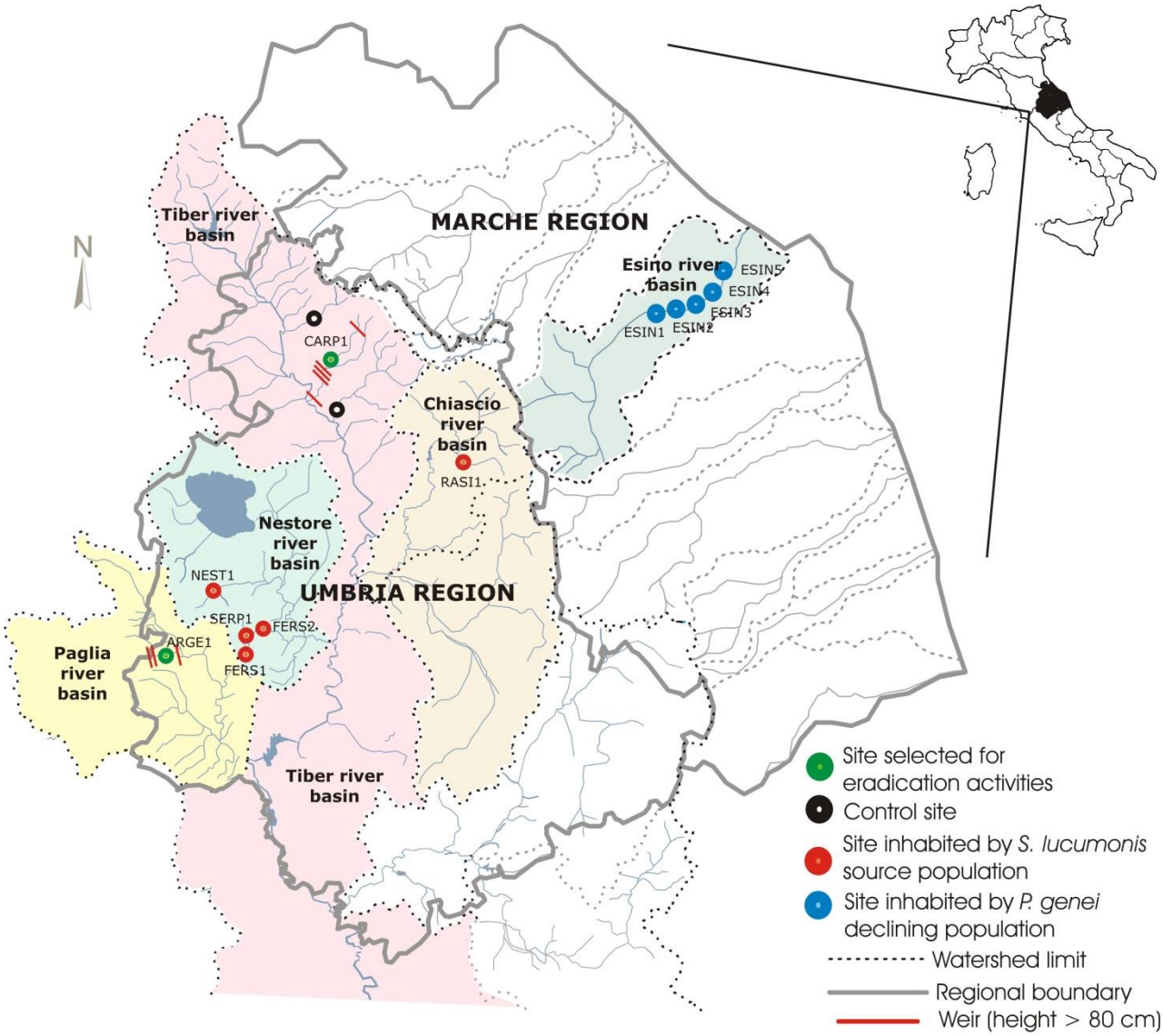

Figure 1. Location of the study area in central Italy. The main map includes watershed areas, hydrographic network within each basin, location of the sampling sites selected for eradication activities (green circles), for the presence of *S. lucumonis* source populations (red circles), and for the presence of *P. genei* declining populations (blue circles). The location of the additional control sites (black circles) is also showed.

Action 4: Request to the competent authorities the necessary authorizations to carry out the activities envisaged by the project. In particular, the following authorizations were requested:

Umbria Region:

- Requested the fish sampling authorization for scientific purposes for the year 2020, pursuant the Regional law 15/2008

- Requested the authorization to carry out translocation of Etruscan chub specimens from the source sites to the eradicated sites subject to restocking.

Marche Region:

- Requested the fish sampling authorization for scientific purposes for the year 2020, pursuant the Regional law11/2003.

- Requested for authorization to carry out translocation of Italian nase specimens from the eradicated sites to the Esino river stretches inhabited by declining populations.

Critical issues: A critical aspect concerned the impossibility to carry out field inspections due to government restrictions put in place by the Italian government to face the Coronavirus pandemic. Field inspections and sampling activities were planned to be carried out at the end of the lockdown. Currently the date for the unlock of restrictions and the restart of work activities is scheduled for May 4, 2020.

At present, considering the project timeline, it is not believed that the health emergency can determine significant changes in the project activities, but only a slight re-modulation of the expected times.

Added values for the project: A collaboration within the European “LIFE for Lasca” project has been activated on last October 2019. Our participation in the project involves the collaboration in the collection of 1000 *P. genei* adult specimens, that will be transported from Tiber river basin to Slovenia, within the native range of the species. We provided also fin clips of 25 specimens for genetic analysis, that will be done by University in Trieste (Northern Italy) by the end of August 2020. The goal of the project is to restock *P. genei* into the Isonzo River basin, where the species is in great decline or nearly extinct. Particularly, the collection of *P. genei* specimens is aimed at i) reinforce *P. genei* broodstock at the fish hatchery in Slovenia, and produce several thousand offspring to be used for species reintroduction, ii) wild release for potential spawning in nature during the project. We believe that the synergy between the two projects will lead to better results for the conservation of the species.