

## The Mohamed bin Zayed Species Conservation Fund



### Intermediate Report

15.01.2016

### Reversing the decline of the endangered Apennine yellow-bellied toad in Liguria (Northern Italy) through site restoration and population reinforcement

**Project number: 152510524**

**Target species: *Bombina pachypus***

**Participating organization: CeSBiN - spin-off of Genoa University**



*Bombina pachypus* (Bonaparte, 1838)

The fundamental objective of the project is to ensure the persistence of *Bombina pachypus* in Liguria (NW Italy) through habitat restoration and the establishment of new populations. In particular, we have the following set of specific objectives: 1. We will clarify the role of chytrid fungus in the decline of the species, by surveying for the presence of disease in other amphibian species at sites where *B. pachypus* has gone extinct in the past 15 years. 2. We will collaborate with experts from other Italian regions to produce a unified evaluation of management strategies. 3. We will manage extant populations in-situ by improving extant breeding sites on the basis of scientific evidence. In particular, we will reduce vegetation to increase insolation and reduce predatory pressure on tadpoles. 4. We will reintroduce captive-bred individuals at restored sites. 5. We will carry out monitoring of both the extant and reintroduced population, to compare population dynamics and optimize management actions. 6. We will train 1-2 university students in fieldwork and analysis, promote the conservation of the species in local schools and collaborate with land owners to promote traditional agricultural practices. 7. We will publicize our results to both a scientific and general audience.

The project started upon receiving funds on 15 July 2015. This date corresponds to the end of the reproductive season for many amphibian species at our latitude, including *Bombina pachypus*. For this reason, over these first six months we were able to only partially start the activities planned in 2015. These will therefore be completed in 2016. In particular for activity:

- 1) Clarify the role of chytrid fungus in the decline of the species

We started the survey for the presence of the disease in other amphibian species at sites where *B. pachypus* has gone extinct in the past 15 years. We collected a total of 31 skin swabs of six different species (*Bombina pachypus*, *Rana italica*, *Rana temporaria*, *Triturus alpestris*, *Triturus carnifex* and *Salamandra salamandra*) from eight sites. Twenty-nine samples were analyzed with real-time PCR to detect *Batrachochytridium dendrobatidis* and fortunately they were all negative. The survey will be integrated with additional samples in 2016, collected during the period of peak species activity to ensure high coverage. The PCR analyses will be performed in the laboratories of Genoa University.



Swabbing to detect *Batrachochytridium dendrobatidis*

## 2) Improve *Bombina pachypus* habitat

In the original project this planned activity envisaged mainly a reduction of the vegetation cover to increase insolation. While carrying out field surveys during these initial six months of the project, we realized that habitat improvements also need to account for two additional factors. Firstly, the management of invasive aquatic vegetation through periodical removal from artificial sites; secondly, the eradication of allochthonous fishes from a very potential suitable breeding site of *Bombina pachypus*, where we plan to release captive-bred individuals in 2016. We will carry out these actions in 2016, in addition to those originally integrated.

## 3) Improve ex-situ center to obtain a good number of froglets for reintroduction

We carried out periodic management of the ex-situ breeding center (vegetation cutting, water refill, etc) during the summer and in particular during December 2015. In this occasion we dried up the artificial ponds to ensure the breeding habitat is predator-free for the next reproductive season.





*Bombina pachypus* breeding center



Replacing of the anti-predator (dragonflies) net





Drying up and cleaning of artificial pond



Artificial pond dried up

#### 4) Reintroduce ex-situ-bred individuals at restored sites

Because of the late start of the project we released only 21 tadpoles born in the captive breeding center in two different sites.

#### 5) Monitoring of both the extant and reintroduced population

Because of the late start of the project, although we carried out field surveys for extant and potential release sites, we were only able to collect limited data on populations of *Bombina pachypus*, since their activity was already reduced late in the season. In spite of this these surveys proved very useful for planning activities for 2016. In particular, we identified three priority sites for release of froglets for 2016 and identified additional priorities for future habitat management (see relevant section).



Field survey



## 6) Communication (new activity)

During the development of the project we realized that past attempts at this project have underestimated the importance of communication. For this reason, we carried out an Internet campaign by our web site with the through the creation of a web page dedicated to the project (see <http://www.cesbin.it/progetti/progetto-ululone.html> and <http://www.cesbin.it/news/10-finanziamento-per-la-conservazione-dell-ululone.html>) and via our facebook page. Moreover, we planned at local level to install two information boards near the breeding center and near a breeding site to avoid bad behavior, such as the introduction of allocthonous fishes. We have selected an undergraduate student from the University of Genoa who in 2016 will be trained in field surveys and habitat management.