



IdroLIFE

LIFE15 NAT/IT/000823

CONSERVATION AND MANAGEMENT OF
FRESHWATER FAUNA OF EU INTEREST
WITHIN THE ECOLOGICAL CORRIDORS OF
VERBANO-CUSIO-OSSOLA

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Progress report: artificial reproduction, breeding and repopulation of *Rutilus pigus* and *Chondrostoma soetta*



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Artificial reproduction, breeding and repopulation of *Rutilus pigus* and *Chondrostoma soetta*



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1 INTRODUCTION

Captive breeding is considered nowadays the most suitable way for the conservation of fish species under a risk of extinction. Breeding programs are useful to maintain in health stocks of endangered fish species until those factors that threaten their survival are removed.

The Action C3 of IdroLIFE is dedicated to the breeding and rearing of two fish species, particularly threatened in the project sites: the “savetta” (*Chondrostoma soetta*) and the “pigo” (*Rutilus pigus*).

Previous experiences of artificial reproduction and rearing of these two species are very rare. Concerning the “savetta”, some attempts of artificial reproduction and breeding were carried out in 2016 in the Turin province (Delmastro *et al.*, 2017) with interesting, although preliminary, results. For the “pigo” instead at our knowledge only the Ticino Park and Regione Lombardia have started a programme for its conservation through artificial reproduction and rearing within the LIFE projects LIFE00 NAT/IT/007268 and LIFE11 NAT/IT/188. From the experiences matured in these projects, it has been shown that, in general, artificial reproduction and rearing of pigo and savetta are extremely difficult due to their high sensitivity towards handling, temperature shifts and zoonosis in artificial environments.

In C3 action of IdroLIFE a supportive breeding programme for the pigo and savetta was started by the collection of suitable specimens, males and females, mature for eggs stripping and fecundation, rearing juveniles captured in the field. In all, some difficulties were encountered, due to different reasons: at first, the extreme rarity of the two species in the project sites which prevented to get enough mature fish on site, since they can mature in captivity with enormous difficulties. Also, due to the high susceptibility of the fish to handling, that promote fish disease and illness.

However, the team was able to cope with the problems encountered and, although some changes to the initial plans, a first repopulation action was carried on.

2 DESCRIPTION OF THE FIELD ACTIVITIES

The Action C.3 started in April 2018, as foreseen in the first progress report.

2.1 Spawners capture and rearing

The collection of the spawners was quite difficult due to the extreme rarity of both species in the Verbano-Cusio-Ossola territory. Therefore, after a preliminary analysis of the presence of both species at a larger scale (basin and regional) taking informations both from previous activities of environmental monitoring by GRAIA srl and CNR IRSA as well as from Regional database of the Piedmont Region, it was decided to address the capture campaigns in two sites where the presence of Pigo and savetta was well known: the so called “Canale Castellana” (Ticino basin, Pavia Province) and small pit lakes located near Carmagnola (Turin province) very close to the Po River (Tab. 1).

Tab. 7 – Details of the sampling campaigns for the collection of spawners of pigo and savetta.

Date	Place	Species	Method	N° captured fish
04/04/2018	C. Castellana	<i>R. pigus</i>	Electrofishing	6 ♂, 4 ♀
24/04/2018	Carmagnola Lakes	<i>C. soetta</i>	Gillnets	9 ♂, 11 ♀

The specimen captured who were apparently mature or close to be mature were taken home and housed at the CNR-IRSA building, in tanks or in the concrete pools (see Deliverable of Action C.1.). Those specimen not clearly mature were released. In all, 10 pigo and 20 savetta were housed in pools at the CNR IRSA.



Fig. 1 - Carmagnola lakes, near Turin, Po River basin.

These specimens were at the last stage of gonadal maturity then likely to release eggs (in a few days or week). Especially the savetta were very close to release eggs. However, after two days of acclimatisation in tanks they started to be infested by *Saprolegnia*, a fungus which hit already existing skin injuries, sometimes not visible also by experts. Probably, the travel from the sites of capture and the hatchery induced a large stress in the fish. For these reason, before giving up, an attempt of induction with gonadotropin release hormone (GRH Hormone) was performed. Unfortunately, also after this treatment, the fish did not mature and no eggs were collected. In regard to the pigo specimens, female housed in pools did not complete the eggs maturation and after one month they started to reabsorb the gonads. In all, no eggs were collected.

The “take home message” is that the two species are very sensitive to handling and great caution must be taken when they have to be capture in the wild and moved from one site to another. Also, it is possible that changes in water characteristics, such as temperature, also for short times, produce stimuli that stop the final maturation of gonads.

2.2 Collection of juveniles

In order to prosecute the activities of repopulation, it was decided to collect directly pigo and savetta specimens from the field. In this regard an existing semi-natural environment located in the territory of the Parco della Valle del Ticino was identified and thanks to the networking with the Ticino Park, during the summer 2018 it has been possible to capture one thousand of pigo and savetta juveniles and bring them to CNR IRSA hatchery. In all, two fish stocks were housed in two different times at the CNR IRSA hatchery: a stock of Italian nase has arrived on 12th of July 2018 while a stock with both species has arrived on 14th of September 2018.

At present, approximately 500 specimens are located in the outdoor pool and others 1000 specimens are located in a closed recirculation system (See C1 for the hatchery details) where rearing was maintained under a strict control by testing different feeding ratios under same water temperature.

3 REPOPULATION ACTIVITY IN THE FIELD

Finally, repopulation of both specie also started. Indeed, about 500 juveniles of both species, have been released in the Fondotoce canal, close to Lake Mergozzo, which was considered as a good nursery for the development of young fish, especially after the massive activity of control of alien invasive species taken in the last year within action C.5. of IdroLIFE.



Fig. 1 - Repopulation of pigo and savetta in the Fondotoce canal, close to Lake Mergozzo.

4 FURTHER PROSECUTION OF C.3. ACTION ACTIVITIES

The activities of this action will continue as planned. A new field campaign will start soon in May addressed to collect adults and juveniles of both species. Nature fish will be stripped on site for eggs production and then released. Juveniles fish will be brought to the hatchery of CNR-IRSA.