

LIFE+ TROTA

Layman's Report

January 2018



Beneficiario Coordinatore:

Beneficiari associati:



PROVINCIA DI
PESARO E URBINO



Parco Nazionale
Monti Sibillini



PROVINCIA DI
FERMO



UNIVERSITÀ
POLITECNICA
DELLE MARCHE



LEGAMBIENTE



LIFE + TROTA “Trout population RecOverly in central iTaly” - LIFE12 NAT/IT/000940
<http://www.lifetrota.eu>

Coordinating Beneficiary:

Provincia di Pesaro e Urbino

Project partners:

- Parco Nazionale dei Monti Sibillini
- Amministrazione Provinciale di Fermo
- Università degli Studi di Perugia
- Università Politecnica delle Marche
- Legambiente Onlus

Budget: €1,557,187 Euro - 778,592 Euro are co financed by the EU LIFE+ Programme

Target territories of the project: the project operates within 14 special protection areas, which are a part of the Natura 2000 network in Marche Region – Central Italy:

- Piana di Fiorano IT5330010
- Serre del Burano IT5310018/IT5310018
- Valle dell’Ambro IT5330029/IT5340019
- Gole della Valnerina – Monte Fema IT5330030/IT5330023
- Monte Bove IT5330029/IT5330004
- Val di Fibbia – Valle del’Acquasanta IT5330029/IT5330002
- Gola del Fiastrone IT5330029/IT5330017
- Valle dell’Infernaccio – Monte Sibilla IT5330029/IT5340020
- Monte Nerone – Gola di Gorgo a Cerbara IT5310030/IT5310017
- Gola di Fiorano IT5330028/IT5330018
- Monte Giuoco del Pallone – Monte Cafaggio IT5330026/IT5330009
- Valle Rapegna e Monte Cardoso IT5330008/IT5330008
- Monte Pennino – Scurosa IT5330028/IT5330020
- Monte Catria, Monte Acuto IT5310031/IT5310019

Project duration:

51 months (2013-2018)

Project manager:

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Contents

The challenge	4
Preserving the species	5
Protecting the habitat	6
Major achievements of the project	7
The future	8

The challenge

The recovery and the conservation of macrostigma trout

The main objective of LIFE+TROTA is the recovery and the conservation of macrostigma trout (named *Salmo macrostigma* in Directive 92/43/EEC, annex II), the endemic salmonid of the mediterranean area and the only native trout of the central/southern Italy, protected by the “Habitat Directive”.

Macrostigma trout is classified as a vulnerable species in Europe and it is critically endangered in Italy.

The main threats for the species are: water abstraction and stocking of non-native trouts (resulting in hybridisation and competition).

Despite domestic strains of Atlantic brown trout have been used for a long time for restocking purpose, affecting genetic integrity of most native populations, a few residual *Salmo*

macrostigma populations have been recently detected - using specific nuclear and mitochondrial gene markers - in some areas of peninsular Italy. It should be underlined that relict populations of *Salmo macrostigma* were mainly found in places very difficult to reach. For this reason, it is likely that in the Italian peninsula there could be other watercourses in which relict populations of this species are present.

The project aims at the conservation and enhancement of existing *Salmo macrostigma* populations in seven main watersheds of central Italy (Metauro, Cesano, Esino, Potenza, Chienti, Tenna, Nera), where small number of *S. macrostigma* populations (less than 5% of the salmonid populations in the area) not introgressed or with a low-medium level of introgression have been identified.



Preserving the species

Genetic characterisation, captive breeding, alien species removal and restocking

In the first phase of the Project, started in November 2013, we have analysed the genetic and demographic characterisation of trout populations in 32 sites, in order to identify the most suitable places to implement collecting activities and supporting breeding. Furthermore we analysed the environment in the same sites to select those where alien trout removal and restocking activities could be carried out.

In particular, the genetic screening results helped us during the activities of production of genetically pure trout juveniles.

In parallel, the demographic analysis showed a good growing rate of the population investigated and the presence of well-structured populations in the Sibillini National Park which allowed the collection of specimens for the artificial breeding without compromising the viability of wild populations.

The environmental analysis brought to the identification of river stretches with adequate habitat conditions for the restocking activities.

The project achieved excellent results:

- **in three years of field activities (2015-2017), a total of 8.750 individuals were released in four supportive breeding sites, while in the last six months of the project 12.650 individuals were stocked in six sites after removal of alien trout by electric fishing.**
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- **in parallel with the above actions alien trout removal interventions have been carried out. The results of this action are: the removal of about 18,000 alien trouts. Population density was reduced by nearly 100% in four sites, while in two other percentages were 92.29 and 99.38%, respectively.**
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The removal of Atlantic trout, present at very high density due to fisheries restocking, in addition to making available new sites for the reintroduction of the macrostigma trout, had also a positive impact at the ecosystem level. For example, the strong reduction of the largest alien trout favours a rapid recovery of the bullhead, a species included in the Annex II of Habitats Directive.

Protecting the habitat

Ecological characterisation and River Flow monitoring

To support the activities of the Project we also had to analyse the summer river flow in order to avoid excessive water abstraction (during the summer season) that could threaten the future success of the conservation efforts.

This action aims at monitoring the hydrological conditions of the 10 river stretches in which were carried out the concrete conservation actions. In fact, the reduction of the flow in summer can cause an increase of pollution and a modification of the oxidative processes; therefore, a decrease in dissolved oxygen can occur, to which the macrostigma trout is particularly sensitive.

On the other hand, since the Mediterranean trout can be considered a flag species of river ecosystems, the

improvement of the ecological conditions that guarantee its survival will have an undoubted advantage for all the indigenous biodiversity that shares the same habitat.

In particular, the water abstraction is one of the main factor reducing the flow rates in the river of the Apennine area, with significantly negative effects in a period of progressive increase in temperature due to climate change.

In this context we realised a model of ecological outflow estimation, based on the ecological requirements of the Mediterranean trout, that will have also positive effects on all the biotic communities of the environments in which it will be applied.



Major achievements of the project

Concrete conservation perspective for a flagship species of rivers Habitats



The scientific approaches implemented during the Life + TROTA Project estimate the introgression level of the alien species within that of the native species. This evaluation was preparatory to set up the project activities.

Ecological investigation has also been particularly innovative, especially in the analysis of summer flows that has allowed us to develop a biological model for estimating the Minimum Vital Flow based on the ecological requirements of the Mediterranean trout. This assessment will ensure the ecological conditions necessary for the long-term survival of an endangered species menaced by climate change and increasing anthropogenic impact in terms of habitat alteration and water withdrawal.

The structural and managerial improvements made in the hatchery of Cantiano have also contributed to the

success of artificial reproduction of wild specimens, which are difficult to manage in captive conditions.

The technical-scientific synergies allowed to develop some experimental protocols in the management of the Mediterranean trout that can be repeated in other projects aimed at the conservation of Mediterranean salmonids. Furthermore, cooperation and constant organisational monitoring at the partnership level allowed the project activities to be carried out according to forecasts, despite some unexpected events deriving from natural events (such as the November 2013 flood and the 2016/17 earthquake) and bureaucratic - administrative (modification of the functions of the provinces).

As for the Water Framework Directive 2000/60 EC, the reintroduction of the Mediterranean trout will favour the return of the freshwater fish community of the project sites to the original conditions, thus guaranteeing a sure improvement of their ecological status. This improvement will also be evident from the increase in the value of ISECI (Ecological State Index of the Freshwater Fish Communities), the method used in Italy to monitor freshwater environments using fish fauna as a biological indicator. This method evaluates, in fact, the deviation of the fish community in a river from the original conditions, which for the Apennine area see the Mediterranean trout as the main indicator.

The future

We continue our work for the conservation of species

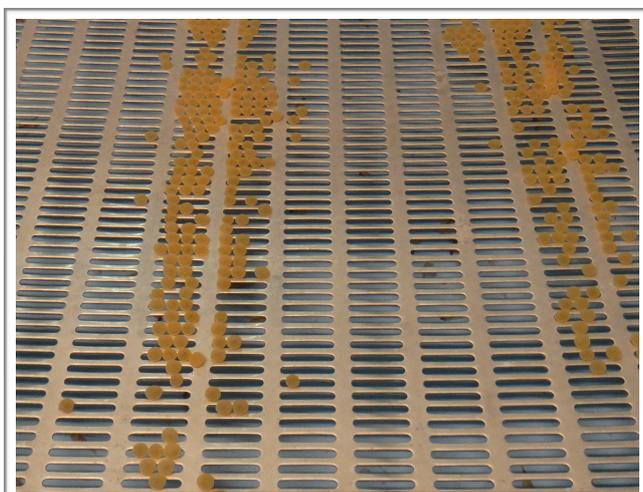
In order to transfer the project results and activate a continuous exchange of know-how with the other relevant actors a wide dissemination action was performed to:

- **Policy makers and other managing authorities engaged at different level in the management and conservation of the project related habitat and species both in Italy and abroad (namely in Spain and Morocco) such as: ministries of environment, National research institute engaged in habitat and specie protection, Regional authorities, National and regional Parks and protected area managing authorities, Provinces and Local authorities;**
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- **Scientific Communities and wider public, namely: high-level scientific experts, research institutions and academic community, environmental NGO, local communities, schools and other education organisations.**
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Last but not least the project carries out an ongoing networking action with all the other LIFE projects dealing with related matters.

These meetings represented a key moment to discuss about the conservation of the species in a wider framework of conservation of aquatic environments and improvement of river habitats and to concretely identify common actions to be carried out for the conservation of *Salmo macrostigma* in the next future, as concretely demonstrate by the application of a project proposal in the LIFE call 2016 (LIFE STREAMS) carrying out and exploiting the key results and success approach of LIFE TROTA on the whole native range of the species. The proposal, which will be re-applied in the upcoming LIFE call, was applied by a consortium composed by almost 20 managing authorities of protected areas where is certified the presence of the species in Italy and Corse, with the direct engagement of ISPRA in the consortium and the external support of the national Ministry of Environment.



....some project pictures



Fig. 1 Project communication materials (Action E4)



Fig. 2 Exchange of know how in Corse (Action A4)



Fig. 3 Workshop with local stakeholder (Action E2)



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Introduzione



Il progetto Life+ TROTA, avviato il 1° novembre 2013 e terminato il 31 gennaio 2018, ha avuto come obiettivo la conservazione delle popolazioni esistenti di trota mediterranea (*Salmo macrostigma*, indicata come *Salmo cettii* nella recente letteratura scientifica), l'unica trota originaria dell'Italia centro-meridionale, in alcuni importanti bacini idrografici dell'Appennino centrale (Metauro, Cesano, Esino, Potenza, Chienti, Tevere e Tenna). Analisi ambientali, campionamenti ittici, attività di sensibilizzazione, reintroduzione e ripopolamento con trote autoctone: sono solo alcune delle attività di progetto per "mettere in sicurezza" le ultime popolazioni di *Salmo macrostigma* e favorire la diffusione nei corsi d'acqua appenninici dove è stata progressivamente soppiantata da trote appartenenti alla specie atlantica (*Salmo trutta*) immesse a scopo di ripopolamento. Per realizzare tali obiettivi il progetto ha operato all'interno di 14 aree SIC della Rete Natura 2000 della Regione Marche e grazie al lavoro svolto sulle comunità ittiche locali è stato possibile migliorare indirettamente anche lo stato ecologico degli ambienti acquatici, favorire il miglioramento dello stato di qualità ambientale degli ecosistemi acquatici e preservare l'integrità della biodiversità autoctona, previsti dalla Direttiva Acque e dalla Direttiva Habitat.

News

Settima newsletter del progetto Life+ Trota, Gennaio 2018

A cura del team dei ricercatori Life TROTA




Events

Save the date - La tutela della trota mediterranea nelle Marche e della trota macrostigma iblea in Sicilia: due esperienze di conservazione a confronto

26 gennaio 2018
 Sala Convegni- Libero Consorzio comunale di Ragusa
 Viale del Fante - Ragusa
 Ore 10.00 - 13.00

Il progetto Life+ Trota in questi ultimi 4 anni ha portato avanti importanti azioni di conservazione delle popolazioni esistenti di trota mediterranea (*Salmo cettii ex macrostigma*) in alcuni bacini idrografici dell'Appennino centrale. Il progetto, tramite il coinvolgimento degli attori istituzionali, tecnici e politici, ha contribuito a migliorare lo stato di conservazione...

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Fig. 4 Project website (Action E1)

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10



Fig. 5 Dissemination event in Rome (Action E3)



Fig. 6 Concrete conservation actions (Actions C)