



AFRESH

Conservation translocation and captive breeding

Yiannis Kapakos



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e-Workshop

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Conservation translocation-pilot application (FISH-NET)

The aim was the pilot reintroduction of *V. letourneuxi* (assessment)

- Four systems were assessed as potential source sites (S-WB1-4) using two on-off criteria (large number and genetic compatibility) in Louros basin
- Two systems were assessed as potential release water bodies (R-WBs) using a series of criteria, mostly pressure assessment and alien species absence



Conservation translocation (**FISH-NET**)

- A total 78 *V. letourneuxi* were transferred during 2015-2017 in a system in Louros basin
- Fish were captured by seine-netting and/or hand netting.
- Fish were individually bottled up with stream water and oxygen for transport.
- Actions completed with zero mortality.



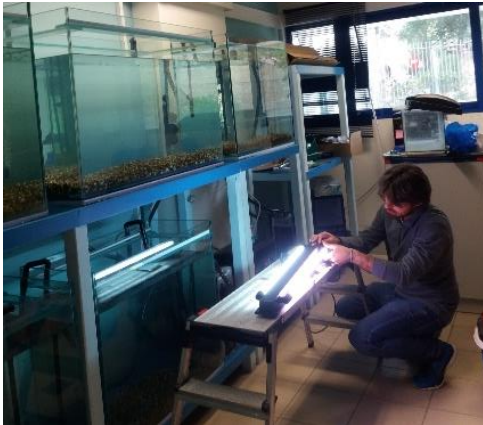
Conservation translocation (**FISH-NET**)

- Post-release monitoring at the release WB was conducted during 2017-2022
- With a combination of fish sampling, underwater camera recording and/or the eDNA method
- A self-reproducing population was found in June 2022 (by UW camera) and confirmed with fish sampling in July 2022, suggesting the success of this first conservation translocation. EDNA 2022 results pending.



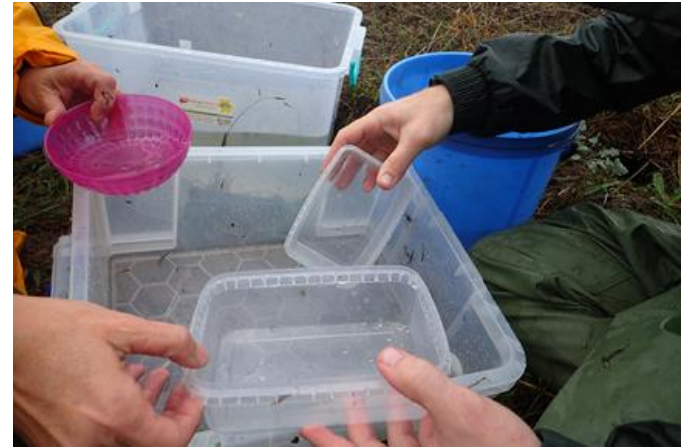
Breeding of the two threatened species of the genus *Valencia* (DECAGON)

- For the development of breeding protocols for *Valencia robertae* and *Valencia letourneuxi*, and the study of its reproductive behaviour and larval development
- Three aquaria of 350 lt (dimensions 100x70x50 cm) and three aquaria 280 lt (dimensions 80x70x50 cm) were established at HCMR facilities in 2018



Breeding of the two threatened species of the genus *Valencia*

- Individuals of *V. robertae* (103 fish) and *V. letourneuxi* (45) in 2018 and 2019 respectively, were transferred to the aquarium laboratory



Breeding of the two threatened species of the genus *Valencia*

- Collection, transfer and acclimatization were conducted with zero mortalities



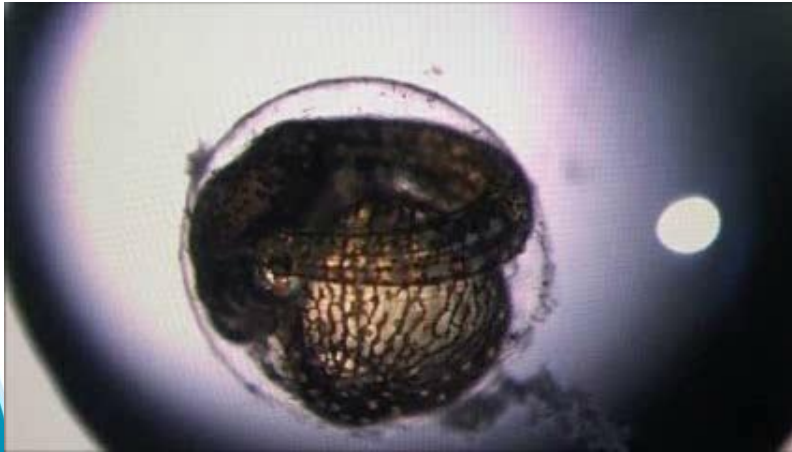
Breeding of the two threatened species of the genus *Valencia*

- Both *V. letourneuxi* & *V. robertae* reproduced in aquaria conditions



Breeding of the two threatened species of the genus *Valencia*

- Eggs hatched and larvae reared to adult stage
- Next year, there was F1 generation



Conservation translocation – Creating a refugia population (AFRESH)

The aim was to create a breeding habitat to act as a refugia in the wild for the threatened Corfu killifish *Valencia letourneuxi*



Conservation translocation – Creating a refugia population (**AFRESH**)

A total of 48 killifish were transferred to the release site with zero mortalities in September 2021. All individuals were adult fish (> 1.7 cm)



Conservation translocation – Creating a refugia population (**AFRESH**)

Monitoring: Larvae presence was confirmed in June 2022 (with hand nets) and a population of various sizes in September 2022 (with electrofishing)



Breeding of two range restricted, threatened species (**AFRESH**)

- *Economidichthys trichonis* Economidis & Miller 1990 and *Pungitius hellenicus* Stephanidis, 1971
- Both species are classified as endangered by the IUCN
- Collection and transport in 2021 and 2022



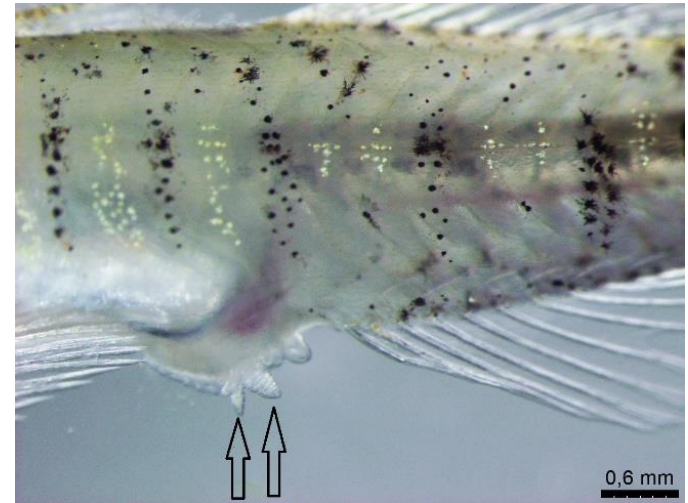
Collection, transfer and acclimatisation of *E. trichonis* (1st attempt)

- *Economidichthys trichonis* Economidis & Miller 1990 and *Pungitius hellenicus* Stephanidis, 1971
- Both species are classified as endangered by the IUCN, threatened
- First collection and transport 11/21
- Fishing Net



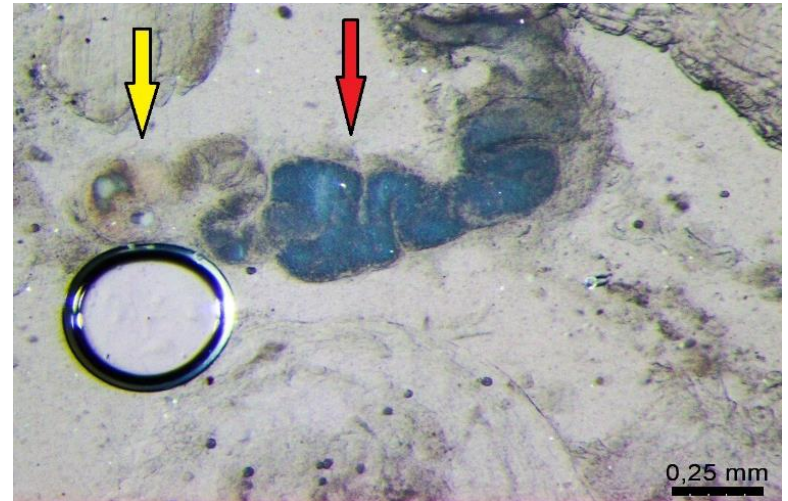
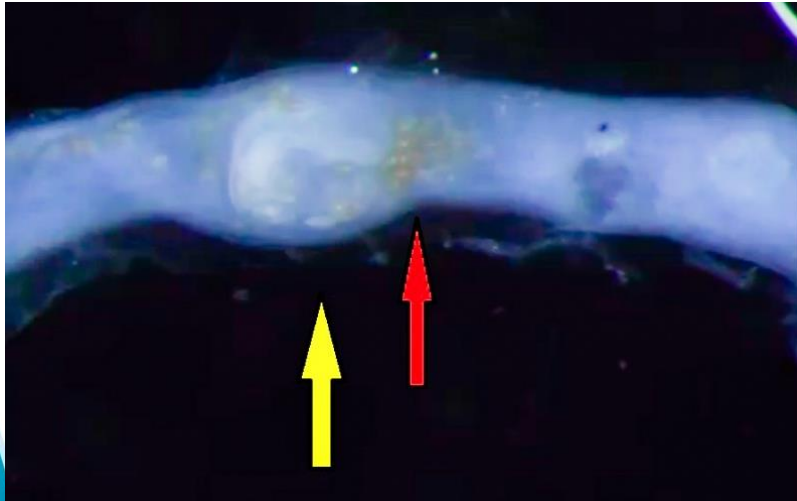
Collection, transfer and acclimatisation of *E. trichonis* (1st attempt)

- 107 gobies were transported
- After 4 hours, 58 live fish arrived in the laboratory. (mortality 46%).
- Mortality continued in the following days
- histopathological examination of fish



Collection, transfer and acclimatisation of *E. trichonis* (1st attempt)

- Treated with Emamectin benzoate



Collection, transfer and acclimatisation of *E. trichonis* (1st attempt)

- After the treatment



Collection, transfer and acclimatisation of *E. trichonis* (2nd attempt)

- 16/11/22 new transport with a different method
- We transferred 89 gobies, to 500 ml plastic bottles with pure oxygen and ammonia detoxifier
- Mortality 0%, on the same day preventive treatment with hemamectin benzoate
- Within 24h, fish consumed food



Collection, transfer and acclimatisation of *P. hellenicus* (1st attempt)

- Date 11/2021
- Collection with electrofishing of 40 fish
- Water temperature 8°C



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Collection, transfer and acclimatisation of *P. hellenicus* (1st attempt)

- Fish were acclimatized to 20 °C
- Fish were not consuming food
- Some males acquired breeding colors



Collection, transfer and acclimatisation of *P. hellenicus* (1st attempt)

- Infected by *Trichodina* parasites
- Treatment malachite green oxalate & formaldehyde solution
- Mortalities started after three weeks. Five individuals eventually survived.



Collection, transfer and acclimatisation of *P. hellenicus* (2nd attempt)

- Trip 11/22
- 34 fish were collected (Water temperature 12.2 C)
- Fish were transferred in a water tank
- Acclimatisation to 15.6°C - 16.6°C
- Preventive treatment in the field with malachite green oxalate & formaldehyde solution (30 min, in the field)
- Continuation of the treatment for 3 days in the laboratory
- Use of live food (Tubifex, Artemia, White mosquito larvae, Daphnia)



Future perspectives

In the process of the above actions, valuable know-how has been gained in translocating and breeding threatened fishes of inland waters and actions were completed with success. Finally, in HCMR facilities there is now a modern laboratory for rearing threatened fish species and for the study of their reproduction, behavior ,etc.





Thank you for your attention