

# Follow up Survey of the Critically Endangered Greek Killifish *Valencia letourneuxi*, in Greece

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LIVING CONSERVATION



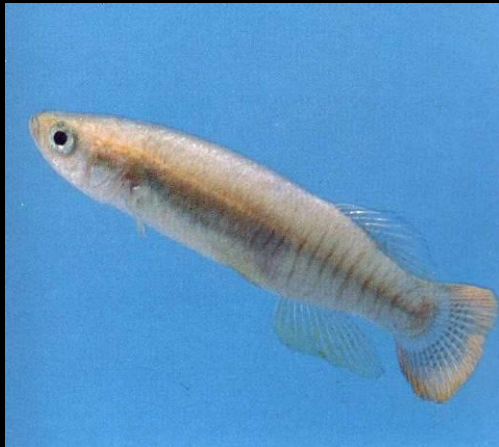
Corfu Toothcarp – *Valencia letourneuxi*  
(Sauvage 1880)



- Ζουπνός (Zournós)
- Korfutandkarpe
- Korfunkilli
- Korfu Killifisch



# Corfu Toothcarp



- Order - Cyprinodontiformes
- Family – Valenciidae
- One of two species:
  - *Valencia letourneuxi*
  - *Valencia hispanica*
- Small size (8 cm)
- Glacial relict
- Unique to Greece and Albania
- Critically Endangered (IUCN) assessed in 2006.
- Officially protected by the Bern Convention

# Threats to survival (IUCN – A3ce B2ab (i, ii, iii, iv, v))



- Habitat destruction, water abstraction, and aggressive interaction with *Gambusia*.
- This species has undergone a suspected population decline of at least 50% in the last 10 years.
- The projected decline is even more severe with an estimated decline of more than 80% over the next 10 years expected.
- The species has a restricted distribution which is severely fragmented and continues to decline.
- One of the 24 most endangered species in Europe.



# Corfu Toothcarp - distribution



Valencia letourneuxi  
and Aphanis fasciatus  
Greek and Albanian  
populations

● = Aphanis fasciatus  
● = Valencia letourneuxi  
(E = Extinct population)





# 2005 Survey



- Surveyed 95 sites in 14 watersheds.
- Found *Valencia letourneuxi* in 21 sites in 10 watersheds.
- Recorded sympatric species.
- Physical-chemical parameters.
- Noted anthropogenic disturbances.
- Obtained specimens for genetic analysis.



# Work since the 2005 survey



- Full report produced and distributed
- Two posters and six papers published
- Analysis of diet, genetics, competition with introduced *Gambusia* is ongoing.
- Discovery of a possible acanthocephalan parasite in fish from many sites.

# The 2009 Survey



- Investigate four new potential sites.
- Obtain specimens where needed for genetic work.
- Re-visit key sites from 2005 where disturbances were noted.
- Visit type locality for the Almiri Killifish, *Aphanius almiriensis*.





# Site 1 - Kryoneri Springs - Galatas



- Tiny site (approximately 1 hectare).
- Recreational area for rock climbers.
- Valencia present in small numbers (only juveniles found).
- No Gambusia
- Other sympatric species including the endemic goby: *Economidichthys pygmaeus* and freshwater crabs.

# Site 2 - Melissoudi Stream – Sidari, Corfu



- Fish declared extinct on Corfu in 2005.
- New information from hobbyist sector in 2007.
- Three locations sampled in Melissoudi Stream, near Sidari



## Site 2 - Melissoudi Stream – Sidari, Corfu



- Two stations yielded no *Valencia letourneuxi* but lots of *Gambusia*.
- Heavy tourism use.
- Extensive evidence of pollution near outlet to the sea.





## Site 2 - Melissoudi Stream – Sidari, Corfu



- Third site produced fish in good numbers; *Gambusia* absent.
- Evidence of pollution (olive press upstream) and agricultural water abstraction.





# Site 3 - Vouvos Stream - Kipseli



- *Valencia letourneuxi* recorded in 1985 by Das but site not known during 2005 survey.
- Little agricultural activity.
- Water not used for municipal purposes.



# Site 3 - Vouvos Stream - Kipseli



- Large quarry uphill from stream.
- Cement works associated with quarry immediately adjacent to main spring.
- Significant evidence of pumping and runoff pollution.



# Site 3 - Vouvos Stream - Kipseli



- Good numbers of *Valencia letourneuxi* present.
- Very few *Gambusia*.
- Significant biodiversity of other fish species, frogs and freshwater crabs and shrimps as well as birdlife.





# Site 4 – Kastri Springs - Kastri



- Fast-flowing channels near roadside with dense vegetation on banks and at surface.
- Limited access for sampling.
- *Valencia letourneuxi* present – no *Gambusia*.





# Revisiting Acheron Delta



- One of the best locations for *Valencia letourneuxi* during 2005 survey.
- Extensive wetlands, important for other species (birds).
- Expanding development for tourism.
- Municipality complained of flooding seawater during winter season.

# Revisiting Acheron Delta



- Extensive drainage tunnel under construction and nearly completed.
- Channels being cut throughout wetland.
- Unknown impact for *Valencia letourneuxi* and other wildlife.

# Visit to Almiri Springs - Peleponnese



- Type locality for newly described Almiri Killifish, *Aphanius almiriensis* (Kottelat, Barbieri & Stoumboudi, 2007).
- One of only two known sites for the species.
- Listed by IUCN as Critically Endangered.
- HCMR team could not find the fish in subsequent searches.





# Visit to Almiri Springs - Peloponnese



- Extensive evidence of human activity – tourism.
- Pollution impacts – illegal dumping.
- Water now nearly full-strength seawater.
- Presence of anemones and marine fish (predators).
- No Almiri Killifish found.





# *Valencia letourneuxi* - What next?



- Continued monitoring of key sites.
- Study of diseases and genetics ongoing.
- Explore possibilities for habitat protection within legal framework.
- Identify key sites for further conservation measures and restoration.
- Investigate education possibilities for school children and university students.

# *Valencia letourneuxi* - What next?



- Captive management of populations for safety net.
- No captive populations in Greece.
- Only held by ZSL Aquarium and hobbyists.
- Involvement of other aquariums?

# Thank you



- European Union of Aquarium Curators - for part funding the project.
- British Killifish Association and Deutsch Killifisch Gemeinschaft – for site locality data.
- HCMR and especially Eleni Kalogianni – for making the 2009 trip a success.