



Parosphromenus alfredi by Wentian Shi



SSC



Freshwater Fish Specialist Group

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A NOTE FROM OUR CHAIRS

Dear FFSG members,

It is a real pleasure to share the second issue of the updated Freshwater Fish Specialist Group newsletter. There are some fascinating and informative articles in this issue – focussing on a range of species and geographical locations from around the world.

It is exciting and sobering to learn about the findings of the recent Red List Assessment in Türkiye – with more species being discovered and yet sadly, many more under threat. The immense value of Red List assessments is demonstrated by the conservation prioritisation that follows these workshops.

Yet we have so much more baseline information to learn and understand to help with making accurate assessments. The work in the Western Amazon region, barcoding the DNA of many new species, will help in years to come when surveys continue to monitor populations of these now little-studied species. The work shows that we need to build accurate and extensive libraries of DNA if we are to fully understand the fish communities in these species rich habitats and protect them in the future.

Learning about the incredible assemblage of species found in the Melaleuca swamp forests in Southeast Asia shows just how adaptable freshwater fish are to a wider range of habitats and changeable ecosystems. It also raises concerns over what can be lost if we don't protect the forest and the watersheds as one interconnected unit.

In Mexico and Vietnam, the work of public aquarium and zoo professionals teaming up with researchers and students to save species on the brink and hopefully return some already Extinct in the Wild, shows what can be achieved with good collaboration. Developing the next generation of freshwater fish biologists, taxonomists and conservationists is essential if we are to save more species from extinction.

Sharing our knowledge is so important to ensure we all benefit in our efforts to save species. Our members that contribute to dam mitigation and restocking efforts for some of those species impacted by barriers and overexploitation from humans provide insight that many more can utilise. The work of the team in Uzbekistan and Kyrgyzstan will help inform mitigations to hopefully prevent the loss of key species from hydropower development and restocking research in Wales brings encouraging possibilities for improving populations of historically impacted species.

Each of these articles brings not only a problem but a solution. It shows the broad range of work and dedication of our members and their partners, and we really appreciate each of you sharing your experience and work with the membership. We hope you enjoy this edition and learn new things.

All the best,
Kathy and Brian



Brian Zimmerman

A handwritten signature in blue ink that reads "B Zimmerman".



Kathy Hughes

A handwritten signature in black ink that reads "Kathy Hughes".

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Turcinomacheilus ekmekciae by Baran Yoğurtçuoğlu



NEWS AND UPCOMING EVENTS



1000
fishes

by 2035

With our ambitious Phase 2 plans, including The SHOAL Blueprint for Conservation Action for 1,000 Freshwater Fishes by 2035, the SHOAL team is expanding. We are welcoming applications for a couple of roles and if they sound like you, get applying! Sound like someone you know? Get sharing!

US Programme Lead
Deadline: Tuesday 4th June

We are looking for an experienced individual based in the US or Canada (other locations within Central and South America will be reviewed on a case-by-case basis) to develop, manage and drive the growth of SHOAL in North America.

The successful applicant will work in close collaboration with Re:wild and SHOAL to identify, support, and mentor local partners, as well as establish and run high impact conservation projects for freshwater fish.

SHOAL/IUCN SSC ASAP Southeast Asia Programme Coordinator
Deadline: Sunday 2nd June

We are looking for a self-motivated individual based in Southeast Asia to accelerate freshwater species conservation in this critical region and support Southeast Asia's contribution to the The SHOAL Blueprint for Conservation Action for 1,000 Freshwater Fishes by 2035.

The successful applicant will act as the focal point for SHOAL in Southeast Asia, in partnership with the IUCN SSC ASAP programme.



The SHOAL 1,000 Fishes Blueprint outlines a framework for accelerated conservation action for 1,000 of Earth's most threatened freshwater fish species by 2035. It is perhaps the single most ambitious conservation framework in terms of species numbers ever written and illustrates the level of determination needed to turn back the tide on the freshwater biodiversity crisis. It is collaborative to its core, and puts local communities at the forefront of impactful conservation action. It is urgent that we now push on and mobilise the conservation actions outlined in The Blueprint – our planet's freshwaters depend on them.

DAM REMOVAL AWARD 2023

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Key Fish Species Identification in Central Asian Mountain Rivers for the Environmental Impact Assessment of Intensified Hydropower

Bakhtiyor Karimov (1) Matthias Schneider (2) Erkin Karimov (3) Otabek Omonov (1) Tobias Siegfried (4) Bernhard Zeiringer (5) Johan Coeck (6) Pieterjan Verhelst (6) Martin Schletterer (6) Iana Kopecki (2) Tobias Haegele (2) Beatrice Marti (4) Ine Pauwels (6) and Daniel S. Hayes (5)

1) “Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, Tashkent, Uzbekistan; 2) SJE Ecohydraulic Engineering Dilleniusstr; 3) Tashkent State Agrarian University, Department of Zootechnics and Veterinary, Tashkent, Uzbekistan; 4) HSOL, hydrosolutions, Zurich, Switzerland; 5) University of Natural Resources and Life Sciences, Vienna, Department of Water, Atmosphere and Environment, Institute of Hydrobiology and Aquatic Ecosystem Management, Vienna, Austria; 6) Research Institute for Nature and Forest, Brussels, Belgium.

Sustainability is a crucial part of the developments in small-scale hydropower (SHP) in Central Asia, particularly ecological sustainability. Ecological impacts of SHP on aquatic ecosystems are numerous, such as hampered aquatic animal migration, altered flow regimes (reduced flow, fast flow changes), changed river morphology (sediment retention, increased embeddedness), habitat fragmentation or changes in physical-chemical water quality parameters. Investigations were performed by the consortium of partners from Europe: BOKU (Austria), EVINBO (Belgium), Hydrosolutions (Switzerland) and SJE (Germany) in cooperation with the local partner TIIAME (Uzbekistan) in the demonstration sites Shakimardan at Koxsu River in Uzbekistan, and Atbashy close to Naryn City at Atbashy river in Kyrgyzstan with a focus on the mitigation of ecological impacts.

The mountains of Central Asia consist of two major mountain ranges: the Pamir and the Tien Shan with a total area of about 860,000 km² covered, including the two demonstration sites Shakimardan and Atbashy. Much of the high biodiversity and ecosystems close to natural conditions are found in remote mountain areas and have still to be better studied. Therefore, any human impact directed on the change of aquatic habitat in these ecosystems has to be thoroughly assessed before implementation.

During 2021-2023 the current status and diversity of the ichthyofauna of mountain and foothill sections of rivers that were selected for the development of sustainable small-scale hydropower were studied. To assess this integral component of river ecology a special focus has been laid on the related habitat conditions.

One of the crucial elements to achieve sustainable SHP is the identification of target aquatic key-species, This first step is of high importance for further activities aiming for the protection of wildlife biodiversity. Collected field data on fish diversity, taxonomy and ecology in more than 50 river catchments in Kyrgyzstan and Uzbekistan have allowed to identify for the first-time five main key fish species in upstream sections of Central Asian mountain rivers (see illustrations below):

1. Snowtrout – *Schizothorax eurystomus* (Kessler 1872);
2. Sewertsow rare-scaly osman – *Diptychus sewerzowi* (Kessler 1872);
3. *Triplophysa ferganaensis* (Sheraliev & Peng 2021);
4. Stone loach – *Triplophysa* sp.;
5. *Glyptosternon oschanini* (Herzenstein 1889).

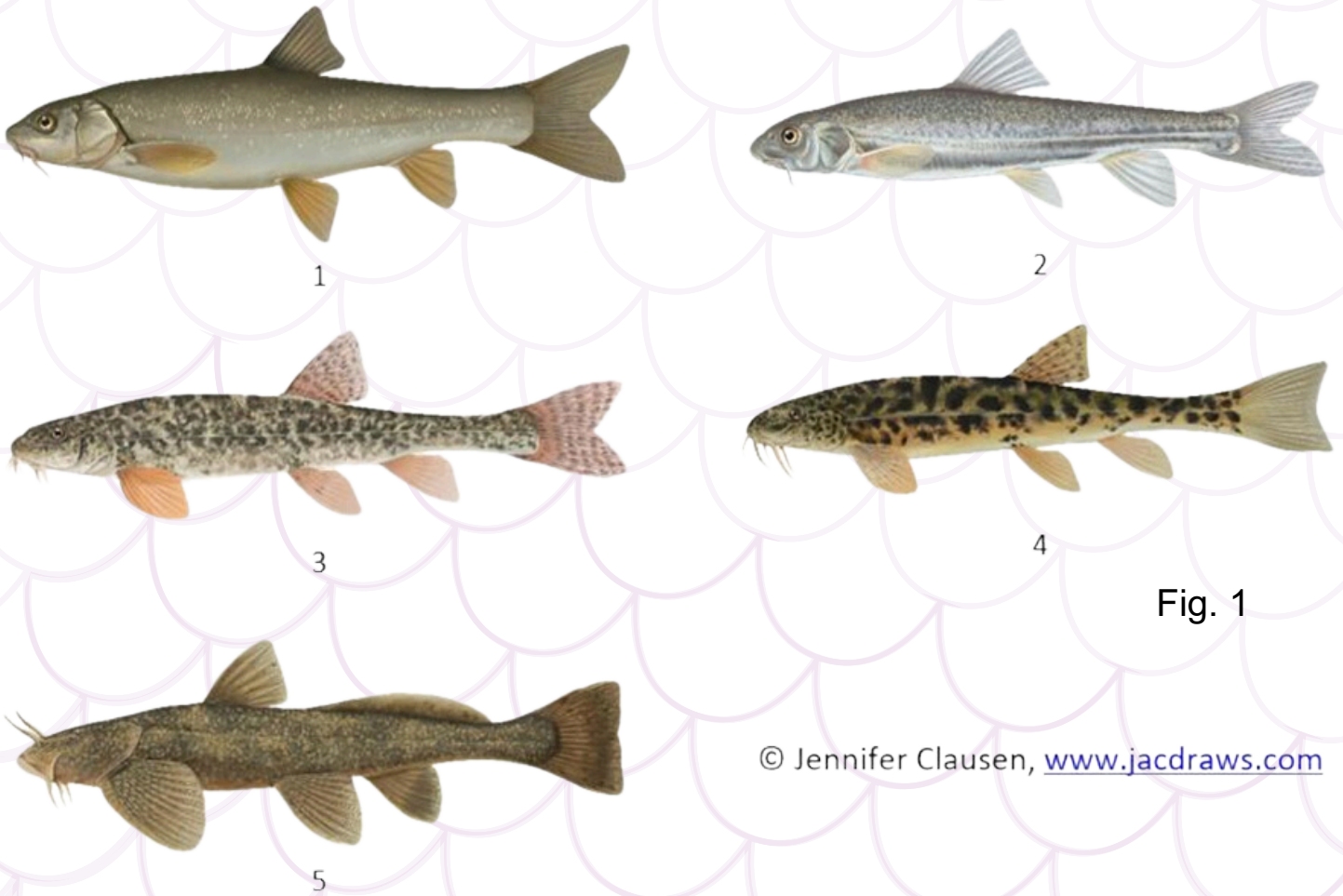


Fig. 1

© Jennifer Clausen, www.jacdraws.com

Figure 1. Central Asian fish species as target of SHP impact mitigation (in order of decreasing importance) (© Jennifer Clausen, www.jacdraws.com)

First findings have revealed that snow trout (*Schizothorax* sp.) species belong to the most important key fish species in Central Asia for the EIA of SHP and other human impacts. They are adapted to fast-flowing, high-sloped cold water mountain rivers. These fish, which reach up to 60 cm in length and 4 kg in weight, have a diet comprising algae, detritus, macroinvertebrates, and smaller fish. Their life cycle includes reaching sexual maturity at 3-4 years and a notable spawning period from April to September.

A habitat preference study of *Schizothorax eurystomus* in the Shakhimardan Basin performed by Hydro4U researchers using point electrofishing revealed that juvenile snow trout prefer shallow waters around 20-40 cm of depth, while sub-adults and adults favor deeper areas of >30 cm and >50 cm, respectively. All size classes showed a high plasticity for diverse flow velocities and inhabit various substrates, with juveniles showing a preference for mid-sized substrates. This research is significant as it expanded the known distribution range of *S. eurystomus* and provided baseline data for environmental flow assessments.

The information for the target species *S. eurystomus* has been used in Shakimardan for simulations with the habitat suitability model CASiMiR to find a seasonally adapted E-Flow providing fish habitats in adequate quality and availability when the HPP is diverting part of the natural flow. The existing weir will integrate a state-of-the-art fishway and a bypass installation that enables up- and downstream migration for snow trout.

In Atbashy the modernised irrigation weir, equipped with a shaft turbine, will also integrate upstream and downstream migration facilities. The attraction flow leading fish into the bypass channels and preventing them from entering the turbine inlet is being investigated using a newly developed module of CASiMiR to possibly optimize the inflow conditions. The findings from these studies, together with the results from the monitoring of the SHPs that go into operation during the project period will deliver information for the adaptive management as part of the Environmental Impact Assessment.



The Role of Conservation Aquaculture in the Recovery of an Endangered Arctic char population in Llyn Padarn, N. Wales

Dr. John Taylor

Aquaculture and Fisheries Technical Specialist - Natural Resources Wales

Llyn Padarn Arctic char are one of only three native populations remaining in Wales representing a unique, genetically distinct resource. Due to a combination of historical factors such as angling exploitation, habitat degradation, eutrophication, temperature spikes (from hydropower scheme), and lack of suitable spawning areas, the Llyn Padarn Char population was classified as “unfavourable” in 2010.

To address the threat of local extinction, a multipronged approach was used to restore the population to sustainable levels, including improvements to water quality and restoration of spawning and nursery areas. To avoid any further loss of genetic diversity and boost abundance before other works could be completed, a breeding and re-introduction programme was designed.

Using a sophisticated factorial mating protocol designed to maximise family contributions and increase genetic diversity, eggs from a wild-caught founder population were reared at the Natural Resources Wales (NRW) Cynrig Hatchery (previously at Maerdy Hatchery 2010- 2014). Excellent survival to Autumn parr was achieved (80%) and to date just over 30,000 parr have been stocked into the lake.

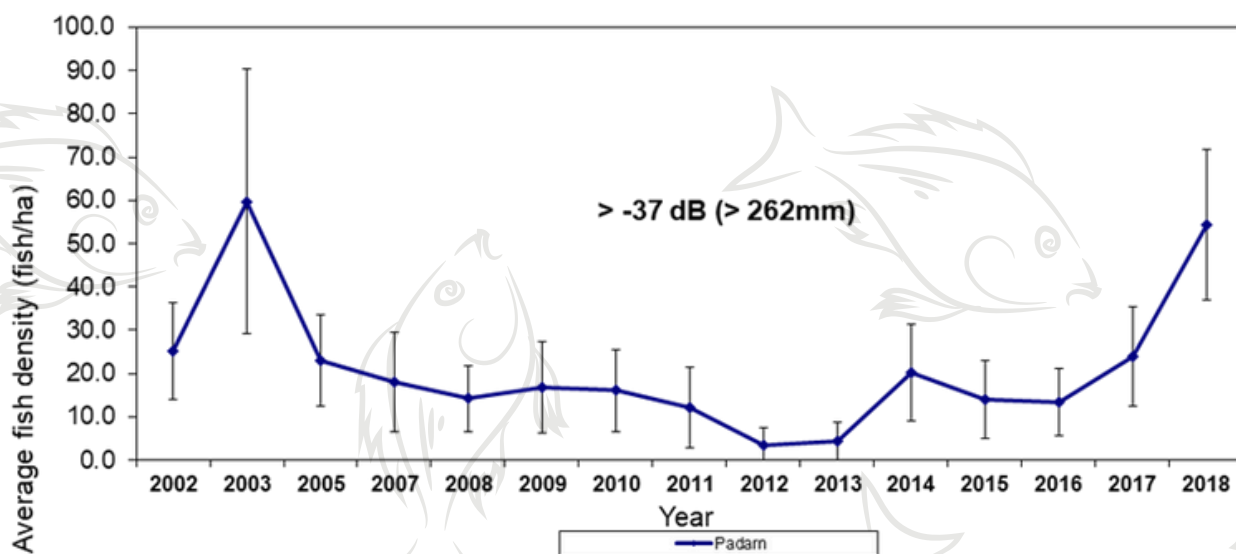


Fig. 1

Figure 1. Increase in adult Char in Llyn Padarn (= fish > 262mm) during restoration, stocking started in 2011 (courtesy of Pete Clabburn, NRW- annual acoustics surveys)

In a recent PhD Thesis studying the fate of Llyn Padarn Char and the effectiveness of conservation efforts, Antony Smith from Bangor University concluded this about the char stocking:

- There has been a significant increase in adult abundance following stocking.
- There is a significant correlation between stocking and increased juvenile abundance.
- There is no evidence of inbreeding following stocking.
- Genetic diversity has been maintained.
- The effective population size has shown a significant increasing trend.



Figure 2. Adult male hatchery-reared char (top) and wild female (below) captured as broodstock (courtesy of Walter Hanks, NRW)

At present the annual spawning run is still composed of 70% hatchery origin fish which would indicate that wild recruitment is still limiting. We would look for the contribution of wild fish to outnumber hatchery recruits significantly before considering an exit strategy for the programme.

This study proves, contrary to popular misconceptions, that it is possible for hatchery fish reared in captivity to restore abundance and improve genetic diversity of endangered stocks whilst habitat and water quality improvements are being addressed. The next step is to follow spawning lines through to the following generation, comparing the spawning success of wild and hatchery origin char (Relative Reproductive Success).

Cooperation is the key to the future of northern platyfish in Mexico

Markéta Rejlková

Ostrava Zoo, Czech Republic

Northern platyfish are a group of three related fish species from northeastern Mexico, two of which (*Xiphophorus couchianus*, *X. meyeri*) have been Extinct in the Wild for several decades, and the third (*X. gordonii*) is an endangered micro-endemic of springs in a desert valley. The first two species in particular are the subject of the conservation initiative, which was established in 2023 and connected several parties: Universidad Autónoma de Nuevo León (UANL) and Acuario Inbursa from Mexico, Ostrava Zoo from the Czech Republic, Aquarium tropical de la Porte Dorée from France, and the European Union of Aquarium Curators, which supported the project financially. Countless aquarium hobbyists from Europe, who have been dedicated to preserving these species for decades and have - in addition to fish - considerable knowledge, also contributed.

There were no conservation plans and no ex situ populations of these species in Mexico, and the aim of the joint effort was to take the first steps towards the creation of both. In the past, the research and conservation breeding of northern platyfish was carried out by UANL in Monterrey, Nuevo León. This city of four-million, with its rapid construction growth in the second half of the last century, absorbed the original habitats of *X. couchianus*. All northern platyfish are spring-bound; this was also fatal to them, for in case of the disappearance of the spring or its temporary drying up, they had no other refuge to survive. Impaired water quality and hybridisation with introduced *Xiphophorus variatus* were other factors leading to the species' disappearance.



Monterrey and UANL became the main base for the fieldwork in June 2024. We visited localities with known history of the occurrence of *X. couchianus*. We conducted a survey to determine the current status and suitability for possible reintroduction in the future. UANL students were trained to conduct research and documentation independently. Recruiting young people for the study of local biodiversity - or "just" awakening in them a sincere interest in the natural history of their neighborhood - is essential.

We also worked in the state of Coahuila, exploring water bodies in and around the town of Múzquiz. *X. meyeri* inhabited a spring there, which today has the form of a swimming pool. The water source for this pool (and for the entire city) dries up in cases of extreme drought. If not for this climatic obstacle, the site is well preserved. However, for the first time we recorded the appearance of a non-native species of fish (*Poecilia cf. latipinna*), which must have been introduced here deliberately. We spoke to the children in a local school because any conservation plan must involve and have the support of local communities.

We are working to establish ex-situ breeding of both species in Mexico. And we are trying to expand and strengthen the network of partners - the possible return of northern platyfish will require coordinated efforts not only of conservation and scientific institutions, but also of local governments, civic organizations, and passionate individuals. Please get in touch if you want to be involved.



The status of fish from the type localities in unique *Melaleuca cajuputi* swamp forest

Mohamad Aqmal-Naser and Amirrudin Ahmad

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Commonly known as paperbark tree or gelam bark, the *Melaleuca cajuputi* grows in the coastal swamp forest in Southeast Asia including Peninsular Malaysia. The species can thrive in swampy areas and wetlands which are prone to waterlogged soil and seasonal flooding. Water often fluctuates, especially before and after monsoon seasons, making the plant able to tolerate the harsh environment. The *Melaleuca* swamp forest supports a rich biodiversity of animals including freshwater fish, some of which are threatened or endemic. The fish species found in this ecosystem are remarkably stunning and possess aesthetic and ornamental value.

The *Melaleuca* swamp forest in Terengganu, Peninsular Malaysia, is home to some fish species that were first described from the type locality. The species include *Pangio alcoides* (Data Deficient), *Brevibora cheeya* (Least Concern) and *Paroshpromenus paludicola* (Endangered). Not much is known about the current population of the species in their type locality and what threats they encountered. With the support from NAGAO Natural Environment Foundation (NEF), fish surveys have been conducted in some of the *Melaleuca* swamp forests, freshwater swamps, rivers and streams in Terengganu to study the distribution and population status of the targeted fish species. Other targeted species included *Betta stigmosa* (DD), *Akysis hendricksonii* (LC), *Amblyceps foratum* (LC), *Rasbora notura* (LC), *Homaloptera parclitella* (LC), *Pangio filinaris* (LC), *Pangio piperata* (LC), *Nanobagrus lemniscatus* (VU) and *Clarias sulcatus* (CR). Multiple sampling methods were used to maximise the sampling effort and chances of collecting the species.



Figure 1. The *Melaleuca* swamp forest during drought season. The darker shading on the tree represents the water level during monsoon season.

Despite multiple areas of Melaleuca swamp forest surveyed, the team was unable to collect any specimens of *P. alcoides*. The species prefer slow-flowing black or brown water and the substrate is decomposed leaf. However, the population of *B. cheeya* is in a healthy status with higher abundance and thriving well in the ecosystem. Meanwhile, the Endangered licorice gourami, *P. paludicola* is found far from its type locality, nearly 90 km in the other district of Terengganu. They are quite common but not abundant. In the meantime, continuous surveys are being conducted to determine the area of occurrence for this species.

Land use for development and sand mining for silica are the major threats to this habitat-specific fish. Even though the species can adapt to periodic hydrological variations in the swamps, overcollection of the fish, especially the licorice gourami, is expected for the ornamental fish trade. Their existence in the forest reserve, however, can help to conserve their population while continuous inventories are crucial to monitor their population.



Fig. 2

Figure 2. Scoop net is the common gear used during fish survey

Museums Build Better Barcode Libraries

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Understanding and monitoring fish populations is crucial for informing effective conservation strategies. Unfortunately, conventional methods of population study are often laborious, time-consuming, and technically challenging, especially in regions with extraordinary diversity. As we face ever-increasing environmental challenges, there is a pressing need for innovative techniques that make studying fish species and populations more efficient and accurate. Environmental DNA (eDNA) metabarcoding techniques hold the potential to revolutionise how we study and monitor fishes. However, eDNA techniques rely on the availability and, crucially, the reliability of reference barcodes, posing a fundamental weakness that is commonly overlooked.

Barcoding and by extension eDNA metabarcoding rely on the comparison of short, standardised DNA sequences from unknown samples to known reference sequences, commonly using large public databases such as Genbank and the Barcode of Life Data System (BOLD). To date, the availability and reliability of these references have largely been taken for granted. Greater attention must be paid to their reliability, as both databases have been found to be plagued by incorrect identifications and missing or broken links to voucher specimens. This is especially true for sequences from species of incredibly biodiverse regions such as the Amazon. Fish taxonomy in these regions is not only difficult, but constantly changing, making the repeated examination of voucher specimens associated with reference barcodes vital.

The Royal Ontario Museum (ROM) in Ontario, Canada, is working to address these challenges for fishes of the Western Amazon, the most ichthyologically rich freshwater ecosystem on Earth. Through recent and ongoing fieldwork in combination with ROM's vast collection of specimens and tissues, we are developing an extensive dual-barcode (12S, CO1) reference library for Western Amazonian fishes. Over 9,500 specimens and 4,000 tissues have already been collected on four expeditions to Ecuador and Peru since 2021. Identifications of voucher specimens have been confirmed by taxonomic experts and via reviews of relevant literature, with IDs being standardised across sites through a final family-by-family review. Over 1300 specimens and 550 species have now been barcoded, with each DNA sequence being linked to a specimen in ROM's collection. This approach not only ensures the accuracy and reliability of these reference sequences, but also enhances the database's long-term reliability by allowing scientists to revisit and revise taxonomic classifications as needed.



In its preliminary stages, this project is already yielding promising results, such as a 60% increase in successful identifications to species from regional eDNA datasets using our custom database compared to GenBank (from 21.3% of haplotypes identified to 35.7%). Furthermore, this well curated reference library allows us to calculate species delimitation thresholds specific for Amazonian fishes which can reduce potential false positives and negatives. This significant improvement underscores the importance of natural history museums, dedicated fieldwork, and integrated specimen, tissue, and sequence management to enhance the reliability of eDNA methods in any biodiverse region of the world.



As interest and investment in eDNA tools skyrocket globally, there must be concomitant investment in specimen-based, taxonomic research to improve the accuracy, long-term consistency, and reliability of barcode reference libraries.

A Leap Forward for Turkish Freshwater Fish: The Recent IUCN Red List Assessment

Dr Mahir Kanyılmaz

Associate Professor, TR. Ministry of Agriculture and Forestry of Türkiye, General Directorate of Fisheries and Aquaculture, Department of Resource Management and Fisheries Structures

After a decade since the last IUCN Red List assessment of Eastern Mediterranean species in Jordan, Turkish freshwater fishes were recently reassessed at a major event held in Antalya, Turkey. This event was hosted and facilitated by the contributions of the Department of Resource Management and Fisheries Structures of the General Directorate of Fisheries and Aquaculture, under the Turkish Ministry of Agriculture and Forestry. The comprehensive reassessment not only focused on updating the status of species assessed in the previous event, but also expanded to include newly added taxa due to recent discoveries or taxonomic revisions. The diverse gathering included renowned scientists, academics and experts from universities and the TR. Ministry of Agriculture and Forestry. Together, they evaluated a total of 275 native species, including 110 new taxa recently identified or reclassified due to taxonomic needs. This extensive effort represents the most up-to-date global Red List assessment of Turkish freshwater fishes, drawing attention to its international importance.

However, the results were sobering. Some 160 species are now in a threatened category, with six sadly declared Extinct. Alarmingly, at least 19 species were classified as Critically Endangered, including four each of spring minnows (*Pseudophoxinus*) and four killifishes (*Anatolichthys*). This harsh reality stresses the urgent need for continued research, data collection and proactive conservation measures. The threats identified during the assessment were many and varied, ranging from increased water abstraction, invasive species, pollution, and dam construction, to reduced rainfall and increased evaporation due to climate change. These challenges are evidence of the widespread crisis that freshwater habitats are currently facing due to the ongoing degradation of these vital ecosystems caused by continued human activity.



This occasion is a clear and urgent call to action as well as a formal assessment in the global IUCN Red List. It not only highlights the pressing need to protect threatened species, but also reinforces the importance of protecting our freshwater ecosystems. In other words, by providing the most up-to-date global snapshot of Turkey's freshwater fishes, this new Turkish assessment makes a significant contribution to global conservation initiatives.



The freshwater fish flagship species of the “Vietnamazing” EAZA Conservation Campaign 2025–2025

Ziegler (1), T., Nguyen (2), T. D., Luu (3), T. H., Nguyen (4), K. V., Nguyen (2), T. Q. & M. D. Le (5)

(1) Cologne Zoo

(2) Institute of Ecology and Biological Resources (IEBR), Vietnam Academy of Science and Technology, Hanoi

(3) Southern Institute of Ecology (SIE), Institute of Applied Materials Science, Vietnam Academy of Science and Technology, Ho Chi Minh City

(4) Wildlife at Risk (WAR), Ho Chi Minh City

(5) Central Institute for Natural Resources and Environmental Studies (CRES), Vietnam National University, Hanoi

The conservation campaigns of the European Association of Zoos and Aquaria (EAZA) have been focusing on a wide range of species and habitats. Through the campaigns, funds are raised for species conservation projects on the ground. They also clearly serve the purpose of environmental education. During the past campaigns, hundreds of millions of zoo visitors were informed about the campaign topics and the general importance of biodiversity conservation.

The current campaign entitled ‘Vietnamazing’ focuses on Vietnam's unique habitats and their threatened biodiversity. The core team consists of zoos in Leipzig, Cologne, and Mulhouse, the Zoological Society for the Conservation of Species and Populations – ZGAP, as well as Beauval Zoo, Dortmund Zoo, Royal Burgers' Bush, and EAZA.



What is very important for this campaign is clearly the integration of the "One Plan Approach to Conservation" of the International Union for Conservation of Nature (IUCN). The One Plan Approach aims to protect a species by involving all those responsible and relevant and drawing on a wide range of expertise.



On the occasion of the annual meeting of EAZA in Helsinki, Finland, the new campaign was launched on 15.9.2023 in an hour-long plenary session to almost 900 participants from 327 institutions and 70 countries and thus made public. In this plenary session, we also presented the flagship species and priority projects of the campaign for which support is requested, and likewise how to become part of the campaign, following the motto: "Be part of it!". Thus, EAZA members, as well as other interested conservation partners, can sign up and prepare for the campaign launch at their own institutions (<https://vietnamazing.eu/>). The recording of the plenary session is also available on EAZA's Youtube channel (EAZAvideo).

(<https://youtu.be/yXBlicjBCHE?-feature=shared>)

Under the "Vietnamazing" campaign, the aim is to highlight the uniqueness of Vietnam as a biodiversity hotspot, promote and implement the One Plan Approach, build bridges between EAZA institutions, zoo visitors, and Vietnamese and international conservation partners and beyond. The aim is to link conservation planning processes, in situ and ex situ conservation with habitat restoration efforts, scientific research, conservation education, fundraising, and public awareness. In this way, the campaign will raise awareness of threatened species from Vietnam and tries to conserve them and their habitats for the long term.



The flagship species for the Vietnamazing campaign is the tiger hillstream loach (*Sewellia lineolata*).

Species of the genus *Sewellia* are very popular in aquaristics and are regularly found in the ornamental fish trade. Most species are rheophilic, i.e. adapted to fast, clear and oxygen-rich flowing water. The Tiger hillstream loach is endemic to central Vietnam. It is widespread in the aquarium trade and can also be found in zoos. The major threats to this species are overfishing and habitat destruction. The Tiger hillstream loach is classified as Vulnerable in the IUCN Red List and natural populations are declining.

The EAZA Vietnamazing campaign will promote:

- To study population trends and habitat threats;
- Build-up of a reserve population in Vietnam.



The Tiger hillstream loach also is substitute for other threatened ornamental fish species. Therefore, this project should also serve as a pioneering project for the establishment of further conservation breeding programs for other threatened freshwater fish species in Vietnam.

To achieve this goal, the campaign will additionally promote the establishment of reserve populations of threatened freshwater fish species in various locations and field studies to launch these programs, which is in line with the IUCN SSC Asian Species Action Partnership Singapore (ASAP), which lists nine species from Vietnam, including two threatened *Sewellia* species.

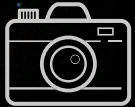
Zoos that keep hillstream loaches can draw attention to the importance of research and conservation of Vietnam's threatened freshwater fish.

Further reading

More information can be found on the campaign homepage (<https://vietnamazing.eu/>) or on social media, such as Instagram, at vietnamazing.eaza.org.

CALLOUT FOR MORE SUBMISSIONS

WE ARE ALWAYS LOOKING FOR MORE CONTENT TO ADD TO OUR NEWSLETTER. SHOULD YOU LIKE TO HAVE AN ARTICLE OR IMAGE FEATURED HERE, PLEASE FEEL FREE TO SUBMIT IT TO FFSGCHAIRS@GMAIL.COM



Betta hendra by Wentian Shi

THANK YOU FOR READING!



Oryzias soerotoi by K Yamahira