

Livebearer News

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Data Protection Act

In order to comply with the requirements of the Data Protection Act, we need to inform members that their name, address, email address and telephone number are being maintained on a database, the purpose of which is for the distribution of their Association's magazine and to inform members of forthcoming events. This information will not be provided to any other organisation for any purpose whatsoever without prior consultation. The Association agrees to remove any details at a member's request.

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Editorial

How have your fish coped with the weather this summer? In my case, the answer is: mixed. As I have written before, my fish room is unheated but has a large south-facing window. During the warm spells this summer the temperature in there rose to over 30°C and stayed there for several days. One cichlid species responded by breeding for the first time in a couple of years but most of the *Goodeids* that I keep responded by stopping breeding. What about you? I would love to hear how you and your fish coped with the higher temperatures. Did you move your fish outside? I know that some BLA members do exactly that and would like to know how the fish fared in that case.

And now the big one. The BLA Autumn Convention, including a show and auction, takes place on Saturday 20th and Sunday 21st of September. There will be sales tables, a guppy show and a wild-type livebearer show, a question-and-answer session with a panel of fish-keeping experts and, of course, the auction that takes place on Sunday.

Speaking of the auction; the one that we held at Carlisle was not our finest hour. There were twenty-fives boxes of fish entered into the auction and the event took far too long and finished far too late. We have been discussing ways to ensure that this does not happen at future events, including at the Convention.

And we seem to be going international! We have Dan Fromm coming over from the USA specially for the event and Kees de Jong is flying in from the Netherlands. And do you know what I am looking forward to the most? It is the informal parts of the weekend. The chance to chat to people who know so much more than I do about fish-keeping in general and livebearers in particular. Last year a group of us went to the pub next door to the Shenstone village hall on the Friday evening for a meal and we sent out for a Chinese meal on the Saturday evening. Both were just brilliant events and I am looking forward to doing the same again this year, but with international visitors. I hope that you will join us and come and say hello.

Thanks are due to several people. Thanks to Clive Walker for his notes on the Basingstoke event. Thanks to Erwin Radax for posting on “Facebook” the article about *Characodon* species and the link to the work on *Profundulus*. Thanks to Michael Kempkes for giving permission to use his article about *Poecilia wingei* and to Volker Diekmann of the VDA for sending it to me. Many thanks to Kees de Jong for sending me the article about evolution in guppies by Cecile Leuvenink and also for coming to the convention. And most of all, thanks to Dan Fromm for sending me his article about *Poeciliopsis* “Splotch”, for tidying up my efforts and making the newsletter look much more professional and for flying to the UK to attend the convention.

Snippets

I am very grateful to Erwin Radax for posting the following on “Facebook”:

Taxonomic Turmoil: Using ddRAD Data to Resolve Taxonomic Discrepancies Within the Genus *Characodon* Cyprinodontiformes: Goodeidae)

Sherman, Andrew N., Elyse Parker, Michael Köck, Omar Domínguez-Domínguez, and Kyle R. Piller. 2025. *Ichthyology & Herpetology* 113(2) :395–405.

ABSTRACT

Characodon (Cyprinodontiformes: Goodeidae) is a highly imperilled genus of fishes from the Río Mezquital basin in northern Mexico that consists of two extant species (*C. lateralis* and *C. audax*), as well as a third extinct species (*C. garmani*), only known from the holotype. There are uncertainties in regard to the type localities for *C. lateralis* and *C. garmani*, making taxonomic revisions challenging. We gathered ddRADSeq data to generate a genome-wide dataset for populations of *Characodon* across the range. Our population genetic (FST, DAPC, PCA, sNMF) and phylogenetic (ML) analyses recovered three major groups/clades within *Characodon*, including one group corresponding to above the falls (Cascada El Saltito) and two separate groups from below the falls. Species delimitation analyses using BPP confirm the existence of three groups. Therefore, we recognize four species within *Characodon*. We must continue to recognize *C. garmani* as we did not include samples in our study and are therefore unable to re-assess its taxonomic status based on genetic data. We recognize all other populations above the falls in the Río Mezquital basin as *C. lateralis* and recognize *C. audax* as a junior synonym. Finally, we recognize two undescribed species below the falls, *Characodon* sp. 1 (Los Berros-La Constancia) and *Characodon* sp. 2 (Amado Nervo) that await formal descriptions.

Erwin also posted on “Facebook” a link to an article about a new species of *Profundulus*. Now yes, I know that these are killifish, not livebearers, but they look very similar to many goodeids and they are quite closely related to the Goodeids. So, if you are interested, the link is:

“*Profundulus hectori*, a new species of *Profundulus* is described from several localities in the Grijalva river basin and rivers of the Isthmus of Tehuantepec, in southern Mexico.

Open-access - <https://www.scielo.br/j/ni/a/5nH8BqXsTYvSB3SYQJNYxLj/>

Heiko Bleher (1944-2025) 🍷 One of the greatest

I have read many articles about the work of Heiko Bleher over many years. The following is a copy of a “Facebook” post. Ironically, I saw this just minutes after seeing a Facebook recommendation of Heiko Bleher as a “Friend”. I just wish that I had known the gentleman.

"It was with deep dismay that I received the news today that Heiko Bleher has passed away. Heiko was a true adventurer and explorer all his life. His passion for aquaristics and his expeditions to all corners of the world are legendary. He leaves a big gap, because he showed us how beautiful and fragile our world of fish and the nature of the tropics is.

Let us celebrate him and be grateful for his countless pictures, articles and publications. They are for eternity.

I wish his family and friends much strength and my heartfelt condolences."

Oliver Knott

Report on the Basingstoke show





The BLA auction and show was held on Sunday the first of June 2025. The Show had 42 entries of wild and cultivated livebearers. Best fish in show went to a *Limia nigrofasciata* owned Alan Finnigan.

There was a variety of wild species on show including *Allodontichthys polylepis*, *Xiphophorus cortezi*, *X. variatus*, *X. xiphidium*, *Pseudoxiphophorus jonesi*, *Heterandria formosa*, *Limia perugiae* and *L. nigrofasciata*.

On the cultivated side were of course some Guppies, Swords, Platies and Mollies.

The photos of two Indonesian Molly imports don't give an idea of size, they were between 30-35 mm. It was interesting to see something different at a show.

A big thank you goes to the Association of Aquarists who ran the show, helped in many areas and also sponsor the cost of the hall.

Their next auction is on November 2nd at Kempshott Village Hall, Pack Lane Basingstoke. A venue used for fish keeping events since at least the late 1960s.

If you don't look you won't find anything. An example: *Poeciliopsis* “Spotch”

Text and photos by Dan Fromm

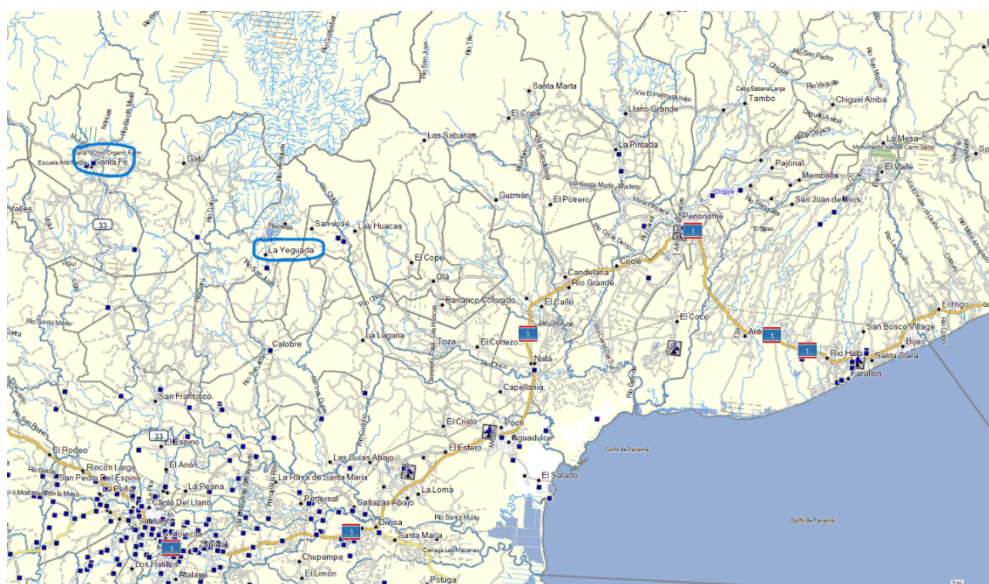
My wife and I have been guided in our fieldwork by an idea our late friend Bill Bussing, the ichthyologist of Costa Rica, gave us. When we've come to him with a fish, shouting “Bill! Bill! Look at what we found!,” he was usually acquainted with it. Acquainted with it or not, his invariable response was Bussing's law (“Isolation makes variation.”) followed by Bussing's wisecrack (“So what?”). He often reminded us that headwaters are isolated. We took his suggestion to look for interesting fish in headwaters.

We visited Panama several times in the late '90s and early '00s for a *Brachyrhaphis* project, spent considerable time driving uphill looking for accessible water that might have *Brachyrhaphis*. General principles aside, another motivation for doing this was the *B. roseni* (ANSP 104383) H. G. Loftin had collected from a “Small mountain creek up hill N of Santa Fe.” This is in the Río Santa María drainage north of Santiago.

ANSP 104383's males are remarkable because their gonopodia are tubular, not planar as is normal for the genus. I don't know how Loftin did it, but I believe this is an artifact of preservation; ANSP has another lot of his *Brachyrhaphis* with similarly surprising gonopodia.

We went up to Santa Fe and beyond to try to find Loftin's site. We don't know whether we found it – his text was vague. None of the streams we fished above and in Santa Fe had *Brachyrhaphis*.

Failure in Santa Fe didn't stop us from looking for *Brachyrhaphis*, especially *B. roseni*, way up in the hills. On March 3^d, 1997, we went up to La Yeguada, elevation ~2000'/600m, in the Río San Juan drainage.



At La Yeguada we found a surprise, a poeciliid that we didn't recognize at sight. When I caught my first one my reaction was "*What's this?*" Pat's first had the same effect on her; she brought it to me and asked whether I knew what it was.

The first male collected had a long gonopod. Aha! Given location, most likely a *Poeciliopsis*. All of the known Panamanian *Poeciliopsis* species are in Costa Rica and, therefore, in Bill's key so I ran our find through his key to Costa Rican *Poeciliopsis*. Our surprise didn't come out as any of them; the colour pattern matched none of them.

Finding a striking and colourful little fish -- it is small; male Standard Length $\leq \sim 25$ mm, female SL $\leq \sim 30$ mm -- that might be a new species was thrilling.



Two male Splotted *Poeciliopsis*



A female and another male Splotch – their pattern is variable



La Yeguada site in 1998. Most of the Splotches we collected came from a side channel (right front). Collectors Rigoberto González G. (left) and Dan Fromm (right). Photo by Pat Fromm.



A view from the bridge in 2025. The side channel is no longer there.



In 2025 the site had a wary guardian, a Brown Basilisk (*Basiliscus basiliscus*)

We brought some of the thrilling fish – working name Spotted *Poeciliopsis*, nickname Spotch – home with us. After a male died I worked it up. Definitely a *Poeciliopsis*, in fact a *Poeciliopsis (Aulophallus)*, closest relatives *P. (A.) elongata*, *P. (A.) retropinna* and *P. (A.) paucimaculata*. I sent tissue to a geneticist friend. He returned sequences of three mitochondrial genes, cytochrome B (360 bases), 12S ribosomal RNA and 16S rRNA. A quick look in GenBank found one *P. (A.)*, sequence, *elongata* cytB (200 bases). The overlapping sections of the two sequences differed by one base. Not what I wanted, and a good reason not to rush to describe what might be a synonym.

After decades of procrastination I returned to the Spotch, borrowed *P. elongata* material from several museums and worked it all up. The loan specimens came from brackish/marine habitats, primarily in Panama, and from low elevation freshwater habitats in Panama. In Panama, but not in Costa Rica, where it also occurs, *elongata* enters fresh water.

I intended to describe the Spotch as a new species. Doing this required writing a diagnosis that would separate it from species it could be confused with.

I looked at the usual characters. Ray, scale and gill raker counts all fit *elongata*, separated the Spotch cleanly from the other two described *Aulophallus*. Not what I expected.

The first Splotch mouth I looked into had distinctive dentition; forty teeth in the outer row of each jaw, grouped into eight clusters, each with five teeth. This prompted a “WOW!” Some other specimens, however, had forty teeth in a somewhat irregular but continuous row. I found the same patterns in brackish/marine *P. elongata*. Another reason to work with large samples and a rejection of my first impression.

I thought that the Splotch’s melanophore pattern was distinctive. Four to six well-defined spots above the lateral line on each side, with a well-defined bar descending from some of them. Spot and bar make a narrow triangle, widest at the top. This pattern is not bilaterally symmetrical, the two sides don’t always have the same number of spots. When both sides have the same number of spots, spots on the two sides are paired. When unequal, one or two of the usual pairs lacks a spot; which one (right or left) is missing seems to be random. Careful examination of large preserved brackish/marine *P. elongata* found the same melanophore pattern. It is hard to see because mature brackish/marine fishes’ ground colour is quite dark. The Splotch’s ground colour is yellow, not gray, and is much paler than that of large brackish/marine *elongata*. Small ones’ ground colour is silver. Another disappointment.

Male Splotches’ gonopodia seem identical to those of brackish/marine *elongata*. The gonopodial suspensorium of the first male Splotch I X-rayed is not that good a match to Rosen & Bailey (1963)’s figure 55D, of USNM 78846 cleared and stained. This specimen can’t be found so I couldn’t check their line drawing’s accuracy. Radiographs of male *elongata* from every population I had material from showed considerable variation in the form of the gonapophyses. Every variant is present in each population, including the Splotch. USNM 78846 is atypical. Not at all what I wanted to find.

The late Ruth Reina, of the Smithsonian Tropical Research Institute, who helped me borrow specimens from STRI, sent me a cytB-based tree of *Poeciliopsis* in STRI’s collection. The Splotch clustered with brackish/marine *elongata*; members of her *elongata* clade differed from each other by a few (<4) bases in ~ 1,100. More evidence that my initial reaction to the Splotch was a mistake.

I mentioned above that the Splotch is small. Pat and I have collected large (SL ~ 125 mm) female *elongata* in Costa Rica. Size alone doesn’t justify recognizing a new species.

Given my data, I can only conclude that the Splotch is a headwaters isolate of *P. (A.) elongata* and not, as I hoped and wanted, a new species. I could be mistaken. Mariana Mateos of Texas A&M disagrees with me, thinks that the Splotch needs a name. At the least it merits a thorough genetic workup.

I hope Mariana’s right but can’t justify ignoring the data I compiled while trying to write a diagnosis. Wishful thinking (mine) is well and good but reality isn’t always what we want.

Our Splotches were frustrating aquarium fish. On the one hand, they got along well with each other. They behaved as captive poeciliids should. They quickly learned about feeding time and where their manna from heaven materialized. Males were very interested in females. Females produced young. Adults tolerated fry well.

I doubt that Splotches' yellow colour is due to diet. Fry born in our tanks and fed only Tetramin flakes were as colourful as their parents.

On the other hand, we had parasite problems with them. The last ones we brought home (2002) had Anchor Worms (*Lernea*.) These parasitic copepods came to Panama with European fish, probably carp. Dimilin, a terrifying, because it is highly toxic to most aquatic invertebrates, chitin synthesis suppressor and a controlled substance in the U.S. got rid of them. All of the Splotches we brought home ('97, '98, '00, '02) had a fluke infestation that in-tank treatment with a Malachite Green-Formaldehyde preparation suppressed temporarily but not permanently. Praziquantel, the fluke eliminator of choice, wasn't available to us when we had Splotches.

Even worse, all of the progeny grew up male. Environmental sex determination has been demonstrated for some poeciliids. We may have kept our Splotches too warm.

Frustrations notwithstanding, I very much want to have Splotches again. In 2024 Rigoberto González, of STRI, and I revisited the site where Pat and I found them in 1997 and on subsequent visits to Panama through 2002. It had changed character considerably but the fish were still there, albeit fewer and younger. Surprisingly, none of the fish we caught there had Anchor Worms. I didn't bring any Splotches back with me because I didn't have an export permit. Perhaps in 2025 ...

In 2024 as in earlier visits we looked for Splotches in accessible water up- and downstream from our good site for them. As before, we found none.

For comparison, pictures of two smallish (TL < 1.5"/38 mm) *Poeciliopsis elongata* that Pat and I collected in 1981 from a ditch near Ingenio Felipillo are below. The ditch flowed into the Río Pacora. In Panamanian Spanish an Ingenio is a cane mill. Ingenio Felipillo was working when we were there; I believe that it is now a park. The fish were in fresh water that smelled of molasses. We didn't taste it. The site is south of the InterAmerican Highway not far east of Tocumen Airport.

These were also frustrating aquarium fish. They survived transportation well, seemed to thrive in our water (~ 130 ppm TDS, pH between 7.2 and 7.5) and grew but then started to die. None survived long. I've read somewhere – can't find the reference – that juvenile *P. elongata* from fresh water have to be moved to brackish water as they grow up or they won't survive. I hope this isn't true and that we lost ours to an undetected pathogen or parasite or to a failure of technique.



Two *P. elongata* from Ingenio Felipillo. Immature male above. Female or juvenile male below. These photos don't show how silvery the fish are.

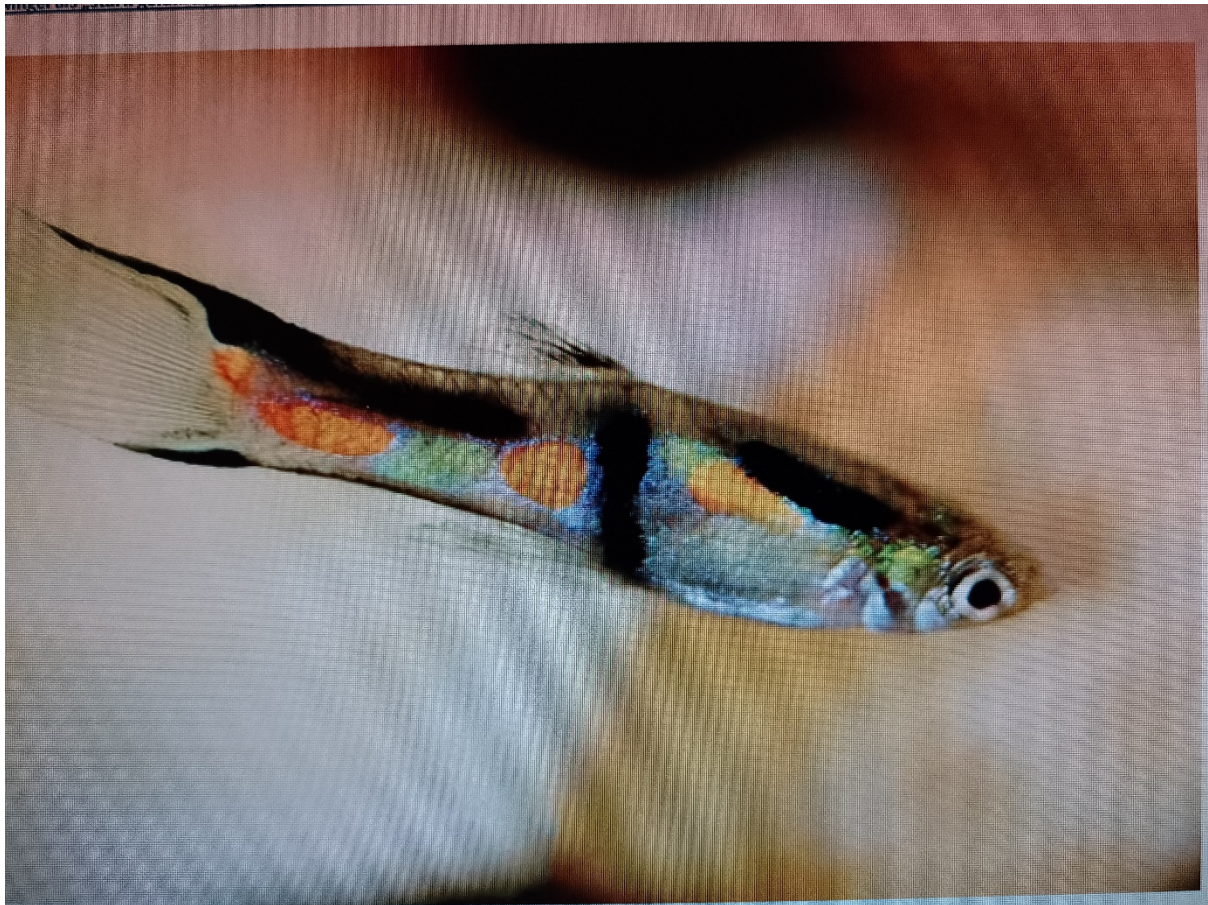


Photo by Gerhard Bozek

Poecilia wingei classified as ‘endangered’

By Michael Kempkes

The appearance of *Poecilia wingei* (Poeser et al. 2005) on the IUCN Red List is not really a big surprise, but it is nevertheless sad news that should alarm every guppy lover. The ‘Endangered’ assessment was made on 8 March 2021, but it was not published until 2024.

Dr. Fred Poeser and I visited the famous Laguna de los Patos in July 2002; the condition of the water was alarming at the time, as the banks were heavily littered and the water was obviously heavily eutrophicated (Poeser & Kempkes 2006). A year later, Dr. Wolfgang Staeck also failed to catch any specimens of *P. wingei* in Laguna de los Patos (Staeck 2004). The accounts of other travellers also contained references to multiple negative anthropogenic influences on the habitats of *Poecilia wingei* in north-eastern Venezuela. Accordingly, I also assessed the situation for *Poecilia wingei* pessimistically (Kempkes 2010, p. 186f.). This species has now been included in the IUCN Red List.

The authors of the IUCN Red List entry summarise various reasons for their assessment. Among other things, they roughly name:

residential and commercial development, agriculture & aquaculture

use of biological resources (logging & timber harvesting, fishing and harvesting of aquatic resources)
invasive species and hybridisation
water pollution from domestic and municipal wastewater
industrial and military wastewater
agricultural and forestry wastewater
the effects of climate change (shift and change of habitats and droughts)

With regard to hybridisation with the sister species *Poecilia reticulata*, Mikolji et al. 2024 note:

"The hybridisation of *Poecilia wingei* with its sister species *P. reticulata* in the Laguna de Los Patos system, as described by Endler (2011), is a very worrying factor or even a threat to *P. wingei*. This hybridisation problem can occur throughout the entire range of *P. wingei*, as the two closely related species are caught, transported and introduced elsewhere by humans [...]. In any case, the genetic future of this species is uncertain."

However, it is not only common guppies (*P. reticulata*) that pose a threat to *P. wingei* through hybridisation, but also other (deliberately) released species. "The most important exotic species introduced into the range of *Poecilia wingei* is the black tilapia, *Oreochromis mossambicus*, which has a number of implications given the biological and ecological characteristics of this cichlid species. These implications include, among other things, its piscivorous diet, moderate fertility, but nevertheless strong parental care for eggs and young (territoriality) and, as a result, rapid population growth, so that the ecological consequences that this introduced fish species may have are unpredictable (Lasso-Alcalá et al. 2014), but do not bode well. Some of these consequences are direct predation, interspecific competition, displacement, extinction of native species, changes in specific composition and trophic structure, and loss of biodiversity in the ecosystem, which is why *O. mossambicus* has been listed as one of the 100 most harmful alien species in the world (Lowe et al. 2004)." (Mikolji et al. 2024).

Mikolji et al. 2024 also describe in great detail the drastic changes in habitats:

Changes in biotopes are also a very important factor that can have a negative impact on the survival of *Poecilia wingei* subpopulations. The Los Patos and Punta Delgada lagoon systems have been isolated from the Río Manzanares since the 1970s. [...] Similarly, according to our observations and those of several authors (Arbuatti et al. 2007, Salazar et al. 2018), large areas of these lagoons have been filled in to gain or expand land that has been urbanised due to the population growth of the city of Cumaná. People with limited economic resources have invaded this and other areas around the lagoons, building primitive shelters and destroying nature in the process. These human invasions have in turn had an impact on the mangrove forests, as firewood for domestic use (including cooking) has been cut down over the last 20 years of Venezuela's economic and social decline. Pérez et al. (2003) observed the complete or partial drying up of the Laguna de Los Patos system during the dry

season (April–May) of 2001, a situation that has continued in recent years. This increasing water scarcity in these lagoon systems has led to an increase in salinity (up to 40 ‰) over longer periods of the year (up to seven months) and to the settlement of species with marine and estuarine lifestyles [...]. In addition, the construction of sewage treatment plants in the city of Cumaná, which were built in the lagoons themselves, has contributed to habitat change in these lagoon systems.

High levels of heavy metals were found in the lagoon water and also in fish species with similar ecological characteristics to *P. wingei*. So much for Laguna de los Patos.

In the second area of the natural range, the Campoma region further east, which Poeser and I mainly travelled through, the situation is no better, although the causes of the threat to the species are somewhat different in some respects. Mikolji et al. 2024 report:

in the Río Campoma-Casanay catchment area, water abstraction for urban and agricultural use and slash-and-burn clearing of the catchment area's forests to expand arable land are very widespread, with *Poecilia wingei* colonising some of these irrigation canal systems (Poeser et al. 2005).

Added to this is the large-scale cultivation (70% (!) of the land area) of sugar cane in monocultures and the associated negative effects of industrial agriculture. During the increasing periods of drought, farmers extract water from the water bodies to irrigate their fields, which in turn has a massive impact on aquatic habitats.

For both natural ranges of *Poecilia wingei* (Cumana and Campoma) climate change is also becoming increasingly noticeable in both natural distribution areas of *Poecilia wingei* (Cumana and Campoma regions). Mikolji et al. 2024 write that this poses ‘a significant threat to the survival of this species’. They specify this as follows:

on the one hand, there is a danger due to the low altitude distribution (0–133 m above sea level) and the close proximity of the habitats to the coast, which in turn poses a threat from sea level rise. On the other hand, over the last 20 years, the lagoons of Las Patos, Campoma and Buena Vista have increasingly dried up completely or partially during the climatic dry season

The authors also point out that *Poecilia wingei* is of some importance as an aquarium fish species and that there is no control over fishing by aquarists. However, given the current unstable political situation in Venezuela, very few aquarists are likely to venture into these dangerous areas!

Nevertheless, we aquarists have a duty. There are some purely local populations that are now even more valuable in view of the publicly announced threat to the species. It is important to keep these aquarium strains pure and to continue breeding them! I would also like to suggest establishing a breeding programme for *Poecilia wingei*, similar to those already in place for other livebearers such as the Goodeids by the Goodeid Working Group (GWG; see <https://www.goodeidworkinggroup.com/>), endangered species of the genus *Xiphophorus* by the Xiphophorus Working Group (XWG; see also <https://xipho.org/working-group/>), or for *Limia isalai* via the species conservation programme Citizen Conservation (CC; see also <https://citizen-conservation.org/>). The latter project in particular might be a good home for a

species conservation programme for *Poecilia wingei*. I would like to take this opportunity to encourage the organisers of this programme to work intensively on the implementation of a studbook programme for *Poecilia wingei* in order to protect this species, now classified as 'endangered', from extinction (in the wild) – with the help of the members of our association, this should be possible, at least for the aquarium populations. There are stable populations in a few zoos, such as Rotterdam Zoo 'Blijdorp', which years ago received a breeding group from the Rio de Oro Las Aguas de Moises (collected by Eckstein in 2006) and has been breeding them behind the scenes with great success. Not only institutes have received specimens from this aquarium population, which I have kept strictly separate since 2006, but also fellow breeders, such as Peter Uhlig and Dr Dieter Genztsch, who are well known to us all.

Literature cited:

- Arbuatti et al. 2007 [sub-editor's note: I can't find this paper, can't fill in the citation]
- Endler, John A. 2011, Integrative commentary on ecology and evolution of poeciliid fishes, in Ecology and evolution of poeciliid fishes, University of Chicago Press, Chicago, Ill., pp.301-310
- Kempkes, M. (2010): Die Guppys. Band 1. Neue-Brehm-Bücherei. Hohenwarsleben
- Lasso-Alcalá, O., G. Andrade de Pasquier, C. Hoyos & M. Hernandez. 2014. Sobre la introduccion de los pavones, *Cichla orinocensis* y *C. temensis* (Perciformes, Cichlidae), en la cuenca del Lago de Maracaibo, Venezuela. *Anartia* 26: 1-30.
- Lowe S., M. Browne, S. Boudjelas & M. De Poorter. 2004. 100 de las especies exóticas invasoras mas daninas del mundo. Una seleccion del Global Invasive Species Database. Auckland: Grupo Especialista de Especies Invasoras (GEEI). Comision de Supervivencia de Especies (CSE). Union Mundial para la Naturaleza (UICN), 12 pp.
- Mikolji, I., Lasso-Alcalá, O., Quintero-T., E. & Bello, P. J.A. 2024. *Poecilia wingei*. The IUCN Red List of Threatened Species 2024.
<https://www.iucnredlist.org/species/177429528/177429532>
- Pérez, J., Salazar, S., Alfonsi, C. and Ruiz, L., 2003. Ichthyofauna of the Manzanares River: four decades after the introduction of the black tilapia *Oreochromis mossambicus* (Pisces: Cichlidae). *Boletín del Instituto Oceanográfico de Venezuela*, vol. 42, no.1-2, pp. 29-35.
- Poeser, F.N., Kempkes, M. & I.J.H. Isbrücker (2005): Description of *Poecilia (Acanthophaelus) wingei* n. sp. from the Paria Peninsula, Venezuela, including notes on *Acanthophaelus* Eigenmann, 1907 and other subgenera of *Poecilia* Bloch and Schneider, 1801 (Teleostei, Cyprinodontiformes, Poeciliidae). *Contribution to Zoology* 74: 97-115
- Poeser, F.N. & M. Kempkes (2006): Der Campoma-Guppy, *Poecilia (Acanthophaelus) wingei*, ein karibisches Juwel. *Aquaristik Fachmagazin* 38 (4): 46-51
- Salazar, S., Bello, J., Marval, F., Calvo, A. And Salazar, H., 2019. Fish inventory of the Laguna de Los Patos, Cumaná, Sucre state, Venezuela. *Boletín del Instituto Oceanográfico de Venezuela*, vol. 58, no. 1, pp. 42-50.
- Staeck. W. (2004): Endlers Guppy: Dichtung und Wahrheit. *Die Aquarien- und Terrarienzeitschrift* 57 (6): 32-34



Poecilia reticulata.
Population Trinidad, Caroni
Swamp
(N 10° 32.013'; W 61° 26.797').
Pair (above male, below female).
Photo: EHL 2013-01-13

Wild form Trinidadian guppies. Photo from www.inaturalist.org/taxa/173412-Poecilia-reticulata.

Selection works: Progeny of guppies that survive exposure to predation differ from progeny of guppies not exposed to predation.

By Cecile Leuverink, Wageningen University & Research
Thanks to Kees de Jong for sending me this article.

Guppies adapt at lightning speed when predators are involved. In an experiment, researchers at Wageningen University & Research saw changes in reproduction and physique within three generations.

The study appeared in *Science Advances*. Researcher Alexander Kotrschal and his team exposed guppies – small tropical fish – to natural enemies in a simulated environment. Per generation, 180 guppies were placed in a tank with a pike cichlid (*Crenicichla alta*) as predatory fish until 13-23% were left, while 32 control guppies were safely shielded behind a transparent barrier.

Predators as the engine of evolution

The survivors were allowed to breed. This process was repeated for three generations. In each round, guppies were exposed to predation and the survivors were allowed to reproduce, and their offspring were subjected to the same experiment again. The results speak volumes. Females started having young earlier in life, and those young were also larger and more numerous in the first litters. Males developed shorter tails and genitals (gonopodia), which presumably increased their agility and survival rate.

It's fascinating to see how quickly evolution can occur," says Alexander Kotrschal. "Within three generations, we already saw clear adjustments. Predators basically determine who survives and reproduces – and thus steers the direction of evolution. This confirms that they can really be a driving force behind evolutionary change."

Not all expectations came true.

However, some classic adjustments – such as bright colours or larger eyes – did not materialize. This is striking, because previous field studies did show such adaptations. In this experiment, however, there was no sexual selection, the researchers themselves determined which guppies reproduced. In nature, females often choose the most colourful males – and that influences which traits are passed on. Other environmental factors, such as food supply, also play a role there. By excluding these influences, this experiment shows which changes are caused purely by predation. "For example, we didn't see any difference in colour pattern between the guppies that were exposed to predators and those that weren't," Kotrschal says. "That means that those traits may have more to do with other factors, such as sexual selection or food supply."

Evolution under the magnifying glass

This research shows how valuable it is to test in a controlled environment what exactly predators do with the evolution of a species. Thanks to the clever design of the experiment, the researchers were able to really pinpoint for the first time which changes are directly caused by predators. The guppy once again turns out to be an ideal laboratory animal for studying such rapid adaptations up close. "What we can normally only suspect on the basis of field observations, we have now been able to really test. And that provides surprising insights," Kotrschal concludes.

The results of these studies have recently been published: [Artificial selection for adult predation survival affects life history and morphology in guppies \(*Poecilia reticulata*\)](#)

Diary dates

It's the big one the Autumn Convention!

When: Saturday and Sunday, September 20th and 21st.

Where: Shenstone Village Hall,
Barnes Lane,
Shenstone (Near Lichfield),
WS14 0LT.

As I mentioned earlier in this newsletter, there will be sales tables, guest speakers, a question-and-answer session, a guppy show and a wild-type livebearer show and, of course, the auction on the Sunday. And best of all (in my humble opinion) the informal time spent with like-minded fish-keepers on the Friday and Saturday evenings. Our international visitors, Kees de Jong from the Netherlands and Dan Fromm from the USA will be there. I hope to see you too there.

PS: You should be receiving an email with more details about the event and a little information about our visitors.