

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 the 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

I have left this editorial as long as I could before writing it. The coronavirus is still taking its toll on so many families and individuals and I just hope that the readers of this newsletter have escaped the worst effects of it. Fish-keeping seems so trivial compared to losing a family member or friend and yet it has helped to keep me sane in these peculiar times. I have spent a part of almost every day during “lockdown” doing part-water changes and have been giving young fry up to six feeds in a day. I don’t think my fish have ever been so well looked after but I haven’t noticed any difference in their health or in breeding success so far.

I must say thank you to J Sara Fulton for the excellent photos that she sent some time ago and also to Kamil for the abstract that he sent me about the *Limia* species that has recently been named. Special thanks must go to Alain Grioche for allowing me to use his article about the *Pseudoxiphophorus* genus and to Fabien Liberge and Jacques Blanc for allowing me to use their photos. And now I must appeal for more articles for future issues of livebearer news. Any livebearer; any topic; I don’t mind. You can email them to me at gjrsrr12@gmail.com.

Anyway; stay safe and well and I hope to see you at our next event which is planned for the weekend of the 17th to 19th September.



Phallichthys tico with blue shrimp Photo:J.Sara Fulton



Xenophallus umbratilis Photo : J. Sara Fulton

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Xenophallus umbratilis Photo :- J. Sara Fulton

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Abstract

Kamil sent me the link to this abstract, which we think refers to *Limia* sp “Tiger”. Please correct me if I’m wrong.

Limia islai, new species of livebearing fish, is described from Lake Miragoane in southwestern Haiti on Hispaniola. The new species herein described has a conspicuous barred pattern consistent in several (4 to 12) black bars along the body, ray 4p serrae of the gonopodium in males with 10 segments and origin of dorsal fin in females slightly behind of origin of anal fin. Although the new species color pattern is similar to the Humpbacked *Limia* *Limia nigrofasciata* Regan 1913, *L. islai* sp. nov. has exclusive morphological features, such as slender body, lack of hump anterior to dorsal fin in males and presence of specific features in the gonopodial suspensory, which allow an unambiguous diagnosis from *L. nigrofasciata*. *Limia islai* further differs from *L. nigrofasciata* in reproductive behavior since *L. islai* males rely on sneak copulations and gonopodial thrusting, whereas *L. nigrofasciata* display an elaborate courtship behavior. The new species is also genetically distinct in both nuclear (Rh, Myh6) and mitochondrial (12S, ND2, D-loop, Cytb) genes from other species in the genus showing reciprocal monophyly. The description of this new *Limia* species from Lake Miragoane confirms this lake as an important center of endemism for the genus with a total of eight endemic species described so far.

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New data on the genus *Pseudoxiphophorus*

Text :- Alain Grioche

Photos :- Fabien Liberge/ Jacques Blanc



Mexico : *Pseudoxiphophorus bimaculatus* is present everywhere in the state of Jalisco. It is an invasive plague, just like *Tilapia*, to the point where we hardly take the time to photograph it. Photo : Fabien Liberge

A genetic and biogeographic study of the genus *Pseudoxiphophorus* was published in early 2013 by Agorreta et al. It gives us a new and detailed view of the evolutionary history of these livebearing fishes which are unfortunately not well known in the aquarium world.

This study contemplated all the nine currently known species of the genus *Pseudoxiphophorus* and for the most part they were sampled in several populations representative of their range. It is therefore a genetic study covering nearly a hundred populations of these fish. The goals were multiple :-

- to identify relationships between species;

- to confirm that different populations belong to the reference species;
- to translate the diversity of these species in graphic terms and identify the geological mechanisms that allowed their appearance.

It should perhaps be remembered that for years the *Pseudoxiphophorus* were included in the genus *Heterandria*. The first conclusion of this genetic analysis was that the *Pseudoxiphophorus* are not closely related to *Heterandria formosa*. These are two very distinct genera, even more than shown geographically. The *Pseudoxiphophorus* are in reality genetically closer to *Belonesox* and the *Gambusia* with which they share a rather aggressive nature and a tendency to a carnivorous diet, often piscivorous.

The other interesting point is that the *Pseudoxiphophorus* have a wide distribution in Central America, from central Mexico to Nicaragua. This genus is therefore quite suitable for a biogeographic study. *Pseudoxiphophorus attenuatus* could not be included in the study because of the lack of specimens. For several years this species has not been found and perhaps should be included in the list of extinct species. The species *Pseudoxiphophorus maculatus* is the best known by aquarists; it is also the one with the greatest geographic distribution. This large fish is theoretically present throughout all of Central America. As you would expect, the genetic study shows big differences between individuals from different areas. Even more, it shows that we include in the term “*bimaculatus*” populations which belong to different species.

The other *Pseudoxiphophorus* species, which are clearly identified genetically and geographically, are intermixed between the “populations” of *bimaculatus*. This means that we have several new species, probably more than a dozen, still unidentified, very different genetically but relatively close in appearance. This result is further proof of the need for maintenance by populations of the fish that we have in our tanks. Today’s *bimaculatus* will very likely have many other names in the near future. Unfortunately the genetic study is not sufficient to describe these new species and the data must be supplemented by a meristic description (morphology, rays, scales, etc) for their identity to be confirmed.

From an evolutionary point of view, a genetic clock makes it possible to date the separation of *Pseudoxiphophorus jonesii* from other species at the end of the Miocene (7million years ago). This separation corresponds to the elevation of the area east of the Trans-Mexican belt culminating in the formation of the Punta del Moro. This volcanic chain would thus have cut in two the ancestral populations of the *Pseudoxiphophorus*, isolating those which gave rise to *P. jonesii* to the north from those which gave rise to the other species to the south. It should be noted that populations of “*bimaculatus*” subsequently recolonised the north and that the two species are found in sympatry [occupying the same streams} in certain areas.

The second major event occurred at the start of the Pliocene (about 5 million years ago) . This was the Polochic-Motagua fracture. This collapse basin was the site of several marine transgressions between the Miocene and the Pliocene. That is to say that the marine waters have invaded this area several times, creating a new south-north barrier for freshwater

species. This geological phenomenon would have led, among other things, to the appearance of *P. litoperas* and *P. anzueto*, two sister species endemic to this fracture zone. And obviously, the “*bimaculatus*” of this area would constitute a new species which has not yet been described.

At the end of the Pliocene and the beginning of the Pleistocene (2 million years ago), the climate would have known many fluctuations and would have warmed, contributing to the rise of the level of the oceans. The Tehuantepec isthmus would then have become an insurmountable barrier for many wildlife groups. We therefore find different species of *Pseudoxiphophorus* in the south and the north of the isthmus. Fluctuations in sea level also affected river basins and it was during this period that the diversity of *Pseudoxiphophorus* would have exploded, with the appearance of the majority of current species (and species not yet described) isolated by the sea level rise in certain very specific areas.

These include :-

P. cataractae found in the arroyo Sachicha in the Usumacinta basin;

P. diremptus in the Rio Chajmaic, which is also in the Usumacinta basin;

P. obliquus found in the Rivers Dolores and Ramon, still in the Usumacinta basin;

P. tuxtlaensis found in Lake Catemaco;

P. litoperas, from the Polochic and Cahabon rivers, near Lake Izabal in Guatemala;

P. anzueto from the Motagua and Lempa basins in Guatemala and Honduras respectively.



Pseudoxiphophorus litoperas, male above, female below, photo Jacques Blanc.





Pseudoxiphophorus jonesii, pair, photo Jacques Blanc

Pseudoxiphophorus tuxtlaensis, femelle, photo Jacques Blanc



Réf : Phylogenetic relationships and biogeography of *Pseudoxiphophorus* (Teleostei: Poeciliidae) based on mitochondrial and nuclear genes. Airhoa Agorreta , Omar Domínguez-Domínguez, Ruth G. Reina, Rafael Miranda, Eldredge Bermingham et Ignacio Doadrio. *Molecular Phylogenetics and Evolution* 66 (2013) 80–90

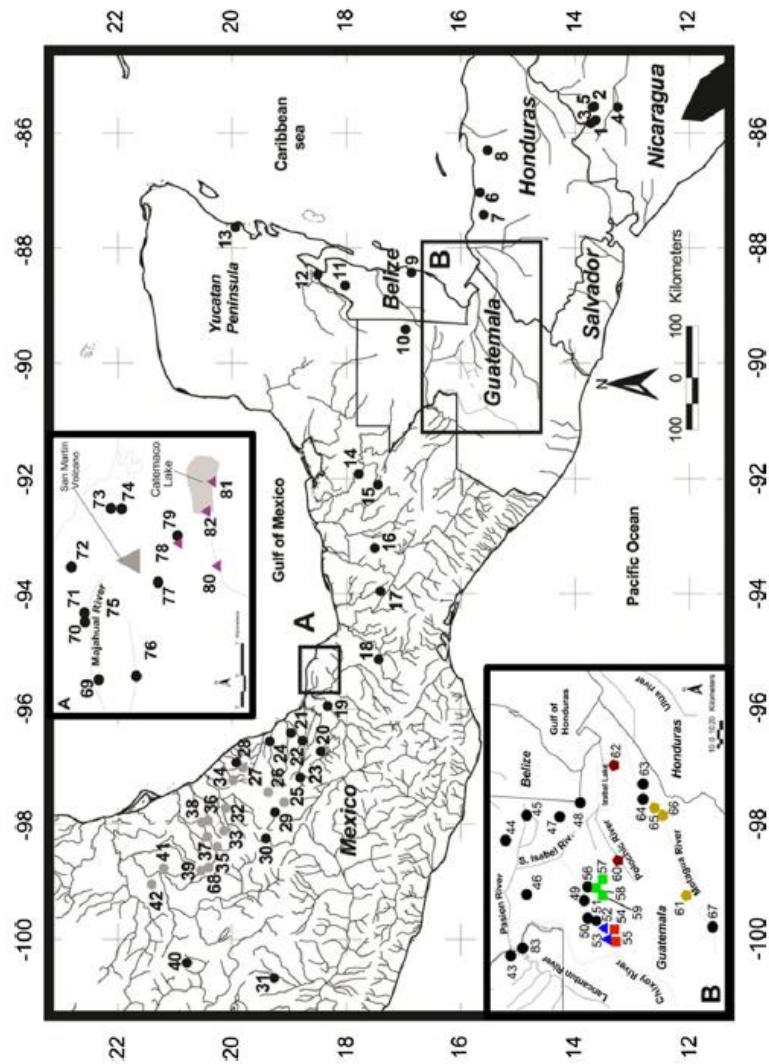


Fig. 2. Map of Mesoamerica showing distribution and locations where *Pseudoxiphophorus* were sampled. Color codes denote the different species of *Pseudoxiphophorus*: *P. bimaculatus* (black circles), *P. jonesii* (grey circles), *P. cf. taeniocentris* (purple triangles), *P. obliquus* (blue triangles), *P. caracrae* (red squares), *P. dirrampus* (green squares), *P. anzuetoi* (yellow pentagons), *P. litoporus* (brown pentagons). See Supplementary Table S1 for taxon and locality details. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Report on the Spring Convention

The spring convention took place on Saturday 14th March and Sunday 15th March – just before the UK came crashing to a halt due to the coronavirus. It made for a strange feeling all weekend. Although the event was well attended, several people sent their apologies as they just didn't want to risk being in the presence of a large number of people in an indoor space. Most of us there made light of the coming problems, bumping elbows instead of shaking hands, with lots of jokes flying around. The resulting atmosphere was really friendly and everyone that I spoke to seemed to be enjoying themselves but with the dreaded virus at the back of their minds. I just hope that no-one who attended caught the virus as a result of attending.

I arrived on the Friday evening, along with Clive Walker, Steve Oliver [who put in a huge amount of work to make the event such a success], Bill Galbally [who organised the venue and much else besides], Paddy and Nigel. We spent some time getting the biotope tanks sorted and I transferred the fish I had taken for the auction into tanks and set up aeration for them. Things gradually got busier during the Saturday morning. Barlows Aquatic, of Accrington, Lancs set up their stand with a huge variety of tank sizes for sale. They very quickly sold out of the tank size that I needed but I will pay them a visit at their Lancashire home when things have settled. Steve Chesters, of Premier Aquatics [newly set up in Runcorn, Cheshire] set up his stall with some lovely looking plants and fish and lots of dry goods. I just had to take up his show offer on plants. Countryside Aquatics also had a good selection of dry goods. Dr David Pool of FishScience also attended with a selection of his products.

During the morning word came through that Denmark was going to close its borders. Patrick Schneidgen, who had flown in from Denmark the previous evening and was due to give a talk, had to find a way to get back home before the borders closed. Bill and his family swung into action to get him an early flight and get to Stansted to catch his flight.

The judging of the UK leg of the Fancy Guppy League took place during the day but that didn't stop me having a good look at all the fancy guppies. I still couldn't tell which were the best as they all looked stunning to me! It was nearly enough for me to buy some in the auction and dedicate a tank or two to fancy guppies (but not quite).

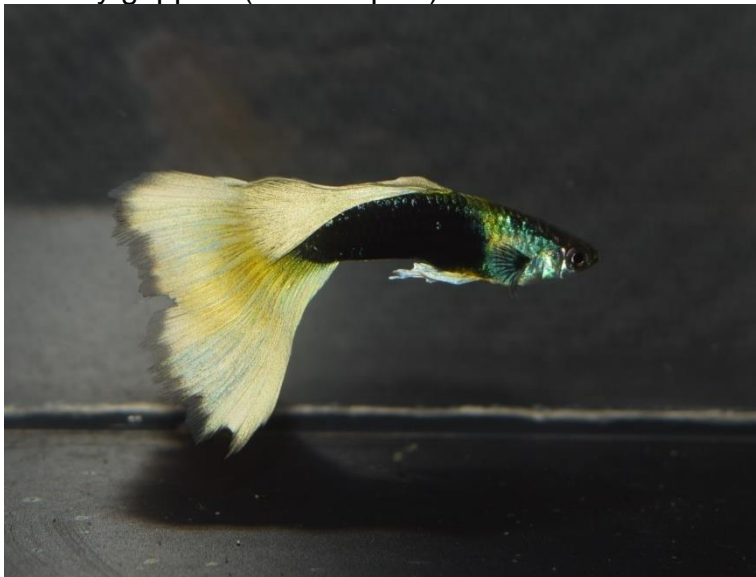


Photo :- Steve Chesters



Photo :- Steve Chesters

The first talk on the Saturday was given by Hannah Thomas, who works at Chester Zoo in the aquarium section. She gave us an update on the project to re-introduce *Zoogoneticus tequila* in the River Teuchitlan, Mexico. Chester Zoo have been working with Goodeids since 1996 and have taken part in surveying the fish of Mexico since 1998. The most diverse area also has the greatest human population, 67% of Mexico's industry and the most pollution. Introduced species, including *Tilapia*, Largemouth and Smallmouth bass and *Pseudoxiphophorus* are also a problem and 70% of fish populations have been lost in large areas. In spite of all the problems, 25 new species have been described in the last 20 years. *Zoogoneticus tequila* was only ever known from the

River Teuchitlan and had been extinct in the wild since 2008. It was bred in large numbers in outdoor ponds at the Fish Ark in Morelia before being reintroduced and is now breeding again in the wild. Possible subjects for future captive breeding and reintroduction projects include *Skiffia francesae* [also only ever found in the Rio Teuchitlan] and the Lake Patzcuaro salamander.

Hannah also mentioned *Paraetroplus menarhambo*, the Damba cichlid from Madagascar, and said that the knowledge gained from Mexico could be used to inform the project to re-introduce this cichlid.

One more important point from Hannah was that zoos don't have the space to conserve even half of the fish species in danger and therefore need to engage with hobbyist groups such as the Goodeid Working Group and the BLA.

Hannah's talk was followed by a meeting of people interested in taking part in the *Z. tequila* breeding project. The eventual aim of this group is to breed many endangered/ extinct in the wild species but to start with *Z. tequila* to establish the ground rules. Steve Oliver had put a lot of work into preparing for this meeting and has since done more to get the project going. I would suggest that if anyone wants to join in breeding endangered livebearers such as *Z. tequila* they contact Steve for details.

I missed the talk given by Dr David Pool on the subject of fish colour and diet. However, those present told me that it was highly relevant and interesting as his talks always are.

The next talk that I attended was given by Steve Chesters on the subject of his visit to Project PIABA, Brazil. "Piaba" is Portugese for "small fish". Project PIABA was founded in 1991 by Dr Ning Labbish Chao and is focussed on the Rio Negro

with the aim of working towards a sustainable fishery. This is highly relevant to the Amazonas state and the town of Barcelos in particular as the fisheries can be destroyed by "slash and burn" agriculture, gold mining and over-fishing. Steve described the work of the project and his visit to the area sounded highly enjoyable and made me want to visit the area for myself. Steve attended the ornamental fish festival, slept on the deck of a fish-catching boat, spent every minute he could in the water and narrowly missed getting stung by a stingray. He showed lots of photos giving a real flavour of the visit.

Next was Fred Poeser, from the Netherlands : "The incredible story of Ender's guppy, *Poecilia wingei*". Fred is always highly entertaining and this talk was no exception. He told the tale of his several visits to Venezuela, trying to understand the distribution of *P. wingei* and the other closely related poeciliids of the area. I made lots of notes during his talk and must try to sort them into a proper article. Fred made many interesting and thought-provoking points and showed lots of slides – enough material to fill an entire newsletter or two.

The day ended with the presentation of prizes from the guppy and wild livebearer competitions and a fish and chip supper. Thanks again to Bill Galbally and his wife and family for organising this.

The first talk on Sunday was from Steve Chesters, describing his trip to Mexico. It was interesting to hear his take on the areas which I had visited back in 2016, along with the new work on the conservation of the fishes of Mexico and the education efforts being made with the schoolchildren in some of the most important areas.

Steve was followed by Fred Poeser, talking about his trips to South America, trying to understand the distribution and genetics of the different species of guppy in northeast South America. Fred mentioned the scientific description of *Poecilia kempkesi* in "Viviparos 1, 2013" and his search for guppy-type fish in north-east South America. Fred described his 2016 trip to Surinam, the fish and other wild-life that he saw, including giant otters and howler monkeys. He talked in particular about the guppies that he found in various areas and the differences between *P. kempkesi* and *P. reticulata*. *P. kempkesi* have metallic colours with lots of reflective scales and a distinctive spot towards the rear of their bodies. However, Fred also found that many females had a gonopodium and he also found blond guppies in a village in the middle of no-where. Other livebearers that he found were *P. bifurca*, *P. parae*, *P. picta* (everywhere in Surinam) and *P. vivipara* (at the coast), *Tomeurus gracilis* (the most primitive poeciliid) and *Anableps anableps*. If anyone out there can persuade Fred to write up this talk as an article it would be brilliant and would fill an issue of "Livebearer News" on its own. Fred is a really entertaining and interesting speaker and I would encourage any fishkeeper to come and listen to his talk when he next comes to a BLA function. The talks were followed by the auction, which was very well attended and some very interesting and unusual species featured. The top price that I noted was £35 for a group of *Xiphophorus birchmanni*.

Musings from the fish room

Lesson 1; Re Skiffia

I've kept *Skiffia* sp "Sayula" for many years now and always found them easy to keep and breed. I had heard that the species was extinct in the wild and hoped that I could contribute to their long-term conservation. In 2016, as part of the GWG trip to Mexico, I visited the Cuyacapán spring area. This, I am told, is all that remains of the Sayula lagoon. A few years previous to our visit, the pond had been drained to remove exotic species but all we found was Tilapia, bass and *Lepomis* sunfishes. Knowing that *S. sp* "Sayula" was truly extinct in the wild encouraged me even more to keep and breed them.

In fact, I have bred *S. sp* "Sayula" in numbers and passed them on many times. Last year I had such a large excess of them that I culled a load and released some into my pond at the start of summer. I still had so many that it didn't matter that only four of them survived until I emptied the pond in the autumn. I gave a load more away in the autumn and then even more away at the GWG meeting in November, leaving myself with just three pairs. No problem, I thought, as they breed so readily.

Over the winter the remaining *S. sp* "Sayula" stopped breeding [as they always do; I don't heat their tank] and then two of the females died. The last female recently dropped a few fry – and then promptly died! Just two of the fry survive – and I think that they are both male.

Memo to self :- When you want to keep a species long-term don't let the numbers drop too low : keep a good number of males and females, preferably in more than one tank.

Lesson 2; Re *Brachyraphis*

Brachyraphis roseni and *B. rhabdophera* are easy enough to keep but breeding them is another story. They are both rapacious fry predators. What has worked for me is to separate a gravid female into a small tank (e.g. 30cm x 20cm x 20cm) with lots of floating plants and the bottom covered in rounded stones which give the young fish somewhere to hide. Other people use breeding traps or nets of various designs. I have kept the two species going now for about eight years and been able to pass a few on at BLA events.

Last year I missed a number of broods, either through being away on holiday or through not having a spare tank available to separate gravid females into. By last autumn it was a year since I'd got fry from either species, but I was still confident as several females of each species looked gravid. Since then I've separated females into traps and small tanks and got nothing. I'm now down to just one female *B. rhabdophera* and five female *B. roseni*; - no males of either species and the females aging. I am going to need to start again with both species.

Memo to self :- With *Brachyraphis* and a number of other genera you can't afford to take your eye off the ball. Always make sure you have a spare tank available and always separate out a young female when she becomes gravid and collect the fry to grow on. Older females are much more difficult to breed from.

PS Has anyone out there got any *Skiffia* sp "Sayula" that I can have to get the breeding going again?

Diary dates

At the moment we are still planning on holding an autumn show and auction on the weekend of the 18th and 19th September.

The idea at the moment is to hold a joint event with the British Killifish Association at the Holiday Inn, South Normanton, Derby.

Of course, the Covid 19 situation means that this could be altered or cancelled and I will email out details when I have them nearer the time.

Sheaf Valley Aquarist Society are planning on having their summer show and auction on Sunday 27th September at the Rockingham Centre, Sheffield Road, Hoyland Common, Barnsley, S74 0PY. The provisos outlined above must also apply to them.