

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 a complaint to make – there are just too many nice species of fish that I want to keep. Not just livebearers, though there are over two hundred species of livebearer that could be kept in the home aquarium. There are plenty of lively looking anabantids, cichlids, rainbowfish, tetras etc. And only one lifetime in which to try as many as possible. But livebearers were my first love and we are the British *Livebearer* Association, after all. But when I look at my copy of the “*Atlas of Livebearers of the World*” or the Aqualog book “*All Livebearers and Halfbeaks*” I see photos of dozens, maybe hundreds, of species that I know very little about. Every now and again one or two of these species will turn up at a BLA auction (about which, more shortly) or in one of the better Aquarium stores, like Aqualife Leyland, in Lancashire. I would love to try some more of these species but I don’t know enough about them to want to risk splashing the cash. But some of you out there do know plenty about them! I listen in on the conversations at BLA events or at the Extravaganza and I realize that there are many people out there with a huge knowledge of livebearing fish. I just wish you [and you know who I am referring to] would get your knowledge down in writing so that I can include it in the newsletters for all livebearer fans to access. So come on, get writing! You can email me with articles or get them down on paper and I will transcribe them. Most of the content of this newsletter came from Dan Fromm, again, and I am very grateful for his help as without it, this newsletter would have been a very poor affair. So please, get in touch.

I really enjoyed the Carlisle meeting and auction. OK, so the technology let us down and Nigel couldn’t give us his talk but it was just great to meet a whole load of people who keep livebearers and live north of the Midlands of England. The guys down from Scotland made us very welcome and a number of them came to thank us for putting on the event and ask us to do the same again next year. It will be a pleasure and was well worth the drive. Which brings me to the Autumn Convention, in Shenstone, Midlands, on the 21st and 22nd October. We have plenty planned, [full details in “Diary Dates”] not just the auction, and I am really looking forward to the event. I hope to see you all there.

Membership Renewal

In the past, the easiest way to renew your membership of the BLA was via “Paypal”. Now, however, the best way is to log on to the BLA website and rejoin there. A few people have set up an automatic renewal via the old Paypal account. If this includes you, will you please cancel that and in future renew via the website. Automatic renewal can also be set up there.

Many thanks – the BLA committee.

Chairman's remarks on the Carlisle event

Carlisle was a good event for us with lots of new people attending one of our auctions.

I would like to thank Nigel for organising the room for us.

The only real problem we had was the access to the room, luckily the cleaning ladies let us in early and that gave us chance to set up. My thoughts for next year would be that if we cannot get into the room at 10, we put everything back an hour and start at 12:00. On the day the bar was open from 11:00 and the sausage and bacon rolls laid on by 'Mrs B' went down very well. Overall, the room suited our needs very well led to a good atmosphere, a definite venue for next year.

The only thing we need to consider is that the date we chose coincided with the start of the school holidays, so next year we may need to slide it forward by a week or possibly two.

The feedback was very good with people already talking about next year and more people promising to bring fish to the auction.

And from the Editor: A number of people came up to me at the end of the event and said how much they had enjoyed it. Several of the guys down from Scotland said that they very much appreciated the chance to attend an auction and would we please hold the event again next year. "We'll be back".

An appeal from Marissa Cartee

Marissa Cartee

All species of Poeciliidae are credited with having sperm storage, or the ability to maintain sperm in the female reproductive tract for extended periods of time. However, only 33 out of over 250+ species in the family have any documentation of sperm storage. Sperm storage has been demonstrated in these species by either histological examination or observing the production of successive litters of offspring by isolated females (Figure 1). Histology involves the dissection, cutting, and staining of fish ovaries to visualize stored sperm. The duration of sperm storage is quantified as the maximum number of successive litters that isolated females can produce and their interbrood interval. Both of these assessments of sperm storage have shown variation among the limited number of species tested. For example, previous histological studies showed that *Poecilia butleri*, *Pseudo-xiphophorus bimaculatus*, and *Priapella intermedia* lacked what were thought to be the necessary structures for sustaining stored sperm and otherwise had no evidence of stored sperm being present. However, we have *P. butleri* in our laboratory, and I found that isolated females are capable of producing multiple litters. These contrary findings invite further questions into how sperm storage varies across the family and what patterns are associated with varying degrees of sperm storage.

As a Ph.D student in David Reznick's lab at the University of California, Riverside, I am curious about the implications of sperm storage in Poeciliidae. I plan to investigate these questions by more fully documenting which species are capable of sperm storage and what structural features of the ovaries facilitate this storage. I seek your help in attaining these goals. I am aware that the members of your livebearer societies have access to large numbers of species. I am hoping to recruit people to help collect data on the production of successive litters of offspring from isolated females to document whether or not that species is capable of sperm storage and, if so, how long they can store sperm. I, in turn, pledge to give you all annual updates on my progress and what I have learned from other aspects of my research program. If you are interested in participating, please fill out this [interest form](#) or email me with further questions. Thank you!

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In addition, I included a link to an interest form that members can fill out if they want to participate. Any help that you can provide would be greatly appreciated. Please let me know if you have any questions. I look forward to hearing from you!

Best,

Marissa Cartee

marissa.cartee@email.ucr.edu

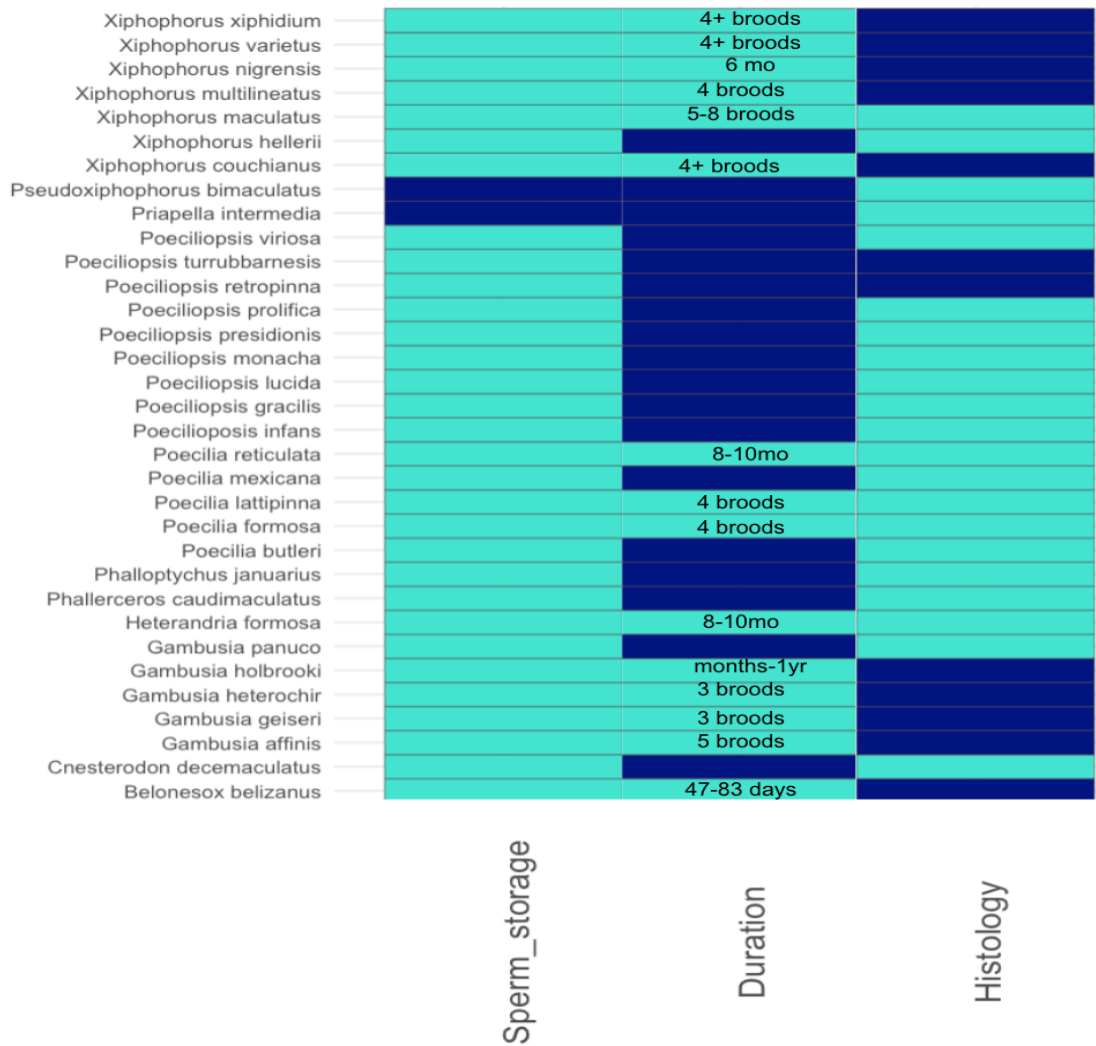


Figure 1. Species with documented sperm storage through either histology or duration. Light blue indicates presence of the trait (sperm storage) or presence of studies (duration or histology). Dark blue indicates absence of the trait (sperm storage) or absence of studies (duration or histology)

Breeder Directory

The British Livebearer Association has recently set up a breeder directory to help our members source fish they are looking for and to find out who is keeping and breeding what species. All species are listed within alphabetical order by their scientific names and the list solely consists of live-bearing species within the United Kingdom. When up and running, this list can be accessed via the members section on our website. A lot of hard work has gone into setting this directory up when you think of how many livebearers there are to choose from. If successful, we would eventually love to set up a species maintenance list but it all comes down to whether members want to participate and get involved.

So far, we have not had the response that we had hoped for and would really appreciate if members got involved. If you want to be added to the directory, please send an email requesting to be added to the list to via: **bla-breeder-directory@outlook.com** and tell us what you are currently breeding with your full name and contact email address. Any additional information such as strain or location data will be much appreciated but don't worry if you do not have this information. Please try and make sure all details and spellings are correct and for peace of mind, your details can be removed from the directory at any time by getting in touch.

Photos From Holly Walford



Limia nigrofasciata



Limia nigrofasciata

Limia versicolor Günther (1866)

Dan Fromm

Limia versicolor is, at least for me, a great confusion. The muddle begins with its taxonomic history and continues with aquarists' reports on fishes bearing the name. Most references to the name after the original description reflect misidentifications. To the best of my knowledge, U.S. aquarists have never had *Limia versicolor*. Kempkes and Schäfer (1998)'s picture of *versicolor* shows that the fish was in Germany before they published. I've found no indications that it lasted there. With the exception of this introduction aquarists' *L. versicolor* have been other fish, misidentified.



Wild male



Wild female

Taxonomic history::

Günther (1866) described *Girardinus versicolor* from two female specimens that the British Museum (Natural History) obtained from Hugh Cuming, a dealer in natural history specimens. They were collected somewhere in the Dominican Republic by August Sallé, who had been encouraged by Cuming to collect mollusks, birds and insects there. Where Sallé collected these specimens, apparently the only two fish he brought back from the DR, is unknown and unknowable. I believe that Günther assigned the types to *Girardinus* because of their dorsal-anal offset.

Gunther characterized the colour pattern, as seen in alcohol specimens:

Reddish olive above, sometimes with indistinct silvery cross bars on the side of the tail; an indistinct dark band along the middle of the side, and, above it two or three reticulated black spots, their number and situation being variable, even on both sides of the same individual; a black line along the lower and upper margins of the tail; a blackish blotch on the posterior rays of the dorsal fin.

The two types are females, confirmed by radiographs kindly provided by James MacLaine of the British Museum. They don't have prominent markings, confirmed by UV photographs, also provided by Mr. MacLaine. Their pattern, somewhat faded after more than one hundred seventy years in preservative, is "fishnet."



BMNH 1857.10.28.64 Syntype *Girardinus versicolor*



BMNH 1981.6.4.1 Syntype *Girardinus versicolor*

Crosse (1891) reported on Sallé's itinerary in the DR. Sallé arrived in the city of Santo Domingo in June 1849 and departed in July 1851. He made nine major excursions from his base in that city to bases in the provinces. He collected in every major drainage; crossed the Río Haina, a south slope stream, many times; and made two trips up its valley to collect on the north slope. He could have collected any of the *Limia* species known from the DR except perhaps *L. yaguajali*. *L. versicolor*'s type locality could be anywhere in the country.

Jordan (1887) assigned Günther's *G. versicolor* to the genus *Heterandria* without giving a reason.

Garman (1895) synonymized *G. versicolor* and *H. versicolor* with *Poecilia vivipara*, also without giving reasons.

Regan (1913) redefined the genus *Limia* Poey 1855, including gonopodial characters, remarking "I have examined males in all but *L. ornata*." He placed *G. versicolor* in *Limia*, characterized it and figured the gonopodium but didn't indicate which specimens he examined. The figure is right for *L. melanonotata*, wrong for *L. versicolor*. They were: "Ten females, 35 to 60 mm, including the types of the species, and four males 30-45 mm." I believe that they include BMNH 1905.11.13.17-18, from Haiti, donated by J. P. Arnold¹; 1913.1.22.8-9, from Haiti, donated by A. Rachow²; and perhaps 1914.6.22.2-3, from Cuba (that's what the catalogue says.) donated by Arnold. These lots contain 7 fish. I haven't been able to determine which other specimens Regan examined. Since *L. versicolor* occurs only in the Dominican Republic, it is far from clear that his assignment of the species to *Limia* was correct. Nichols (1915) characterized the male of *versicolor* (counts and proportional characteristics, no mention of the gonopodium) using a specimen collected "from the

San Juan River (freshwater) at Samana, Santo Domingo” that he identified as *versicolor*.

Myers (1931) examined Nichols (1915)’s *H. versicolor* specimens and described them as *L. nicholsi*, now considered a synonym of *L. zonata*, remarking:

“Nichols’ other species, from Samana, was identified as *Heterandria versicolor* (Gunther), but it certainly is not that form, which has been confused with others and is definitely known only from the western end of the island (Haiti).”

Trewavas (1948) treated *Heterandria versicolor* as understood by Nichols (1915), i.e., *L. zonata*, as *L. nicholsi*.

Rosen and Bailey (1963) examined specimens collected “from the Río Yaguajal at Santiago Rodríguez in the University of Miami Ichthyological Museum” and gave the catalogue number USNM 89002 for them. This number is a mistake; it belongs to a lot of *L. zonata* collected from the Río San Juan in 1928. L. Rivas and B. Hunt collected the “*versicolor*” material that Rosen and Bailey examined. That lot (dispersed among holotype USNM 220535, paratypes USNM 220534, UMMZ 204196, MCZ 54409, AMNH 38233, and FSM 29823) became the type series of *L. yaguajali* Rivas 1980. Fishnet2 found no museum specimens of other *Limia* spp. from the Yaguajal and none is mentioned in the literature but the Yaguajal is an afferent of the Río Yaque del Norte and UF holds *zonata* specimens from elsewhere in its drainage. In addition, Meyer (2015) figures an unmistakable *L. zonata* “Río Yaguajal.”

Luis Rivas’ 1979 unpublished key to *Limia* (pers. comm.), extracted from his unpublished ms. “A revision of the poeciliid fishes of the genus *Ljnia* Poey” characterized *L. versicolor* and implicitly recognized *L. zonata* as sister to it. Rivas’ key restricted *versicolor*’s distribution to the Río Haina but its characterization of the colour pattern – males with 9-12 dark crossbars, females also with crossbars -- doesn’t match the *Limia* I collected there. My fishes are not barred; both sexes have two rows of black spots that *might* be read as bars. Their pattern, however, matches that of specimens in UF 110810, collected in the Haina drainage and catalogued as *L. versicolor*.

Rivas (1980) recognized *versicolor* as a valid species and contrasted it with three of the new species described in that paper.

Franz and Rivas in Lee, Platania and Burgess (1983) agree, not surprisingly, with Rivas’ key about *L. versicolor*’s distribution. Their dot map places it in the Haina but their text suggests it may occur elsewhere on “the southern slope of the Dominican Republic.” Their line drawing, however, is not like the Haina *Limia*. To my eye it is much like a preserved male *L. zonata*. George Burgess (pers. comm.) has told me that the line drawings in Lee, Platania and Burgess 1983 are poor representations of their subjects.

Chambers (1987)’s figure of the *versicolor* gonopodium shows BMNH 1914.6.22.2-3. This specimen was donated to BMNH by Johann Paul Arnold, who told the museum it came from Cuba. If this is correct the specimen can’t be *versicolor*. Whatever his fish is, its gonopodial ray 5a’s distal arch is less pronounced than is usual for *versicolor*. It is wrong for *L. vittata*, seems right for *L. melanonotata*.

I believe Rivas (1980)'s claim to have examined "types of all the [*Limia*] species previously described" so I have to accept the identification in his unpublished key of the Río Haina *Limia* as *versicolor*. None of the other Dominican *Limia* spp. that Sallé could have collected – *melanonotata*, *perugiae*, *sulphurophila*, *tridens* (perhaps) and *zonata* – has females as similar to the *versicolor* types.

All that said, my specimens of *versicolor* don't conform as well as I'd like to the description's text.

***Limia versicolor* in the aquarium hobby:**

I've found few references to *L. versicolor* in the aquarium literature. In the ones that characterize the fish it doesn't match *versicolor* as now understood.

Reports from aquarium society meetings in Blätter für Aquarien- und Terrarien-Kunde, 1912-13:

1912, p. 831 -- Verein der Aquarien- u. Terrarienfrenunde, Tegel, message of 28 November: "A new, very colourful *Poecilia* from Haiti, body shimmering blue, with dark cross bars, fins orange." Clearly not *versicolor*.

1913, p. 237 – Heros, Nürnberg, meeting of 4 March: Mr. Burkhard gives a lecture: "A new *Poecilia* from Haiti. In the new arrivals section of No. 43 of the 'W.' [Wochenschrift für Aquarien- und Terrarien-Kunde] 1912 Joh. Paul Arnold introduced a new livebearing toothcarp from Haiti with a short description. This new *Poecilia* species has not yet been identified in London. Mr. Burkhard bought a pair of these these little toothcarps imported by Mr. Siggelkow." The presentation goes on to characterize the fish, clearly not *versicolor*, and discusses care and breeding.

Rachow (1914): His article has a line drawing by Fritz Mayer that shows a tubby female and relatively deep-bodied male. *Versicolor* as now understood is a slender fish; pregnant females don't become blocky, as do, for example, females of *nigrofasciata*, *melanonota* and the hobby *perugiae*.

Vereinigten Zierfisch-Züchtereien 1914 reports that in 1912 Carl Siggelkow of Hamburg imported *L. ornata* "until now known as *Girardinus versicolor*", *L. arnoldi* [now a synonym of *L. nigrofasciata*], *L. nigrofasciata*, and "*Limia* spec.? with irregular cross bars" from Haiti. They have a line drawing of this last with a verbal description of its colouration. I have no idea what it might be.

Peters (1934):

The *Versicolor* should also find favour with American aquarists if it were made available. It is also a broad-bodied fish of attractive color and markings. The silver sides are well mottled with black and several bands cross the posterior part of the body. A blue line is often present running from the centre of the body to the tail. The major fins are yellow or orange and sometimes are attractively marked with black.

Stoye (1948):

Limia versicolor occurs in Haiti and Santo Domingo (Hispaniola). It is bulkier than most species of the genus and attains a length of two and a half inches in the female and an inch less in the male. The back is olive-brown, the sides olive-green, and the ventral section silvery. Seen with the light, the tail sections are deep blue. The vertical fins are yellow to light orange. Females are duller in color, lack the bars, frequently show several horizontal lines, and have a dark spot on the posterior dorsal base.

Sterba (1966)'s line drawings show a barred male and a plainer female, both with a black basal spot at the rear of the dorsal. Mature male *L. versicolor* don't have a black basal spot in the dorsal. He remarks in text "male: ... numerous black blotches," that it occurs in Haiti and that it was introduced to German aquarists in 1913.

Jacobs (1971) says that *versicolor*'s body form is "typical of the poeciliids in the subgenus *Limia*," that it is "one of the most beautiful members of the subgenus" and that males grow to 45 mm, females to 65 mm. This sounds like *L. melanonotata*. He gives its distribution as Haiti and Cuba.

I believe that Sterba and Jacobs wrote about fish(es) that Arnold and Rachow obtained from Haiti and Cuba, where *versicolor* as now understood does not occur. Their books were for the most part compiled from articles in German aquarium periodicals such as *Blätter für Aquarien- und Terrarienkunde* and *Wochenschrift für Aquarien- und Terrarienkunde*, where Arnold and Rachow both published many articles.

Clarke and Clarke (1986): "The males' iridescent blue-green body with black edged fins would be a beautiful addition to most community tanks." This is not the *versicolor* I know, might be *melanonotata*, which may be a synonym of *L. perugiae*.

Something called *L. versicolor* circulated in the Midwest in the mid-1980s. The Missouri Aquarium Society's (MASI) Breeders Award Program awarded BAP points for it, the first time in October 1984 and the last in August 1988.

Grimes (1986): "My original male has a jeweled body that looks for all the world like a *Hemichromis thomasi* and has a yellow tail and a black dorsal that he flashes constantly." This sounds like *L. melanonotata*. Mike Hellweg of MASI tells me (pers. comm.) that at the time MASI members had the fish Mr. Grimes often attended club meetings, so this may be where he got his. Mike also told me that the original stock might have been brought in by a club member.

Kempkes and Schäfer (1998), an Aqualog picture book with little text, show a picture of a male poeciliid on p.22 with a largely black dorsal fin that is probably *L. versicolor*. The legend says: "Dominikanische Republik (leg. Meyer)." This image, credit M. K. Meyer, isn't in Meyer (2015).

Griffiths (2007): "It remains a relatively available species. There is still confusion about this fish as it may be a synonym of *Limia zonata*, though Dr. Rivas gave it species status in his 1980 paper." *Versicolor* has priority. In any case, *zonata* is a good species. My radiographs of males of both species show that their gonopodial

suspensoria differ. Molecular studies, e.g., Palacios Mejia 2017, find that *versicolor* and *zonata* are distinct and sisters.

Meyer (2015) p. 215 gives plausible map coordinates for a *versicolor* site visited three times (May, 1989; August, 1994; May, 2012) with a muddled verbal description of the location. It isn't clear who the collectors were. Meyer's map coordinates are upstream of the site at which I collected the fish. I could be mistaken, but I think Meyer's photo of the fish shows a pair of *Poecilia (Psychropoecilia) dominicensis*. To the naked eye, *versicolor* and the Río Haina *P. (P.) dominicensis* are much alike, but the *Poecilia* has fine vertical bars, not always easily seen, while *versicolor* doesn't. In addition, the dorsal fins of both sexes of the *Poecilia* have a dark basal spot towards the rear. Although juvenile *versicolor* have this spot, in adult males the dorsal is almost entirely black; the basal spot is present but most of the rest of the fin is usually as dark as the spot. And adult males of the two species have very different gonopodia.

Further on this possible error, I made the same mistake in the field, took *P. (Psychropoecila) dominicensis* collected in the Río Basima, a headwaters stream in the Haina drainage, for a *Limia*, corrected it when I had mature males at home and could examine them closely. Another potential source of confusion is that north slope *dominicensis* males, e.g., mine from the Río Jima, a north slope stream, and the individual figured in Rivas 1978, have fewer broader bars than Haina males.

The Fish Guide (no date) has a photo labeled "Olive *Limia (Limia versicolor)*." It isn't, instead appears to be the fish circulating in the hobby as "Tiburón *Limia*," often with the Latin name *L. tridens*.

To sum all this up, it is clear that *L. versicolor* has been introduced in Germany, unclear that it is still maintained there. I found no evidence that it was ever introduced in the United States.

My experience with *L. versicolor*

In April 2019 I collected eight small *Limia* from a creek of the Río Haina. N18° 31.482' W70° 07.413.' I worked mainly in pools under the bridge that carries the Boruga road across the creek. The substrate was sand, fine gravel and larger stones. In a few places terrestrial grasses grew into the water. In others there was a plant that resembled *Elodea*. Shallow water – less than knee deep in the deepest hole – and few fish. The creek's current was very weak.

I also collected *Nandopsis haitiensis*, feral *Poecilia* cf. *sphenops* and feral *Xiphophorus* at that site. The mollies and swords had to have been brought to the DR by the pet trade. Their presence in the Haina is due to one or more aquarist dumps.

Although *Poecilia dominicensis* is in the Haina, I didn't collect any at that site. All of the museum specimens of *dominicensis* from the Haina drainage that Fishnet2.net found were collected well above my little creek. So were all of Fishnet2's *versicolor* specimens. I don't know whether this reflects the fish's preferences or collectors'.

My eight little fish came home with me. After they grew up they matched *versicolor* specimens (UF 110080) borrowed from the Florida Museum.

My largest female produced eight babies that grew up with the adults. Since then, the adults – original wild fish and brood 1 -- have eaten nearly all the young born in their tank. I've trapped the largest female three times to get additional fry. Her largest brood was around twenty. This is far fewer than Joanne Norton's record of 117. I doubt, can't prove and could be mistaken, that she had *versicolor*.

Brood 2, fully grown up and reproducing, has allowed a few young to live. Brood 3, none. I put a large female *L. sulphurophila* in with brood 4. She and her progeny have reproduced very well. There are now a few young *versicolor* in that tank. I think the abundant *sulphurophila* fry, general uproar – the tank is very crowded – and dense plants help new-born *versicolor* escape their parents. The key to keeping this fish going is to subculture – trap a female -- every 6-9 months.

I haven't seen courtship or classic poeciliid matings, with the pair tightly connected for 5-10 seconds. Males don't pester females continuously. They do, though, sometimes nuzzle a female's vent.

I find my *versicolor* attractive – their shape pleases me and they're perky – but they aren't colourful. Griffiths (2007) implicitly suggested that *versicolor* resembles *L. zonata*. This is a stretch. Both are streamlined and neither's females get blocky when very pregnant, but *versicolor* is a plain fish. Adults of both sexes sometimes have more black in their dorsals than my photographs show, but that's it.

Zonata's normal coloration, as when I collected some in December 2019, is clear gold. In the aquarium females keep this coloration but some males develop a dark area, sometimes solid black, sometimes with black vertical bars, to the rear of the gonopodium. I've had difficulty photographing this. Farr 1984 says that males' dark coloration reflects social dominance. I'm not convinced. Torres-Pineda et al. 2019 has an excellent photograph of a nice male *zonata*.

Colour pattern

My *L. versicolor* are always moving and appear quite plain with no pattern at all except that both sexes have black in the dorsal fin. The males's dorsal is almost entirely black, the female's has the usual female *Limia* basal spot at the rear, but it extends completely across the fin. Photographs, however, show that both sexes have several rows of black spots. These spots are also visible in freshly preserved specimens.

Sexual dimorphism?

In some of my photographs of aquarium specimens, male *L. versicolor* have truncate tails, females' tails are convex. In others, both sexes' tails are convex. I believe that this is the normal condition. I've looked at the 101 specimens in UF 110080, the only lot of preserved wild fish on hand. All have damaged tails from which nothing can be concluded.

Conservation status

The 2021 IUCN Red List (Rodríguez-Silva et al. (2021)) rates *versicolor*'s conservation status as vulnerable. It is known to occur only in the Río Haina drainage. The Haina is a south slope stream; Rodríguez-Silva et al. suggest that *versicolor* might also be in adjacent north slope drainages. These drainages have,

though, been collected fairly extensively. Their resident *Limia* is *zonata*. Although a general rule that I want to be true, “one drainage, one *Limia* species,” doesn’t hold, there’s no evidence that *L. versicolor* is on the north slope of the eastern DR.

With this in mind, I hope to distribute *L. versicolor* to aquarists who will maintain it long term.

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Fishnet2.net is an on-line catalog of many of the world’s museums’ fish collections.

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This copy belonged to George S. Myers, has extensive marginal notes.

¹Short biography of Johann Paul Arnold: https://translate.google.com/translate?sl=auto&tl=en&u=https://www.biologie-seite.de/Biologie/Johann_Paul_Arnold

²Short biography of Arthur Rachow:

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Musings from the fish room

Greg Roebuck

1. As I have mentioned before, my fish-room is well insulated but unheated, and all the tanks containing *Goodeids* are unheated. There is, however, a large window facing due south. Last winter, the temperature in the *Goodeid* tanks got down to 13C. Some species were a little unhappy but there were no great losses. Come the spring, the sun came out and the temperature in all of the tanks soared. Result – breeding! To be welcomed, you would say! The downside? Lots of fry, all born in a short period of time, and not enough spare tanks to separate them all out. The answer, lots of plastic storage boxes on the floor of the fish-room with fry growing on in them.

2. Sod's Law. Why do so many females drop their fry when I am away? I have had to spend several spells away from home this year and each time I have separated out gravid female *Goodeids*. And they always drop their fry while I am away. Four times I have separated gravid female *Characodon lateralis* and four times the young have been born while I was away. Each time the females have looked like they were going to produce lots of fry but I only have four surviving fry from all of them. Curses!

3. What is it about female *Skiffia multipunctata*? When I have left a gravid female in with the other members of her species the fry have not survived. When I have separated out a gravid female this year she has just died. I suspect that I am going to lose this species.

4. Plants. We all know that Java moss is great for giving newly-dropped fry somewhere to hide and probably also contains small organisms that fry can feed on. But floating plants are good also. A couple of my tanks contain tropical frog-bit, which forms a dense mat at the surface with roots hanging down. One tank containing cichlids and Kerri tetra surprised me when fry of the tetras appeared. I am guessing that the eggs were laid among the roots which also gave tiny fry somewhere to hide. I am experimenting with the plant in livebearer tanks.

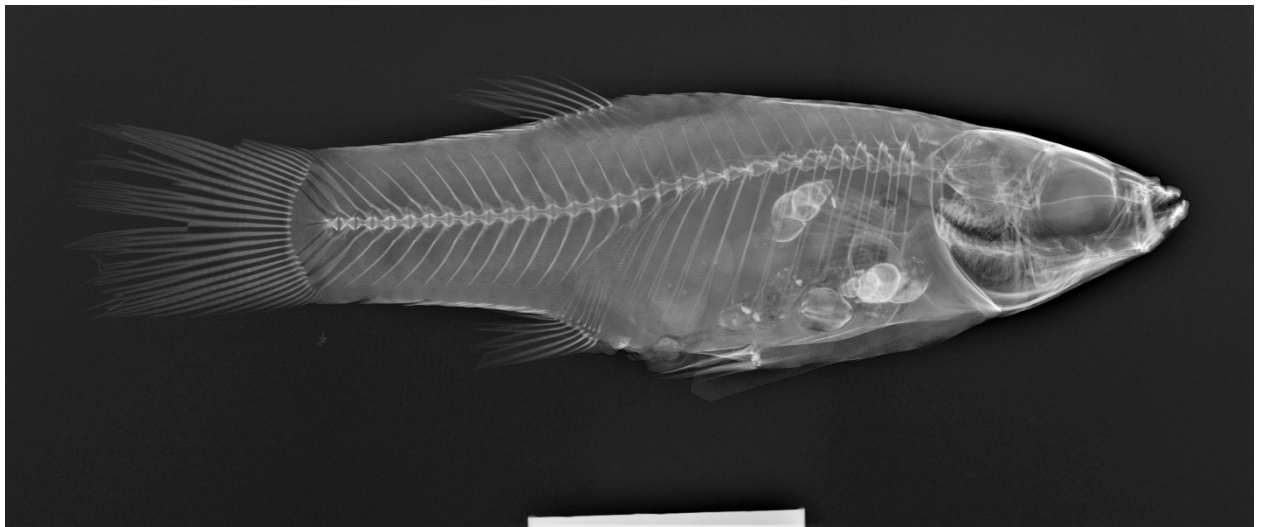
5. I was contacted a few months ago by a BLA member who wanted to get hold of some *Anableps* – and I can't remember who it was! Some time later I visited Pier Aquatics in Wigan, and they had some! At £58 a pair, I am afraid that I left them in the shop. I have seen this species in the wild in Trinidad and they grow large and need a big tank. When I win the lottery I will have a huge tank dedicated to *Anableps*. [With automatic water changing.]

Natural History Note: *Limia dominicensis*: diet

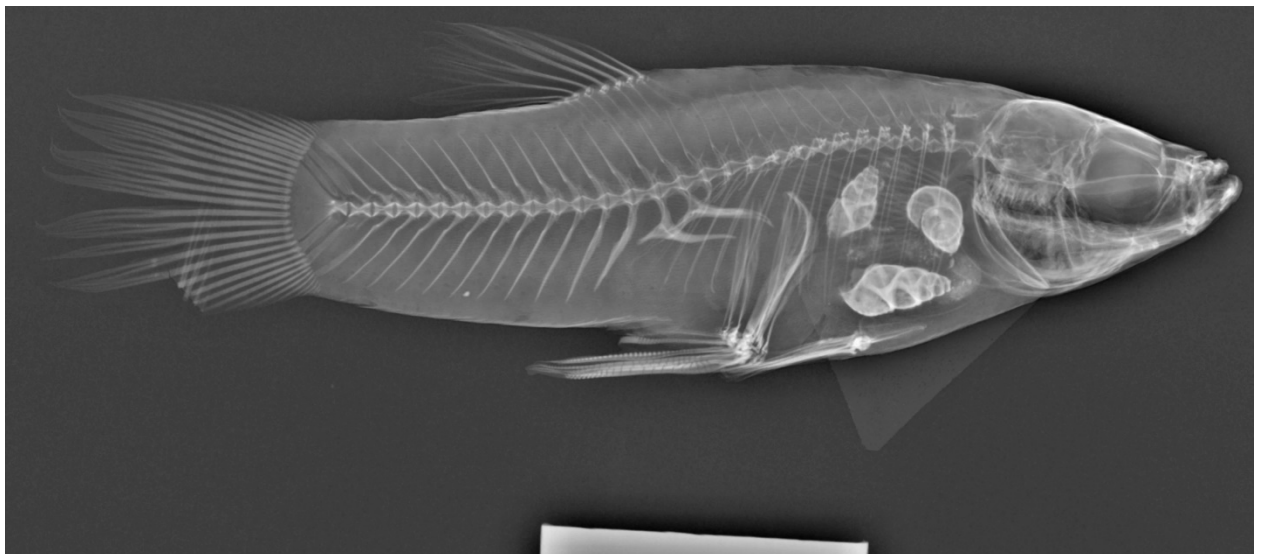
Dan Fromm

Radiographs of *Limia dominicensis* collected in January 1986 from a stream that crosses RN-2 in Chalon ~4 km from the Miragoâne traffic circle and then flows into the southwest bight of Lake Miragoâne, Haiti found thirteen individuals whose guts contained snails and four that had eaten ostracods (seed shrimp). One specimen contained both. *Limia* diets normally consist of detritus, algae and insects (Rodriguez-Silva et al. 2021).

The largest snail is slightly > three mm long. The ostracods are approximately two mm in diameter. Standard lengths of the fishes' who ate them ranged from 25 – 30 mm. Some individuals had eaten several snails or ostracods. The scale marker in the radiographs is 1 cm long.



ANSP 163388-140: A female *Limia dominicensis* that ingested three snails and several ostracods



ANSP 163388-G: A male *Limia dominicensis* that consumed three snails.



ANSP 163388-156: A female *Limia dominicensis* that ate at least seven ostracods

Most of the larger specimens radiographed contained no snails or ostracods. It appears that at least a few specialized in preying on these relatively large and hard food items.

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Photos



Photo : Holly Walford



Ilyodon furcidens fry. Photo : Holly Walford; originally posted on "Facebook"

Diary dates

Autumn Convention :- the best event of our year!

WHEN? : Saturday 21st and Sunday 22nd October.

WHERE? : The Shenstone Village Hall,
Barnes Road,
Shenstone,
Lichfield.
WS14 0LT

WHAT? : Livebearer show;
Fancy guppy show;
Guest speaker;
Sales table;
Raffle;
Auction

Hot and cold drinks and cake / sandwiches will be available.

Hope to see you there.