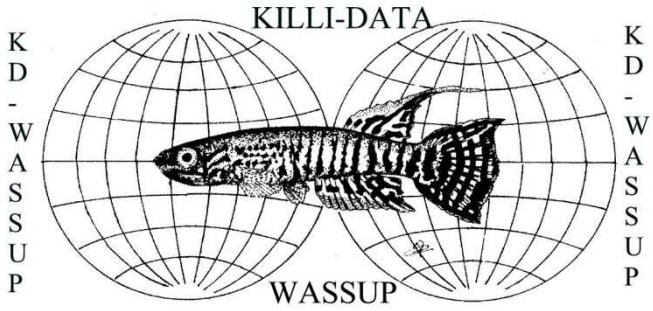


Killi-Data Wassup n°20

Overview of Killifish research output

May 4. 2025–September 28. 2025

Dated 2025-09-29

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Alert-co-analyst: none (if anybody wishes to be co-analyst, please contact the editor before or immediately after the selected publication)

INTRODUCTION

Within this time frame of present Wassup, nearly 5 months with fewer publications than usual, it must be noted 11 new species, i.e., 2 cryptic or molecular species, *Profundulus hectori*, *Lacustricola gemma*, 2 spine killifish, *Eremodon yetateku* and *Pantanodon nyingi*, 4 African annuals, *Nothobranchius iridescens*, *katemomandai*, *marmoreus*, *dubieensis*, 3 neotropical annuals, *Spectrolebias shoheiohtanii*, *Xenurolebias tupinikin* and *Titanolebias calvinoi* [beware pronunciation : k-ah-l-v-ih-{soft}n-ih-oh-ih !], dedicated to renown Argentinean killifish addict, Pablo Calviño] which publication has broken the quickest speed of online appearance (manuscript received by Zoologischer Anzeiger March 21 . 2025, revised on April 22. 2025, accepted on April 25. 2025, available online on May 3. 2025, ICZN officially published as version of record on May 9. 2025) {how could reviewers work so quickly?... no criticism of course, just an objective comment on how manuscripts-for-publications are handled nowadays !}.

But first let's start a discussion on molecular sp. (i.e., new or revalidated names that are only separated from previous ones -senior, then with priority- by genetic differences and possibly by a long list of combinations of characters, none being diagnostic alone). It is buoyant and it is importantly changing current nomenclature (not only for killifish, but for all fish), but because it is buoyant and like an un-stoppable wave, the present author does not want to give names of fish or of people or give examples (people will make links, no doubt), to stay neutral and objective and not to be coined with negativism or selfish criticism.

One first comment… the evidence of strong variable genetics in groups of similar populations is not new with Cyprinodontiformes, it is already observed by pioneer J.J. Scheel in the 1960ies and 1970ies with karyotypes, then it is not new, but with generalized molecular samplings, DNA sequences and molecular amplifying machines that are becoming cheap routine, it is becoming common, and new consequence, it is changing the way nomenclature is done ; besides, today, identification can be done without fish, with only water of the biotope by affordable, portable sampling kits and low-effort sampling protocols (the technique is cheap, it is named Environmental DNA or eDNA, of course when data of a species is already done-published at least with the limited BarCoding process), i.e, metabarcoding with eDNA offers a powerful tool for rapid species monitoring in diverse river basins. Thus, molecular studies of a taxon and eDNA identification of fish in a biotope are complementary increasingly used tools, and this pushes to disclosing of molecular species. Science, unquestionably, gains in phylogenetical relationships and biogeographical knowledge. On the other hand, myriads of molecular sp. descriptions (even in solid and serious publications, even with detailed argumentation!) leave little interest to traditional identification and separation (morph with or without a photo for live pattern).

In practice (keeping in mind variability, intra-populational and inter-populational, a normal process to save the gene pool of a biological species), there are already 3 cases facing difficulties of identification that make

obscure the naming of a molecular sp. and dynamite its definition (otherwise it would be a standard morpho-species or a cryptic species): (1) first case is when author(s) revalidate(s) a species name that was oldly considered as a junior synonym, (2) second case is when author(s) synonymize(s) a morpho-species or a cryptic species with a more senior name (by showing the molecular data are identical or very similar, even if morph and-or diagnostic patterns are distinct), while disclosing further molecular sp., distinct from the synonymy, (3) third case is when author(s) show incongruence between their molecular results and distinctive morphology of some taxa, besides at subspecies level, he-she-they become(s) unable to go further (and the subspecies status is kept, even if it is equivocal). Three Gordian knots, at least ! Today, as always, Killi-Data follows latest evidence (in line with ICZN code), but while, like already said, phylogeny is improved, identifications deteriorate, OR said differently, species is then only defined by molecular data and by previous or new GPS locations (a headache for new field sampling). Reality, now… more in the future?

Just, food for thought!

And there are some further improvements on major themes within this time frame of present Wassup:

First, publications with mostly genetic data (positive outcomes vs. above discussion), with no major taxonomic change, but with a series of incremental improvements, solidly demonstrated, (1) in *Nothobranchius* (resolutions in phylogeny of *flammicomantis*, *korthausae*, *nikiforovi*, *melanospilus*), (2) distinction of *Aphanius almiriensis*, with a new third population in a very hot hypersaline Turkish spring, (3) non-resolution of *Xiphophorus multilineatus* with evidence of high variability in 6 populations, (4) presence of 2 ecotypes of *Orestias* in lake Chungara, northern Chile at 4520 m altitude, with similar stomach contents, (5) better definition of widespread *Fluviphylax simplex* in Brasil, but with pattern variations.

Second, publications that concerns various distribution extensions or live recollections for *Cnesterodon raddai*, *Rivulus* (*Melanorivulus*) *decoratus*, *Apricaphanius saourensis* (good news, a relief after previous conservation concerns).

Finally, 2 important news:

- there is a new major page in the database that concerns State of the Art of each of the ca. 270 species-groups in Cyprinodontiformes (killifish), which means syntheses of basic and only solid knowledge on each and prospects of improvements for each (tagged as missing, not well, insufficiently, etc.) ; each synthesis, short, is built with the same structure in order to make the reading easier and comparative, but by no means it is intended as a key to generic or species-group names and each species-group is followed by a link to the profile of each valid species per species-group (like in the various menus, but listed historically, this time, to show priorities) ; there is also an important improvement in the design of taxonomic names, by adding usual italics, although it induces a short time lag delay (by a quarter to half a second) to show on screen each database page;
- let's inform the readers that Vasco Gomes has started a new promising independent project, named KCP, in order to register and show online collecting trips during history after pioneering initiative by American Roger Langton (now deceased) in the past century ; it is described as a collaborative archive dedicated to collecting, validating, and sharing data on global killifish collections with maps, preserving pure populations and sustaining knowledge across generations : URL is https://killifishcollections.net, with (today) 2 submenus, by expeditions (country, then codes) and by collectors (name, then trips)… let's support the initiative (the present author's 4 major collecting trips data have been donated, edited, submitted to KCP).

SELECTION OF PUBLICATIONS (last in, first out)

- Gomes B.P., L.M. Sarmento-Soares, R.F. Martins-Pinheiro & G.R. Leite. [Gomes et al. review distribution and conservation of *Xenurolebias*, with description of *tupinikin*, from coastal plain southern range ; Atlantic Forest coastal tablelands in eastern Brasil is home to a wide diversity of small-sized freshwater fish sharing a biogeographically congruent distributional pattern, with several genera, either with annual or non-annual species ; annual *Xenurolebias* sp. are vicariant inhabitants in the riparian wetlands with 4 up-to-today species (*pataxo* between Jucuruçu and Mucuri rivers, *myersi* in Riacho Doce and Rio Itaunas, and, further south, *cricarensis* in Rio São Mateus and *izecksohni*, in Rio Barra Seca, north of Rio Doce) ; however, 2 of these species are threatened with extinction on Red Lists, one is Near-Threatened and one is Data-Deficient ; the authors, after 10 years since last species description, disclose a fifth species, the first recorded south of Rio Doce and it is named *tupinikin* {vernacular name}, with some morphological and pattern separation. 2025. Div., https://www.mdpi.com/1424-2818/17/9/644] {Jean Huber, 17-September-2025} <°))))>< <°))))>< <°))))><
- Silva, D.Z.P., F.P. Ottoni, C.C.S. Queiroz & P.H.N. Bragança. [Silva et al. review ecology, pattern, genetics (high haplotype, low nucleotide, variations) of Brasil most widespread *Fluviphylax*, *simplex* ; the full comprehensive study of 21 populations and specimens throughout the very large range reveals it is the most widespread congener, but only in Brasil ; the issue of low pH black-water and white-river systems are discussed (in line with speciation) ; however, molecularly the species is rather homogeneous over its range with a high haplotype but a low nucleotide diversity, suggesting that communication between populations is not that often and probably constrained by different water types ; finally the species is recorded for the first time in the middle rio Negro basin and the live coloration is described, showing *minor* variation in male for 6 populations {simple, like the etymology of the name}. 2025. N.I., http://www.scielo.br/j/ni/a/R37wqtbR8zTds47hMC8xxMz/?lang=en] {Jean Huber, 9-September-2025} <°))))>< <°))))>< <°))))><
- Torres, E.L.M., A.S. Ochotorena & Y.G. Rodriguez. [Torres et al. disclose only 6 stages, not 8, in intraovarian egg development of ovoviviparous Cuban *Girardinus microdactylus* ; this is the first early-LHT study (but evolution of morphology after female release is not detailed), and it concerns a quite atypical member of *Girardinus* (a genus restricted to island of Cuba and some small islands off-shore, e.g., isla de Juventud), describing only 6 stages {according to Reznick et al., 1992 ; Haynes, 1995, post-fertilization comparable stages are 8 in Poeciliidae, or 11 in full total, depending on method} ; the authors collect and study 12 fertilized females of one population of mainland Cuba, in rio Pedernales River, during the 2 seasons of the year ; the eyes are among the first organs to complete their development, so fish are born (released) with a complete and differentiated visual system. 2025. P.A.J.A.S., https://panamjas.org/pdf_artigos/PANAMJAS_20(2)_91-100.pdf] {Jean Huber, 1-September-2025} <°))))>< <°))))>< <°))))><
- Weber, V., F. Alonso, R.S. Godoy, L.E.K. Lanés, M.M. Pires, A. Gava, C. Stenert & L. Maltchik. [Weber et al. experiment on egg diapauses of annual *Matilebias cyaneus* when egg field collected on early-wet, drying, late-wet phases ; for annual killifishes in temporary wetlands, diapause induction during embryonic development is considered a bet-hedging strategy to endure unpredictable dry periods {recent studies} ; this time, the authors study diapause induction patterns of endangered killifish *Matilebias cyaneus* across 3 hydrological phases (early-wet, drying, late-wet) through an experiment under common-garden conditions to monitor entry (or skipping) early and mid-embryonic diapause (diapause I and II) ; results show that most embryos skipped both diapauses when eggs are collected in early-wet phase, while mixed trajectories are observed in drying and late-wet phases ; finally the authors discuss the possible interest for the egg (or the species survival) of those options in the context of bet-hedging strategies. 2025. Hydr.,

https://link.springer.com/article/10.1007/s10750-025-05962-7] {Jean Huber, 19-August-2025} <°))))>< <°))))>< <°))))><

- Gresham, J.D., A. Clark, C.M.T. Keck, A.E. Longmire, A.E. Nelson, H. Quertermous, A.B. White & R. Earley. [The Earley team details eLHT of 213 clonal *Kryptolebias marmoratus* from 100 different genotypes with 16.4% changes to male sex ; mixed-mating strategies can maximize benefits and limit costs of both self-fertilization and outcrossing and, in the case of *marmoratus*, strategy is opted to be androdioecious (co-occurrence of hermaphrodites and males), while males may result from hermaphrodites changing sex ; the authors confirm hermaphrodites overwhelmingly reproduce through internal self-fertilization, but occasionally oviposit unfertilized eggs, which {primary} males can fertilize externally, then they test hypotheses that self-compatibility and fecundity would vary with age and as a function of genotypic variation in propensities for sex change ; results show that fecundity and self-compatibility vary within individuals across ontogeny and among genotypes with different propensities to change sex : hermaphrodites from genotypes that frequently change sex are significantly less fecund and self-compatible than hermaphrodites from genotypes that rarely change sex {then, *marmoratus*, on an individual basis, is even more opportunistic than previously thought within a single and 'simple' hermaphroditic process}. 2025. P.R.S.B., https://royalsocietypublishing.org/doi/10.1098/rspb.2025.0919] {Jean Huber, 16-August-2025} <°))))>< <°))))>< <°))))><
- Huber, J.H. & E. Meinema. [Huber and Meinema describe *Eremodon yetateku* from desertic Ethiopia and *Pantanodon nyingi* from Kenya and review *Micropanchax antinorii* ; the authors study the Pantanodontidae and the lampeyes (Procatopodidae) from Ethiopia collected and left unidentified by Lothar Seegers, after his death, 7 years ago, and stored in Bonn Museum ; there are 2 undescribed species of Pantanodontidae, as a posthumous legacy, *Eremodon yetateku* from Ethiopia, with horizontally placed teeth on the upper jaw and unique armored scales upon the snout, positioned anterior to the eyes, and, *Pantanodon nyingi* from coastal Kenya, with multiple modified fins, i.e. with hooks and claws on Ventral, Pectoral and Anal fins {hence the name} ; presence of a posterior spot in male Anal fin is presented as a distinctive character unique to genus *Pantanodon*, not found in any other genus of Pantanodontidae ; according to the authors, a posterior Anal fin spot is also present in an undescribed species, previously considered as *Aliteranodon* aff. *ndoano* (Garsen, Kenya), which actually appears similar to *nyingi*, but with reversed Anal fin coloration, thus being the most northern representative of genus *Pantanodon*, previously considered to be restricted to Tanzania ; other vials also includes specimens from overlapping ranges in Ethiopia of a known but seldom studied species, *Micropanchax antinorii* and they are morphologically studied, pictured and discussed in comparison to Pantanodontidae. 2025. KDS, https://www.killi-data.org/series-kd-2025-Huber_Meinema.php] {Jean Huber, 14-August-2025} <°))))>< <°))))>< <°))))><
- Huber, J.H. [Huber discloses exact common type locality of *Austrofundulus transilis* and *Pterolebias zonatus* Myers, from a Rockefeller legal report ; by chance, the author reaches on Internet to a legal report of the Rockefeller foundation for the year 1928, written by the official collector of the 2 annaul species during a collecting trip in 1927 or 1928 ; both species, supposedly from the same, un-precised type locality in state of Guarico, Venezuela, are discussed ; based on that desk research, that common type locality of the 2 taxa is clarified from , and it is fully congruent and ecologically compatible with presently known range of those 2 valid annual Rivulidae species ; this result open the way to differentiate putative cryptic new (molecular) sp. in the future, notably similar to polytypic {as evidenced by Hrbek et al., 2005} *transilis*, type species of genus of *Austrofundulus*. 2025. KDS, https://www.killi-data.org/series-kd-2025-Huber.php] {Jean Huber, 14-August-2025} <°))))>< <°))))>< <°))))><
- Al Jufaili, S.M., A.S. Al Adhoobi, H.D. Al Mamari & S.Y. Al Hinai. [Al Jufaili et al. study LWR of 2 parapatric intricated *Aphaniops*, *stoliczkanus*, *kruppi*, plus 2 indeterminate pops, in northern Oman ; the study involves specimens of 7 wadis in the Hajar Mountain sampled once in March 2023 (1,896 fish collected)

and usual LWR (length-weight relationships) parameters, growth types, and condition factors (CF, notably 3 well-being factors, Fulton's condition factor as Kc, allometric condition factor as Ka and relative condition factor as Kn), all 3 varying according to species and locations ; the authors disclose there is a wide variation in growth patterns in LWRs and CFs among species and locations which might be attributed to the environment, food availability, reproductive status, and habitat characteristics {even if the 4 lineages correspond to molecular sp., 2 being today named, i.e. very close evolutionary units}. 2025. F.A.S., https://www.e-fas.org/archive/view_article?pid=fas-28-7-439] {Jean Huber, 12-August-2025} <°))))>< <°))))>< <°))))><

- Altavilla, L., F. Surra, C. Facca, F. Cavraro, A. Forlani & S. Malavasi. [Altavilla et al. detail early-life of *Aphanius fasciatus* in Italy along salinity exposure (egg success rates, larval resilience) ; although highly tolerant to salinity fluctuations (keen to live as estuarine resident, such, as herein a Venice lagoon), presence of that opportunistic killifish in oligohaline waters is limited {at list in Italy} ; in the field, during reproductive period, recognizable by the males' intensified colors and appearance of the secondary sexual trait such as a black band on Caudal fin, salinity ranges from 28 to 31 ppt (near to pure sea water) and on day of collection salinity is 30 ppt (on location, from June to September, water temperature ranges from 26 to 30°C reaching its peak in August) ; in the lab, experimentally, the study investigates the effects of salinity on its reproductive and early developmental stages {e-LHT} by assessing (1) egg deposition rates, (2) hatching success across a salinity gradient, (3) egg mortality across a salinity gradient, and (4) larval survival probabilities ; based on 762 eggs collected and examined, results show that 5 and 45 ppt groups show lower number of spawned eggs (respectively 19.4 % and 17.6 % of the total) while 15 and 30 ppt provide with 63 % of the total collected eggs, that egg mortality is statistically higher and fry survival rate statistically lower in oligohaline conditions ; the authors conclude that this population thrives more in a marine, but not hypersaline, environment. 2025. E.C.S.C., https://www.sciencedirect.com/science/article/pii/S0272771425003567] {Jean Huber, 7-August-2025} <°))))>< <°))))>< <°))))><
- Dominguez-Cisneros, S.E., E.V. Velazquez, O.D. Dominguez & R.G.L. Beltran. [Dominguez-Cisneros et al. describe *Profundulus hectori*, an highlands molecular sp. oldly in *punctatus* definition, revalidate *adani* ; this is another new species in genus *Profundulus* {today 12 in total, *adani*, *balsanus*, *chimalapensis*, *emilioi*, *guatemalensis*, *hectori*, *kreiseri*, *mixtlanensis*, *oaxacae*, *parentiae*, *punctatus*, *rei*}, most of the recently named being molecular units distinctive from *punctatus*, previously thought to represent a single morphological species ; similarly the authors, based on the same molecular methods, revalidate *adani*, another recent molecular sp. that have been synonymized by another {Mexican} research team ; the new species, *hectori*, is described from several localities in the Grijalva river basin and rivers of the Isthmus of Tehuantepec, in southern Mexico, distributed in upper altitude than *punctatus* s.s. which is restricted to the coast ; while *hectori* is genetically separated from other *Profundulus* species analyzed by a minimum of 3.86% uncorrected p-distance for the nd2 mitochondrial gene, live photos of *hectori* and *punctatus* (in a strict sense) are not distinguishable {not even speaking of standard variability in killifish}, but the authors state that *hectori* is distinguished by a set of large black spots on the scales on the sides of the body whose size is equal to or greater than 50% of diameter of pupil {plus other 2 meristic characters, notably the D/A deviation in the new species, and the comparison is solidly based on large samples, *hectori* (N = 101) and *punctatus* (N = 111)}. 2025. N.I., https://www.scielo.br/j/ni/a/5nH8BqXsTYvSB3SYQJNYxLj/?lang=en] {Jean Huber, 5-August-2025} <°))))>< <°))))>< <°))))><
- Sherman, A.N., E. Parker, M. Köck, O.D. Dominguez & K.R. Piller. [Sherman et al. genetically review all 3 *Characodon* species, but recognize only 2, *lateralis* and *garmani*, plus 2 undescribed new ones ; genus *Characodon* (Goodeidae) is a highly imperiled genus of fishes from the Rio Mezquital basin in northern Mexico that consists of two extant species (*lateralis* and *audax*), as well as a third, persumably extinct, species (*garmani*), only known from the holotype, but there are uncertainties in regard to the type

localities for *lateralis* and *garmani* {cf. Huber, 2018, with a new proposed type locality more in line with biogeography, yet undisclosed if above or below the Rio Mezquital falls}, making taxonomic revisions difficult ; the authors molecularly study many aquarium populations of *Characodon* and recover 3 major groups/clades within *Characodon*, including one group corresponding to above the falls (Cascada El Saltito) and two separate groups from below the falls ; as a result, the authors recognize 4 valid taxa within *Characodon*, (1) conservatively *garmani* until samples are genetically studied, (2) *lateralis*, with *audax* as a junior synonym, above the Rio Mezquital falls, (3) and (4), 2 undescribed species below the falls, *Characodon* sp. 1 (Los Berros-La Constancia) and *Characodon* sp. 2 (Amado Nervo) that await formal descriptions. 2025. I&H, https://asih.kglmeridian.com/view/journals/cope/113/2/article-p395.xml] {Jean Huber, 1-August-2025} <°))))>< <°))))>< <°))))><

- Dominguez, O.C., S. Valdesalici, W.M. Berbel-Filho, L.C. Garcia, S.C. Valdez. [Dominguez et al. revalidate *Cynodonichthys myersi* {K-D maintained in *Rivulus*} from Yucatan mangroves of Mexico, as a molecular sp. ; the *Rivulus* (*Cynodonichthys*) *tenuis* species group has the largest distribution among Central American Rivulidae, ranging from the Atlantic slope of southeastern Mexico to Colombia ; *tenuis* is the most senior component and *myersi* described by Hubbs in 1936 from Yucatan was its junior synonym since Huber (1992) ; however, Collier, along description of another component of the group, *degreefi*, has shown that the species group was composed of several cryptic species ; the authors by studying the genetic data of topotypes of *myersi* (northern Yucatán mangroves) concur and show they are distinct from topotypes of *tenuis*, even if distance between the 2 species is limited ; the average cytochrome oxidase 1 (cox1) genetic distance between *myersi* and other components from the *tenuis* group samples is 8.7%, which is rather high ; surprisingly, the authors find that *myersi* is more closely related to *Cynodonichthys* species distributed in Panama (*brunneus*, *weberi*, *montium*) by ca. 1700 km distant than to *tenuis* contradicting expectations based on geographic proximity, suggesting independent ancestral dispersal routes between *myersi* and *tenuis* in Mexico ; then, *myersi* is a pocket species within *tenuis* range ; besides, according to the authors, *myersi* can be differentiated by distinct coloration patterns: male exhibits dark spots over Anal fin on iridescent greenish blue (cyan), whereas female displays a spotted pattern in Caudal fin ; fish are found at the soil-water interface and out of water, revealing a potential amphibious behavior. 2025. J.F.B., https://onlinelibrary.wiley.com/doi/10.1111/jfb.70144] {Jean Huber, 20-July-2025} <°))))>< <°))))>< <°))))><
- Mustikasari, D., T.R. Lestari & N. Ekawandani. [Mustikasari et al. study ecology of *Aplocheilus panchax* in rice fields from Java as ubiquitous but phased out by alien *Gambusia* ; the species is widely found in open and closed waters, including ephemeral waters in Java {and elsewhere in its huge distribution, if molecular and cryptic sp. are not separated}, following collections by the authors from June to August 2024, in Purwokerto, Banyumas Regency, Central Java, Indonesia ; results show that *panchax* is found in rice fields, irrigation canals, streams (tributaries), Serayu River, Logawa River and Gerak Serayu Dam ; in all these habitats, *panchax* specimens live in groups and also as solitary individuals ; however, during dry season, *panchax* experiences potential {local} extinction due to co-optation by alien *Gambusia* sp. because of faster reproductive ability and a larger number of *Gambusia* specimens, and also competition in food resources {this is a new threatening issue of conservation because previously *panchax* has been rated as 'no concern' due to its much more opportunistic behavior in terms on niche, range and food, compared to African and Neotropical oviparous killifish}. 2025. Bioflux, https://bioflux.com.ro/docs/2025.1618-1630.pdf] {Jean Huber, 17-July-2025} <°))))>< <°))))>< <°))))><
- Brousseau, R.D. [Brousseau describes *Spectrolebias shoheiohtanii* discovered by him in Bolivia last January 2025 and dedicated to a baseball player ; the new species is described and live-pictured from temporary pools in a single location of the San Pablo river floodplain, lower Mamoré river basin, Bolivia ; it is is distinguished from congeners by a unique golden-green iridescence on male sides, 12-16 white vertical bars along sides of both sexes and exceptionally elongated Dorsal and Anal fin filaments in male (not

female), extending beyond Caudal fin margin and border ; type locality is situated between those of (similar, related) congeners *filamentosus* and *brousseaui* ; confirming previous authors, genus *Spectrolebias* is thought to consist of 2 phylogenetic lineages {for the anecdote, this is the third case of dedications to names which are foreign-to-killifish-world, after *Profundulus rei* -dedicated to a personal pet cat- and *Hypsolebias lulai* -dedicated to the political Brasilian President-}. 2025. J.A.K.A, http://www.killi-data.org/new.php] {Jean Huber, 17-July-2025} <°))))>< <°))))>< <°))))><

- Tahri, R., L. Derouiche & C.R. Fernandes. [Tahri et al. report new collection outside type area and potential rediscovery of endangered *Apricaphanius saourensis* in Algérie ; *Aphanius saourensis* {today in genus *Apricaphanius*} is described in 2006 from Saoura River in western Algeria, the only known Aphaniidae in that region ; since then it has not been found in field surveys within the known geographic range, and the hypothesis that the species is possibly extinct in the wild has been raised, due to phasing-out by alien *Gambusia holbrooki* ; the authors report discovery of a significant Aphaniidae fish population in a very isolated wadi, approximately 115 km northwest of type locality of *saourensis*, which, based on several images taken of live individuals with variations, might {should} belong to the same species pending morphological and genetic analyses {note: the authors do not discuss, at least biogeographically, other (several) locations of *saourensis* throughout much inland Algérie, even if they are today considered as extinct too. 2025. D.A., https://link.springer.com/article/10.1007/s44338-025-00093-8] {Jean Huber, 4-July-2025} <°))))>< <°))))>< <°))))><
- Nagy, B. [Nagy describes 4 *Nothobranchius* sp., *iridescens*, *katemomandai*, *marmoreus*, *dubieensis*, plus *Lacustricola gemma*, from upper Congo basin ; following collections by the author from Bangweulu-Mweru and Upper Lualaba freshwater ecoregions in Zaïre {D.R. Congo}, situated in the uppermost Congo River drainage, 4 newly described species of seasonal killifish and a new species of lampeye belonging to the genus '*Lacustricola*' {genus under review, but still not published by Bragança} ; *Nothobranchius iridescens*, from Kafila river system in Lufira drainage, is characterized in male mainly by Anal fin and Caudal fin patterns ; *Nothobranchius katemomandai*, from Kay river system in upper Lualaba drainage, is characterized in male by Anal fin and Caudal patterns ; *Nothobranchius marmoreus*, from Lufukwe river system in Lake Mweru basin, is characterized in male by a body with irregular red-brown patches and stripes, forming a marble-like mottled pattern and by Anal and Caudal fin patterns ; *Nothobranchius dubieensis*, from Lubule river system in Luvua river drainage, is characterized in male by Anal and Caudal fin patterns ; '*Lacustricola*' *gemma*, from Kay river system in upper Lualaba river drainage (sympatric with *Nothobranchius katemomandai*), is characterized by a pattern of iridescent, diamond-shaped, light blue spots in scale centres below mid-longitudinal series on posteroventral portion of sides, median fins yellow to hyaline, with dark grey bars perpendicular to fin rays, Dorsal fin with light blue distinct margin, Anal fin with dark grey margin ; analyses of mitochondrial COI gene sequences {performed by P.H.N. Bragança} reveal that the 5 new species represent phylogenetically distinct lineages, the *Nothobranchius* sp., within the *brieni* group and the lampeye, within the *hutereaui* group ; these wetlands are highly vulnerable to a variety of human-induced stressors and threats, including agricultural cultivation, water extraction, urban expansion resulting in land-use pressure, and increased pollution, particularly from industrial activities such as mining, therefore, seasonal fish like *Nothobranchius* are at risks {note there are now 20 taxa in the *brieni* group: *boklundi*, *brieni*, *capriviensis*, *chochamandai*, *cooperi*, *ditte*, *dubieensis*, *flagrans*, *hassoni*, *iridescens*, *kafuensis*, *katemomandai*, *malaissei*, *marmoreus*, *milvertzi*, *oestergaardi*, *polli*, *rosenstocki*, *sainthousei*, *symoensi*} 2025. E.D., https://www.sciepublish.com/article/pii/593] {Jean Huber, 3-July-2025} <°))))>< <°))))>< <°))))><
- Simanovsky, S.A., A.Y. Skuratovskaya, M.G. Simonian, D.A. Medvedev, F. Tefera & A.S. Golubtsov. [Simanovsky et al. detail karyotypic formula of *Epiplatys spilargyreius* from S.W. Ethiopia and comment chromosome evolution in genus ; this study brings new data on that species with a huge range, notably karyotype data for this extreme eastern population {however, this is not a molecular study and results do

not allow to disclose if that population is phylogenetically separate or close to extreme western populations in Sénégal or to southern populations in Congo-Zaïre} ; results of karyotype of that population of *Epiplatys spilargyreius* show that it is one of the two congeners with the lowest diploid chromosome number (2n = 34), with 18 metacentric/acrocentric and 16 subtelocentric/acrocentric chromosomes (FN = 52). 2025. C.C., https://compcytogen.pensoft.net/article/151345/] {Jean Huber, 22-June-2025} <°))))>< <°))))>< <°))))><

- Maldonado-Agurto, R., Acevedo, E., Maracaja-Coutinho, V. & M. Montecino. [Maldonado-Agurto et al. show seasonal transcriptome profile variations in Andean *Orestias ascotanensis* checked on 3 different tissues ; the Chilean teams of researchers continuously dig into *Orestias* knowledge, notably that of *ascotanensis* inhabiting high-altitude Ascotan Salt Pan, above 4000 m, an environment with variable salinity, high UV exposure, low oxygen, and extreme daily temperature fluctuations ; this time, the seasonal and tissue-specific transcriptomic profiles are investigated, RNA-seq is performed on 42 libraries from gills, skin, and muscle (3) tissues of 14 individuals collected in summer (n=7) and winter (n=7) and results show variations according to both seasons. 2025. S.D., https://www.nature.com/articles/s41597-025-05345-6] {Jean Huber, 13-June-2025} <°))))>< <°))))>< <°))))><
- Snead, A.A., Quackenbush, C.R., Trojahn, S., A. Kanamori, R.L. Earley & J.L. Kelley. [Snead et al. show gene plasticity in embryos of clonal *Kryptolebias marmoratus* is modulated with temperature and developmental time ; the authors study transcriptional variation on whole transcriptome in embryos of mangrove 'rivulus' (*Kryptolebias marmoratus*), a self-fertilizing hermaphroditic, eurythermal, aestivating fish that inhabits in notoriously spatiotemporally variable mangrove forests, i.e., eggs are exposed to different thermal regimes during development ; results show that both temperature and developmental timing modulate embryonic gene expression, but differences in gene expression between embryos incubated in cold and warm conditions are limited, suggesting high resistance to stochastic changes in gene expression early in development ; replicate embryos exposed to cold temperatures and sampled after the temperature-sensitive period show less variation in gene expression than those sampled before (i.e., a lower shift), suggesting a plastic response {adaptative}. 2025. F.P.B., https://link.springer.com/article/10.1007/s10695-025-01522-x] {Jean Huber, 13-June-2025} <°))))>< <°))))>< <°))))><
- Gonzalez, I.B., L. Uruzula & M. Loureiro. [The Loureiro team collects pigmy *Cnesterodon raddai* newly in southern Uruguay river after flood pulses of rios Parana and Uruguay ; based on fish monitoring programs in rio Uruguay held during the 2023–2024 flood pulse, several fish species are reported for the first time in rio Uruguay basin, and notably a livebearing pigmy (less than 20 mm S.L.) killifish, *Cnesterodon raddai*, newly for the country (in southwestern Uruguay, a large extension from previous collections, all in Paraguay and Argentina. 2025. C.L., https://checklist.pensoft.net/article/147401/] {Jean Huber, 6-June-2025} <°))))>< <°))))>< <°))))><
- Silva, A.L.B., G.A. Galvão, S.M.M. Gutierre, L.R.deA. Silva, L.C.M. Pereira. [Silva et al. extend range of *Melanorivulus decoratus* {K-D maintained in *Rivulus*} to coastal inland Brasil, closer to *atlanticus* ; the species is considered as the single congener, endemic fish from rio São Francisco basin, previously only recorded in small tributaries along river's middle stretch in northwestern Bahia ; new population (collected in 2018) lies in the same river basin but in lower-middle rio São Francisco, approximately 450 km northeast of the closest previously documented site {the new locality is closer to coastal plain and closer to *atlanticus* type locality (though by ca. 300 km!) with no non-annual Cyprinodontiformes collected in between {a major discovery}. 2025. A.L.B., https://www.scielo.br/j/alb/a/7yqKBmTvQMBbVn96Gkx3kXJ/?format=pdf&lang=en] {Jean Huber, 3-June-2025} <°))))>< <°))))>< <°))))><
- Van Dooren, T.J.M. [Van Dooren simulates parameters in embryo development of *Austrolebias bellottii* (pond radius, survival, rewetting, fecundity, age) ; the author experiments and discusses the importance

(or not) of various characteristics, independently or combined, on the egg development of well-known annual *Austrolebias bellottii* in Argentina ; using data on its embryonic life histories, parameter estimates and parsimonious assumptions, the author builds and proposes a population dynamical model with explicit developmental stages ; invasion fitness gradients of rates of development and hatching probabilities are used to search for evolutionarily singular environments (or ESE), where none of the traits experience directional selection ; data patterns in annual killifish embryonic life histories have been interpreted by various authors as suggesting bet-hedging adaptations, or, as adaptive plasticity to predictable environmental changes ; however, *Austrolebias* is special because embryos will not hatch before they experience a dry period ; for example, if eggs are assumed to be distributed across entire pond bottom (random wise), gradual changes in pond surface imply that eggs near the center or at the edge experience wet and dry periods with different durations ; various variables with putative impacts on egg are studied to try to predict development profile : e.g., pond size, topography of pond bottom influencing water levels (during progressive filling and drying of pond) ; according to the author, his results demonstrate that seasonal environments do not seem to select for adaptive intermediate embryonic developmental rates and hatching probabilities {a model wise experiment, although complexified by many interdependent variables, but its reading induces a lot of food for thought}. 2025. J.E.B., https://academic.oup.com/jeb/advance-article-abstract/doi/10.1093/jeb/voaf067/8145551] {Jean Huber, 28-May-2025} <°))))>< <°))))>< <°))))><

- Gonzalez, K., D. Gomez-Uchida & C. Harrod. [Gonzalez et al. disclose 2 ecotypes of *Orestias* in lake Chungara, northern Chile at 4520 m altitude, with similar stomach contents ; *Orestias chungarensis* is a Chilean Andean Cyprinodontiformes with a very restricted global distribution {like the closely related and vicariant *Orestias laucaensis*, *parinacotensis*, *piacotensis*} ; it is limited to a single, small (283 km2), high-altitude (4520 m) catchment, but, late 20th century, artificial introduction of rainbow trout raises concerns for the long-term conservation of *Orestias* ; in 2017, *chungarensis* is no longer present in rio Chungara (the inflow of the lake) even if it remains relatively numerous in the lake Chungara itself ; the authors collect individuals from shallow littoral habitats, from different lake habitats, they analyze multi-tissue stable isotopes (delta 13C, delta 15N, delta 34S) and stomach contents to characterize their trophic ecology ; results show unexpectedly 2 groups in stable isotope space, one, a putative littoral group, the other, a group associated with pelagic-derived materials, which likely feed offshore or in deeper waters ; stomach contents show that the 2 putative groups consume similar prey prior to capture, feeding mainly on benthic macroinvertebrates (amphipods, chironomid larvae and pupae and gastropods), i.e. a broadly similar diet between groups ; the authors conclude that, given the remarkable plasticity found in the genus, a previously unrecognized ecotype is disclosed, unknown from previous authors. 2025. J.F.B., https://onlinelibrary.wiley.com/doi/10.1111/jfb.70081] {Jean Huber, 22-May-2025} <°))))>< <°))))>< <°))))><
- Maldonado, D.S., Rios-Cardenas, O., Morris, M.R., C.R. Gutiérrez. [Maldonado et al. molecularly study 6 pops of *Xiphophorus multilineatus* in rio Tampaon basin (SLP) Mexico, and reveal variability ; known populations of *multilineatus*, well-defined pygmy sp. by male pattern are in a very limited area (a mirror of Pleistocene climatic fluctuations) ; the authors study selected genes and even full genome 62 individuals from 6 nearby sites in Tampaon basin (the only distribution area of the species) in San Luis Potosi, Mexico ; the results show a relatively high genetic diversity and limited genetic structure, as well as demographic expansions occurring during glacial and interglacial periods of Pleistocene, with congener *nigrensis* more or less inserted in the phylogenetic tree, leaving the issue unsolved as a future thorny challenge in taxonomy of that livebearer genus. 2025. E.B.F., https://link.springer.com/article/10.1007/s10641-025-01704-9] {Jean Huber, 16-May-2025} <°))))>< <°))))>< <°))))><
- Alonso, F., G.E. Teran, W.S. Serra, M.M. Waldbillig, M.M. Montes, B. Bugeau, J.A. Barneche, M.I. Shimabukuro, F.G. Taboas, M. Maroli, M.J. Almeida. [Alonso et al. describe *Titanolebias calvinoi* from

Chaco Argentina, a cryptic species of vicariant congeners *elongatus* and *monstrosus* ; (recently described, after hypersplitting) genus *Titanolebias* comprises very large-bodied seasonal killifishes {like *Moema* sp.}, inhabiting temporary wetlands of the La Plata Basin and adjacent areas in South America ; new species dwells eastern Chacoan region, representing first congener record in this area, molecularly placed closer to *monstrosus* ; *Titanolebias calvinoi* exhibits reduced sexual dimorphism, potentially associated with a trophic shift toward larger prey in genus origin and presents several potential cases of aggressive mimicry with ichthyophagy (like *Megalebias* monotypic, related genus) ; it is found within a national park, then with less conservation issues than usual. 2025. Z.A., https://www.sciencedirect.com/science/article/abs/pii/S0044523125000427] {Jean Huber, 11-May-2025} <°))))>< <°))))>< <°))))><

- Saç, G., O. Ozulug, S. Agdamar, H. Inci, O.D. Yürekli & M. Ozulug. [Saç et al. disclose *Aphanius almiriensis* in a very hot hypersaline Turkish spring and molecularly prove it as valid and distinct sp. ; the authors collect *Aphanius almiriensis* in a third area and country (with a disjunct distribution) ; contrary to previous opinions (none demonstrated), the authors evidence it is a valid species, strongly recessive from *fasciatus*, ranged overall around ; they study LHT of this extremophile fish in Tuzla thermal spring : salinity and temperature are remarkably high, ranging from 23.7°C (in winter) to 42.7°C (in summer) and from 47.7 ppt (in autumn) to 60.7 ppt (in winter) ; stomach contents of 248 individuals are analyzed seasonally consisted with 17 different food items, mainly Diatom, Cyanobacteria, and Diptera types ; extreme conditions of thermal spring restrict macroinvertebrate diversity (6 taxa, only), and fish show food selectivity for Chironomidae and Ceratopogonidae in winter, spring, and summer and for Ephydridae in autumn. 2025. E.E., https://onlinelibrary.wiley.com/doi/epdf/10.1002/ece3.71411] {Jean Huber, 11-May-2025} <°))))>< <°))))>< <°))))><
- Volcan, M.V., D.H. Grubler, L.J. Robe & L.E.K. Lanés. [Volcan et al. disclose extension of distribution of *Garcialebias reicherti* in S.E. Brasil, based on pattern and genetic similarities ; (recently described, after hypersplitting) genus *Garcialebias* is the most representative genus of the *Austrolebias* genus group, comprising 16 species, 14 of which are recorded in extreme southern Brasil, but most of these are rare and are restricted-range species facing a severe threat of extinction ; previously the species has been known as endemic to drainages associated with the Mirin lagoon in Uruguay ; the authors disclose its presence in nearby Brasil, collected in rio Jaguarão basin in 7 temporary wetlands, with all the diagnostic characteristics of the species, and molecular analyses reveal that these individuals cluster with Uruguayan topotypical populations of *reicherti*, forming together a well-supported monophyletic group. 2025. Z.A., https://www.sciencedirect.com/science/article/abs/pii/S0044523125000464] {Jean Huber, 9-May-2025} <°))))>< <°))))>< <°))))><

Bartakova, V., A. Bryjova, M. Polacik, D.O. Alila, B. Nagy, B. Watters, D. Bellstedt, R. Blazek, J. Zak & M. Reichard. [The Reichard team digs into Tanzanian *Nothobranchius* to resolve phylogeny of *flammicomantis*, *korthausae*, *nikiforovi*, *melanospilus* ; components of genus *Nothobranchius* show a particularly high biodiversity in lowland Tanzania where they dwell standard ephemeral pools varying greatly in size, connectivity and inundation patterns ; the authors molecularly address phylogenetic issues of species previously {by other or same authors} unstable, using single-nucleotide polymorphism (SNP) dataset from double-digest restriction site-associated DNA (ddRAD) sequencing ; results show high resolution for separation of *melanospilus* and *guentheri* species groups and place *flammicomantis* outside the Coastal clade, more related to *kirki* and *wattersi* {surprisingly, but newly described *sylvaticus*, not included in sample} ; other species names are at stake such as *lourensi* (closer to subgenus *Aphyobranchius*), *nikiforovi* (standard population vs. Rufiji South), and more importantly the binomen *korthausae-wildekampi* (the former being evidenced as distributed on the mainland, in addition to Mafia island, the concerned population named mainland South being misidentified as *wildekampi* before, compared to true *wildekampi*, as mainland North} ; besides, intra-specific genetic structure among

eggersi, *janpapi*, *melanospilus* and *ocellatus*, is found with highly diverse patterns {possible future molecular new sp.} ; within the variable *melanospilus* complex, taxa {described by Costa on the basis of preserved material} are included in the same branch {and could be confirmed as synonyms in the future, or as molecular distinct lineages} ; contrary to previous findings outside lowland Tanzania (in drier areas), populations of *Nothobranchius* species from humid coastal lowlands of Tanzania are therefore structured, but not constrained by barriers formed by river channels or by basins. 2025. M.P.E., https://www.sciencedirect.com/science/article/abs/pii/S1055790325000740] {Jean Huber, 5-May-2025} <°))))>< <°))))>< <°))))><

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