



INTRODUCTION

Within this (long) time frame of present Wassup, the menu contains (1) just 3 new species, but one species belongs to genus *Plataplochilus* and it is the first new species since 1981 (although several individuals or teams are in the starting blocks to publish new congeners... once the true identity and life pattern of true topotypes of *ngaensis* are disclosed (and by the way since *Aphyosemion escherichi* has the same type locality they will resolve its true identity, either as a junior synonym of *striatum*, or as a senior synonym of *etsamense*, or as a distinct sp. like today), and the other new species in genus *Profundulus* extends its distribution into Caribbean slopes of Mexico, which is important for a quite endangered genus, and the last new species, since-long known in aquaria, discovered by renown Swiss biologist Patrick de Rham in Peru is dedicated to pioneer molecularist in oviparous killifish, Glen Collier, (2) a reduced flow of new scientific publications in a bracket of 6 months, probably (hopefully) as a consequence of the covid-19 pandemic constraints, but possibly not only (see further), (3) an innovative study showing ovoviviparous genus *Phalloceros* mode of maternal provisioning should represent a different form from that seen in other species of Poeciliidae, (4) apparent problem (contradiction) in some *Nothobranchius* sp. that short telomere length is positively correlated with increased individual lethality in single species, while, on the contrary, in comparisons across species, shorter telomeres are associated with long (and not short) lifespans can only be levied by individual condition and environmentally-driven selection indeed modulating the relationship between telomere length and lifespan in opposite directions, (5) an innovative though apparently obvious in-depth lab LHT study (easily duplicable by scientific aquarists on other killifish sp. with colorful male) on key diagnostic pattern characters of *Nothobranchius guentheri* significantly varying according to size and age.

However, the major new event lately is that Wilson Costa has changed his focus and now describes new taxa (still quite a lot) in other groups of fishes, mainly catfishes, and this seems not to be an exception (many professionals are gradually moving out from fish orders where there is less attraction, including cichlids or characoids, to new fish groups, not necessarily famous in aquarium circles). All question themselves : is it worth to name molecular sp. with even solid only-genetic data while competitive colleagues are in fresh 'terra nova'? For killifish, many remaining professional taxonomists (also amateurs) are aging if they are not moving to other fish groups, and if Brazilian professionals are not taken into account (many of them are still young, and the in-depth field surveys and records are still in front of them and timely for their country), this is a change in paradigm. Besides, the last major group without detailed molecular data in killifish, the African lampeyes, will soon be covered (after a promising post-doc work by Brazilian Pedro Bragança in South Africa). Then cards are going to be reshuffled on killifish taxonomy arena and it can only be hoped that taxonomy (with evidence) is assumed by new (and younger) amateur researchers, past or still aquarists, who can collect by themselves new species. Would readers that fit that collector and scientist profile for future taxonomy work consider getting more proactive and building a cooperative community that will boost systematic

research on killifish (outside Brasil) and possibly fill the gap from professional leaves? That is a major question. No need to say that several older taxonomists would like that this will happen (and would help to, including the present author), because so much remains to be understood on killifish by in-depth studies (and after all, at least 90% of not less than 286 taxa described by Wilson Costa up to today are known only by their description by this productive and unique author) but that is not in today's ambiance and mood of very short term moves in social networks. If the answer is yes, super great ! If the answer is no, the number of new taxonomic papers will keep going down and consequently attraction in killifish, science-wise, will spiral down. Time will tell.

SELECTION OF PUBLICATIONS (last in, first out)

- Thompson, A.W., H. Wojtas, M. Davoll & I. Braasch. [The Braasch team discloses 23,038 genes in 1.2Gb 3-D genome structure of Brazilian *Nematolebias whitei*, as highly repetitive (57%) ; the Rio Pearlfish is a bi-annual killifish species inhabiting seasonal pools in Rio de Janeiro region that dry twice per year {a rare case among annuals} and because of this it is considered as a model fish for research ; the authors present a high quality, 1.2 Gb chromosome-level genome assembly, with genome annotations and a high level of duplicate genetic material (usually high) : note : it is a pity that the authors do not study the cryptic species, *catimbau*, *papilliferus*, in initially monotypic (*whitei*) genus, *Nematolebias* ; both species within a very limited range of genus and without barriers are only known by their description by Costa, with diagnostic micro-osteological characters and *minor* pattern differences, and their molecular study would be highly interesting. 2022. G3, <https://academic.oup.com/g3journal/advance-article/doi/10.1093/g3journal/jkac045/6533448>] {Jean Huber, 26-February-2022} <°))>< <°))>< <°))><
- Walsh, G., P.H.N. Bragança & J.R. van der Zee. [Walsh et al. describe *Plataplochilus eliasi* from Mayumbe mountains in Congo with a crescent-shaped dark blue band on lower sides ; 40 years after the last *Plataplochilus* description (*terveri*, in 1981), a new congener, *eliasi* (a poetic name), is described from streams in tributary of upper reaches of Bondo river ; for the first time osteology of *Plataplochilus* genus is examined by co-authors, with new diagnostic characters such as anterior portion of alveolar arm of premaxilla developed in a squared process, rectangular and antero-posteriorly elongated lachrymal, dorsoposterior process of autopalatine directed upwards, elliptical supracleithrum, and dorso-posterior border of cleithrum broad and posteriorly elongated {Huber's criteria of synonymization of *Plataplochilus* into *Procatopus* in 1981 are discussed, agreed, except insertion of Pectoral fin, but this is a misunderstanding in original text as (relative to other killifish) rather less high set Pectorals than *Procatopus*}, to end up, by the new authors, as a distinct genus, hence removing synonymy, a change that is, besides, in line with preliminary molecular data} ; detailed habitat, ecological and distribution (very limited, without rational) data are also provided ; the new species is also distinct by largest predorsal distance of all congeners (73% S.L. vs less than 64% S.L.), a rather low number of Dorsal and Anal fin rays (respectively, 13 and 16-17), except *micrurus* {unknown except from type} and adult male deepest body morph (38.4%–42.4% S.L.) ; note : the authors quote taxa that are present synonyms as possibly valid for some but they do not bring new evidence. 2022. J.N.H., <https://www.tandfonline.com/doi/abs/10.1080/00222933.2022.2027035>] {Jean Huber, 21-February-2022} <°))>< <°))>< <°))><
- Du, K., M. Pippel, S. Kneitz, R. Feron, I. da Cruz, S. Winkler, B. Wilde, E.G.L. Avila, G. Myers, Y. Guiguen, C.G. Macias & M. Scharl. [Du et al. report on *Girardinichthys multiradiatus* genome, with 23770 genes and male Y sex marker as covering 80% of chromosome 20 ; this species, like all Goodeinae sp. is truly

viviparous, adding to standard protection of embryo inside body of mother, the provisioning of nutrients (through trophotaeniae), and physiological exchange, with evolution of a placenta ; the authors sequence full genome of dark-edged splitfin, *Girardinichthys multiradiatus*, including its assembly at chromosome level with X and Y (sex) chromosomes ; a large male-specific region on Y chromosome is identified covering 80% of sex chromosome, for the first time. 2022. G.R.,

<https://www.genome.org/cgi/doi/10.1101/gr.275826.121>] {Jean Huber, 19-February-2022}

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- Nikiforov, D.L.N., N.I. Kochetkov, E.V. Mikodina, A.L.N. Nikiforov, Y.G. Simakov, N.A. Golovacheva, A.V. Gorbunov, S.N. Chebotarev, E.Y. Kirichenko, I.Y. Zabayaka, I.S. Pastukhov & A.B. Bren. [Nikiforov et al. show *Nothobranchius guentheri* male red spot (gill cover), black (tail), white (dorsal) differ with size and age ; that is an obvious study, apparently so obvious that nobody has tackled the issues before in a scientific way ; male fish belonging to genus *Nothobranchius* are characterized by extremely diverse coloration, which constantly changes, depending on age {annual to semi-annual status, here, with a short life cycle}, environmental factors {notably water level and chemistry}, and social hierarchical status {as tribes} ; the authors detail their protocol of fish color assessments and rationale of their selection of selected areas in color pattern (i.e., red blotch on gill cover, black border on Caudal fin, and white margin on Dorsal fin (all diagnostic of the well-known taxon) and that may be duplicated by scientific oriented aquarist for other tropical oviparous killifish with brilliant and differentiated patterns in male ; results show that all 3 key diagnostic pattern characters differ significantly according to size and age of fish ($p < 0.05$). 2022. Biol., <https://www.mdpi.com/2079-7737/11/2/205/html>] {Jean Huber, 7-February-2022} <°)))))>< <°)))))>< <°)))))><
- Ward, S.J., C.D. McMahan, B. Khakurel, A.M. Wright & K.R. Piller. [The Piller team genomically separates *gracilis* and *pleurospilus*, each with 2 distinct geo-structured lineages, in *Poeciliopsis* ; *Poeciliopsis* is a recognized valid genus comprising about 25 livebearing externally often similar species of freshwater fishes ; several well-known taxonomic uncertainties exist within the genus, especially in relation to the taxonomic status of *Poeciliopsis pleurospilus* and *gracilis*, the scope of present study {note : according to ICZN code prevailing at that time of description, it must be *pleurospila*, because gender of genus is feminine and taxon name is latinized by describer} ; using genomic data (ddRADseq), multiple analyses support recognition of both taxa as distinct species {this confirms previous morpho distinction since 1963} and also allow the authors to revise and modify their respective distributions {but no new diagnostic characters except geographical separation and molecular gaps are given} ; populations of *gracilis* are hence distributed north and west of Isthmus of Tehuantepec {which represents the shortest distance between Gulf of Mexico and Pacific Ocean} in both Pacific and Atlantic [Caribbean] river systems in Mexico, whereas *pleurospila* is distributed in both Atlantic [Caribbean] and Pacific river systems south and east of Isthmus of Tehuantepec, from southern Mexico to Honduras. 2022. PlosOne, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0262687>] {Jean Huber, 6-February-2022} <°)))))>< <°)))))>< <°)))))><
- Culumber, Z.W. [Culumber studies variation in behavior (movement, risk-taking, sociability) across latitudinally distant populations of *Gambusia holbrooki* ; this ovoviviparous Poeciliidae sp., often sympatric with *affinis*, is also artificially introduced throughout the world, but the author, here, only compares natural populations, 17 in total, distributed along natural range in USA and Mexico ; according to the author, 3 primary axes of behavioral variation emerge putatively representing activity (movement), boldness (risk-taking), and sociability, respectively, with no latitudinal variation for the first activity axis, and significant latitudinal variation for the other 2 axis (fish from low latitudes, more tropical, being bolder and more social) ; sex and-or body size affect behavior along all axes, not surprisingly {other characteristics of environment are not studied, but some are discussed as examples of putative questionable translations

from wild to lab}. 2022. E.E., <https://link.springer.com/article/10.1007/s10682-021-10146-5>] {Jean Huber, 11-January-2022}

- Amorim, P.F., A.M. Katz, F.P. Ottoni, P.H.N. Bragança. [Amorim et al. hypothesize in *Kryptolebias hermaphroditus* {K-D maintained as *ocellatus*} a wide genetical connection among populations ; species of *Kryptolebias marmoratus* group present only males and simultaneously hermaphroditic individuals, that are able to reproduce by allogamy, with males, or by autogamy, performing self-fertilization and generating clones of itself ; ratio of males is variable among those species and even among their populations, many of them for *hermaphroditus* with no male individuals recorded at all and with small populations disjunctly distributed along eastern and northern coasts in Brasil ; the authors present partial sequences of mitochondrial cytochrome c oxidase I (COI) gene from 335 individuals with only a single haplotype of COI, widely distributed throughout all the sampled populations, recovered for *hermaphroditus* ; thus the species is poorly heterogeneous and the authors conclude it is probably due a high degree of communication (gene exchanges) within (clonal) populations (even fragmented). 2022. Z.S., <https://zoolstud.sinica.edu.tw/Journals/61/61-Od.pdf>] {Jean Huber, 11-January-2022}
- Angulo, A. [Angulo reviews distribution of oviparous and viviparous Cyprinodontiformes in Costa Rica, with new records, endangerment status ; this catalog follows previous remarkable works on central American country Costa Rica freshwater fish fauna by Bill Bussing {deceased in 2014} with 23 new country fish -not only killifish- records (distributed in 17 families and 21 genera), and with frequent range extensions ; a total of 283 fish species, of which 13 are artificially introduced, including a total of 31 native valid killifish species (either ovoviviparous, mainly, or oviparous) are recorded, plus a new population, representing probably a new *Brachyrhaphis* species (Poeciliidae), in an isolated island far from coast in Pacific ocean, unexpectedly living sympatrically with *Rivulus hildebrandi*. 2021. Zootaxa, <https://www.biotaxa.org/Zootaxa/article/view/zootaxa.5083.1.1>] {Jean Huber, 31-December-2021}
- Spikes, M., R.S. Rodriguez, K.A. Bennett, S. Bräger, J. Josaphat, P.P. Torres, A. Ernst, K. Havenstein, I. Schlupp & R. Tiedemann. [Spikes et al. molecularly review 18 out of 23 sp. in *Limia* and hypothesize a single-lake radiation (within lac Miragoâne, Haïti) ; the Caribbean region is an important global biodiversity hotspot and notably for ovoviviparous Poeciliidae ; the study examines the evolutionary history of *Limia* species in Lake Miragoâne {as a genus, whereas in K-D and all other media as a subgenus of *Poecilia*}, relative to their congeners throughout the Caribbean, based on published GenBank data of 6 species and new data of 12 species (almost complete sequences of the mitochondrial cytochrome b gene, a well-established marker for lower-level taxonomic relationships) ; results are in concordance with other published phylogenies of *Limia* and there is strong support that sympatric species found in Lake Miragoâne in Haïti are monophyletic, confirming a recent local radiation ; however, within Lake Miragoâne, speciation is likely extremely recent, leading to incomplete lineage sorting in the mtDNA (pending future studies using multiple unlinked genetic markers). 2021. BMC RN, <https://bmcrnotes.biomedcentral.com/articles/10.1186/s13104-021-05843-x>] {Jean Huber, 8-December-2021}
- Ramirez, A.G., R.E. Moncayo, J.J.C. Gonzalez, O.D. Dominguez. [Ramirez et al. give full LHT details of 7 sympatric Goodeinae sp. of 7 genera in single lake Zacapu, with for all 2 breeding seasons ; the uniqueness and interest of the study is that it concerns sympatric species of the same subfamily in truly viviparous killifish and that 7, not a few, species are concerned, living in highlands of central Mexico, most of them endemic ; along bi-monthly sampling from May 2019 to March 2020, fertility, size at first maturity (L50), sex ratio, and gonadosomatic index are determined for each of the 7 {not 6, as in abstract} species (*Hubbsina turneri* {K-D as *Girardinichthys*}, *Allotoca zacapuensis*, *Allophorus robustus*, *Xenotoca variata*, *Skiffia lermae*, *Goodea atripinnis*, *Zoogoneticus quitzeoensis*) ; results show that those populations of

Goodeinae have high fertility compared to other populations of the same species in other aquatic systems and also to other species of subfamily, that males mature at smaller sizes than females, the observed proportion of females is greater than males in all, that there are 2 reproductive peaks, one in Spring (April to June) and another in Autumn (September to November). 2021. N.I.,

<https://www.scielo.br/j/ni/a/bgS8dZWS79PjtBsq7FHcfyg/?lang=en>] {Jean Huber, 3-December-2021}

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- Yogurtçuoğlu, B., M. Yilmaz, F.G. Ekmekçi & E.D. Özsoy. [Yogurtçuoğlu et al. show loci genes of remaining pops of *Anatolichthys transgrediens* {K-D maintained in *Aphanius*} with poor variation ; allozyme genetic variation of that critically endangered killifish species, with a tiny remaining range and one of the most threatened species, worldwide, is analyzed and results clearly point out perilously low levels of genetic variation, with only three out of 15 loci examined as polymorphic ; hence, the authors insist on the urgency of an integrated action for conservation of this endangered killifish species. 2021. JAI, <https://onlinelibrary.wiley.com/doi/abs/10.1111/jai.14289>] {Jean Huber, 2-December-2021}
- Reichard, M., K. Giannetti, T. Ferreira, A. Maouche, M. Vrtilék, M. Polacik, R. Blazek & M. Godinho Ferreira. [Reichard et al. show male lifespan is longer in pops of *Nothobranchius furzeri* + *kadleci* with heavier rainfalls, have shorter telomeres ; as it is now well known (including in humans), telomeres and telomerase prevent continuous erosion of chromosome-ends caused by lifelong cell division (along aging) and shortened telomeres are associated with age-related pathologies ; the apparent problem (contradiction) is that short telomere length is positively correlated with increased individual lethality in a single species, while, on the contrary, in comparisons across species, shorter telomeres are associated with long (and not short) lifespans ; the authors thus analyze lifespan and telomere length in a set of captive strains derived from well-defined wild populations of *Nothobranchius furzeri* and its sister species, *kadleci*, from sites along a strong gradient of aridity which ultimately determines maximum natural lifespan. ; results show overall that males are (expectedly) shorter-lived than females, and also have shorter telomeres, that male lifespan is positively associated with the amount of natural annual rainfall in original site of strain, that, however, fish from wetter climates have shorter telomeres and individual fish which grow largest over the juvenile period possess shorter telomeres at onset of adulthood ; the authors conclude that individual condition and environmentally-driven selection indeed modulate the relationship between telomere length and lifespan in opposite directions, validating the existence of inverse trends within a single taxon and that substantial variation in telomere length between strains from different environments identifies killifish as a powerful system in understanding the adaptive value of telomere length {a brilliant demonstration}. 2021. M.E., <https://onlinelibrary.wiley.com/doi/10.1111/mec.16287>] {Jean Huber, 30-November-2021}
- Nagy, B. & Watters, B.R. [Nagy and Watters review *Nothobranchius* sp. conservation with 3 Critically Endangered, 21 Endangered, 44 Vulnerable, 8 Near Threatened ; 72% of the 94 assessed species falling into one of the threatened Red List categories, as a consequence of habitat degradation of seasonal wetlands, with only 17 sp. being of Low Concern with Red List criteria {this is extremely alarming} ; by country the picture is very alarming too for speciose Tanzania and Kenya and Zaïre ; out of 478 analyzed habitat site observations by the authors, 46% are affected by human activities ; recommended conservation actions {obviously}include: conducting surveys to better understand habitat trends and threats, establishing protected areas and effectively allocating resources to preserve wetland habitats, managing protection of the structural integrity of the habitats throughout the seasonal phases of wet and dry seasons, and raising awareness of the importance of healthy wetland systems and the value of the unique seasonal freshwater biodiversity {wishful thinking?}. 2021. ACMFE, <https://onlinelibrary.wiley.com/doi/abs/10.1002/aqc.3741>] {Jean Huber, 10-November-2021}

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- Lam, N., P. Rojas & I. Vila. [Lam et al. present early LHT (hatching 14-18 days, 3 larval stages, absorbed yolk sac in 5-7 days) of Andean *Orestias ascotanensis* ; this is a critically endangered endemic species of the Chilean high Andean systems (ca. 4000 m altitude), hence the value of the study ; in the lab experiment, under controlled temperature, diet and photoperiod conditions, with females subject to hormone therapy using Ovaprim to induce oviposition, followed by artificial fertilization under dry conditions, larvae hatch within 14 to 18 days with 3 established larval stages and they absorb yolk sac within 5-7 days (eggs and larvae are very strongly pigmented). 2021. EBF, <https://link.springer.com/article/10.1007/s10641-021-01180-x>] {Jean Huber, 29-October-2021} <°))>< <°))>< <°))><
- Gilg, M.R., E.V. Kerns, N.E.B. Gutierrez, C. Kooyomjian & N.A. Hinojosa. [Gilg et al. detail (3 years, age classes, proportions) field hybrids between *Fundulus heteroclitus* and *grandis* at Flagler beach, USA ; the field and molecular study concerns a location within a hybrid zone between 2 frequently sympatric congeners *Fundulus heteroclitus* and *grandis* and fishes collected over 3 years placed into 2 age classes and genotyped at 3 nuclear loci and 1 mitochondrial locus that are highly differentiated between the 2 species ; results show individuals of hybrid descent are prevalent at study site, the majority of which are likely advanced generation hybrids or backcrosses to one of parental taxa {not further, not older} ; however, cohort analyses reveal a decreased abundance of both single and dilocus hybrid genotypes, and directional changes in allele frequency with increased age in some, but not all cohorts, suggesting according to the authors, that fluctuating patterns of selection exists and that fitness {and life expectancy, including for hybrids} is likely strongly influenced by environmental factors. 2021. E.E., <https://link.springer.com/article/10.1007/s11692-021-09553-x>] {Jean Huber, 28-October-2021} <°))>< <°))>< <°))><
- Dominguez, S.E.C., E.V. Velazquez, C.D. McMahan & W.A. Matamoros. [The Matamoros team describes *Profundulus adani*, from Atlantic Oaxaca, Mexico, related to *balsanus-parentiae*, as genus northernmost limit ; the authors provide with a full description including morphological and molecular evidence, with a combination of color patterns and counts separating the new species from its today valid congeners {*balsanus*, *chimalapensis*, *guatemalensis*, *kreiseri*, *mixtlanensis*, *oaxacae*, *parentiae*, *punctatus*} ; *Profundulus adani*, only known 3 localities in highlands of Caribbean slopes, is distinguished from all congeners by lacking a post-opercular spot in specimens larger than 45 mm S.L. {however several congeners lack that blotch in juveniles too and widely distributed *punctatus* is quite variable according to individuals, even if the new species is molecularly distinct, related to *kreiseri* and *mixtlanensis*}. 2021. I-H, <https://bioone.org/journals/ichthyology-and-herpetology/volume-109/issue-4/i2020156/A-New-Species-of-Killifish-of-the-Genus-Profundulus-Atherinomorpha/10.1643/i2020156.short>] {Jean Huber, 23-October-2021} <°))>< <°))>< <°))><
- Teixeira, F.M., Canavero, A., Rios, N., García, G., Suarez, B., Lozoya, J.P., Loureiro M. [The Loureiro team collects new isolated population of threatened *Austrolebias charrua* in a fragile ecosystem, Maldonado, Uruguay ; the new population of this very endangered species (a priority for conservation by the National System of Protected Areas of Uruguay) extends the previous area of occurrence by 20 km², 100 km more southerly of previous records, and shows some genetic and morphological characteristics that indicate it is isolated from other populations in previously known range ; the new record, located in the Alameda de San Carlos region of Uruguay, does not significantly affect its total range (because it is only one spot and it is strongly disjunct from the rest, with no in-between pops) and is itself at high risks due to human threats that may lead to environmental impacts and may thus jeopardize the conservation of this population. 2021. ACMFE, <https://onlinelibrary.wiley.com/doi/full/10.1002/aqc.3727>] {Jean Huber, 23-October-2021} <°))>< <°))>< <°))><
- Rodriguez, R.S., M. Spikes, M. Iturriaga, K.-A. Bennett, J. Josaphat, P.P. Torres, S. Bräger & I. Schlupp. [Rodriguez et al. show feeding habits of 8 *Limia* components in Cuba, Jamaica, Haiti, Santo Domingo as generalists (detritus and algae) ; the lead author as a post-doc student specializing in ovoviviparous *Limia*

{which he considers as a full genus, distinct from *Poecilia*, but without new diagnoses} studies 8 sp. {most but not all known (sub)congeners}, *vittata*, *melanogaster*, *perugiae*, *zonata*, *versicolor*, *yaguajali*, *nigrofasciata* and {recently described by him} *islai* ; based on their gut contents, most of analyzed species show preference for detritus and algae ; species exhibiting a more omnivorous diet such as *versicolor* and *perugiae* consume moderately terrestrial and aquatic invertebrates, too, and reversely, some species such as *yaguajali* and *nigrofasciata* show specializations towards detritus ; results show that a majority of analysed species tend to be feeding generalists, and if some degree of specialization occurs, it concerns those from Hispaniola large island {Haïti+Santo Domingo} where diversity and speciation are remarkably higher compared to the rest of Greater Antilles. 2021. EFF,

<https://onlinelibrary.wiley.com/doi/full/10.1111/eff.12638>] {Jean Huber, 19-October-2021}

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- Cipriano, F.S., R.K. Luz, J.P.S. Lorenzini, C.N. Labussièrre, L.N. Carmo, L.P. Gonçalves Jr, K.S. Lima, F.F.B. Costa & K.M.F. Campos. [Cipriano et al. experiment on *Poecilia velifera* salinity increases as not impacting life (if gradual) but maximum size, growth and food ; the authors use a recirculation aquaculture systems (RAS) for 75 days ; LS50-96 hours (LS50= Median Lethal Salinity) is estimated at 71.1 psu {note: psu= PPT, with sea water as ca. 35 PPT} and safe salinity at 7.1 psu ; in experiment 1, 120 juveniles are tested through direct transfer to salinities 0, 24, 48, 60, 72, and 78 psu for 96 hours and in experiment 2, 160 juveniles are gradually acclimatized to salinities 0, 12, 24, and 36 psu. results show that final weight, weight gain, and feed intake has an inverse relationship to salinity, reflecting sublethal effects and apparent feed conversion rate is directly related to salinity, presented a better performance in freshwater conditions ; there is no mortality in experiment 2, allowing *velifera* to be maintained for long periods in experimented salinities. 2021. JAA, <https://www.tandfonline.com/doi/abs/10.1080/10454438.2021.1970076>] {Jean Huber, 12-October-2021} <°)))))>< <°)))))>< <°)))))><
- Huber, J.H. [Huber describes *Rivulus collieri* (previously misidentified *ornatus*) from Amazon, twin-looking with *speciosus*, also from Iquitos area ; the new species, dedicated to pioneering American molecularist, Glen E. Collier, is easily diagnosed from its congeners by altogether its smaller size (max. 35 mm T.L.), its very low Dorsal fin ray counts, with a not very low Anal fin ray count, its very high D/A ratio (but Dorsal fin origin, not behind Anal fin ending), its strong dichromatism (with female strongly subdued), its long (but not extremely long) and oval Caudal fin in male ; morphologically it looks like *Rivulus speciosus* Fels & Rham, 1982, but male live color pattern on sides is reversed from *speciosus* and it is distinctive by karyotype ; the taxonomic status and plausible identification of *Rivulus ornatus* Garman, 1895 is discussed as putatively distinct and valid related to *obscurus*, or not, and then it is an unidentifiable species, distinctive or related to subgenus *Owiye* dwarf components with S-type frontal squamation, pending necessary live collection of topotypes. 2021. KDS, <https://www.killi-data.org/series-kd-2021-Huber.php>] {Jean Huber, 5-October-2021} <°)))))>< <°)))))>< <°)))))><
- Sowersby, W., S. Eckerström-Liedholm, P.K. Rowinski, J. Balogh, S. Eiler, J.D. Upstone, A.V. Gonzalez & B. Rogell. [Sowersby et al. show male larger fins (reducing swimming performance) are correlated with lower predation risk habitats in aplocheiloids ; the comparative list of species, either annual or not, either from Africa or South America is impressive, regardless of phylogeny ; clearly according to the authors, fins extensions in oviparous killifish male are associated with low predators presence as a characteristic of ephemeral biotopes (where killifish are often alone, in sympatry or not), compared to killifish living in standard habitats (creeks, rivulets) where predation risk is high ; however the authors show that predation risk is a key issue, but not fast life, a characteristic of ephemeral habitats (annual sp.). 2021. Evolution, <https://onlinelibrary.wiley.com/doi/10.1111/evo.14358>] {Jean Huber, 5-October-2021} <°)))))>< <°)))))><

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 - Teimori, A., H.R. Esmaeili, F. Zarei & B. Reichenbacher. [The Reichenbacher team presents COI genes of *Aphaniops hormuzensis* as distinctive from senior vicariant congeners *kruppi* and *ginaonis*; hence the taxonomic validity of the recently described endemic species *Aphaniops hormuzensis* from southern Iran is molecularly strengthened compared to related congeners {but they do not include in their study *stoliczkanus*, another vicariant easterly}. 2021. *ZME*, <https://www.tandfonline.com/doi/abs/10.1080/09397140.2021.1965071>] {Jean Huber, 26-September-2021} <°))>< <°))>< <°))><
- Zandona, E., M. Kajin, P.A. Buckup, J.R. Amaral, I.C. Souto-Santos, D.N. Reznick. [Zandona et al. detail mode of maternal provisioning in *Phalloceros* according to development stage, distinctive from other Poeciliidae; this paper is a first on genus *Phalloceros* recently reshuffled by description of 21 new species, by Lucinda (2008), some as morphologically distinct, others more as cryptic bio-species; the authors study embryonic growth curve across 7 recently-described species of highly diverse genus *Phalloceros* and possible intraspecific differences and whether other female characteristics affect embryo mass; results show initial loss then gain of embryonic mass during development is unique among other Poeciliidae species and is conserved across populations and species, even though size at birth can vary (instead, other Poeciliidae species either lose mass if they lack placentas or gain mass exponentially if they have placentas). 2021. *BJLS*, <https://academic.oup.com/biolinnean/advance-article-abstract/doi/10.1093/biolinnean/blab121/6373245>] {Jean Huber, 26-September-2021} <°))>< <°))><

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