



New findings on the genetic relationships of Hypostominae

by Ingo Seidel

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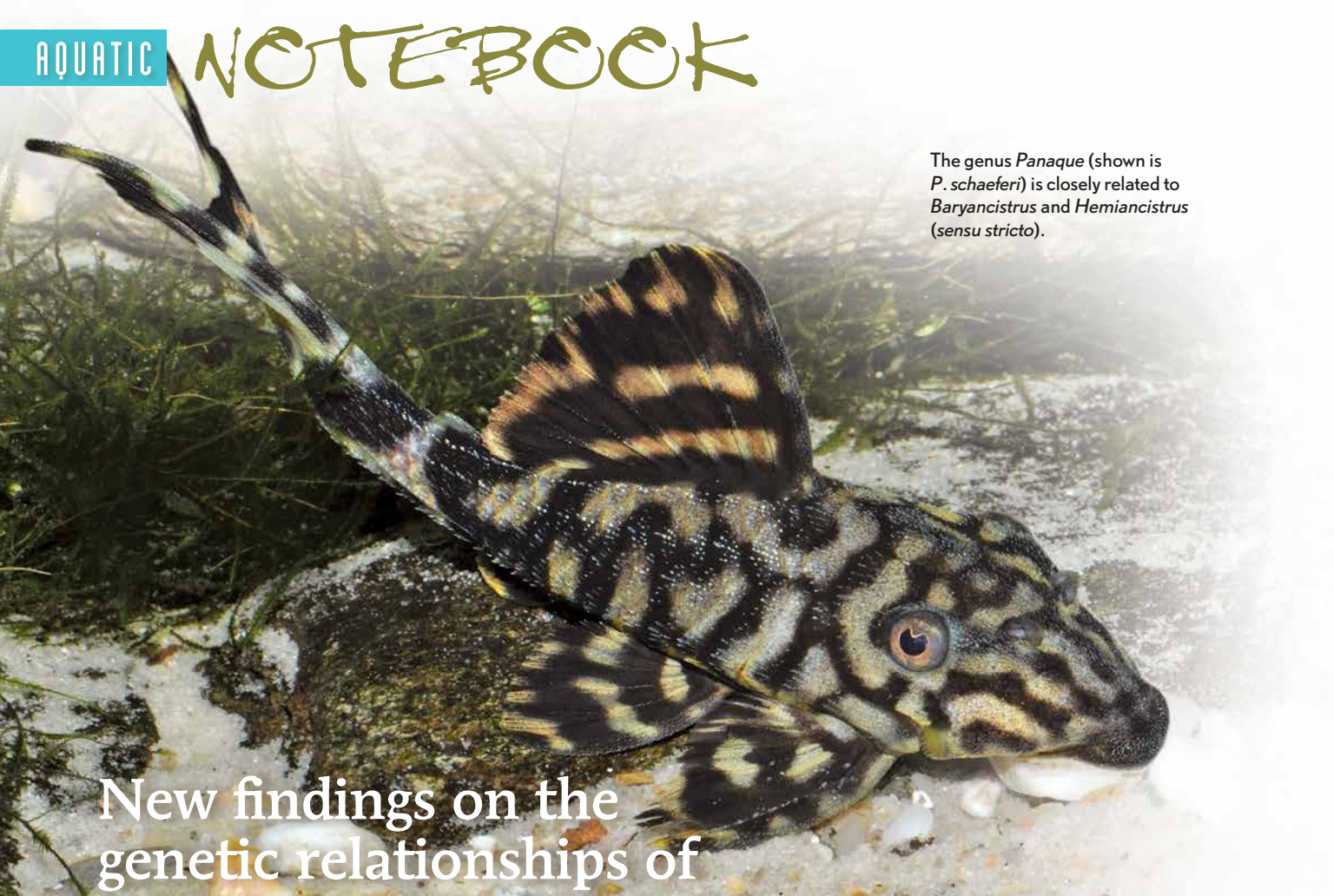
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The genus *Panaque* (shown is *P. schaeferi*) is closely related to *Baryancistrus* and *Hemiancistrus* (*sensu stricto*).

New findings on the genetic relationships of

HYPOSTOMINAE

article & images by Ingo Seidel • From time immemorial ichthyologists have disagreed, especially about the definitions of genera. On one side are the “splitters,” who want to divide families into as many different genera as possible. On the other side are the so-called “lumpers,” who prefer to condense and simplify as much as possible. In a truly sweeping blow in 2001, Isbrücker et al. established 14 new loricariid genera. Ichthyologists in the “lumper” group, led by American Jonathan W. Armbruster, did not approve. He quickly declared many of the newly described genera to be synonyms (see Chockley & Armbruster 2002; Armbruster 2004). For example, he made *Panaqolus* a synonym of *Panaque* again on the grounds that *Panaque* is a small, well defined, and easily identifiable genus; he felt that recognizing a separate genus for the *Panaque dentex* group was unjustified.

Fortunately, using DNA sequence comparisons to generate a family tree of the loricariids severely limits the arbitrary interpretation of genus affiliations. In their latest publication on the phylogeny of the armored catfishes, in which the focus was placed on the subfamily Hypostominae, Lujan et al. (2015) now admit that some of the synonymized (lumped) genera were, in fact, valid and need to be split. L-number catfish fans had to wait a long time for this to happen; it was clear to them long ago that *Panaque* and *Panaqolus* belong to distinctly different relationships, and that *Ancistomus* and *Peckoltia* do not

belong to the same genus.

Lujan et al. (2015) sequenced two mitochondrial and three nuclear DNA segments for many different species of catfish in the subfamily Hypostominae, and even some representatives of related subfamilies. The results indicated some amazing deviations from the existing view of the phylogeny of this group. The most surprising finding is that the two genus groups (tribes) *Ancistrini* (bristlenose relatives) and *Hypostomini* (pleco catfishes) are not sister groups, as previously assumed based on morphological characteristics; instead, the *Hypostomini*

Pseudorinelepis genibarbis from the Rio Purus, a representative of the newly established subfamily Rhinelepininae.



Hemiancistrus medians is now the only species of its genus. All other species that were previously classified as *Hemiancistrus* must be reassigned to existing or to-be-established genera.



Panaqolus albivermis. The genus *Panaqolus* is closely related to *Peckoltia*.



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fall within the pedigree of the *Ancistrini*. *Rhinelepis* and its relatives (*Pogonopoma* and *Pseudorinelepis*) turn out to form a very basal group that is no longer part of the subfamily Hypostominae, because it falls between Delturinae and Loricariinae in the family tree. Lujan et al. (2015) therefore established a new subfamily, Rhinelepininae.

These new findings required the establishment of seven clades with the characteristics of a tribe. (Editors' note: "tribe" is a taxonomic rank; "clade" is not. A clade is a group of organisms or evolutionary branch that consists of a common ancestor and all its descendants, whether extinct or recent = monophyly). In addition, the two tribes Ancistrini and Hypostomini are retained, albeit in heavily modified form. These groups branch out from the family tree in order of evolutionary branches, with the most ancestral first:

Chaetostoma Clade

The most primitive or original clade, known as mountain loricariids, consists of the genera *Chaetostoma*, *Cordylancistrus*, *Dolichancistrus*, and *Leptoancistrus*. Both the genus *Loraxichthys*, established in 2013 by Salcedo, and the revalidated genus *Lipopterichthys* (both are monotypic) fall within the monophyletic genus *Chaetostoma*, so they will certainly be viewed as synonyms in the future. "*Cordylancistrus*" *platycephalus* and "*C.*" *santarosensis* are obviously representatives of a new genus that is closer to *Leptoancistrus* than to *C. torbesensis*, the type species of the genus *Cordylancistrus*.

Tribe Ancistrini

The tribe of *Ancistrus* relatives is composed of the genera *Ancistrus*, *Lasiancistrus*, *Pseudolithoxus*, *Sorominichthys*, *Hopliancistrus*, *Corymbophanes*, *Guyanancistrus*, *Dekeyseria*, *Neblinichthys*, *Paulasquama*, and *Lithoxancistrus*. The newly described genus *Sorominichthys* falls within the very similar *Pseudolithoxus* and will therefore certainly be put in synonymy in the future. *Guyanancistrus* and *Lithoxancistrus* are obviously closer to *Ancistrus* than to *Pseudancistrus*, although they were considered synonyms of the latter for a time. The real surprise in this group is the *Corymbophanes*, which were previously classified in the separate tribe Corymbophanini Armbruster, 2004, based on morphological features but are now part of the Ancistrini.

Pseudancistrus Clade

Based on the new findings, the catch-all genus *Pseudancistrus* can now be scaled back to a meaningful monophyletic group. Lujan et al. (2015) found that only the *Pseudancistrus sensu stricto* should belong to the Pseudancistrus clade. The genera *Guyanancistrus* and *Lithoxancistrus*, declared as synonyms by Armbruster (2004), are not even closely related to *Pseudancistrus* and fall within the tribe Ancistrini.

Lithoxus Clade

Genetics confirm what had already been adopted based on morphology: the two insectivorous genera *Exastilithoxus* and *Lithoxus* are a monophyletic group.

"Pseudancistrus" Clade (*Pseudancistrus sensu lato*)

The two species "*Pseudancistrus*" *pectegenitor* and "*P.*" *sidereus* were originally described in the catch-all genus *Pseudancistrus*. However, DNA results indicate that they are more closely related to *Exastilithoxus* and *Lithoxus* than to *Pseudancistrus sensu stricto*. For them, a new genus will have to be established in a separate clade.

Acanthicus Clade

The clade of "cactus" catfishes was already known as the *Acanthicus* group,

Aphanotorulus ammophilus, another species that is closely related to *Peckoltia*.



The genus *Ancistomus* (shown is *A. feldbergae*) has finally been accepted.



L 127 has been described as *Peckoltia lujani* from the Río Orinoco.



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L350, described as "*Hemiancistrus*" *pankimpuju*, is now assigned to the genus *Peckoltia*, which is highly doubtful.



which consists of *Acanthicus*, *Leporacanthicus*, *Megalancistrus*, and *Pseudacanthicus*.

Hemiancistrus Clade

Since this group is mainly composed of former catch-all genera, the recent findings resulting from the genetic

analysis are particularly important in this kinship. The genera *Baryancistrus*, *Hemiancistrus*, *Panaque*, *Parancistrus*, and *Spectracanthicus* are attributed to this clade. Clear evidence shows that *Panaque* is not closely related to *Panaqolus*. As expected by hobbyists, the species "*Baryancistrus*" *beggini* (L239) and "*B.*" *demantoides* (L200 Hi-Fin) are not close to the *Baryancistrus sensu stricto* within this group. Moreover, "*Hemiancistrus*" *subviridis* (L200) and "*H.*" *guahiborum* (L106) are not closely related to *Hemiancistrus medians*.

Tribe Hypostomini

The latest analysis showed that a separation of the catfish genera *Hypostomus* and *Pterygoplichthys* into two different tribes, Hypostomini and Pterygoplichthini, is not justified. The two genera are closely related to each other. Furthermore, two groups of the catch-all genus *Hemiancistrus* should be placed in Hypostomini: all the southern "*Hemiancistrus*" species, as well as "*Hemiancistrus*" *aspidolepis* and "*H.*" *maracaiboensis*, now belong to *Hypostomus*.

Peckoltia Clade

The recent publication raises many questions, especially with respect to the *Peckoltia* clade. In addition to the genus *Peckoltia*, Lujan et al. (2015) now include the genera *Etsaputu*, *Pan-*

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aqolus, *Scobinancistrus*, *Hypancistrus*, *Micracanthicus*, and *Peckoltichthys*, and surprisingly also *Isorineloricaria*, *Aphanotorulus*, and the species “*Hemiancistrus*” *landoni*.

Likewise, “*Spectracanthicus*” *immaculatus* falls into this clade, while the other *Spectracanthicus* fall into the *Hemiancistrus* clade. L269, which is identical to “*S.*” *immaculatus*, is probably a representative of a new genus. Unfortunately, in addition to this species the present DNA study included only the so-called “*Spectracanthicus*” that would actually belong to the genus *Oligancistrus*, which is still ignored. The all-important type species *Spectracanthicus murinus* was not tested.

“*Peckoltia*” *feldbergae* is classified in the pedigree between the genera *Scobinancistrus* and *Hypancistrus*, and hobbyists would ascribe this species to the genus *Ancistomus*. Armbruster (2004) declared *Ancistomus* a synonym of *Hemiancistrus*, and Fisch-Muller (in Rice et al. 2003) and later ichthyologists declared it a synonym of

Peckoltia. However, the new results finally validate this genus.

Based on the findings of Lujan et al. (2015), Armbruster et al. (2015) give an overview of *Hemiancistrus*, *Peckoltia*, and related genera and accept a reorganization of many species affiliations. The genus *Ancistomus* Isbrücker & Seidel 2001, in addition to the type species, *A. snethlageae*, includes the species *A. feldbergae*, *A. micrommatos*, *A. spilomma*, and *A. spinosissimus*. *Peckoltia sabaji* is still attributed to *Peckoltia*.

A surprising new genus relationship became apparent based on the phylogeny by Lujan et al. (2015). “*Hemiancistrus*” *pankimpuju* (L350) is closely related to the *Peckoltia*, which is why this 16–20-inch (40–50 cm) giant that looks a little like a cross between *Acanthicus* and *Panaqolus* is now called *Peckoltia pankimpuju*. This is certainly hard for aquarists to understand, and probably requires more work.

Armbruster et al. (2015) also described three new *Peckoltia* species. The catfish L127 from the Río Orinoco is described as *Peckoltia lujani*, despite having an uncharacteristically flat body shape for this genus. Unfortunately, *Peckoltia greedoi* is not identical to the code number L382 from the Rio Gurupi, because it is obviously yet another *Peckoltia* species from that river system. The third species is *Peckoltia ephippiata* from the Rio Madeira. 🐟

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