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NEWS

The Magazine for Aquarists and Terrarists




 **Lampeyes from Cameroon**



 **Tilefishes**



 **Baldellia ranunculoides**



Aquaristic

Terraristic



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Preview:

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Herausgeber: Wolfgang Glaser
Chefredakteur: Dipl.-Biol. Frank Schäfer
Redaktionsbeirat: Thorsten Holtmann
Volker Ennenbach
Dr. med. vet. Markus Biffar
Thorsten Reuter
Levin Locke
Manuela Sauer
Dipl.- Biol. Klaus Diehl
Bärbel Waldeyer

Layout: Mary Bailey
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Filialen mit Zoofachabteilung



Evergreens

111 years of Rosy Barbs in the aquarium - and no-one even a little bit wiser?

by Frank Schäfer

There have been Rosy Barbs in our aquaria since 1903. The species has never vanished from the hobby, and enthusiasts even managed to keep and breed it through two terrible World Wars, often at considerable personal sacrifice. The Rosy Barb certainly belongs in the Top 100 most popular aquarium fishes in the world, and a pet shop without Rosy barbs is unthinkable. But nevertheless there continue to be numerous mysteries surrounding this fish...

From 1794 to 1815 the Scottish doctor Francis Buchanan worked in Bengal for the East India Company, a powerful trading company that, inter alia, founded what is now the vast metropolis of Calcutta. During that period Buchanan, a gifted naturalist, catalogued and described, among others, the fishes of the Ganges. He had an exceptional artist under contract, a young Bengali named Haludar, whom he paid a gold Mohur per month. Buchanan relied completely on the illustrations that Haludar prepared (and whose precision continues to be admired to the present day) and didn't maintain a collection of preserved specimens at all. When he left Bengal for ever in 1815, his boss, the Marquis



This is the fish that since 1903 has been known in the hobby as the Rosy Barb or Red Barb.

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Topaktuelle Themen und
Hintergrundberichte
im Aqualog-Blog

of Hastings, relieved him of many of the illustrations as well as a number of manuscripts. On his return to England Buchanan assumed his mother's maiden name - Hamilton - as he had become the head of the Hamilton Clan on the death of his brother. In 1822, under the name Francis Hamilton, he published his book on the fishes of the Ganges, in which he scientifically described 272 species, the majority of them new to science. But he had all his illustrations and notes for only 98 species. This explains why some of the species descriptions are deficient, among them that of the Rosy barb, which Hamilton named *Cyprinus (Puntius) conchonius*, thus

giving the species the specific name *conchonius*, which will remain scientifically valid for all time.



This is the original illustration of *Cyprinus (Puntius) conchonius*; it was taken away from Hamilton in 1815 on his departure from India and he never saw it again.

Nowadays the Rosy barb is assigned to the genus *Pethia*, and so its full scientific name is



The original illustration of *Systemus pyrropterus*. This species looks much more like our aquarium Rosy Barbs than *Pethia conchonius*.

currently *Pethia conchonius* (Hamilton, 1822.)

Utter confusion right from the start!

The identification of the Rosy Barb seemed doomed to problems right from the start. Specifically, it was imported simultaneously with the Two-Spot barb, *Pethia ticto*. The two



As can be seen from this male, wild-caught Rosy Barbs from Bengal turn black during courtship!



Wild-caught male from Bengal.



Wild-caught female from Bengal.

species were sent to a scientific institution for identification, and actually identified correctly there, but the recipient subsequently mixed them up! So initially the Rosy Barb swam around as *Barbus* (the genus name at the time) *ticto* and the Two-Spot Barb as *B. conchoni*. But people soon realized that there had to be something wrong with this. In 1905 a heated dispute broke out in the literature regarding the correct names of these barbs, as further inquiries to scientists had led to the Rosy or Red Barb (*Barbus / Pethia ticto* is an inconspicuous silver in color) being identified as *Barbus conchoni* by Dr. Reh in Hamburg, but as *B. pyrrhopterus* by Dr. Pappenheim in Berlin.

Following the exchange of all sorts of noisy insults, the two sides finally agreed that *B. conchoni* and *B. pyrrhopterus* were no more than variants of one and the same species, and because variants can't have scientific names the Principle of Priority applied: the name *B. conchoni* was the older and hence the valid name. And since then the Rosy Barb has been known

worldwide, in both the aquarium and the scientific literature, as *Barbus* or *Puntius* or more recently *Pethia conchoni*.

Imperial Rosy Barbs worldwide

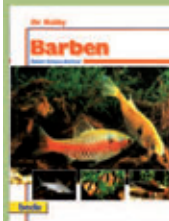
The natural distribution of the Rosy Barb is given as Afghanistan, Bangladesh, Burma, India, Nepal, and Pakistan - a vast area! Those seen in the trade are, however, almost exclusively captive-bred, in all cases tracing their ancestry back to the original specimens imported in 1903, whose exact provenance is unknown. Even though nowadays the majority of Rosy Barbs are bred in Sri Lanka, Malaysia, Singapore, and Thailand, as far as can be ascertained these fishes too derive from those bred in Germany at the time of the Kaiser!

So how can we know this? Well, to the present day there has been not a single report of wild Rosy Barbs that exhibit the red coloration documented for these fishes since 1903!

Wild-caught specimens from Bengal

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Gold cultivated form, Sri Lanka strain.



Neon Green cultivated form, Singapore strain.



Neon Red cultivated form, Singapore strain.

These are the only wild-caught specimens imported and documented since 1903. And lo and behold: they look completely different to our aquarium Rosy Barbs and their numerous cultivated forms. Specifically, these wild fishes from Bengal



This painting is from 1909 (Bade, Das Süßwasser-Aquarium, 3. edition, plate V). It clearly depicts the very same fish that is still known as Rosy Barb in our hobby.

become black rather than red during courtship! Moreover there is a striking difference even in neutral coloration: males of the wild Rosy Barb never have a black tip to the dorsal fin.

So what do we actually have swimming in the aquarium?

If we look at the wonderful illustrations of *P. conchonius* and *P. pyrrhopterus* then there can be no doubt whatsoever that the aquarium strain of the Rosy Barb belongs to the species *P. pyrrhopterus* rather than *P. conchonius*. The two species certainly aren't synonymous! It seems unlikely that *Pethia conchonius* has ever been maintained in the aquarium at all, and it may be that there are a whole series of as yet unknown species of similar appearance - a species complex, in other words. We are now trying to import wild Rosy Barbs from various parts of the distribution, in order to eventually be able to understand the systematics of these fishes.

All this just goes to show once again how important wild-caught fishes are in the aquarium hobby if we want to study the biodiversity of our planet. Moreover this is also why the trade in wild-caught livestock is important to conservation and should be universally and vigorously encouraged!

Long-finned Rosy Barb with wild coloration. There are long-finned strains of all the cultivated forms. All photos: Frank Schäfer



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Tetras

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- new tetras from Peru

by Wolfgang Löll

Aquarium Glaser in Rodgau has recently imported a number of fish species, new to both the hobby and to science, from the river Madre de Dios, in the border region between Peru and Bolivia. Some of the mailed catfishes have already been discussed in AqualogTerralog News no. 104, which, like all issues of the News, is available free of charge as a downloadable PDF file at www.aqualog.de.



Serrapinnus sp. aff. kriegi, male.

This time it is new tetras that have arrived from the Madre de Dios region. But first a quick reminder: this region lies in the extreme south-east of Peru and is particularly interesting zoogeographically when it comes to fishes, as unlike the rest of the rivers of Peru that originate in the Andes, the main river of the region, the Madre de Dios, flows to the east instead of north to the Amazon. The Rio Madre de Dios first of all flows past Bolivia, where it joins the Rio Beni, which, together with the Rio Marmoré, forms the Rio Madeira in Brazil, and the Rio Madeira eventually flows into the Amazon. At more than 1100 km in length the Madre de Dios is the largest tributary of the Rio Madeira.

Serrapinnus sp. aff. kriegi

The majority of the tetras from the Madre de

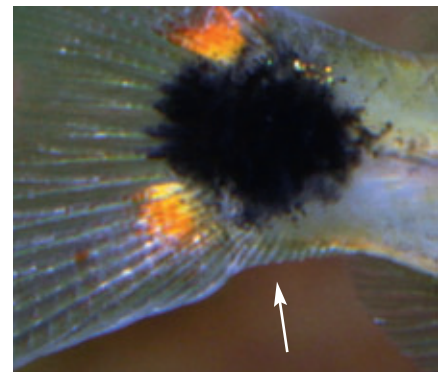


Serrapinnus sp. aff. kriegi, male.

All photos: Frank Schäfer

Dios region consist of members of the Cheirodon assemblage.

The tetras formerly all known as Cheirodon have now been split into several genera, namely *Nanocheirodon*, *Compsura*, *Odontostilbe*, *Serrapinnus* and *Cheirodon*. All have a very typical pattern of markings including a spot on the caudal peduncle bounded above and below by light dots.



Interhaemalia (arrow)

Serrapinnus sp. aff. kriegi, female






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Hemigrammus falsus, bycatch with *Serrapinnus* sp. aff. *kriegi*.



Hemigrammus falsus, wild-caught male from the Madre de Dios region. The shoulder spot is at best faintly marked in this species, and usually completely absent.



Hemigrammus ocellifer, male. This species can be identified without problem by its shoulder spot. The fish seen here is a captive-bred specimen from South-East Asia.

It has not yet been possible to identify the newly imported species with certainty. We initially thought that it was *Cheirodon luelingi*, but this couldn't be verified. It appears to be a new (at least for Peru) species of the genus *Serrapinnus* (whose members can be recognized by the males having a saw-like structure, composed of so-called interhaemalia, ventrally anterior to the caudal fin), very similar to the popular *Serrapinnus kriegi* from Paraguay. For this reason this dainty little import has been given the temporary name *Serrapinnus* sp. aff. *kriegi* "Peru". The largest specimens are around 4 cm long and apparently sexually mature. These fishes are totally peaceful, very lively, and robust.

In addition to the remarkable interhaemalia structure in front of the caudal fin, the sexes can be readily distinguished by males having

much broadened anterior anal-fin rays. The caudal-peduncle spot is a bold orange-red in males, but more of a yellow in females. However, a word of warning: low-ranking males likewise exhibit a yellow caudal-peduncle spot. The suggested popular name for this fish is Peruvian Three-Spot Tetra.

The first bycatch: *Hemigrammus falsus*

Importations of wild fishes almost always contain so-called bycatches, that is, species that occur together with the main species imported and turn up as odd specimens in the importation.

The first bycatch with *Cheirodon* sp. aff. *kriegi* was an old acquaintance: *Hemigrammus falsus*. This species was imported into Germany as long ago as 1910 and bred shortly thereafter, but in those days was

Lexicon

Madre de Dios-Tetra

Serrapinnus: means "saw-fin"
kriegi: dedication name for the German zoologist Hans Krieg (1888-1970).

Hemigrammus: ancient Greek, means "with half line". This refers to the genus specific uncomplete lateral line organ.

ocellifer: means "bearing an eye-spot".

falsus: means "false".

Hyphessobrycon: ancient Greek, means "small Brycon". Brycon is another genus of tetra.

echwartzae: dedication name for the artist Eugenia Schwartz, whose financial support made the collection of the type specimens possible.

Gymnocorymbus: means "with naked crest". This refers to the unscaled nape.

thayeri: dedication name for N. Thayer, who sponsored a considerable ichthyological expedition to South America in the years 1865-1866.

constantly confused with *Hemigrammus ocellifer* and identified as such. Not until 1958 did Hermann Meinken recognize the error and describe this long-familiar fish under the name *H. ocellifer falsus*. The true *H. ocellifer* has an easily recognizable shoulder spot that



makes it unmistakable. There is, however, no evidence that the two species occur together in the wild or give rise to intermediate forms. For this reason they are now regarded as good species.

While prior to 1958 it was exclusively *Hemigrammus falsus* that was kept in the aquarium, the species was subsequently ousted by the more attractively colored *H. ocellifer*, and nowadays *H. falsus* is no longer found in the standard ornamental fish stock-in-trade.



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Hyphessobrycon eschwartzae was known as *H. cf. agulha* prior to its scientific description.

Bycatch 2: *Hyphessobrycon eschwartzae*

The Flag Tetra (*Hyphessobrycon heterorhabdus*) is one of the loveliest of all the small characins of Amazonia. A sibling species, *H. amapaensis*, comes from Brazil, has similar coloration, and is characterized by a striking broad red longitudinal band. Both species are much sought-after. There is a third member of the group in the Madre de Dios region of Peru, and this pretty little fish was recently described as *Hyphessobrycon eschwartzae*. It looks like a mixture of the well-known Black Neon (*Hyphessobrycon herbertaxelrodi*) and the Glowlight Tetra (*Hemigrammus erythrozonus*). A particularly striking feature is the bright red eye.

The behavior of this little fish, which grows to about 3-4 cm long, is similar to that of the other species mentioned. *Hyphessobrycon eschwartzae* likes to swim in shoals of its own kind and looks its best in well-planted aquaria with peaceful tankmates. Soft, slightly acid water suits these fishes very nicely, but they will also adapt well to other water conditions. This new tetra eats all the usual aquarium-fish foods. Plants and other fishes are left in complete peace.

Bycatch 3: *Gymnocorymbus cf. thayeri*

The False Black Widow Tetra (*Gymnocorymbus thayeri*) is a close relative of one of the most popular tetras in the hobby: the

Black Widow Tetra, *G. ternetzi*. It also looks rather similar to the Black Widow, but has a golden to silvery base color and an attractive copper-colored iris.

Hitherto the False Black Widow has been known to science from the upper Amazon region in Bolivia and Colombia, as well as Brazil. Three specimens were present as bycatches in the Serrapinnus importation. To the best of our knowledge it is the first record of the species for Peru. But because it isn't beyond the bounds of possibility that the form from Peru belongs to a species as yet unknown to science, we have labeled it as cf.

Gymnocorymbus cf. thayeri

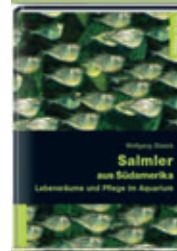


thayeri (cf. = confer, the Latin for compare). *Gymnocorymbus thayeri* grows somewhat larger than the species discussed earlier and attains a total length of easily 7-8 cm, and is thus a nice contrast to the other small, shoaling tetras.

All the species mentioned can be maintained without problem in the community tank. They are totally undemanding as regards food, and will happily take any standard fish foods of suitable size. Plants are ignored. Water chemistry is of little importance: the pH should be between 5.5 and 7.5, with the hardness not exceeding moderate if possible. The water temperature can be between 22 and 28 °C.

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Just in

From all over the world: The latest imports

by Roman Neunkirchen

In terms of the vast number of fish species in existence - some 32,700 species are currently known to science, half of them from fresh water - only a very few are maintained, at least now and then, in the aquarium. In fact only around 400 species of freshwater fishes are permanently available in the trade. So it is no surprise that new species are constantly being discovered. Some of the latest new imports by Aquarium Glaser are briefly presented on the following pages.



Cynodon gibbus

Charax stenopterus

Generally speaking, piscivores can't be expected to be particularly colorful. So we were rather sceptical about our supplier's statement that *Charax stenopterus*, which Aquarium Glaser has recently imported for the first time from Paraguay, was very colorful when collected. But lo and behold, after a period of acclimatization the fishes did indeed develop a colorfulness worthy of the name "Rainbow Headstander".

Lexicon:

Charax means "stake" or "palisade"; stenopterus means "with narrow fins"



Cynodon gibbus

C*ynodon gibbus*

This predatory "vampire characin" reaches our tanks only very rarely, as the species is extremely delicate. So naturally we were very pleased to have a specimen reach Aquarium Glaser in a very fit and healthy condition and acclimatize without problem. *Cynodon gibbus* is a piscivore that feeds on small fishes. The species is very widespread in the Amazon and Orinoco. Maximum total length is around 30 cm, and the imported specimen is currently 16-18 cm long.

Lexicon: Cynodon means "dog-tooth"; gibbus means "humped".

Charax stenopterus

all photos: Frank Schäfer





Brienomyrus niger

Brienomyrus niger

The roughly 200 species of elephant-nose (*Mormyridae*) are among the most important freshwater fishes of Africa, as many are exceptionally common and are regarded as a delicacy. By contrast they play only a very minor role in the aquarium hobby. Many species cannot be distinguished by external characters. All mormyrids are weakly electric fishes that use electrical discharges to communicate among themselves. Numerous species can be distinguished accurately only on the basis of this "language", and are sometimes very similar externally.

Brienomyrus niger, which has recently been imported once again from Nigeria, is one of the readily identifiable species. It grows to around 15 cm long. The species exhibits all the fascinating characteristics that make the maintenance of mormyrids so interesting, including the "electrical language" already mentioned, as well as exceptional playfulness and - for fishes - astonishingly high intelligence. Like the parrots, *mormyrids* have a relatively highly developed cerebellum.

Unfortunately these fishes are relatively intolerant of their own kind in the aquarium, for which reason they should be given the largest aquarium possible

with copious hiding-places. PVC pipe is ideal, as it simultaneously protects against "electric noise" from the neighbors.

These fishes are best fed on bloodworm (including frozen) and Tubifex. *B. niger* is undemanding as regards water parameters. It is one of the few mormyrids that possesses accessory breathing; in other words it is able to take in atmospheric air and breathe it. The sexes are not easy to distinguish, but females are noticeably higher-backed than males. No other external sexual differences are known for this species.

Brienomyrus brachyistius



Brienomyrus brachyistius

Aquarium Glaser recently obtained a mormyrid species from Nigeria that we haven't seen for many years, namely *Brienomyrus brachyistius*. This comparatively small species (maximum total length is given as 17.5 cm, but it usually remains significantly smaller at 10-12 cm), is a close relative of the previous species, *B. niger*.

These playful, intelligent fishes are very lively and noted less for their coloration than for their unusual, jolly-seeming behavior. The consignment includes somewhat larger, slimmer individuals that we think are males, and somewhat compressed-looking specimens that are probably females. Nothing is known about the reproductive biology of this mormyrid. They can be fed without problem in the aquarium, as they will consume any type of live, frozen, and dried food that will fit into their mouths.

Lexicon: *Brienomyrus*: named for the Belgian Paul Brien and *Mormyrus*, another genus of mormyrid. *niger*: Latin for "black". *brachyistius*: *brachy* means "short", *istius* signifies "of that one"; the meaning of the name is unknown and not explained in the original description.



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Boleophthalmus boddarti, Männchen

Boleophthalmus boddarti

The mudskippers form their own subfamily, the Oxudercinae, within the goby family. Here you can find all stages from perfectly "normal" gobies (that live under water; e.g. the genus *Apocryptes*) to the amphibian mudskippers (sometimes living entirely on land; genus *Periophthalmus*). The genus *Boleophthalmus* doesn't normally leave the water completely, but enters the bank region where its body is barely covered by water. *Boleophthalmus* is found exclusively in tidal zones, i.e. areas where there are noticeable ebb and flood tides. When the tide comes in they retire into their underwater caves, but at ebb tide they go hunting for food, using their very broad mouths to scoop up the top layer of mud and filter out anything edible. Their home caves and the immediate vicinity are defended vigorously against conspecifics.

Boleophthalmus require brackish water for long-term maintenance in the aquarium, even though they are fully euryhaline, i.e. can tolerate completely fresh water as well as full-strength sea water. They are, however, very sensitive towards nitrite and nitrate in completely fresh water.

They can be fed without problem on flake food, which corresponds very closely to their natural food. It should, however, be mentioned that a scientist working with these fishes reported that during long-term

maintenance he had problems with them becoming increasingly more emaciated and eventually going the way of all flesh. He assumed that the reason for this was inadequate feeding (in the wild the main component of the diet is diatoms), but this remained unproven.

These fishes are best maintained in a paludarium with a flat sandy "beach". There is no need to simulate the ebb and flow of the tide.

Aquarium Glaser has recently been able to import the splendid *Boleophthalmus boddarti* from India. The fishes are around 8-

10 cm long and fully sexually mature. Maximum length is around 20 cm. Males can be recognized by having a much longer dorsal-fin extension and a heavier-looking head.

Lexicon: *Boleophthalmus* means goggle-eye. *boddarti*: named after Pieter Boddaert (1730-1795).

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Pair of *Boleophthalmus boddarti*, female above.





***Tetraodon cf. kretamensis* =
*Dichotomyctere cf. kretamensis***

Aquarium Glaser recently received a green pufferfish from Indonesia that differs from the *Tetraodon nigroviridis* usually imported from Thailand and Vietnam by having an unusual irregular pattern of dots and a spiny skin, clearly visible to the naked eye.

There are two species of green puffers that can easily be confused with *T. nigroviridis*: *T. kretamensis* and *T. sabahensis*. To date neither is known in the aquarium hobby, only a not positively identified form termed *T. cf. sabahensis*. Note that according to the



The special structure of the nostril flaps can readily be seen in this portrait shot.



Lateral view of one of the newly-imported puffers.

latest major revision of the freshwater fishes of South-East Asia all green puffers belong in the genus *Dichotomyctere*.

In the scientific description of *Tetraodon kretamensis* it is chiefly the inner form of the posterior nostril flap that is regarded as species-typical. The newly imported puffer has precisely this remarkably folded inner



The nasal flap from *Tetraodon kretamensis* from INGER, 1958 (changed)



The puffers are fairly peaceful among themselves.

surface, as can even be seen in the portrait photo.

In the aquarium these puffers do well in brackish water, and can also easily be acclimated to sea water.

In this specimen the dots are more vermiform. Every specimen can be recognized by its individual pattern.





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Nimbochromis fuscotaeniatus, young male.

Nimbochromis fuscotaeniatus

The best-known representative of the genus *Nimbochromis* is the "Sleeper", *Nimbochromis livingstonii*, which occurs in Lake Malawi, the Shiré River, and Lake Malombe. This species imitates a rotting fish with its blotched body pattern. In order to capture prey it lies on its side and plays dead. Unsuspecting carrion-eaters, intending to feed on the apparently dead fish, fall prey to the Sleeper. *N. fuscotaeniatus* has a similar base color but is an ambush predator that in the wild lies in wait for prey at the margins of areas of aquatic plants. In this case the blotched coloration serves to break up the outline of the fish, rather like the camouflage



Courting male *Haplochromis nubilus*.

clothing used by the military. *Nimbochromis fuscotaeniatus* grows to around 25 cm long. Because of its size and high degree of aggression it should be kept only in really large aquaria (length 250 cm upwards). The species is a non-pairing maternal mouthbrooder.

Lexicon: *Nimbochromis* means "cloudy cichlid". *fuscotaeniatus* means "dark banded".

Haplochromis nubilus

Haplochromis nubilus is another non-pairing maternal mouthbrooder, in this case from the area around Lake Victoria and the lake itself. In reality the name is probably used for several very similar

species, for which reason it should always be bred "true to type", as unfortunately many populations of Lake Victoria cichlids are threatened with extinction. The fishes shown here originate from the Jung ornamental fish farm in Aschaffenburg.

Lexicon: *Haplochromis* means "simple Chromis" (referring to the dentition of the genus, compared to *Chromis*). *nubilus* means "cloudy".

Haplochromis cf. polli

This small, rather colorless *Haplochromis* arrived at Aquarium Glaser from Cameroon as a bycatch. It may not be spectacular in its



Courting male *H. cf. polli*

coloration, but zoogeographically it is a very interesting form, as *H. polli*, which it resembles, hasn't to date been recorded from Cameroon; hence the provisional name *H. cf. polli*. At present these fishes are some 5 cm long.

Lexicon: *polli*: named in honor of Max Poll (1908-1991).

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Stiphodon ornatus

The neon gobies of the genus *Stiphodon* are very tricky to identify, as many species look very similar to one another. Males can change their coloration in seconds flat. Although courtship dress is species-specific, various species (e.g. *S. atratus* and *S. ornatus*) are extremely similar in neutral coloration. The females of all species are virtually indistinguishable from one another. They usually exhibit a pattern of two parallel dark stripes on a light background.

Adults inhabit completely fresh water and live in streams, but the larvae develop in the sea, which is why many species have a wide distribution. Maximum length in *Stiphodon* species is around 6 cm, making them small fishes.



Habitat of von *S. ornatus* in Sumatra.

A recent importation by Aquarium Glaser consisted mainly of gorgeous *Stiphodon ornatus*, but also included *Stiphodon weberi* as a bycatch.

Neon gobies are peaceful aufwuchs-feeders that like clear flowing water. In the wild they live in shoals of 30 to 50 individuals, consisting of both sexes. Only singleton males occupy territories, at whose center there is a spawning cave



Stiphodon ornatus, two males.

beneath a flat stone. During courtship the males swim in the open water column and assume their striking, contrast-rich courtship dress. If a male succeeds in attracting a ripe female then the pair spawn on the underside of a rock. The eggs and the larvae that hatch from them are very tiny and extremely numerous. The larvae are carried downstream by the current to the sea, where they develop among the marine plankton. The species has not yet been bred successfully in the aquarium.



Left *Stiphodon atratus*, right *S. ornatus*

Lexicon: *Stiphodon* means "with lots of close-packed teeth". *ornatus*: means "ornate", "decorated". *weberi*: named in honor of Max Wilhelm Carl Weber (1852 - 1937). *atratus* means "wearing black".

Stiphodon weberi, male in courtship mood.





This specimen clearly shows the feathery barbels typical of *Synodontis*.

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This youngster is around 5 cm long.

Synodontis ouemeensis?

The African catfishes of the genus *Synodontis* are a very species-rich group, with 131 species currently recognized. Maximum size varies between eight and around 60 cm, with the majority of species growing to between 15 and 20 cm long in the aquarium. They are common in their native lands, and hence important as food-fishes. Unfortunately only a few species regularly find their way into our aquaria. *Synodontis* are very interesting fishes with pronounced social behavior, and if possible should always be kept in groups. A large aquarium with plenty of hiding-places is a prerequisite for this. These fishes are undemanding when it comes to water parameters, and any mains water is acceptable. The diet should be mainly carnivorous, as insects, small fishes, and biocover are the chief foods in the wild. When a *Synodontis* is netted and removed from the water it emits loud grating-squeaking sounds, hence the English common name of "squeakers".

After a long break, Aquarium Glaser has once again managed to import from Nigeria a *Synodontis* that was initially identified as *Synodontis bastiani* (*S. eburneensis* is a synonym) on the basis of



There are many reasons for thinking that this newly-imported species is *Synodontis ouemeensis*.

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its large shoulder spot. But we overlooked the fact that a new *Synodontis*, namely *S. ouemeensis*, described in 2008, also possesses such a shoulder spot and is probably the same species as the new imports. *S. ouemeensis* grows to about 15 cm long. But the new

identification isn't absolutely certain, as a number of the proportions of the new imports deviate from those of *S. ouemeensis*; this may, however, be a matter of age-related differences, as the imported fishes still exhibit traces of juvenile coloration: two light, vertical bands on the posterior body.

Lexicon: *Synodontis*: an old name for an undetermined fish from the Nile (Cuvier 1816: "nom ancien d'un poisson du Nil, indéterminé"). *ouemeensis*: from the River Oueme in Benin, the type locality.



Plants

A native Amazon-swordplant?

by Birgit Bautz-Schäfer

When, many years ago, I began to study plants, Schmeil-Fitschen (a German guide to plants) was my constant companion. This book, which contains an identification key to all the plant species of Germany, opened my eyes to the huge variety of plant species that exist and their different habits of growth. Although at first I used it merely as an aid to identification, I subsequently became well and truly engrossed in it and even planned my excursions according to where interesting plants were to be found. And thus one day I became aware of *Echinodorus ranunculoides*, the Lesser Water Plantain...



Flower of *Baldellia ranunculoides*, the Lesser Water Plantain.

All photos: Frank Schäfer

E*chinodorus*? This is also the genus that contains the popular and important aquarium plants known as Amazon swordplants. I had always thought they occurred only in the New World!

So what was the correct genus?

In fact even the experts aren't entirely agreed regarding the genus to which the Lesser Water Plantain belongs. In my old Schmeil-Fitschen it was still assigned to *Echinodorus*, but even back then there was already discussion about placing it in the genus

Baldellia, and *Baldellia* is where it is currently classified. Molecular data point to *Baldellia* being more closely related to *Luronium* and *Alisma* than to *Echinodorus*

How many species?

The number of species that exist is another vexed question, but in this case there has been a lot of research recently (see References). Like almost all marsh plants the Lesser Water Plantain adopts a variety of habits depending on environmental conditions. Thus there is an upright form with



Baldellia ranunculoides from the English Botany, illustration by James Sowerby (1757-1822).



Baldellia r from the English Botany, illustration by James Sowerby (1757-1822).

spatulate leaves that doesn't develop any offshoots, and a creeping form with more grass-like foliage that produces numerous runners. The former has traditionally been known as *B. ranunculoides ranunculoides*, and the latter as *B. ranunculoides repens*. But the current view is rather different, with the two forms being treated as separate species, termed *B. ranunculoides* and *B. repens* respectively. Both are distributed across large parts of Europe, albeit very locally, and, like almost all the marsh and aquatic plants of Europe, are regarded as highly endangered



Baldellia ranunculoides, emers, Habitus.

due to continuing biotope destruction by humans. A third species, *B. alpestris*, is endemic to northern Portugal and northwest Spain.

The Lesser Water Plantain in the aquarium

Surprisingly, the vivarium hobby literature is exceptionally wanting regarding the Lesser Water Plantain, as it is an ideal vivarium plant, which has the advantage of being relatively dainty and not requiring a huge amount space, and hence compares favorably with other, similar plants such as the water plantains of the genus *Alisma*. *Baldellia ranunculoides* is an ideal plant for troughs. Unfortunately only *B. ranunculoides* is currently available in garden centers, and not the other two species.....

In March 2013 I bought three pots of *B. ranunculoides*, and it was actually quite exciting to see this plant in the flesh after more than 30 years of previously knowing it only from the literature. All three plants grew very satisfactorily in a small aquarium measuring 40 x 20 x 20 cm. I had simply left

them in their 10 cm pots and filled the aquarium with rain water. The tank stood on a table in the garden, positioned against the east wall of our house, and the plants flowered abundantly in July and August.

In November I moved the entire aquarium to a bathroom with light from above, where the emerge plants developed into very luxuriant underwater plants, with a habitus reminiscent of broad-leaved *Sagittaria*. I provided no additional light in the aquarium. The water temperature measured between 16 and 22 °C. This means that the Lesser Water Plantain will remain in leaf in winter, even in cold-water aquaria with a shortage of light. That makes it even more valuable as a vivarium plant, as many of our native plants are noted for dying back in winter.

The Lesser Water Plantain produces a strong smell like Coriander if its leaves are damaged. In my experience it is, however, completely harmless for fishes, snails, and Water Hoglice (*Asellus aquaticus*). I haven't kept any other



The submersed form of the Lesser Water Plantain is reminiscent of *Sagittaria* and *Vallisneria*.

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livestock in this aquarium.

All in all the native "swordplant" is a beautiful vivarium plant with a multitude of uses, and deserves to be cultivated more often.

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Turtles

The ideal dwarf turtle

Kinosternon baurii

by Christoph Fritz, www.reptilia24.com

Not everyone has the same amount of space for pursuing the finest and most meaningful hobby in the world: keeping animals. Many enthusiasts who only have room for small tanks think this means that they cannot keep turtles at all. But that isn't the case, as there are a number of turtle species that firstly, remain very small, and secondly, do not require a large tank as they don't feel a particularly great need to move around.

The turtles discussed here belong to the family Kinosternidae, which are also known as the mud turtles or musk turtles. They include some of the smallest turtle species that attain a carapace length of only 10-12 cm. There are, however, also large-growing species, so it is important to know a little about identifying the species.

Kinosternon baurii

With a maximum carapace length of just 12 cm in females - males remain even smaller at around 10 cm - this turtle really is small. In addition, there are records of females becoming sexually mature at a length of around 7-8 cm and an age of five to six years. Maximum age in captivity is around 50 years old, and some individuals can even attain that age in the wild.

Distribution

The species is found in the south-east of the United States. Its main area of distribution is on the Florida peninsula, but at the same time it is also found in the coastal lowlands of South Carolina, Georgia, Alabama, North Carolina, and Virginia. The species is generally regarded as common and not endangered, and is not subject to any trade restrictions or conservation regulations, although the local population in the Florida Keys is threatened by habitat destruction and hence legally protected in the USA. The trade has no influence on wild populations.

Ecological adaptability

Kinosternon baurii, popularly known as the

Three-Striped Mud Turtle, inhabits still and slow-flowing waters of all types, including temporary pools. If such a pool dries up then the turtles move elsewhere. Migrations of up to 3.5 km have been recorded. These turtles also deliberately seek out preferred spawning sites. Unfortunately this means that *K. baurii* is a frequent road casualty. In the wild these little turtles are omnivores that feed on palm seeds, algae, insects, snails, and so forth. They are in turn the regular prey of Alligators and predatory birds such as the Snail Kite (*Rostrhamus sociabilis*). The tiny juveniles and the eggs are eaten by large numbers of animals, but the turtles compensate for this by a very high reproductive rate.

Lexicon

Three-Striped Mud Turtles

Kinosternon: means "movable breast"; the name refers to the fact that these turtles have a hinged ventral armor.

baurii: named in honor of the German zoologist Georg Herman Carl Ludwig Baur (1859-1898).

A female can produce up to six (usually three) clutches per year, with one to six (usually two to three) eggs per clutch. The eggs are enormous compared to the tiny mother turtle, and one can only wonder how they manage to fit inside her. They require 80-145 days to mature, and develop only at temperatures between 28 and 30°C. If the temperature drops to 22.5-24 °C then the embryo undergoes a pause in its development. On hatching the young are around 2-2.5 cm long and weigh 2.1-3.9 grams.

Small turtles - small aquarium?

This question is a matter of considerable controversy. Many of the arguments adduced are, however, simply emotional and have little to do with the requirements of the turtles. In Germany the legally prescribed minimum size for an aqua-

Kinosternon baurii is very attractively colored. As long as these creatures remain underwater the eye is covered by the protective nictating membrane. All photos: Frank Schäfer





Eggs of *K. baurii*. The white ring shows that the egg has been fertilized.

terrarium for the maintenance of a single turtle is a tank length of three times carapace length, a tank width of one-and-a-half times carapace length, and a water depth of twice shell depth. Where only one individual (with a maximum carapace length of 12 cm) is maintained this means a bottom area of 36 x 18 cm and a water depth of around 10-12 cm, though it isn't really possible to keep a turtle in such a small aquarium. A standard 60-cm aquarium is, however, perfectly adequate for creating a well-designed habitat for these little turtles.

In so doing the following basic rules are very important: *Kinosternon* climb and walk around more than they swim, so it must always be easy for them to reach the water's surface and if possible the water level should not exceed 20 cm. Suitable decor items include suitably weathered bogwood and round stones. The substrate should be a layer of fine sand around 5 cm deep, as these turtles are very fond of burying themselves.

Many individuals leave the water only to lay eggs, but this varies a lot from turtle to turtle and hence needs to be checked: place a piece of floating cork bark in the tank, and if this "land area" is utilized then you should install a permanent land area. This can consist of a suspended plastic container filled with sand, with a low-power spotlamp fitted above it to produce a temperature of 30-35 °C beneath. These turtles have a low UV requirement; a

proprietary terrarium-hobby fluorescent tube with a UV component will be perfectly adequate. The aqua-terrarium should not be sited in too brightly-lit a spot.

During the months of February to November the water temperature should lie between 22 and 26°C with a lighting period of 14 hours. A winter rest of around two months with only eight hours of light (this is much more important than temperature at the start of the winter rest, which is regulated by hormones) at 12-15°C is very beneficial for long-term health

Female Three-Striped Mud Turtle. The species swims relatively well but can nevertheless easily drown.



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and breeding in these turtles.

Singly, in pairs, or in groups?

Fundamentally, it is best to keep all mud turtles singly. The males are very intolerant of one another and can drive females crazy by their permanent readiness to mate. In addition, females also sometimes squabble violently among themselves, although this varies considerably from individual to individual. You might be really lucky and



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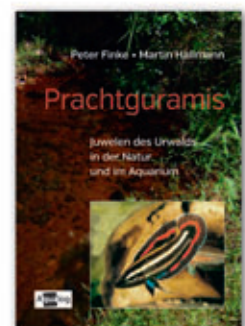
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Juwelen des Urwaldes in der Natur und im Aquarium

Autoren: Peter Finke,
Martin Hallmann
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Dieses weltweit erste Buch über die phantastisch gefärbten Prachtguramis ist mehr als ein Aquarienbuch: Es entführt uns in die untergehende Welt der Torfsümpfe Südostasiens. Illustriert mit vielen schönen, aber auch erschreckenden Bildern erfahren wir in diesem Buch alles, was man heute über das Leben dieser Fische weiß.

Alle bisher bekannten Arten werden abgebildet und beschrieben, ebenso ihre Systematik, Verbreitung und ihr Verhalten. Sie begeistern immer mehr Liebhaber.

Pflege und Vermehrung im Aquarium sind nicht schwer, wenn man sich an die Ratschläge dieses Buches hält. Jeder kann sich an ihrer Erhaltung beteiligen. Das "Parosphromenus-Projekt" wird vorgestellt, Internetadressen, Labyrinthfisch-Gemeinschaften und Bezugsquellen werden genannt.

Die Autoren gehören zu den international führenden Kennern dieser außergewöhnlichen Fische.

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Florida Flagfish, *Jordanella floridae*

buy a pair that get along well, but unfortunately that cannot be guaranteed. Moreover, in some cases these turtles will start squabbling after years of peaceful cohabitation. That sort of thing can even happen in humans... For this reason it is essential to have as many tanks as turtles, as then you will be prepared in advance for any problems and able to respond rapidly when necessary.

The male and female are placed together for breeding, and this usually leads to fruition very rapidly, with an almost 100 fertilization rate, while females stressed by being kept permanently with the male often don't "take" at all. Unlike in many other reptiles, the females are anything but fussy about where they lay their eggs, and will willingly accept the sand-filled container described above. In extremis they will also simply lay their eggs in the water, but things should never be allowed to come to that. Females kept singly may also produce eggs but these are, of course, infertile, just like with hens, which don't require a cockerel in order to produce eggs for breakfast.

Turtles and fishes

The best and most interesting way to keep these turtles is together with fishes. In the first place the aquarium will be more attractive to look at - more going on in it - and secondly, the fishes will very rapidly indicate if there is something wrong with the water. Biotope-correct species include the Florida Flagfish (*Jordanella floridae*), the Least Killifish (*Heterandria formosa*), sunfishes (*Enneacanthus chaetodon*, *E. gloriosus*, and *E. obesus*), and pygmy sunfishes (*Elassoma*). Anyone lucky enough to obtain some Sailfin Mollies (*Poecilia*

latipinna) will find that these usually tricky fishes develop into really splendid specimens, as for reasons as yet unexplained, livebearing toothcarps develop extraordinarily well when kept together with aquatic turtles. But naturally the choice of fish species isn't limited to the species listed here. The only species that shouldn't be kept with turtles are slow-moving bottom-dwellers such as whiptail catfishes (*Rineloricaria*, etc).



Least Killifish, *Heterandria formosa*

As a rule fishes are safe from the small chelonians; the worst-case scenario is that weak or sick specimens may fall victim to the turtles, but that is of no account.

Feeding

Three-Striped Mud Turtles tend to be more

carnivorous than omnivorous in captivity. It is a good idea to cultivate duckweed, in particular the large species *Spirodela polyrhiza* (Greater Duckweed), in the tank. Then, quite simply, vegetarian food will be available if the turtles happen to develop a desire for it. In other respects feeding is remarkably easy as *Kinosternon baurii* isn't choosy, though the food must always be absolutely fresh and high quality! It doesn't matter whether it is manufactured food for swamp and aquatic turtles or frozen food for aquarium fishes. Vitamins and valuable unsaturated fatty acids "go off" more rapidly than many people realize, a common serious mistake. Food should always be purchased in small quantities. Dry food should be used within at most six weeks of first opening the container, and deep-frozen food within around six months. Dry food should never be kept in a light, warm, and/or damp place, it must always be stored in an airtight, light-proof container in a cool place.

If you are now filled with the desire to keep Three-Striped Mud Turtles, you can obtain them from e.g. www.reptilia24.com or get your pet dealer to order them for you.

Male Three-Striped Mud Turtle. Males remain smaller and have a much longer tail than females.





Rarities

Do you know Procatopus?

by Roman Neunkirchen

When aquarists are searching for peaceful, plant-friendly, active fishes then they almost always think of a large shoal of barbs or tetras. But there are also killifishes that follow this way of life, for example the lamp-eyes of the genus *Procatopus* from West Central Africa.



Procatopus nototaenia Yabassi, male.



Procatopus nototaenia Yabassi, male.

All photos: Frank Schäfer

Unfortunately these fishes have acquired the unjustified reputation of being reserved for specialists and generally completely unsuitable for community tanks. But that is nonsense!



Procatopus nototaenia Yabassi, female.

Maintenance conditions

Maintenance conditions are pretty much the same for all *Procatopus* species. In the wild these fishes inhabit shady streams

with clear water. Accordingly, they should be kept at a somewhat lower temperature than is otherwise usual for tropical fishes, namely around 20-25 °C. A good filter will provide clear water and an element of current. These fishes are very accomplished swimmers! There is no need to make too much fuss about water chemistry. Soft to medium-hard water with a pH somewhere between 6.0 and 7.5 will be suitable for both maintenance and breeding.

A good, tight-fitting cover glass is absolutely indispensable. The body shape of these killies, which attain a maximum length of 6 cm, indicates that in the natural habitat they feed mainly on small insects, etc, that have landed on the water's surface or are captured by leaping. And naturally they pursue this habit in the aquarium as well. Except that in this case a leap after a fly can easily end up on the floor!

Procatopus are, however, very easy to keep

when it comes to feeding. Any live or frozen foods are happily taken, and a good quality flake food is likewise accepted. But please remember that the vitamins and unsaturated fatty acids in flake foods will deteriorate very rapidly under the influence of light, damp, heat, and oxygen. For this reason dry food containers should always be kept in as cool, dry, and dark a place as possible. Once a container has been opened the contents should be used within six weeks, as otherwise there will be a loss of quality. If you buy larger containers then please divide the contents into suitably-sized portions and freeze them. In this way you can be sure that your fishes are always fed optimally, even using dried foods!

Shoaling fishes ?!

But back to our lamp-eyes. The term "shoaling fishes" is often used in the hobby, but only very rarely correctly. True shoaling

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Unsere „Betta News“ bekommen Sie dann 4 x im Jahr, mit interessanten und wichtigen Informationen. Die Mitglieder im AK Labyrinthfische im VDA/ European Anabantoid Club freuen sich auf Sie.

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Procatopus aberrans Ossing, male.

fishes such as Herrings or Sardines, in which the shoal behaves like a single, huge organism, are virtually never maintained in the aquarium. What we so commonly term "shoaling fishes" are more likely to be species that seek social contact with conspecifics. And there is no question that all *Procatopus* do that! So please always keep these fishes in a group of 8-15 specimens that contains individuals of both sexes. The precise mix is relatively unimportant. These fishes don't harm one another and it is even possible to keep a group composed solely of males, but they will exhibit noticeably more color, more activity, and hence ultimately more joie de

Procatopus similis Mundemba, male.



Procatopus aberrans Ossing, female.

vivre, if females are present.

Long-lived crevice spawners

Many people think of killifishes as short-lived seasonal fishes that lay their eggs in the substrate. And many species do indeed do that, but not the lamp-eyes of

Lexicon

Procatopus

Procatopus: means "with forward-pointing ventral fins"

nototaenia: means "with a dorsal stripe"

similis means "similar"

aberrans: means "aberrant"

The terms following the species name, e.g. Yabassi, Ossing, and Mundemba, indicate the collecting locality for each population in Cameroon. Such fishes should always be bred true and mixing of populations avoided.



Procatopus similis Mundemba, female.

the genus *Procatopus*. They can, for example, live just as long as a Platy or Molly (to which they are quite closely related). And they have a very specialized method of spawning: every day they lay a few tiny eggs in small crevices. Cork bark can be provided for this purpose, or specially prepared woolen mops, plaited and secured with rubber bands so as to create lots of little gaps. The tiny young hatch after around 10-14 days, depending on the temperature. Because these fishes are trickle spawners you will always have young of various ages.

Although rearing isn't particularly difficult, *Procatopus* aren't economically worthwhile for professional breeders and hence rarely available. The three very beautiful *Procatopus* variants pictured here were recently imported from Cameroon. I can only say, grab them if they are offered, you certainly won't regret it! A 60-cm tank with a group of these fishes is an unforgettable sight and never ceases to be fascinating!



Lizards

The large herbivores

Part 1: The Giant Plated Lizard

by Thorsten Holtmann



The largest lizards alive today - the crocodiles and the monitors - are exclusively carnivorous. But the largest lizards that ever walked the Earth were predominantly herbivores: the gigantic dinosaurs of the sauropod family. And even today there is a marked tendency for particularly large species of lizards to get part, or even the majority, of their food from plants, at least when adult.

Until 2013 the Giant Plated Lizard was still assigned to the genus *Gerrhosaurus*. All of the plated lizards of the genus *Gerrhosaurus* are far from small, but *G. validus*, with a maximum length of 70 cm, has always been regarded as the largest. In 2013 Bates et al. published a study of the plated lizards in which they demonstrated, based on molecular data, that *Gerrhosaurus validus* and the taxon hitherto regarded as its subspecies, *G. v. maltzahni*, are so distinct from the remaining *Gerrhosaurus* species that the erection of a separate genus - *Matobosaurus* - for them was justified. They simultaneously raised *maltzahni* to specific rank. So now the Giant Plated Lizard is correctly known as *Matobosaurus validus*.

The natural habitat

Matobosaurus validus originates from southern Africa, where it inhabits large rock formations. It is known from the following regions: Malawi, Zambia, Mozambique,

Habitus of a half-grown specimen.



Adult male Giant Plated Lizard.

All photos: Frank Schäfer

Zimbabwe, eastern Botswana, the north-eastern parts of South Africa (mainly in the provinces of Limpopo, eastern Mpumalanga, and northern Kwazulu-Natal), and Swaziland. The specimens currently available in the trade originate from Mozambique.

Back in 1935 FitzSimons wrote very aptly of the habitat: "A strictly rupicolous species, not uncommon on the boulderstrewn hills in and about Zimbabwe... These large gerrhosaurids are somewhat clumsy of movement, and never venture far from their rocky retreats. When alarmed they disappear into the nearest crack or crevice, where they lie low until all danger is past. It is often incredible the narrow openings into which these large lizards can squeeze; here they wedge themselves so securely that nothing can dislodge them save lifting of the rock."

The Giant Plated Lizard enjoys no legal protection and can be traded freely. It is not included in the international Red List of

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Giant Plated Lizard are very peaceful, not only among themselves but also towards other lizards...

Threatened Species. Unlike many other lizards, the Giant Plated Lizard is often found in large colonies.

The dietary spectrum

Plated lizards are generally regarded as insectivores, but they also enjoy sweet fruit, fruit yogurt, etc. Native people are also firmly convinced that Giant Plated Lizards eat poultry, but in all probability they are confusing the species with the Nile Monitor (*Varanus niloticus*). The fact that Giant Plated Lizards like fruit so much is undoubtedly a function of their large size, as in the natural

habitat it would be difficult for such a large and relatively clumsy lizard to find enough insects to satisfy its appetite. Hence they have to utilize every energy-rich food source available.

In the terrarium very ripe bananas can constitute a major part of the diet, as these lizards thrive splendidly on this food. In addition they can be given large locusts, Zophobas beetles, and even ready-to-eat canned foods, in order to supply their protein requirement. But beware - lizards are very prone to obesity in captivity, as Nature is

Giant Plated Lizards become inquisitive and tame after a period of settling-in.



...in this case to *Platysaurus imperator*...



...and in this case towards *Broadleysaurus major*.

parsimonious in the wild and they have to eat whatever they can catch. Evolution has yet to devise a "feeding brake" for use in the terrarium paradise, as the human-lizard relationship hasn't been in existence long enough.

How big to Giant Plated Lizards grow ?

The largest specimen measured to date was 69 cm long, with 28.5 cm of that applying to the body and 40.5 cm to the tail. The majority

Lexicon

Giant Plated Lizards

Gerrhosaurus: means "lizard with a concealed-covered shield"
validus: meaning unknown, perhaps intended as a dedication to Carl Jakob Sundevall; the correct original spelling is vallidus with a double "L", but the incorrect spelling may continue to be used for reasons of stability (Article 33.2.3.1 of the International Code of Zoological Nomenclature).

maltzahni: honorific name.

Matobosaurus: means "Matobo lizard"; Matobo is a particular granite formation in South Africa.



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of specimens remain smaller, of course, and females are always somewhat smaller than males; even so you must reckon on a total length of 60 cm and 25 cm body length, plus these lizards live a lot longer in captivity than in the wild, of course, and are better cared for. Life expectancy in the terrarium is 10-15 years.

How large should the terrarium be ?

This question always arises, of course, where large animals are concerned. An old piece of terrarium-keeper wisdom states that the terrarium should be as small as possible and as large as necessary. This dates from the last century, but remains just as valid today. Why as small as possible ? Well, all lizards are inclined to hide all the time while they are settling in, and it is at precisely this early stage that close observation is required in order to spot any developing disease as soon as possible. A terrarium is too small chiefly when it isn't possible to create the necessary temperature conditions and microhabitats required to keep Poikilothermic ("cold-blooded") lizards healthy in the long term. The layman's view that an animal will invariably feel caged in a small (compared to the natural habitat) terrarium, is anthropomorphic nonsense. It is precisely animals like the Giant Plated Lizard that never move unnecessarily. But obviously the terrarium shouldn't be so small that the

occupants can't move around in the manner typical of their species.

The expert guidelines on the minimum requirements for the maintenance of reptiles prescribe a minimum size of 5 x 3 x 4 for a pair of Giant Plated Lizards. These figures are the factors by which body length (in centimeters) should be multiplied in order to obtain the terrarium dimensions. On this basis, a pair with a body length of 25 cm (60 cm total length) should be given a terrarium with the dimensions 125 x 75 x 100 cm for long-term maintenance. These guidelines may not have any legal force, but are always applied where there is any doubt during prosecutions relating to animal welfare. Hence it is wise to be aware of the rules and stick to them wherever possible, although a centimeter or so in either direction is neither here nor there. Even so a bottom area of around 150 x 80 cm (with a reduced height) is undoubtedly better, as Giant Plated Lizards hardly ever climb.

The terrarium climate

There are seasons in southern, although they are the precise opposite of those in central Europe. Hence newly-acquired Giant Plated Lizards are best kept under constant conditions for the first year, and only then given the "winter rest" that is a prerequisite for successful breeding. In reptiles that live

outside the Tropics it is the amount of light, rather than temperature, that stimulates the development of eggs and sperm. The normal conditions for the maintenance of Giant Plated Turtles are a daytime temperature of 25-28 °C, and locally up to 45 °C under a heat lamp.

The terrarium should be set up as a dry terrarium. Large lizards aren't very susceptible to dehydration, unlike their smaller cousins. They drink deeply and consume enough to cover their water requirements. Even so, the terrarium should always contain a large pan full of slightly(!) damp substrate and covered with a flat slab of rock, so that individuals that prefer moister conditions can sleep there and females use it for egg-laying. In winter the lighting period should be reduced to a maximum of eight hours and the heat lamp switched off. This temperature-light regime should be maintained for around 8-10 weeks, during which normal food and above all water should be offered.

Females lay around five eggs, which require 103 days at 29.4 °C and around 90% relative humidity to develop. On hatching the young are around 7.5 cm long (body length; total length is 19.5 cm) and double their length in the space of a year.

If you are now filled with the desire to keep and breed Giant Plated Lizards, your pet dealer can undoubtedly order them for you from a trustworthy wholesaler, for example Tropenparadies in Oberhausen, Fax +49 0208-665997

Half-grown Giant Plated Lizard in the terrarium.



Literatur:

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Frogs

The Black-Spectacled Toad

by Volker Ennenbach

Isn't it nice that even today there are species whose populations aren't in decline? As a rule these are species that live in association with human civilizations. One such species is the Black-Spectacled Toad.

The Black-Spectacled Toad is the most widespread toad species in Asia. It was formerly known as *Bufo melanostictus*, but molecular studies on the true toads have shown that 29 species formerly assigned to *Bufo* are better placed in a genus of their own, *Duttaphrynus*. But of the 29 *Duttaphrynus* species, only the Black-Spectacled Toad is seen in the trade.

A vast distribution

Black-Spectacled Toads are found throughout the Indian subcontinent and all



Black-Spectacled Toads are currently imported mainly from Vietnam.

Photos: Frank Schäfer

over South-East Asia. They are commonest on lowland plains but occur up to an altitude of 2,000 meters. Swarms of the pitch-black tadpoles of this toad species are even found in brackish water in the immediate vicinity of the coast.

Species found in association with humans, which, like the Black-Spectacled Toad, extend their range as humanity does likewise, are sometimes known as culture followers. It isn't known why some species flee from *Homo sapiens* and others seek out his company. But the latter profit considerably from their inborn behavior, of course. The Black-Spectacled Toad isn't adapted to any particular habitat: everywhere that its temperature requirements (15-30°C) are met, where there are suitably moist places to hide and where water is available to spawn in, there you will find Black-Spectacled Toads as well.

The maintenance of these toads in the terrarium is correspondingly easy and



This individual originates from Orissa in India.

uncomplicated. Their quarters shouldn't be too small though, as female Black-Spectacled Toads grow to a good 14 cm long. Males remain smaller.

Cool customers

The maintenance of these fundamentally outgoing toads is particular fun in glasshouses, where they will also readily breed. These toads will happily take food from forceps - all the usual food insects are suitable - and at the same time are perfect biological control agents in the greenhouse, without any risks or side-effects whatsoever!

If you are now filled with the desire to keep and breed Black-Spectacled Toads, your pet dealer can undoubtedly order them for you from a trustworthy wholesaler, for example Tropenparadies in Oberhausen, Fax +49 0208-665997



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Marine fishes

Tilefishes

- gorgeous but little known

by Levin Locke

Many people regard the fantastically colorful coral reefs as the most species-rich fish grounds on Earth. But that is a huge mistake. Compared to the multitude of freshwater fishes (around 16,000 species), the number of coralfish species (around 2,200) is rather small. Nevertheless there are so many that a single lifetime would be insufficient for the aquarist to keep them all. That is a great shame, as practically nothing is known about some species. These include the tilefishes of the genus *Hoplostiltilus*, which we will introduce to you in more detail below.

Z The tilefishes are a genus in the family Malacanthidae, which contains only two genera, *Malacanthus* and *Hoplostiltilus*, with a total of 16 species. *Malacanthus* is

unimportant for the aquarium hobby, as the three species known are too large (about 30 cm) and colorless to attract significant numbers of fans; by contrast some of the 13



Hoplostiltilus starcki - beautiful, but sensitive.

All photos: Frank Schäfer



Hoplostiltilus fourmanoiri

known *Hoplostiltilus* species are very attractively colored. None grows larger than around 15 cm, and the majority remain noticeably smaller.

Burrowers at the foot of the reef

Tilefishes are not found on the reef itself. They require holes to live in, and dig these in the sand or live in caves at the foot of the reef or in piles of rocks. For this reason they live at the bottom edge of the reef, at depths of 20 meters or more, usually considerably deeper. This means that full diving gear is required to collect them, and they must be painstakingly decompressed, i.e. brought to the water's surface over a period of several days, to avoid the sudden change in pressure killing them.

Tilefishes live in pairs or small colonies. They never stray far from their burrows or caves,

Lexicon

Tilefishes

Hoplostiltilus means "armed Latilus", referring to the spines on the gill-cover; Latilus is another genus of fishes.

chlupatyi: named in honor of the German marine aquarist Peter Chlupaty.

cuniculus: means "burrow", referring to the fact that tilefishes live in burrows.

furmanoiri: named in honor of Pierre Fourmanoir.

marcosi: honorific (original description unavailable)

purpureus: means "purple"

starcki: named in honor of Walter A. Starck II



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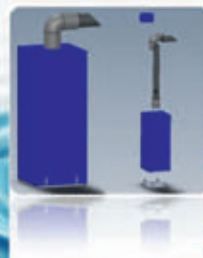




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Hoplolatilus chlupatyi can change color very rapidly.



Hoplolatilus cuniculus

into which they retire lightning-fast when any perceived or actual danger threatens. For this reason in the past they were very often collected using anesthesia, but unfortunately the chemical used, a cyanide compound, had horrendous side-effects that frequently caused the death of fish and collector alike. Hence the battle against the use of cyanide to stun fishes is one of the most important tasks of the modern marine aquarium hobby. Properly collected and carefully decompressed tilefishes are gorgeous aquarium fishes, easy to maintain and very interesting.

Peaceful planktivores

In the wild tilefishes feed exclusively on

relatively small planktonic organisms. Hence, depending on the species, they can be fed relatively easily using the large range of deep-frozen foods available today, e.g. Mysis, Artemia, mosquito larvae, chopped mussel flesh, fish roe, etc. The diet should always be as varied as possible, as this is the best way to avoid deficiency diseases. Cheap frozen food is a false economy and should never be used; the food should be top quality, and never thawed several times then frozen again, as valuable ingredients are lost every time this occurs. Many tilefishes will also learn to take dry foods, which are very healthy and easily digested, but must always be stored in a cool, dry, dark place and used within six weeks of opening, as otherwise vitamins and unsaturated fatty acids will be



A quarrel over a hiding-place – but no harm done!

lost.

Some species, in particular the gorgeous Blue-Faced (or Starck's) Tilefish (*Hoplolatilus starcki*), eat only the tiniest food particles in the wild and will initially pay no attention to coarser morsels of food. When these fishes are in "hunger mode", they are often even unable to digest frozen adult Artemia. In such cases they must be fed with home-hatched, live Artemia nauplii, if necessary enriched several times with unsaturated fatty acids. But this isn't always the case: the fishes in the photos - taken at Meeresaquaristik Reising in Alzenau-Wasserlos - were eating and digesting "normal-sized" frozen food without problem.

Suitable for the reef aquarium?

From what has been said above it should be

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clear that the answer is "Yes and No!" *Hoplostiltilus* will not be happy in a brightly-lit aquarium full of stony corals, where the feeding regime is sparing. They prefer rather less light and two to four feeds daily. Even so, insofar as - being planktonivores - they leave sessile invertebrates completely in peace, they are generally suitable for the reef aquarium. But when keeping tilefishes the main consideration should be an interest in the fish species in question, rather than the desire to complement a beautiful reef aquarium with a decorative fish.

Group maintenance

Tilefishes never live solitary in the wild, but are always found in twos (pairs?) or groups. And that is how they should be maintained in the aquarium. And the group doesn't need to be limited to members of their own species. *Hoplostiltilus* are very peaceful among themselves, at most threatening with an open mouth, so no problem there. A special tank with assorted tilefishes is a real sight for sore eyes and offers a host of opportunities for study. But you should always try to buy at least two, better three or four, individuals of each species kept. Of course that is easier said than done; there are no external sexual differences and so it is necessary to rely on statistical probability in order to obtain both sexes.

Literally nothing at all is known about spawning behavior or rearing the young. It is assumed that the eggs and sperm are simply released into the water column. The larvae live among the plankton and have peculiar spinous growths on the head region.

Caves, caves, and yet more caves

A fish like a tilefish needs suitable hiding-places in order to settle in properly. Even though PVC pipe doesn't look very nice it is ideal for the task in hand. In addition a whole range of ceramic caves are available in the pet trade, and although they are designed for freshwater fishes, tilefishes don't mind that at all and accept them readily. The tank should also contain a number of flat stones, laid on an adequate depth of substrate,



The gorgeous *Hoplostiltilus purpureus*.



Likewise very attractive: *Hoplostiltilus marcosi*.

beneath which the *Hoplostiltilus* can construct their own caves.

Escape artists

A completely escape-proof aquarium is an absolute prerequisite for the long-term successful maintenance of tilefishes. They can drive their owner mad by finding the tiniest gap and slipping through it. As it is highly improbable that a tilefish cherishes any ambition to escape, this behavior is probably attributable to an innate urge to investigate small crannies as potential hiding-places. This curiosity certainly makes sense in the wild, but in captivity always



H. marcosi from another population

ends in tragedy, as the only thing that tilefishes find on the other side of a gap between cover glass and aquarium is the Grim Reaper. Hence it is best to install a continuous glass ledge, around five centimeters wide, all round the top of the tank.



Endangered species

The Axolotl - finally extinct?

by Frank Schäfer

As long ago as the 1970s the Axolotl (*Ambystoma mexicanum*) was already regarded as an endangered species, albeit only in the wild, as countless millions of this remarkable, exclusively aquatic, salamander which retains larval characteristics all its life, can be found in laboratories and aquaria all over the world. The species is so important as a laboratory animal that from 1976 to 2003 it even had its own specialist journal, devoted entirely to this one species.

The Axolotl has never been threatened by collection for the pet trade. Hobbyists and scientists have always been independent of wild stocks, as the requisite numbers of this salamander can be bred without problem. Soon after the first importation to France in 1863 (consisting of 33 black specimens and one white), it was possible to breed sufficient specimens to satisfy the entire demand in Europe - and

species are used as well, for example those of *A. tigrinum*.

Downfallen with the Aztecs

The capital city of the Aztecs, Tenochtitlan, was situated on several islands in the middle of a great lake, Lake Texcoco. The islands on which Tenochtitlan stood were connected to the mainland via five artificial dams, which

military reasons. But the freshwater area of Lake Texcoco was also the home of the Axolotl, which occurred only in that region. Thus the downfall of the Axolotl began with the Spanish conquest of Mexico.

Nowadays only a tiny remnant of the once vast Lake Texcoco survives. And many of the endemic (found only there) species of animals and plants disappeared along with the lake. The remainder of the original Axolotl population survived in Lake Xochimilco, a satellite of Lake Texcoco.

A dramatic decline

At the beginning of 2014 an article appeared in the German weekly DIE WELT, in which it was stated that the Axolotl population in Lake Xochimilco had completely collapsed



Wildfarbener, vermutlich reinblütiger Axolotl vom Frankfurter Stamm.

Alle Photos: Frank Schäfer

that was immense, as there was a burning interest in the question of under what circumstances and why the permanently aquatic larvae could be induced to metamorphose into the corresponding land animal (a salamander).

Although Axolotls are eaten in Mexico, this type of human use at has never been a problem, as the larvae of other, common

could be opened when required. In this way Tenochtitlan was practically unconquerable and the Aztecs also defended it very successfully against the conquistadores. But after the victory of the latter the dams were demolished and the ingenious canal system of the Aztecs, which separated the salty, undrinkable water of Lake Texcoco from the sweet drinking water found in its rain-fed tributaries, was partially destroyed for

Literatur:

Herrmann, H.-J. (1994): Amphibien im Aquarium. Verlag Eugen Ulmer, Stuttgart, 168 pp.

Humphrey, R.R. (1967): Albino axolotls from an albino tiger salamander through hybridization. Journal of Heredity 58:95-101.

Der Artikel in der WELT ist online abrufbar:
<http://www.welt.de/124337369>

Lexicon

Axolotls

Axolotl: the name derives from the Aztec language and has many meanings: water servant, water slave, water monster, water dog, water player, water twin.

Ambystoma: means "broad mouth"
mexicanum: means "from Mexico"



due to ever-increasing severe environmental pollution. In 1998 the population density per square kilometer of lake surface was supposedly still 6,000 individuals, 1,000 in 2003, and only 100 in 2008. In 2013 an intensive search lasting four months drew a blank: not a single specimen was found! That doesn't necessarily mean that the Axolotl is actually extinct in the wild, but the situation is dire nonetheless.

There is also a threat of genetic collapse!

The Axolotl will undoubtedly survive as a species because of the many millions of individuals living in captivity, but it is highly doubtful whether these specimens still have much in common with the wild Axolotl, as captive Axolotls have also been mated with a closely related species, the Tiger Salamander (*Ambystoma tigrinum*). Hybrids between the true Axolotl (*A. mexicanum*) and the Tiger Salamander are also known as Humphrey Axolotls. In 1969 the geneticist Rufus R. Humphrey (1892-1977) reported that he had succeeded in crossing an albino (unpigmented) female Tiger Salamander, found by chance in the wild in Minnesota, with a leucistic (white but pigmented) Axolotl. You will recall that there was a white specimen in the first importation back in 1863, a mutant that, albeit rarely, also occurs in the wild.

But Humphrey had to put a lot of effort into making the cross: eggs from the albino Tiger



White Axolotls with black eyes (leucistic specimens) were known as long ago as the first importation in 1863.

Salamander were artificially fertilized with Axolotl sperm, cells from the few eggs that developed were transplanted into normal Axolotl eggs, and finally the resulting specimens were mated together. Backcrossing using this cross eventually led to albino Axolotls (i.e. pure white specimens with red eyes) in the F3 generation. And nowadays these albinos are among the most popular Axolotls in the pet trade.

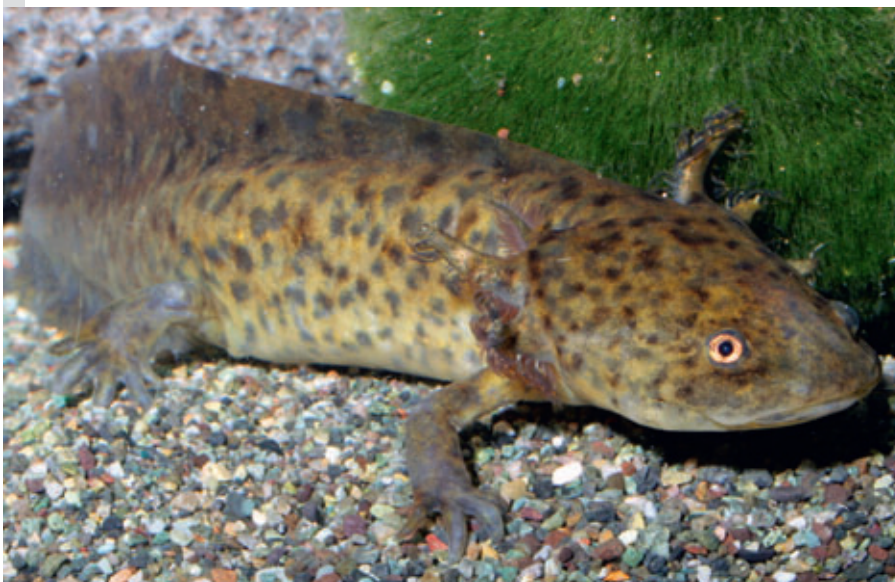
Since then breeders have continued to work with these animals, producing every imaginable additional color form. It must be feared that there are now as good as no pure-blooded Axolotls, with genes matching those of their wild cousins, left in captivity.

Is a rescue by enthusiasts possible ?

A strain maintained by a breeder in Frankfurt am Main for over 40 years without incrossing new blood was taken over by interested breeders six years ago.

This "Frankfurt strain" is possibly the last (known) population of the wild-type Axolotl in enthusiasts' hands. So there is hope that it may be possible to keep this pure-blooded strain going. But that hope isn't very great, as the Frankfurt strain is significantly less attractive in appearance than the various cultivated forms, so unfortunately no reliance can be placed on it being distributed widely in the trade.

This natural-colored Axolotl has Humphrey blood.



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Goldfische und Kids - perfekt!

Vor etwa 1.800 Jahren entdeckte man in China in einem Teich, in dem eine kleine Karpfenart, die Silberkarausche, zum Essen gehalten wurde, ein goldglänzendes Exemplar. Von diesem Tier stammen alle heute lebenden Goldfische und ihre Varianten, die Schleierschwänze, Teleskopen, Shubunkin und wie sie alle heißen mögen, ab. In China glauben die Menschen, dass es Glück bringt, kleine Tiere auszusetzen. Man verwendet dafür Fische oder Vögel. Die goldglänzenden Tiere wurden vermehrt und es als besonders glücksbringend angesehen, sie auszusetzen. So entstand der Goldfisch als Haustier.



Schleierschwänze, Kometen, Teleskopen, Ryukin - es gibt viele verschiedene Namen für Goldfisch-Formen. Sie gehören jedoch alle zur gleichen Tierart: Goldfisch.

Goldfische sind problemlos

Es gibt wenige Fischarten, die so leicht zu halten sind wie der Goldfisch. Die wildlebende Naturform, die Silberkarausche, hat sich nämlich auf ein Leben in Gewässern spezialisiert, in dem kein anderer Fisch mehr existieren kann. Im schlimmsten Fall kann sie sogar kurz ohne Sauerstoff auskommen! Sie verträgt sehr niedrige und sehr hohe Temperaturen. Sie ist nicht empfindlich gegen Gifte aller Art. Und sie kann fast alles fressen - weiche Pflanzen und kleine Tiere. Darum konnten auch die Menschen in Europa, wohin der Goldfisch im Jahre 1611 erstmals kam, am Goldfisch lernen, wie man ein Aquarium betreibt. Das Aquarium erfand man aber viel später, nämlich ca. 1850.

Goldfische werden alt

Wenn Du gerne erste Erfahrungen mit Fischen machen möchtest, dann ist der Goldfisch darum perfekt geeignet. Du brauchst allerdings ein großes Aquarium, denn Goldfische werden sehr alt, 15 bis 20 Jahre, manche sogar bis 50 Jahre! Und weil Fische ihr ganzes Leben lang wachsen und ein Goldfisch normalerweise 15-20 cm lang wird (der Weltrekord liegt bei 35 cm), solltest Du von vornherein ein ausreichend großes Aquarium einplanen, z.B. 120 x 50 x 50 cm. Darin kannst Du 5-7 Goldfische pflegen. Goldfische mögen Gesellschaft ihresgleichen, Du solltest sie nicht einzeln halten. Es ist egal, ob man nur Männchen, nur Weibchen oder beides hat. Die Geschlechter lassen sich bei jungen Fischen nicht unterscheiden.

Energiesparfische



Für ein Goldfischaquarium brauchst Du nur einen Filter, der das Wasser klar hält. Du brauchst keinen Heizer und auch sonst nichts. Wenn das Aquarium in der Nähe eines Fensters steht und ein bis zwei Stunden am Tag etwas Sonne bekommt (nicht mehr!), brauchst Du auch keine Beleuchtung. Pflanzen wachsen ohnehin nicht gut im Goldfischaquarium, da die Goldfische gerne daran herumknabbern. Nur Anubias und Javafarn mögen sie nicht und die zwei Pflanzenarten kommen auch mit wenig Licht aus. Goldfische lieben es, im Boden zu wühlen. Man nennt das Gründeln. Der Boden sollte deshalb aus feinem Sand bestehen. Als Versteck gibst Du ein paar Wurzeln in das Aquarium. Runde Kieselsteine kannst Du auch verwenden.



Infobox für Eltern

Liebe Eltern,

Goldfische sind die idealen Einsteigerfische für Ihr Kind. Man kann bei ihnen eigentlich nicht viel falsch machen. Aber lesen Sie bitte mit Ihrem Kind gründlich ein gutes Handbuch über die Pflege eines Aquariums, bevor sie sich irgendwelche Fische anschaffen. Der Zoofachhandel, der Buchhandel und auch öffentliche Leihbüchereien haben ein breit gefächertes Sortiment von Einsteigerbüchern. Es ist nicht möglich, erfolgreich Fische zu pflegen, wenn man sich nicht vorher gründlich über die Ansprüche dieser Tiere und die richtige Pflege eines Aquariums (Einrichtung, Wasserwechsel etc.) informiert hat.

Allgemeine Hinweise

Man kann bei der Pflege von Goldfischen nicht viel falsch machen. Kaufen Sie die Tiere am besten in den Monaten Mai bis November, dann gewöhnen sie sich am leichtesten im Aquarium ein. Denken Sie daran, dass Goldfische gewöhnlich in Teichen gezüchtet werden. Stammen die Goldfische aus einem tropischen Land, wie Thailand oder Malaysia, dann spielt die Jahreszeit keine Rolle. Stammen sie jedoch aus China oder Europa, so ist es dort im Winter sehr kalt und die Fische haben Probleme, sich nach der Überwinterung im Aquarium einzugewöhnen.

Im Urlaub

Fische haben als wechselwarme Tiere einen viel geringeren Energiebedarf als wir Menschen. Eine Hungerperiode von 2-3 Wochen macht ihnen überhaupt nichts aus und sie leiden auch nicht darunter. Es ist bei einer Abwesenheit von 2-3 Wochen immer besser, die Tiere hungern zu lassen. Denn ein Nachbar oder Freund meint es fast immer zu gut mit den Tieren. Es ist unter normalen Umständen noch nie ein Fisch im Aquarium verhungert, aber es sind schon Millionen von ihnen gestorben, weil zu viel gefüttert wurde und das Wasser schlecht wurde.

Bitte niemals aussetzen

Wenn Ihr Kind den Spaß an den Goldfischen verliert, schenken Sie sie einem Gartenteichbesitzer. Man kann auch Aquariengoldfische von Mai bis September an einen Gartenteich gewöhnen. Niemals dürfen Sie Goldfische einfach aussetzen, das ist das gleiche, wie wenn man einen Hund oder eine Katze aussetzt: eine Gemeinheit sondergleichen!

Gefahren

Die Pflege eines Aquariums ist grundsätzlich ungefährlich. Bringen Sie Ihrem Kind aber bei, dass elektrischer Strom in Verbindung mit Wasser große Vorsicht erfordern. Fische können ganz allgemein nur eine einzige Krankheit auf den Menschen übertragen, eine Hauttuberkulose, die sich als schlecht heilende Wunden darstellt. Die Infektion ist jedoch extrem selten und erfolgt viel häufiger durch Schwimmbadbesuche als über Aquarienfische.

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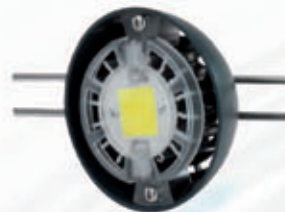
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Technische Daten

Inhalt ca.	l	64
Maße Becken BxTxH	cm	40x40x40
Glasstärke	mm	5
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Beach puppies from Haiti and Cuba



Male Red-Sided Curlytail Lizard. This species grows to around 25 cm long.

The curlytail lizards discussed here come from Cuba and Haiti, the western half of Hispaniola, the largest island in the Antilles, whose eastern half is the Dominican Republic. Here they live on sandy soils close to the shore. Because one species, the Jeweled Curlytail Lizard, can curl its tail like a puppy, they are known as "beach puppies" in Cuba. Curlytail lizards are easy to keep and very common in the pet trade.



Female Red-Sided Curlytail Lizards are less colorful, making them easy to identify.

A dry terrarium with lots of sand

In order to remain healthy, curlytail lizards have to be able to warm up regularly. A lot of people actually go to the Dominican Republic because the weather is so good there and it is so nice and warm. But in the wild curlytail lizards also dig tunnels for themselves in the sand. Deep down in the tunnel it is cool and slightly moist, so the lizards can cool down there. You must also provide similar conditions in the terrarium: a "sunny spot" beneath a heat lamp where the temperature reaches around 45 °C, and a deep (at least 15 cm) sandy substrate in which they can dig. If the sand is mixed with a bit of clay and garden soil then it will support tunnels better.



The Jeweled Curlytail Lizard grows to only around 15 cm long.

Little hunters



The Curlytail Lizard is not so colorful.

You will undoubtedly be familiar with the Green Iguana, which can grow to two meters long and is completely vegetarian. The curlytail lizards may be its distant relatives, but they don't eat any green stuff, preferring live insects instead. You should feed them every day with crickets, grasshoppers, or locusts, mealworms now and then, and with any small insects that you can catch outside. If you buy crickets, etc then you should sprinkle them with a calcium/vitamin powder before every feed, as the little curlytail lizards require a lot of these in the terrarium: The terrarium should be brightly lit for 12-14 hours per day for the lizards to thrive and be happy.

Other things you need to know.....

Curlytail lizards are very peaceful towards other species of lizards, but very quarrelsome among themselves. Hence you should always keep just one pair. Two males will kill each other! In addition the terrarium should always contain a dish of fresh water so that the curlytail lizards can drink whenever they like. Curlytail lizards breed by laying eggs. The female buries the eggs and then constructs a small mound over the nest. The clutch contains 4-6 soft-shelled eggs.





i Info box for parents

Dear Parents,

The maintenance of lizards is not for small children. Your child should be at least 12 years old so that he or she can look after them properly. It is essential to read a good handbook with your child before acquiring a terrarium. Reptiles cannot be kept correctly by guesswork alone, you must learn how to treat them correctly as anything else would be cruelty to animals.

Setting up the terrarium

In theory a relatively small terrarium will be adequate for a pair of curlytail lizards: a bottom area of 60 x 30 cm (Jeweled Curlytail Lizard, *Leiocephalus personatus*) or 80 x 50 cm (Red-Sided Curlytail Lizard, *L. schreibersii*); but to get maximum enjoyment from observing the highly varied behavior of these lizards the terrarium should be as large as possible. Because curlytail lizards are exclusively ground-oriented, the height of the terrarium is less important, apart from one special consideration. Curlytail lizards create underground passages and require a deep layer of sand on the bottom of the terrarium - never less than 15 cm deep.

These lizards inhabit dry regions, so it will be sufficient to spray the terrarium with hand-warm water every morning to simulate the morning dew. The sand in the bottom layer of the substrate should always be kept slightly moist. Curlytail lizards often disappear into their burrows during the day, and will seek out the area where the moisture level suits them best.

Decor and equipment

In the wild curlytail lizards inhabit dry woodlands, areas of dunes, and rocky steppes. Hence branches, bundles of dry grass, and/or large decorative rocks can be placed in the terrarium. The best heat source to use is one or more incandescent spotlamps, beneath which the lizards can warm themselves to around 35-40 °C. The air temperature in the terrarium should be about 25-28 °C during the day and drop to 18-20 °C at night. Bottom heating will dry out the substrate too much and hence is poorly suited to keeping curlytail lizards.

The equipment should also include a small UV lamp. Many lizards produce substances used for intraspecific communication, and these become visible to the lizards only under UV light. In addition the UV light will greatly increase the vitality of the curlytail lizards.

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