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NEWS

The Magazine for Aquarists and Terrarists



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Filialen mit Zoofachabteilung



Buntbarsche

Tanganyika Clowns

by Moritz Leber

Lake Tanganyika in the heart of Africa is a vast aquarium. The fish-enthusiast visitor will encounter the first cichlids in the surf and in the barely ankle-deep water of the shore zone, which – at least in the southern part of the lake, ie in Zambia – appears to be populated by sparkling jewels. These are the little cichlids known as Tanganyika Clowns.

There are four or five species of Tanganyika Clowns, divided into three genera. They all look extraordinarily similar and are without doubt very closely related to one another. The division into different genera depends on the very different form of the teeth. Such characters were formerly considered of great significance when evaluating phylogeny. Nowadays this is no longer the case. It is, in fact, just a matter of time before some scientist examines these charming little fishes and puts all the species together in one genus. But that hasn't yet come to pass.

First genus: *Eretmodus*

This genus was erected by BOULENGER back

in 1898. It is officially monotypic to the present day, with only the single species *E. cyanostictus*, likewise described in 1898 and assigned to this genus. But were the Tanganyika Clowns to be assigned to a single genus as mentioned in the introduction, they would be called *Eretmodus*.

The type specimens of *E. cyanostictus* originated from the south of the lake, where these fishes always exhibit the blue spots that gave them their name. The situation is somewhat different in the north of the lake. Here there are populations that have only a few spots or none at all, and whose mouths are in addition always noticeably more subterminal, ie situated further beneath the



Portrait of a typical *Eretmodus cyanostictus* from Kavala. Note the spatulate red teeth.

head, than in their southern cousins. For this reason Ad KONINGS, who has an excellent knowledge of the cichlids of the great Rift Lakes, believes that the northern *Eretmodus* are an as yet undescribed species that isn't identical with *E. cyanostictus* – a view with which TAWIL (2005) also concurs.

Second genus: *Spathodus*

Only a year after *Eretmodus*, BOULENGER also described *Spathodus*, whose type species, *S. erythron*, looks so similar to *Eretmodus cyanostictus* that they can be told

This pair of *Eretmodus* from Makombe (Burundi) in the north of the lake belong to the species that KONINGS (1999) terms "Cyanostictus North".



apart for certain only on the basis of their teeth. In *Spathodus* these are long and cylindrical, but broad and spatulate in *Eretmodus*. However, the *S. erythron* pictured by TAWIL (2005) has none of the vertical bars so typical of *Eretmodus*. By contrast the second species of the genus, *S. marlieri*, looks quite different. In some respects it deviates from the other Tanganyika Clowns, both in its brood care and in its relatively marked sexual dimorphism, which will be discussed in more detail later.

Third genus: *Tanganicodus*

This genus was erected in 1950 by POLL, and is monotypic with the single species *T. irsacae*. Once again it is tooth structure – in this case long and pointed – that separates the genus from *Eretmodus* and *Spathodus*. There is, however, one color character that makes it relatively easy to distinguish this species, to date known only from the north of the lake, from the other Tanganyika Clowns: in *Tanganicodus* there is always a striking spot in the middle of the dorsal fin. TAWIL (2005) regards the differences seen in

Male *Eretmodus cyanostictus* from Moba.



In some populations of the northern *Eretmodus* the female is noticeably darker in color than the male. This is a female from Kavalla (D. R. Congo).

the *Tanganicodus* from Kavalla (D. R. Congo) and M Toto (likewise D. R. Congo) as so great as to constitute additional, undescribed species of the genus. On that basis *Tanganicodus* would contain one described and two undescribed species.

The species from Kavalla is characterized by the absence of vertical bars; it has only turquoise-colored spots arranged horizontally. The species from M Toto can be recognized by the fact that the light vertical

All Photos: Frank Schäfer



Pair from Kavalla, male left.



Female *E. cyanostictus* from Moba.



bars on the posterior third of the body are broader than the dark bars. In typical *T. irsacae* precisely the reverse is true, ie the dark bars are broader than the light.

Dwarf cichlids

All the species of Tanganyika Clowns remain below the 10-cm mark, and only male *Spathodus marlieri* approach it. Essentially, the males of all species are somewhat larger than the females. In many color forms that is the only way to tell the sexes apart. *Eretmodus* grow to around 8, females only 6 cm long; the same applies to *Spathodus erythron*, *S. marlieri* attains 10 / 8 cm long, and *Tanganicodus* is the smallest of all the Tanganyika Clowns with a maximum of 6.5 / 5.5 cm.

Shore-hoppers

As has already been mentioned at the beginning, Tanganyika Clowns are marked shallow-water-dwellers. But Lake Tanganyika nothing like an artificial lake in European latitudes. By contrast it is a vast freshwater inland sea with waves to match. Even in calm weather there is always a slight swell, but during storms meter-high waves may develop.

Tanganyika Clowns find their food – Aufwuchs – among the rocks of the shore region. This biocover includes algae and all the small and microscopic organisms living in it. At the same time each species of Tanganyika Clown is somewhat differently specialized to its close relatives by virtue of its special tooth form. Thus up to three species of Clowns may occur together without being in direct competition with one another.

In all Clowns the swimbladder is reduced, as too much buoyancy would do more harm than good in their biotope. The resulting hopping mode of swimming, comical to human eyes, together with their broad lips, often colored a striking blue, has led to their popular name. But this shouldn't disguise the fact that all Clowns are exceptionally territorial fishes that can be very aggressive, especially towards conspecifics. In particular, males of



Male *Spathodus marlieri* with the nuchal hump typical of males of this species.

Photo: Hans J. Mayland / Aqualog

Spathodus marlieri can develop into real tyrants in the aquarium. Hence, despite their small size, the aquarium for Tanganyika Clowns should not be too small and provide copious hiding-places.

Biparental mouthbrooders

In addition to their attractive appearance, it is above all their very special form of brood care that makes Tanganyika Clowns so appealing to aquarists. Specifically, they are biparental mouthbrooders with a permanent pair bond. The word biparental signifies that both parents take part in the brood care. This is extremely unusual in mouthbrooding cichlids from the African

Rift Lakes. Normally they are non-pairing maternal mouthbrooders. This means that after spawning males have no pair bond with females, who look after the eggs and sometimes the brood alone.

The spawning behavior of Tanganyika Clowns will be illustrated here using *Eretmodus* as an example. It begins with the female using her mouth to clean the spawning substrate – as a rule a horizontal piece of rock, in the absence of which the bottom glass is often cleared of substrate. The male swims to the pre-cleaned site, apparently deposits sperm there, and then leaves again.

Eretmodus sp. "Cyanostictus North" often lacks the blue spotting of the southern species.





Large photo male, small photo female *Tanganicodus irsacae* from Ikola (Tanzania).



With quivering movements the female then deposits one or more eggs in the same spot, turns around, and takes the eggs into her mouth. The male now swims back to the spawning site and releases sperm, which the female takes into her mouth with the eggs, where fertilization takes place. Only relatively few - around 30 - eggs are laid, but they are comparatively large. The individual spawning stages always follow the sequence described, ie cleaning by the female, sperm release by the male, collection of eggs, sperm release by the male.

The female now performs the mouthbrooding for around 10-12 days, but constantly remains in the vicinity of the male. After this period she transfers the spawn to the male, who completes the mouthbrooding for a further 7-10 days. There is no ongoing brood care of the fry after release. All Tanganyika Clowns exhibit this behavior, with the exception of *Spathodus marlieri*, which practices exclusively maternal mouthbrooding (ie by the mother).

Sexual dimorphism

A major problem preventing the successful breeding of Tanganyika Clowns in the aquarium is that the sexes can be distinguished only with considerable difficulty, but on the other hand the high degree of intraspecific aggression doesn't allow maintenance in a group. Essentially, females always remain smaller, so if possible you should select the largest and the smallest individual from a group. Plus pairs will often already be swimming together in the dealer's tank and you can work out who goes with whom by watching.

But color differences can be seen in some populations; thus the females of many *Eretmodus* populations are darker colored than the males. In some populations of *E. sp.* "Cyanostictus North" the females have less blue on the head. In the population of *Tanganicodus irsacae* from Ikola the females have a broader colored margin to the caudal fin. And in *Spathodus marlieri* males develop a nuchal hump.

Male *T. irsacae*. Note the dorsal-fin spot typical of the genus.

Photo: Hans. J. Mayland / Aqualog



Lexicon

Tanganyika Clowns

Eretmodus: means "with oar-like teeth"

Spathodus: means "with sword-like teeth" *Tanganicodus*: refers to the fact that the genus comes from Lake Tanganyika and is distinguished from the previous two genera by its teeth (ancient Greek *odous* means "tooth"). *cyanostictus*: means "with blue spots"

erythrodon: means "with red teeth" *marlieri*: in honor of G. Marlier, the former head of the IRSAC research station in Uvira.

irsacae: from the IRSAC research station in Uvira.

Astonishingly juvenile *Eretmodus* are sometimes sexually dichromatic, with males dark and females light in color.

All in all, Tanganyika Clowns are gorgeous, easy-to-keep fishes, whose successful breeding in the aquarium nevertheless still represents a challenge.

References:

KONINGS, A. (1999): Tanganyika Cichlids in their Natural Habitat. Cichlid Press, El Paso, USA.

TAWIL, P. (2005): Les cichlidés gobies ou éretmodines. Nouvelles espèces en provenance de la côte ouest du lac Tanganyika. L'an Cichlidé, Vol. 5.

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Pflanzen

Ludisia discolor - – a terrestrial orchid for the terrarium

by Sarah Nieten

With more than 1,000 genera and – depending on the estimate – 15,000 to 30,000 naturally occurring species, the orchids, together with the daisy family (Asteraceae, formerly Compositae), are the most species-rich plant family among the flowering plants. Orchids occur worldwide. The name “orchid” derives from *Orchis*, the name of a genus of these plants found in central Europe.

O*rchis* is ancient Greek and means none other than “testicle”, as the *Orchis* species are terrestrial orchids, which, like potatoes, have underground storage organs. In the case of *Orchis* these are two testicle-like tubers.

Terrestrial orchids

The majority of cultivated orchid species are epiphytes, that is they grow on other plants. Epiphytes grow on trees or rocks. Hence the roots of these orchids are not designed to be permanently moist. If such an epiphytic

orchid is planted in totally normal soil, then the roots will rot and the plant die.

There are, however, also numerous orchids that grow in the ground, including, for example, all native European species. These are termed terrestrial orchids and *Ludisia discolor*, the Jewel Orchid, is one of them.

An Asian species

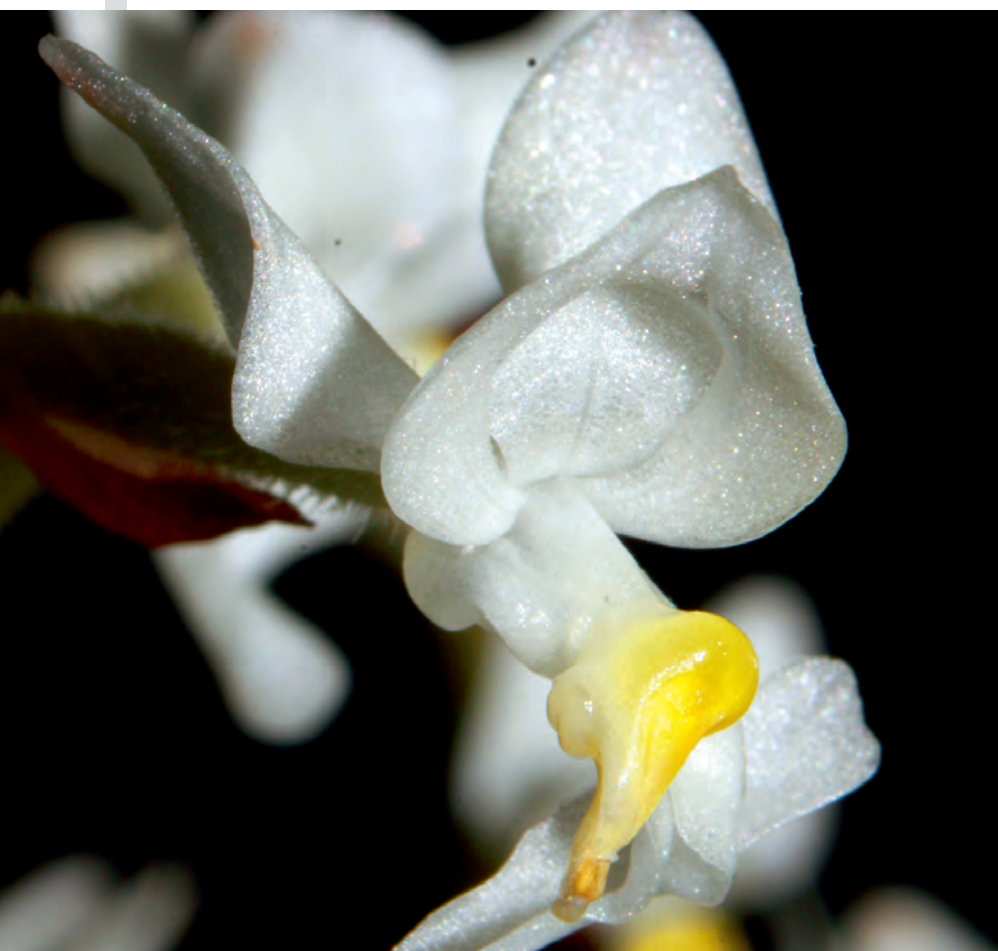
The homeland of the Jewel Orchid lies in South-East Asia, where it grows in evergreen forests at altitudes of up to 1,300 meters. The



Ludisia discolor, habitus of a flowering plant.

Individual flower of a Jewel Orchid.

All photos, unless otherwise stated: Frank Schäfer



plant owes its popular name to the fact that in the diffuse light of the forest its leaves are said to sparkle as if set with jewels. The northern extreme of its distribution is southern China, and the major part of the habitat of the species can be characterized as tropical. Accordingly the temperature for cultivation should be around 16-26 °C with an atmospheric humidity of more than 70%. The substrate, which in this species can consist of normal, good quality horticultural compost, should always be slightly moist but never permanently wet. RIDLEY also found it growing on rocks in the middle of rivers on the island of Tioman.

The flowering period of the Jewel Orchid usually falls in our winter months. It seems to be not so much the amount of light as cooler conditions that stimulate the formation of flowers. However *Ludisia discolor* is cultivated not so much for its flowers, which are dainty but not very striking compared to other orchids, but more for its attractive foliage. The plant that formed the basis of the original scientific description had leaves that were uniform dark green on the upper surface and red underneath, as can be seen in the lovely original drawing from 1818. KER-GRAWLER originally described the species under the name *Goodyera discolor*. The species is



This cultivar is termed 'Nigrescens'.

Photo: Ian Walters



The cultivar 'Alba' lacks the bright red on the underside of the leaves. Photo: Ian Walters



The cultivar 'Odina' has a strongly branched central vein. Photo: Ian Walters



The form 'Dawsoniana' is one of the most commonly available cultivars of the Jewel Orchid.

apparently fairly common in the wild, and variable such that more than 30 synonyms exist today.

The form most frequently seen in cultivation is 'Dawsoniana', a cultivar (ie a form that arose under cultivation by humans) in which the leaves exhibit five silver-colored veins.

Names of cultivated forms

Just as in zoology, the precise naming of cultivated forms sometimes presents considerable difficulties. There are no

binding rules, only recommendations as to how such plants should be correctly named. Unfortunately the majority of gardeners don't even adhere to those. Thus a cultivar should, if possible be given a name that doesn't sound like Latin, so that it isn't confused with a scientific name. Now, in *Ludisia discolor* that remains a pipe dream, as all the cultivars of the species sound like they have scientific names. In addition one should make a habit of always writing cultivar names with single quotation marks, in normal script (not italics as in scientific names), and starting with a capital letter, to make clear what they are.



Drawing from the original description of *Ludisia discolor*.

In *Ludisia discolor* in particular, such cultivars tend to occur spontaneously and are then propagated and selected further by the

The flowers of all the variants and cultivars of the Jewel Orchid are similar.





When several plants flower they create a splendid display.

gardener. An interesting chance instance of this can be found on the website of Burleigh Park Orchids at www.speciesorchids.com, which is also the source of the illustrations by Ian WALTERS.

Jewel Orchids in the terrarium

With its colorful leaves and upright habit of growth - the whorls of leaves grow to around 15 cm high, the flowering stem around 45 cm - *Ludisia discolor* is a very decorative plant for the terrarium. It can be used everywhere that simulation of a damp

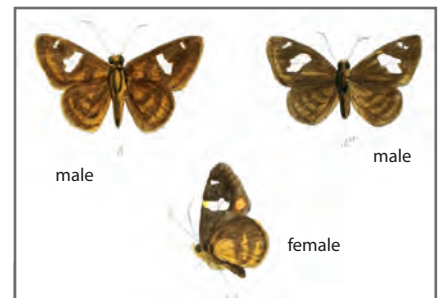
forest environment is required. The Jewel Orchid doesn't need very much light and hence is also well suited to the terrarium for salamanders, which also prefer it not too bright. Pot-plant compost or leaf mold from mixed or beech (*Fagus sylvatica*) woodland makes a good bottom substrate.

Under terrarium conditions propagation takes place via offshoots, which can be detached if required. Like the majority of orchids, *Ludisia discolor* is pollinated by only a few special insect species in the wild, and

Ludisia discolor can be fairly readily propagated by offshoots.



in the case of *L. discolor* the species in question is a butterfly, *Celaenorrhinus* (formerly *Plesioneura*) *asmara*. As long ago as 1896, H. N. RIDLEY reported (The Orchideae and Apostasiaceae of the Malay Peninsula. The Journal of the Linnaean Society - Botany, Vol. 32) that this long-legged butterfly pollinated the Jewel Orchid. It can, of course, be pollinated artificially in cultivation, but hobbyists practically never manage to raise it from seed, as germination takes place only in symbiosis with certain fungi.



The butterfly *Celaenorrhinus asmara*.
From SWINHOE, C. (1912-13): Lepidoptera Indica. Volume 10, pl. 763.

Lexicon

Jewel Orchid

Ludisia: means "dancer" or "actor"
discolor: means "variegated"
Goodyera: in honor of John Goodyer (1592-1664), an English botanist.

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Kaltwasser

The Tench - facts and fables

by Paul Menzler

Here in Europe a fish species that is completely and totally unique lives right on the doorstep: the Tench, *Tinca tinca*. Normally this around 40 cm long fish is best known from the delicatessen. Most anglers will probably already have made the acquaintance of this fish. But only a few people know that the Tench is a splendid and very interesting fish for the aquarium and garden pond.

Our native European fishes include only a few species as easily satisfied as the Tench.

It can both hibernate in winter and aestivate in summer, and hence is able to inhabit small bodies of water. Often it is the only fish species in such pools, as it also tolerates very low oxygen concentrations.

The Tench is native to all of Europe with the exception of a very small number of regions (Greece, Dalmatia, the Mediterranean islands, and Scotland), as well as

large parts of western Asia (it is absent only from the Crimea). There is only the one species of tench (*Tinca tinca*), and at present no subspecies are accepted. In fact the Tench is so unique in its characteristics that it is currently regarded as the only member of its own subfamily, the Tincinae, within the carp family (Cyprinidae).

Basic requirements of the Tench

The Tench is ecologically very adaptable and even tolerates brackish water, for which reason it is even found in the stärker



Tricolor Tench, photo from 2004.



ausgesüßten parts of the Baltic, as well as in river estuaries. The most important elements for the Tench are a soft substrate, the presence of submerge plants, and the existence of small snails and bivalves, which are its preferred foods. The relatively short gut of the fish indicates that it can process plant material only inadequately, so while this type of food may form part of the natural dietary spectrum, a vegetarian lifestyle is impossible for the Tench. Aquatic insects and their larvae, small

Green Tench, *Tinca tinca*

All Photos: Frank Schäfer





crustaceans, etc form the main food of the Tench.

The optimum temperature for the Tench lies between 12 and 26 °C. At temperatures above 28°C feeding stops, they don't like it that hot and at still higher temperatures go into a form of aestivation to survive. Food intake also ceases in winter and the cold part of the year is spent in hibernation. From this it can readily be seen that the Tench prefers to live in still and slow-flowing waters. Hence the garden pond and the aquarium suit it very well as alternative habitats.

The Tench in European culture

The flesh of the Tench has been valued very differently at different times. The Romans rather despised it and AUSONIUS wrote that the Tench was fit only as food for the common people. The popular names given to the fish in some parts of its range also demonstrate its low value: in some parts of eastern and northern Europe it is known as the shoemaker. The fish is known simply as the Schleie



throughout the entire German-speaking area (with slight local differences in pronunciation such as Schleih or Schleich), which derives from the proto-German word for slippery (slipan) and refers to the thick layer of mucus on the skin with the tiny scales so typical of the Tench. In France (*Tanche*), in England (*Tench*), in Italy (*Tenca*), and Spain (*Tinca*), by contrast, variations on the Latin name *Tinca* have been adopted.

The extraordinarily thick layer of mucus on this fish has also given rise to all sorts of superstitions in folklore. The most widespread is the idea that the Tench is the "fish doctor", against whose healing layer of mucus all injured fishes rub themselves. Accordingly the predatory Pike and Perch do not eat the Tench, as they are grateful for the service it offers as healer. But this is, of course, just as much nonsense as the myth that binding a Tench to the belly



Female Golden Tench.

drives away jaundice, alive to the forehead headaches, to the back of the neck eye inflammation, and to the soles of the feet plague and fever.

Reproduction

The Tench becomes sexually mature in its third year of life, when it is normally around 20-30 cm long. If there are very large numbers of Tench in the water and no predators, then stunting occurs. The fishes then don't exceed a total length of 10-15 cm and also become sexually mature at this small size. Essentially, sexual maturity in fishes is not a matter of size but of age, and Tench are no exception.

Golden Tench male. The black spots are quite typical for the Golden Tench, and they were mentioned as long ago as the original description in 1782.





Male of another Golden Tench strain.

Tench usually grow to around 40 cm long, but there are rare record measurements of 70 cm (and a weight of 7.5 kg). Males and female are easy to tell apart in the Tench. The males have appreciably larger ventral fins than the females.

In summer, when the wheat is in flower (May - July), the Tench spawns on submerse vegetation. The eggs are very small and numerous (300,000 – 600,000 per female). Usually several males drive a single female. Tench do not practice any brood care.

The mysterious Golden Tench

In 1782 BLOCH described the Golden Tench in the scientific literature for the first time. He regarded it as a separate taxon, distinct from the Common Tench, and named it *Cyprinus tinca auratus*. BLOCH supposed the home of this fish to lie in Silesia and Bohemia (nowadays areas of land belonging to Poland and the Czech

Republic). To the present day the origins of this gorgeous fish remain unknown. It is currently regarded as merely a domesticated form of the Tench that originated in captivity and which hence has no scientific name of its own. It is not known either when it came into being or when people began to breed it deliberately.

In 2004 tricolor Tench and pure white individuals also turned up in the trade for the first time. We reported on this in AQUALOG News 58, which, like all issues of the

News, is available to download free of charge from the Internet; the URL for issue 58

is http://www.specifish.com/Aqualog/news/news_pdfen/news58d.pdf

Biological snail control

Tench are very good for combating snails, both in the coldwater aquarium and in the garden pond, when the mollusk population needs to be kept under control.

Tench in the aquarium

Tench are wonderful aquarium fishes that can be kept successfully even by beginners. Because these fishes can also attain 15-20 cm in the aquarium, the tank should be of an appropriate size. Tench are totally undemanding as far as water chemistry is concerned. They should,

Lexicon

Tench

Tinca: this was already the usual designation of this fish in ancient Rome.

auratus: means "golden".

Cyprinus: the Latin name for carp.

however, be provided with a soft sandy substrate in which to dig, and plenty of hiding-places.

Tench are crepuscular fishes, and so the tank shouldn't be too brightly lit. They can be fed with all the usual live, frozen, and dried foods, and mussel flesh should be included in the diet. Obviously there is no need to heat the aquarium. Tench are completely peaceful towards other fishes, be they conspecific or members of other species.

There have so far been no reports of breeding Tench in the aquarium, but probably nobody has made any serious attempt. Because Tench can be sexually mature at only 10-15 cm long, aquarium breeding should be quite possible. Cold (4-8°C), dark over-wintering is, however, a prerequisite for any breeding attempt, as with all fishes from temperate latitudes.

Two males of the Tricolor Tench.



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Schildkröten

The Chinese Striped-Neck Turtle

by Christoph Fritz, www.reptilia24.com

The outlook isn't good for the wild turtle populations of East and South-East Asia. In China these animals are regarded as a delicacy and hence there are anachronistic depredations on their populations. As a result of this only a few species are available for the terrarium hobby, although the pet trade has no appreciable effect on wild populations

One of the few exceptions is the Chinese Striped-Neck Turtle, *Ocadia sinensis*. It is bred in large numbers on farms and some of the hatchlings end up in the pet trade.

Pros and cons of captive-bred specimens

Whether you prefer to keep wild-caught or captive-bred specimens is fundamentally a philosophical decision. The frequently cited argument that captive-bred specimens are easier to keep, because they are already

accustomed to conditions in captivity, is nonsense. A turtle is a wild animal and has no insights into its circumstances. The transfer of a turtle from one terrarium to the next is, from the subjective viewpoint of the turtle, no different to the transfer from the wild to a terrarium. It is true that the parents of captive-bred specimens apparently do very well under the conditions provided by the breeder and proceed to breed. Hence the requirements for the arrangement of the terrarium and the climate for this special

strain are known, which makes maintenance considerably easier if these data are passed on precisely. On the other hand, wild specimens, once settled in, are usually more robust and less susceptible to disease, especially when they are somewhat older, as we mustn't forget that in the wild 70-90% of youngsters die before reaching sexual maturity (disease, starvation, negative environmental influences, predators). Those that survive this selection are already very robust.

Fundamentally, wild-caught specimens are more suitable for experienced terrarium keepers than for beginners, as the unavoidable negative stress resulting from capture, transportation, change of diet, etc



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Adult Chinese Striped-Neck Turtle, *Ocadia sinensis*

All Photos: Frank Schäfer





The young of the Chinese Striped-Neck Turtle are attractively colored.

will weaken the animal and hence disease may strike. Nowadays there is plenty of experience-based information available on how to tell how fit a turtle is by looking at it. But in the case of the Chinese Striped-Neck Turtle the question doesn't arise at all, as only captive-bred specimens are available in the trade. The trade in Chinese Striped-Neck Turtles is subject to no legal regulations of any kind.

Youngsters require special care

This applies to turtles just as to any other animal. Accordingly maintenance must be optimal to ensure that the animals thrive. Those available in the trade are usually hatchlings with a carapace length of around 3-4 cm. They are best housed in a 50-60 cm long aquarium. The water depth should be around 10 cm, as otherwise the little creatures could easily drown. During the settling-in period at least, provision should be made in all four corners of the terrarium for the little turtles to climb out of the water. As a turtle that wants to leave the water will always swim to a corner of the aquarium.

Chinese Striped-Neck Turtles are swamp turtles. This means that they are excellent swimmers and divers that search for their food in the water and flee there to escape their enemies, but which always require a dry place on land where they can warm up and dry out; in addition adult females lay their eggs on land.

Probably the commonest mistake in the maintenance of swamp and aquatic turtles is to ignore or only inadequately apply the rules of the aquarium hobby. The water area of the turtle terrarium is an aquarium and an aquarium requires biological filtration, as otherwise toxic substances, especially nitrite, will accumulate in the water. Hence it is important that the newly-purchased turtles should be placed in a rearing aquarium with a mature filter. The ideal for rearing baby turtles is a Hamburg filter mat covering the rear wall of the tank. The slow-running filter is very effective, provides the little ones with a good way of climbing out, and there is no danger of the little turtles being sucked in and perhaps drowning because they are

unable to escape again from the suction of the filter.

A number of small, agile fishes (Guppies, Cardinal Tetras, Zebra Danios) should always be placed in the aquarium. If the fishes are doing well then the water is also as it should be for the turtles. The same applies as for any aquarium: a maturation period of 3-6 weeks is required before any livestock is added!

Ocadia babies are particularly susceptible to fungus, which can very rapidly assume serious proportions. Once this disease has broken out the turtles will be almost impossible to save. Prevention is the method of choice here! A well-matured filter is half the battle, and *Catappa* leaves, alder cones, and dead oak, beech, birch, and alder leaves will ensure biologically functional water in which the turtles are unlikely to fall ill.

Temperature and light

This is where the majority of mistakes in maintenance are made. The water temperature should be between 16 and 26 °C



(optimum: 20-24 °C). But far more important than the prevailing water temperature is the need for the air temperature to always be 2-3 °C higher than the water temperature. Otherwise respiratory diseases may occur. So the water area should never be heated when the terrarium is situated in the house! The higher air temperature will come about automatically, as the turtles require an area to sun themselves. This can be provided by having an "island" of cork floating on the water and secured beneath a heat lamp using a cord. The heat lamp should be positioned so that the temperature in the warmest spot, immediately beneath it, measures 35 °C. Bear in mind that because of their body height the turtles will be somewhat closer to the heat source! Hence as they grow the distance from island to lamp should be gradually increased.

Ocadia sinensis are diurnally active turtles, and hence the tank should be illuminated to simulate daylight for the occupants. As a rule of thumb it is advisable to use 0.5 watts of fluorescent lighting per liter of nett volume of the tank (not just the water part!), and the

Lexicon

Chinese Striped-Neck Turtle

Ocadia: not explained in the original description.

sinensis: means "from China".

lighting should be on for around 12 hours per day. UV light will do no harm, but isn't absolutely necessary for the rearing of healthy Chinese Striped-Neck Turtles. But essentially I would recommend it.

Food

Ocadia sinensis is an omnivore. A common mistake when feeding is to offer mainly carnivore foods. They should be fed 3-4 times per week with lettuce, dandelion, and aquatic plants, once per week with bloodworm (available in the pet trade in deep-frozen form for ornamental fishes), once per week with whole Stint (available deep frozen in the pet trade as feeder fish), and 2-3 times per week with proprietary food sticks for young aquatic turtles.

Maintained in this way, the turtles will attain their maximum size of 20-30 cm (depending on the population) in 4-6 years, with males essentially remaining smaller (15-25 cm). Adult specimens should be fed plant material, plus Stint, river shrimp (*Gammarus*), and sticks.

Behavior

Ocadia are essentially fairly peaceful and

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The Chinese Striped-Neck Turtle got its popular name from the stripe on its head.



females at least can readily be maintained in a group. Some sexually mature males can, however, be very troublesome because of their permanent readiness to mate and must then be kept singly or always only temporarily with the females. A tank measuring around 150 x 50 x 50 cm will suffice for a group of three adult specimens. Individual males can readily be housed in tanks of around 100 x 40 x 40 cm.

From May to September Chinese Striped-Neck Turtles can be readily maintained in (escape-proof!) tanks outdoors. Depending on the population, they can also be overwintered at low temperatures, but essentially this is advisable only with individuals at least two years old.

If you are now filled with the desire to keep these lovely turtles then your pet dealer can undoubtedly order them for you from a wholesaler of his acquaintance, for example reptilia24, Fax +49 6430 - 9250100.



Die Kunst der Terrariengestaltung

Der Wettbewerb »Die Kunst der Terrariengestaltung« im Rahmen der Terra-Live feiert auf der Hund & Heimtier Dortmund vom 11.-13. Mai 2012 Premiere. Der Kreativität sind keine Grenzen gesetzt.

Reptilienfreunde beweisen ein feines Händchen im Einrichten von Terrarien und treten am gesamten Wochenende gegeneinander an. Bewertet werden Terrarien nach Originalität, Komposition und Harmonie der Dekoration, Raumaufteilung, gestalterischer Eindruck und der Funktionalität des Layouts. Für Besucher wird täglich ein Workshop angeboten.



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Unter vielen Neuheiten für die Terraristik wird Dohse Aquaristik auf der Interzoo 2012 selbstklebende Korkzuschnitte für die TÜV-geprüften HOBBY Compactlamp-Holder, Lampenhalter für Energiesparlampen, und Reflektorlamp-Holder, zwei Größen Lampenhalter für Reflektorstrahler vorstellen.

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Urzeitfische

The Guinean Bichir - a myth dispelled

by Frank Schäfer

Some species of animal are mythical, legendary. Sometimes it is completely unknown whether they actually exist or are merely the products of fantasy, as in the case of the Yeti or the Loch Ness Monster. The study of such phenomena is the province of cryptozoologists. Sometimes they discover new species of animals whose existence was completely unsuspected, for example the Dwarf Hippopotamus, the Okapi, and the Congo Peacock.

In the case of the Guinean Bichir, *Polypterus ansorgii*, matters are somewhat different. It exists in the form of three preserved specimens that BOULENGER used as the basis of the description of the species in 1910. All three specimens were caught together in the River Corbal at Tchitoli in Portuguese Guinea (now Guinea Bissau).

When, in 2004, I published my book on bichirs, those were the only three specimens available to me. They are now stored in the

museums in Vienna (two individuals) and London (one specimen). Back then I had a slight suspicion that the three fishes might be hybrids, that is, crosses between other species, or a rare color mutation, as no additional specimens had ever been found since.

But then, during the preparation of the first description of *Polypterus mokelembembe* at the Africa Museum in Tervuren (Belgium), I discovered two additional specimens collected by C. B. POWELL in Nigeria in 1991

This huge *Polypterus ansorgii* was 86 cm long!

Buchtipp !

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(one in the Orashi River at Odieke, one in Lake Isemu) and which Guy TEUGELS had quite correctly identified as *P. ansorgii*. So they did exist! The two Nigerian specimens were – just like the type series – relatively small, around 20 cm long.

Vain attempts at importation

Thereafter I renewed my efforts to obtain

Photo: Fouad Chaloub



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Ziehung der Gewinner

Das Preisrätsel in der Jubiläumsausgabe 100 der NEWS war ein voller Erfolg. Hunderte von Teilnehmern sendeten – mitunter sehr kreative – Postkarten und E-Mails. Zu gewinnen gab es attraktive Preise der Firma amtra Croci GmbH, unter anderem 3 Zen Artist Nano-Aquarien. Wir danken nochmals allen Einsendern für die Teilnahme und bitte nicht traurig sein, falls Sie diesmal nicht zu den Gewinnern gehören, bereits in den nächsten Ausgaben der NEWS werden wir weitere Gewinnspiele anbieten.



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Lexicon

Bichirs

Polypterus: means “with many fins”.
ansorgii: in honor of William John
 Ansorge (1850-1913).
bichir: from the Arab name for the
 fish in Egypt.

live specimens of this species in order to study them more closely. Unfortunately for a long time my efforts weren't crowned with success. Usually the fishes traded as *P. ansorgii* were *P. bichir*, a close relative of this species. But then I obtained four *Polypterus* from Aquarium Glaser's supplier in Guinea, Fouad Chaloub, two of which were without doubt *P. ansorgii*. The fishes were around 25 cm long. That was in winter 2010. The fishes continue to enjoy the best of health and by now have grown on to around 40 cm in length.

***Polypterus ansorgii* grow big!**

The similarity between the Guinea Bichir and *P. bichir* is enormous. Essentially these fishes can be distinguished only by their color pattern. While *P. bichir* exhibits a longitudinal stripe pattern, *P. ansorgii* has a

pattern of rectangular spots (checkerboard pattern) on its flanks.

It was to be expected from this obviously close relationship that *P. ansorgii* wouldn't be a dwarf species but similar in size to *P. bichir*, which grows to more than 60 cm long. A further indication that *P. ansorgii* grows large is that despite their 40 cm of length my fishes aren't yet definitely sexable (in all *Polypterus* species sexually mature males can be recognized by the greatly enlarged anal fin).

And now Fouad created a real sensation. He sent us a photo of an 86-cm-long *P. ansorgii* that he and his team had caught in the River Koliba, a tributary of the River Corbal near a town called Gaoual – that is, topotypical with the type specimens of the Guinea Bichir. Unfortunately the fish lost its life as a result of an accident. Nevertheless it provided unequivocal proof that *Polypterus ansorgii* is one of the largest of all the bichirs.

The Guinea Bichir in the aquarium

The maintenance of *Polypterus ansorgii* in the aquarium is easy. They are very quiet, rather shy, and very peaceful predators. Like

all bichirs they tend to be crepuscular fishes, which, however, will also come out to feed in the daytime once they have settled in. They are best fed with whole, deep-frozen fishes around 6-8 cm in length (Stint).

Guinea Bichirs are indifferent towards conspecifics and fishes of other species. Only at feeding time do they jostle one another now and then, but this seems to happen more by accident – these are scent-oriented fishes in which sight plays only a subordinate role. I keep my fishes together with African Pike Characins (*Hepsetus odoe*), a West African lungfish (*Protopterus annectens*), and a number of catfishes. A red jewel cichlid (*Hemichromis* sp.), originally introduced as a feeder fish, tyrannized the bichirs to such an extent that they stopped feeding for a number of weeks, until the little thug, which measured barely 8 cm in length, could finally be caught and removed. So it is necessary to be somewhat careful when choosing tankmates for these gentle giants among fishes.

All in all it is once again thanks to the aquarium hobby that a puzzle more than a hundred years old has been solved and the *Polypterus ansorgii* myth laid to rest.

Around 40 cm long *Polypterus ansorgii* in the aquarium.



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04. – 05. Mai 2012, Guppytage
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Lebendgebärende Zahnkarpfen

New cultivated forms of Swordtail

by Christian Plaul

The tricolor Swordtail appeared in the late 1990s. It was the first Swordtail with a pure white base color to become widely established in the hobby. Nowadays we know several cultivated forms in which the body base color is white, and some of them first appeared on the market just a few weeks ago.

Just like the majority of other colors and patterns, the white body color made its way into the swordtail (*Xiphophorus hellerii*) via the Platy (*Xiphophorus maculatus*). Even in the wild the Platy occurs in a very large number of geographical races (subspecies), which, however, have yet to be given scientific names. These races differ fairly noticeably from one another externally by their coloration and patterning. Initially it was established that it was possible to produce new color combinations via the crossing of these races in the aquarium. The mechanisms that form the basis of this

color inheritance have fascinated geneticists right from the start. Later it was discovered that crosses between Platies and Swordtails are fertile.

The crossing of Platy and Swordtail

This isn't in fact quite as easy as stated in many books, but is essentially feasible. The offspring of these crosses are intermediates, that is, they exhibit characters midway between Platy and Swordtail. These hybrids can then be back-crossed with the Swordtail, producing fishes that resemble the Swordtail in form but also carry the color genes of the Platy.



The pure white 'Ghost' Platy is the starting point for all cultivated Swordtail forms with a white base color.

A lucky accident for medicine

Some of these Swordtail crosses developed an inheritable form of color-related cancer in the form of tumors consisting of collections of black pigment cells on the caudal peduncle. This was the first type of cancer known to science that could be produced deliberately by breeding. A lot of information on cancer was obtained by studying this form, so ultimately the aquarium hobby saved the lives of millions of people.



The 'Marlboro' Swordtail, the latest cultivated form of *Xiphophorus hellerii*. All Photos: Frank Schäfer





Lexicon

Swordtail

Xiphophorus: means "swordtail".

hellerii: In honor of K. Heller, an

Austrian botanist.

maculatus: means "spotted".



cannot be obtained in the international aquatic trade.

But there is a Platy (albeit likewise rare), the 'Coffee', which is apparently derived from



The 'Coffee' Platy is a pure white Platy with black spotting. The 'Ghost' can be obtained from it via selective breeding.



White Swordtail



Pair of a lyretail form of the tricolor swordtail. Lyretails are bred by pairing normal-finned males and lyretail females, as the lyretail males with their greatly enlarged gonopodium aren't capable of mating.

The mysterious 'Ghost'

The 'Ghost' Platy is the cultivated form of the Platy from which originated the new Swordtail crosses shown here.

The snow-white 'Ghost' Platy is a fairly old cultivated form. It was available to the world-famous geneticist Myron GORDON back in the 1940s, as the legendary 'Bleeding Heart' Platy originated from the crossing of a wild-form Platy from the Rio Jamapa, the 'Ruby Throat', with the 'Ghost' (you can read more about this in News 59, which, like all issues of the News, is available free of charge on the Internet as a PDF file at http://www.specifish.com/Aqualog/news/news_pdfen/news59d.pdf). Unfortunately I know nothing about the origins of the 'Ghost' Platy. But this much is known: the 'Ghost' is a mutant, that is the result of a spontaneous genetic mutation. The 'Ghost' has long since been regarded as extinct, at least in central Europe, and nowadays

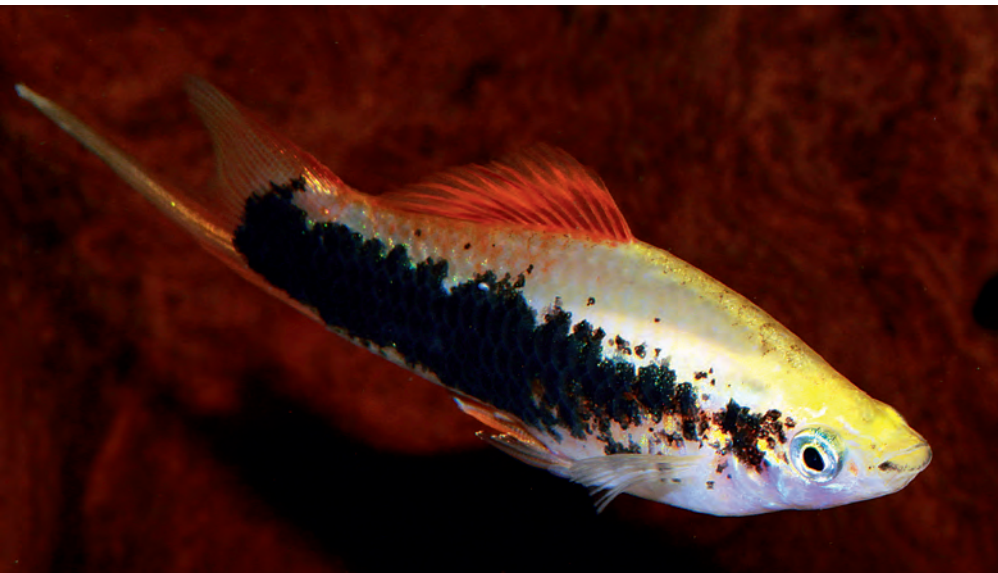
the 'Ghost', as occasional pure white specimens – ie 'Ghost' Platies – regularly occur among its offspring (the 'Coffee' normally breeds true), permitting the

The genetics of the 'Ghost'

In 1983 a student of Myron GORDON, Klaus D.KALLMANN, along with Valerie BRUNETTI, published a work in which the genetics of the 'Gray', 'Gold', and 'Ghost' mutants were

Tricolor swordtail of the color form 'Shiro-Utsuri'.





This gorgeous new variant of the Wiesbaden Swordtail combines the Wiesbaden coloration (half-black on a white background) with a red dorsal fin and posterior dorsum to match.



explained. According to them, the olive base color of the wild Platy is based on the existence of micromelanophores (tiny color cells containing black pigment) combined with tiny xanthophores (yellow pigment cells), and the reticulated arrangement of the micromelanophores in the epidermis of the flanks. KALLMANN & BRUNETTI found that two autosomal loci (which they called St and R) with two alleles control this arrangement of color. St R fishes are wild-colored, St rr are 'Gray' and lack the xanthophores. St St R are completely yellow (= 'Gold'), and totally lacking in micromelanophores; and finally, st st r r are the 'Ghost', lacking both micromelanophores and xanthophores. By contrast, the macromelanophores are controlled by sex-linked genes, which means it is possible to breed a black pattern onto 'Ghost'. And that is how the new Swordtails came into being.

Obviously you need to know a lot of about genetics and biology if you want to be successful in developing new cultivated

The white-based 'Marble' Swordtail has already been on the market for somewhat longer.



Buchtipp !

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forms. Plus you need to be a very good aquarist. But the maintenance of these gorgeous fishes is anything but complex science, and possible even for beginners. Enjoy!

References:

KALLMANN, K. D. & V. BRUNETTI (1983): GENETIC BASIS OF THREE MUTANT COLOR VARIETIES OF XIPHOPHORUS MACULATUS: THE GRAY, GOLD AND GHOST PLATYFISH. COPEIA 1983 (1): 170-181.



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Evergreens

The Paradisefish

by John Dawes

It is the first so-called 'tropical' fish imported into Europe. Yet, despite its long history stretching back more than 150 years, the paradise fish (*Macropodus opercularis*) is still the focus of some debate. In particular, its relation to, at least, two other paradise fish, as well as its overall classification, are still causing confusion in some quarters.

The paradise fish was, reportedly, first imported into Europe in 1869 by a French officer who was ordered to take 100 specimens to France by the consul based in Ningpo, a city in the north eastern Chinese province of Zhejiang. Only 22 specimens are said to have survived the journey and 17 of these were passed on to Pierre Carbonnier, a renowned fish breeder of the time, who subsequently bred them. No-one in Europe had ever seen such colourful

aquarium fish and this, no doubt added to the 'exotic', i.e. mysterious and oriental, nature of the species, led to the fish becoming popular. Another important factor was its hardiness, which allowed it to survive quite adequately in unheated aquaria.

Once the paradise fish became well known, the aggressive behaviour of males, particularly towards conspecific rivals, could well have been one of the



Male of the cultivated form 'Blue Paradisefish'

factors limiting its greater popularity among hobbyists. The fact is that, despite its undoubted beauty and the species (plus the several varieties which have been developed) being easily available, *M. opercularis* has never quite matched the popularity of other, later, arrivals on the scene, such as guppies, swordtails, angels and the like. Personally, I find this a little puzzling, since one of its relatives is just as pugnacious, or even moreso, and is nonetheless one of the most popular fish

Male of the wild form of the Paradisefish, *Macropodus opercularis*

All Photos: Frank Schäfer



in the hobby. I am, of course, referring to *Betta splendens*, the fighter or Siamese fighting fish.

Also puzzling for some is the question of the paradise fish's identity and classification. Firstly, the blue, green, albino and 'red' or wild-type paradise fish are all one and the same: *Macropodus opercularis*, while the black paradise fish has sometimes been referred to as another colour variety of *M. opercularis*. More frequently, though, it's been referred to as *M. concolor* or *M. opercularis concolor*. Today, according to the online fish database FishBase (www.fishbase.org), neither of these two scientific names is valid. While retaining the common name, black paradise fish, the species is now listed as *M. spechti*, as a result of a review carried out by Freyhof and Herder in 2002. In this review, they also elevated the earlier subspecies, *M. spechti spechti*, to full species level, regarding it as being the same species as the black paradise fish.

At a higher level of classification, the paradise fish and its closest relatives, i.e. the bettas (*Betta* spp), croaking gouramis (*Trichopsis* spp), liquorice gouramis (*Parosphromenus* spp), ornate paradise fish (*Malpulutta kretseri*) and the spiketail and Day's paradise fishes (*Pseudosphromenus* spp) have been traditionally classified as belonging to the subfamily Macropodinae of the family Belontiidae, which has also included the combtails (*Belontia* spp) of the subfamily Belontiinae and the gouramis of the genera *Colisa*, *Parasphaerichthys*, *Sphaerichthys* and *Trichogaster* of the subfamily Trichogastrinae.

Today, though, the classification is very different and is not to everyone's liking. Among other changes, the former *Colisa* species, such as the dwarf gourami (*C. lalia*) are now all regarded as *Trichogaster*, while the ever-popular blue/three-spot/golden gourami is no longer *Trichogaster trichopterus*, but *Trichopodus trichopterus*. Further, these species, along with the paradise fishes, no longer belong



Male of the Black Paradisefish, *Macropodus spechti*.

to the family Belontiidae, but to the Osphronemidae, which includes the giant gourami, *Osphronemus goramy* and its nearest relatives.

Summarising the changes, the Osphronemidae now contains four subfamilies: the Osphroneminae (containing the giant gouramis, *Osphronemus*), the Luciocephalinae (the gouramis: *Trichopodus*, *Trichogaster*, *Ctenops*, *Sphaerichthys*, *Parasphaerichthys*, and the pikeheads, *Luciocephalus*), the Belontiinae (the

combtails, i.e. *Belontia*) and the Macropodinae, containing *Betta*, *Macropodus*, *Malpulutta*, *Parosphromenus*, *Pseudosphromenus* and *Trichopsis*. For its part, the kissing gourami (*Helostoma temminckii*) retains its family, the Helostomatidae, while the climbing gouramis or perches (*Anabas* spp), the bush fish (*Ctenopoma* spp), the dwarf bush fish (*Microctenopoma* spp) and the kurpers (*Sandelia* spp) all remain within the family Anabantidae. The more distantly related snakeheads, *Channa* and

Courting male of the cultivated Paradisefish form 'Super Red'.





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Parachanna, also retain their family status:
the Channidae.

In contrast to the complexities sur-
rounding its classification, the upkeep of
the paradise fish in aquaria is relatively
uncomplicated. One golden rule to be
followed is that one must never attempt
to keep more than one male in an
aquarium...unless this is large enough for
each to establish its own territory, well
away from all rivals. The fact is that male
M. opercularis are so aggressive towards
competitors that they will tear each other
to shreds, sooner rather than later.

One male and one or more females can,
however, be kept together in a well-
planted aquarium, especially one that also
offers the female(s) some shelter. Other
similarly sized tankmates (*M. opercularis*
grows to around 10cm) are generally safe
in the company of a paradise fish, but
extremely small types are best avoided.

The diet should be a broad-based one
consisting of a predominance of animal-
based foods over vegetable ones. Livefoods
are also taken, as well as
pelleted and flaked formulations. Two or
more feeds per day should be provided. A
wide range of pH and hardness are
accepted, as well as temperatures ranging
from around 15 or 16°C to 25°C.

At breeding time, a male will dominate the
aquarium and will build a bubble nest on
the surface, to which he will attract the
female. They will embrace under it and
release their eggs directly below it. These
will be tended to by the male, which will
defend the nest against all comers.
Hatching takes 2-4 days depending on
temperature and the fry must be reared
on the smallest foods at first.

Lexicon

Paradiesefish

Macropodus:

means "with great fins"

opercularis:

refers to the spot on the gillcover
(operculum)

spechti:

dedication name for an ornamental
fish trader

concolor:

means "of uniform colour"



The female Paradisefish (front in the photo) can be recognized by her more rounded body, smaller size, and smaller fins. The photo shows the 'Blue' cultivated form.

Two young males of the new cultivated form 'Blue Redstripe' displaying.



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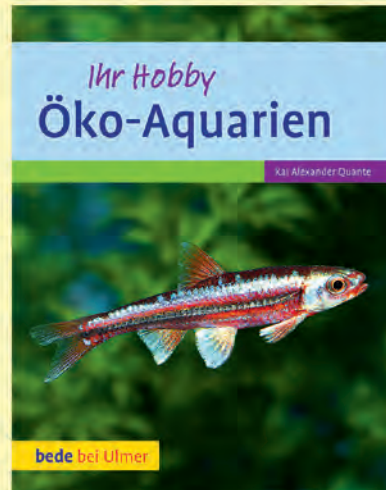
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Frösche

New frogs from South America

by Frank Schäfer

What could be nicer for the passionate vivarium keeper than an unknown name on a stock list? And if even the importers – specialists in their field, after all – don't know precisely what it is, then that makes it all the more exciting

It recently happened that the company World Reptiles in Cologne simultaneously added two batrachian species to their stock list that couldn't be identified accurately. One was a species labeled as "Bufo sp. - Black Chaco Toad from Paraguay", and the other as "Rana spec. - Green-Red Aquatic Frog from Guyana". No question but that your News editor should get busy and find out more.

The Black Chaco Toad *Bufo (Rhinella) major*
The toads proved to be quite breathtaking creatures around 5-6 cm in length, which looked black only at first glance. On closer examination they turned out to be extremely attractively patterned amphibians. In particular the black, tattoo-like ring around the eye looked very decorative and somewhat reminiscent of its Asian cousin Bufo (*Duttaphrynus*) melanostictus.



Male of the Black Chaco Toad.

The South American toads (*Rhinella*) are very species rich, with 86 species known. This group (which I will treat here conservatively as a subgenus of *Bufo*, as the current systematic situation, which relies primarily on comparative DNA study, is very confused and unclear) also contains the Cane Toad, *Bufo (Rhinella) marinus*, which has been introduced in large parts of the world to control pests and become a serious threat to native fauna, above all in Australia.

The Black Chaco Toad, *Bufo (Rhinella) major*, female.

All Photos: Frank Schäfer



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Halle 3.0., auch und gerade für Aqua-
rianer und Terrarianer und solche,
die es werden wollen. Bereits die Pre-
miere in 2011 war ein schöner Erfolg.



Wenn die Maintier am Freitag, den
01. Juni 2012 um 10 Uhr ihre Pforten
öffnet, dürfen sich alle Tierfreunde
auf noch mehr Aussteller und eine
größere Präsentationsfläche als zur
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Bufo major is fairly widespread in South America. It is found in the Chaco of Argentina, Paraguay, and Bolivia, as well as in Brazil, in open strips of land along the rivers Beni, Madeira, Amazon (down to the mouth), Tapajós, and Xingú, and in the Brazilian federal state of Amapá; this toad also purportedly occurs in Peru and at Leticia in Colombia. The species belongs to the *Bufo granulosus* group, which is currently thought to contain 12 species. *Bufo major* inhabits grasslands, is found in association with human settlements, and is regarded as not endangered.

Bufo major grows to 5-8 cm long, with males remaining somewhat smaller than females. The average adult size is around 5.5 cm, with males becoming sexually mature at 3.6 and females at 3.4 cm in length.

At spawning time – the males call using a large throat sac – the species makes use of temporary waters with overhanging grass, which means it should be relatively easy to breed under terrarium conditions. The imported specimens have so far appeared to be very amenable to maintenance, which takes place in a semi-dry terrarium with water to bathe in and a substrate that permits the roads to bury themselves. The usual insects are eaten.

The similarity to frogs of the genus *Rana* is amazing.



Leptodactylus fuscus from Guyana.

Leptodactylus cf. fuscus

We have also been able to find out the identity of the second frog species, though not with absolute certainty. It is a member of the species-rich genus *Leptodactylus*, which

Lexicon

New frogs

Bufo: means "toad".

Rhinella: means "little nose".

major: means "larger".

granulosus: means "covered in grains".

marinus: means "of the sea".

Duttaphrynus: means "Dutta's Toad"; Sushil Kumar Dutta is an important Indian herpetologist.

melanostictus: means "with black dots".

Leptodactylus: means "small finger".

fuscus: means "dark".

fragilis: means "fragile".

Ceratophrys: means "horned toad".

cranwelli: dedication name.

Ptychadena: refers to the dorsal folds in these animals.

Rana: means "frog".

arvalis: means "of the fields".





So schont das Aquarium Umwelt und Geldbeutel

Potential zum Energiesparen gibt es in nahezu allen Lebensbereichen. Auch das Aquarium verbraucht Energie zum Betrieb der Geräte, für die Zucht und Ernährung der Tiere und nicht zuletzt in Form von Wasser. Dieser Verbrauch lässt sich jedoch mit einfachen Mitteln reduzieren. Tipps zum Energiesparen machen das Aquarium günstiger und nebenbei auch naturnah. Und Beispielrechnungen zeigen, dass die Einsparungen sich ökonomisch und ökologisch gesehen auszahlen. Es gibt zahlreiche Ansätze dafür: Eine Komplettabdeckung des Aquariums vermeidet etwa ungewollte Abkühlung des Wassers durch Verdunsten und spart Heizkosten. Im Sommer ist das Verdunsten hingegen ein kostenloser Ersatz für die aktive Kühlung und somit ein Sparfaktor. Wenn die Aquariumpflanzen viel Licht benötigen, hat die Beleuchtung mit LEDs die höchste Energieeffizienz. Mit einer Zeitschaltuhr vermeidet man außerdem, dass die Lampen unnötig lange leuchten. Und auch die Abfallprodukte des Aquariums lassen sich noch weiterverwenden. Das alte Wasser etwa ist nach dem Wasserwechsel ideal zum Blumengießen geeignet.

Es enthält viele Nährstoffe, die Pflanzen zum Gedeihen brauchen. Ein weiterer Kostenpunkt ist die Auswahl der Tiere – viele genügsame Garnelen und Fische wie der Guppy bevorzugen eine Wassertemperatur zwischen 20° und 25°. Bei Raumtemperatur ist also keine zusätzliche Heizung notwendig. Die Eigenproduktion von Futter ist ein weiterer Weg, den Verbrauch des Aquariums zu reduzieren. Ein Beispiel: Mückenlarven, die Fischen schmecken, findet man in jeder Regentonne.



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contains 89 species and is widespread in South and Central America (including the Lesser Antilles). It even extends to North America, with *Leptodactylus fragilis* in the extreme south of Texas.

The similarity to the frogs of the genus *Rana* is, however, confusing at first glance. To my eye these dainty frogs – they are currently around 4 cm long, while maximum size is given as around 5- 5.5 cm – look like a mixture of *Rana arvalis*, the native European Moor Frog, and *Ptychadena*, the long-legged ridged frogs from Africa.

The ecology of *Leptodactylus* is also very similar to these frogs. They live in the vicinity of water, without being directly associated with open areas of water.

Leptodactylus fuscus has a truly vast distribution in South America and inhabits savannahs from Panama south through all of South America east of the Andes. In the south the species extends into southern Brazil, Bolivia, Paraguay, and Argentina. Whether just one species is actually involved is more than questionable, and it is probable that we are instead dealing with a large species complex.

The breeding behavior of *L. fuscus* is very

interesting. Specifically, the species spawns not only in water but also on land, digging burrows in which a bubble nest is constructed. The frogs spawn in this bubble nest. At high water the spawning burrows are flooded, so that the tadpoles end up in a body of water where they develop into little frogs.

The maintenance of *L. fuscus* thus requires a moderately damp terrarium with a deep substrate composed of a sand/peat/leaf-mold mix, which must be loose-packed so it can be excavated. A shallow water dish will suffice for bathing.

Leptodactylus are sometimes known as piping frogs. Some species can be veritable alarm-clocks with their monotonous calls. *L. fuscus* isn't as bad – the call is somewhat reminiscent of the squeaking of guinea pigs, but isn't particularly loud.

Horned frog 'Apricot'

In addition to the two wild-caught imports, World Reptiles recently also had another new frog on its stock list: the 'Apricot' cultivated form of *Ceratophrys cranwelli*.

Until a few years ago the "Pacman Frog" was hardly ever bred. But the pet trade

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discovered this frog for itself and with increasing demand breeding them became economically interesting. Nowadays the majority of these frogs offered in the trade originate from captive-bred populations.

Because frogs – just like fishes – have a vast reproductive potential (one can obtain several thousand offspring from a single pair within a short time), it was only a matter of time before color mutations appeared on the market. Initially these were albinos, but since then numerous color forms have been bred, above all in Japan. As usual such individuals cost a considerably more than the "normal" form – it is always somewhat more expensive to indulge a special taste.

The maintenance of these frogs is very easy and there are good reasons why they are so popular as pets. Firstly, they have little or no flight reflex and thus appear "tame" to the layman. And secondly, they will grab anything that moves in front of their mouths, be it the finger of a careless owner or a deep-frozen (but thawed) food insect. This makes feeding them very easy and independent of live food, which is normally indispensable in the maintenance of frogs.

The brand new 'Apricot' cultivated form of *Ceratophrys cranwelli*.



Meerwasser

Wonderful Dragonets

by Matthias Reising

The Dragonets or Mandarinfishes (Callionymidae) are a family of predominantly marine, bottom-dwelling fishes with an almost worldwide distribution. To date only two species are known from fresh water, while a few find their way into brackish water. At present a total of 130 species are known, divided among 18 genera.

Out of all this variety, two species are regularly seen in the trade because of their incredibly splendid coloration: *Synchiropus picturatus* and *S. splendidus*.

The Mandarinfish

The Mandarinfish, *Synchiropus splendidus*, is widely distributed in the Western Pacific, where it is found from the Ryukyu Islands to Australia. Depending on its provenance, it varies somewhat in its base coloration, but to date nothing has been done about describing these color forms systematically.

In the wild the Mandarinfish lives on open bottoms close to coral reefs, but is not a coral fish in the true sense. Like all

dragonets, it feeds on small organisms and spends the entire day searching for food, its large, expressive eyes simultaneously watching its surroundings all the time.

The maximum size of the Mandarinfish is around 8 cm, but it usually remains smaller and is sexually mature at as little as 4 cm long.

Sexual dimorphism

The sexes are relatively easy to distinguish in all dragonets, including the Mandarinfish, as in comparison to females the males possess a much-enlarged first dorsal fin, which they use during courtship display.



Synchiropus splendidus, male



Synchiropus marmoratus

It is of considerable practical importance that the sexes can be distinguished so easily, as

Because of its splendid coloration the Mandarinfish, *Synchiropus splendidus*, is one of the most popular marine fishes.

All Photos: Frank Schäfer





The Starry Dragonet, *Synchiropus stellatus*, variant from Sri Lanka.

males are completely intolerant of one another.

Maintenance

Mandarinfishes are best kept in pairs, because then you can enjoy these splendid little jewels to the full in the aquarium, as their behavior is very varied and they will also spawn regularly in the aquarium. Spawning takes place in the evening. Unfortunately it is extremely difficult to collect the spawn, as the species has been bred successfully in the aquarium, even for

several generations, although eggs and larvae are very tiny. Mandarinfishes don't practice any brood care, the eggs and larvae are pelagic, ie they float free in the water.

The little Mandarinfish, which isn't a very active swimmer, can readily be maintained in small marine aquaria.

Why so colorful?

These small and largely defenseless fishes (some dragonets do, however, have spines on the operculum, for example *Callionymus*

Lexicon

Dragonets

Synchiropus: means "with hand and foot".

marmoratus: means "marbled".

picturatus: means "painted".

splendidus: means "brilliant", "splendid".

stellatus: means "covered in stars".

Callionymus: means "with a beautiful name".

lyra: means "lyre" (an ancient musical instrument).

enneactis: means "with nine rays".



Another variant of *S. stellatus*

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lyra, which lives in the North Sea; the "sting" is said to be painful and may be poisonous) can afford to be immensely colorful because they have an unpleasant-tasting skin poison that makes them unattractive to the majority of piscivores.

Slow feeders

In principle Mandarinfishes are perfect aquarium fishes, as they aren't susceptible to disease, remain small, are very colorful, exhibit interesting behavior, and leave invertebrates alone. But – there is always something or other – they are very slow and circumspect feeders. Hence Mandarinfishes shouldn't be kept in the company of greedy feeders, as otherwise they will go hungry in the short or long term. They are best fed once a day with a large portion of live *Artemia nauplii*, which are easy enough to hatch, and twice daily with other foods. Frozen food is taken readily, and many individuals will also

The Psychedelic Fish, *Synchiropus picturatus*, threatening male.



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Female Mandarinfish, *Synchiropus splendidus*.

accept granulate, which makes feeding a whole lot easier.

Other species

In principle everything that has been said about the Mandarinfish also applies to other dragonets. The Psychedelic Fish, *Synchiropus picturatus*, grows to around 7 cm long and is distributed in the Western Indo-Pacific. The Starry Dragonet, *S. stellatus* (Indian Ocean, around 7.5 cm maximum length), and the very similar Marbled Dragonet, *S. marmoratus* (maximum size 13 cm, western Indian Ocean), may not be as gaudily colored, but are likewise very attractive fishes.



Callionymus lyra lives in the North Sea. This species can grow to 30 cm long.

Callionymus enneactis, a breathtaking sand-dweller that grows to around 6-8 cm long.



The *Callionymus* species are imported only very sporadically; they are sand dwellers and perfectly camouflaged there. Sometimes they remain unnoticed until they move. In these species too, which are sometimes colloquially known as Spiderfishes, the males have strikingly colored and greatly enlarged dorsal fins that are used in the impressive courtship display.

If you are now filled with the desire to keep dragonets in your aquarium, then your pet dealer can undoubtedly order them for you from a wholesaler of his acquaintance, for example Meeres-aquaristik Reising in Alzenau-Wasserlos, Fax +49 6023 – 31502.

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Schlangen

The emperor's new clothes

by Thorsten Holtmann

The Royal Python (*Python regius*) is the most popular giant snake in the terrarium hobby. The species has lots of good points: it doesn't grow particularly large, looks gorgeous, and is usually rather defensive by nature and hence bites only in exceptional cases.

The wild-colored youngsters that are available year-round at a low price in the trade, are usually so-called farm-bred specimens, mostly from the West African countries of Togo and Benin. By farm-bred is understood eggs collected from the wild and hatched under controlled conditions on farms. Some of the young are released again, while some end up in the pet trade.

Species protection in the Royal Python

Like all giant snakes the Royal Python is protected under international law, under which all Royal Pythons traded in Europe must have an export permit from their

country of origin and an import permit from the EU. This procedure, which is in line with the so-called Washington Convention on Endangered Species (CITES), prevents any country from releasing excessively large numbers for export for economic reasons, because without the appropriate import permit the animals can't find their way into the trade.

The Royal Python is listed in Appendix II of the Washington Convention. This means that it can be traded freely, but each individual must have proof of origin, a sort of personal certificate, from which it can



An axanthic specimen.

always be ascertained whether it entered the trade legally. In Germany, where everything is always done especially thoroughly, in addition to the need for certification there is usually a legal requirement to declare protected animals, in other words anyone keeping such an animal must notify the relevant authorities. But even German officialdom has realized that this makes no sense in the case of a species as popular as the Royal Python. And

Piebald specimens, ie partial albinos, always have a very interesting appearance.





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There are a vast multitude of cultivated forms of the Royal Python. 1,0 signifies male, 0,1 female.

so the requirement to notify has been lifted in the case of the Royal Python. But please: always make sure you keep the sales paperwork when you buy one or more Royal Pythons, so that if necessary you can prove that the creatures entered the trade in accordance with animal-protection law.

New cultivated forms

These legal provisions also apply to the cultivated forms of the Royal Python discussed here, although they don't occur at all in the wild and hence are completely irrelevant in the sense of species protection.

Royal Pythons from America

All the specimens presented in this article are captive-bred individuals from the USA, where they have been working on cultivated color forms of reptiles and amphibians for a long time. And if we consider the multitude of color sports that exist already, it has to be said they are doing so successfully! Even so, we should never forget that the Royal Python is an egg-laying snake and only a few dozen young per female can be produced each year.

Mutations

A mutation, that is, a sudden change in genetic make-up expressed as external changes in color, occurs only extremely rarely. It is very difficult to quantify that statement, as in the wild color mutants have very little chance of survival, as around 90% of the offspring of an animal die before reaching sexual maturity and specimens with aberrant color are not as optimally adapted to their habitat as normal-colored individuals. Hence color mutants are almost never encountered in the wild. If mutants survive at all in the wild, then they are usually forms exhibiting a loss of color, that is, individuals that lack certain color pigments in their skin as the result of genetic peculiarities. The best-known mutation is albinism, which can occur in almost all animals (including humans). Albinos lack the black pigment melanin, as a result of which the blood in the retina shows through and the eyes look red. Albinism can be variably expressed –




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Lexicon

Royal Python

Python regius translates simply as "Royal Python"; Python was a serpent in ancient mythology.

sometimes melanin is still produced, but in small quantities. In such cases we speak of albinoid or hypomelanin animals. The eye color is then also light, often blue, but never red. Animals that lack the pigment xanthin, required for yellow or red coloration for example, are termed axanthic.

If too much melanin is produced then the entire animal appears black; a notable example of this is the Black Panther. Such animals are termed melanic or melanistic.

A mutation involving loss of color doesn't have to affect the entire animal, but can be limited to individual parts of the body. This is termed a piebald pattern or partial albinism.

It is important to be aware that such colors often do not breed true but may be inherited by only some, if any, of the offspring. These are termed "Hets" in the hobby, an abbreviation for "heterozygous specimens" which in turn means simply that they do not breed true.

If you are now filled with the desire to keep and breed these color forms of the Royal Python, then your pet dealer can undoubtedly order one or another form for you from a wholesaler of his acquaintance, for example Tropenparadies in Oberhausen, Fax +49-(0)208-665997.

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Raritäten

Two livebearer wild forms

by Wolfgang Löll

A common thread has run through this issue of the News: cultivated forms develop from almost all animal and plant species when they are kept by humans. Some people find them more attractive, some less desirable than the natural forms. To conclude this News we would like to bring you two rare wild forms of livebearing toothcarps, in which breeding for successive generations is just as demanding as creating new sports.



Male *Priapella olmecae*

Priapella olmecae

The genus *Priapella* currently contains six described species, with *P. intermedia* and *P. compressa* sometimes turning up in the trade. All *Priapella* species are surface-dwelling fishes that are adapted to relatively strong-flowing water in the wild. Here they swim in shoals, facing into the current and jumping to capture the small insects that form their main food. A particularly striking feature is the bright blue eyes, whose brilliance could easily rival

that of the lampeyes (*Aplocheilichthys*).

The maintenance of these lovely fishes in the aquarium isn't difficult, but they should be kept in a shoal in order to appreciate their beauty to the full. They are very peaceful fishes. They like a well-lit aquarium with strong filtration, and the temperature should lie in the 21-26 °C range. Medium-hard to hard water with a pH of more than 7.5 is preferable, even though *Priapella* occur in comparatively soft water in the wild (general hardness 3-8° dGH, carbonate

hardness 3-4°dKH). They will eat all the usual ornamental fish foods, but not from the bottom. Insects (fruit flies) and mosquito larvae are good treats for these fishes. Experienced breeders swear by flying insects as a considerable aid to successful breeding.

Pregnancy lasts for 35-42 days and there are 8-25 young per brood.

Plants aren't harmed by *Priapella olmecae*.

Xenophallus umbratilis

This dainty little fish originates from Costa

Priapella olmecae, female. The species is also popularly known as the Olmec Livebearer.

All Photos: Frank Schäfer





Female *Xenophallus umbratilis*. The species is also popularly known as the Golden Teddy.

Rica, where it occurs in only a few waters that empty into the Atlantic. They are rather delicate-looking fishes but aren't delicate at all. Males attain around 4 cm, females around 5 cm in length.

Special fishes like this shouldn't be kept in community aquaria thrown together anyhow, but should have a tank set up specially for them. Otherwise you will get little pleasure from these fishes, as in unsuitable company they look pale and

unremarkable. Things are quite otherwise in quiet, densely-planted, and not too brightly-lit aquaria.

The fish's German name of Shadow Livebearer is well justified. As in the wild, it avoids open, brightly-lit areas of the aquarium. If the tank is set up as described above, with clean water and a good, albeit not excessive current, then the aquarist will be enchanted by the splendid coloration of courting males. Like

Xenophallus umbratilis are interesting and dainty fishes, and also suitable for small aquaria.



Lexicon

Wild livebearers

Priapella: means "little member", referring to the male copulatory organ.

intermedia: means "intermediate"; "in between".

compressa: means "compressed".

olmeca: after the aboriginal inhabitants of Mexico, the Olmecs.

Aplocheilichthys: means "fish similar to Aplocheilus"; Aplocheilus is another fish genus.

Xenophallus: means "with an unusual male sex organ".

umbratilis: means "preferring the shade".

numerous other livebearers they establish an order of rank among themselves and this can be recognized by the color of the dorsal fin. The more orange, the higher the rank of the fish.

Xenophallus umbratilis should be maintained at temperatures between 20 and 24 °C.

After around 28 days of pregnancy the females give birth to 15-25 fry which look very delicate and should be reared on *Artemia nauplii*.

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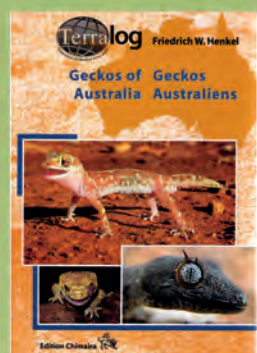


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