

Basic Information and Husbandry Guidelines
for *Ptychochromis oligacanthus*,
Nosy Be Cichlid





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1. Characterisation

Scientific name: *Ptychochromis oligacanthus* (BLEEKER, 1868)

Vernacular name: Nosy Be Cichlid (Englisch)

Total length: Males up to 20cm

Citizen Conservation#Fish-Kategorie: I

Threat status according to IUCN Red List: Endangered (EN)

Accommodation: Adult fish can be kept in group sizes of about 8 specimens, if possible with more females than males, in an aquarium at least 1.5 m long with at least 500 l water volume.

A group of 10–20 semi-adults can be kept in an aquarium with a base area of about 100–120 cm x 40–60 cm (about 160–360 l).

Juvenile schools of up to 50 individuals can be raised in aquariums with an edge length of 70 cm or more and a water volume of about 200 l.

Equipment required: Aquarium, lighting, heater, filter, water thermometer, test kit for water parameters, mulm extractor, large stones and bogwood roots for structure and protection, planting, sand or gravel as substrate.

Feeding: Commercial flake food; frozen food (white, black and red mosquito larvae and brown shrimps); live food (artemia, white mosquito larvae)





2. Why is *Ptychochromis oligacanthus* a Citizen Conservation species?

The Nosy Be cichlid, *Ptychochromis oligacanthus*, is endangered. The species is endemic to Madagascar and is found here only in a limited area in northeastern Madagascar, from the Sambirano River northward to the Andranomaloto River, as well as in the crater lakes on the name-giving island of Nosy Be.

The main threats to *Ptychochromis oligacanthus* are habitat loss, capture for human consumption, and invasive species that compete for habitat or act as predators (RAVELOMANANA et al. 2016).

Within its very limited range, *Ptychochromis oligacanthus* is not rare, but the long-term survival of the species in the wild is threatened due to the factors mentioned above.



Ptychochromis oligacanthus in the aquarium of Cologne Zoo | Thomas Ziegler



3. Biology and Conservation

3.1 Taxonomy

Ptychochromis oligacanthus belongs to the species-rich family of cichlids (Cichlidae) within the order Cichliformes. The species was scientifically described in 1868 by the Danish physician, ichthyologist and herpetologist Pieter Bleeker as *Tilapia oligacanthus*. The species name valid today was introduced in 1980 by the Austrian zoologist Franz Steindacher.

Ordnung: Cichliformes
Familie: Cichlidae
Gattung: *Ptychochromis* (STEINDACHER, 1880)
Art: *Ptychochromis oligacanthus* (BLEEKER, 1868)



The cichlids of Madagascar, to which *Ptychochromis oligacanthus* belongs, are also of great interest with respect to evolutionary biology. | Thomas Ziegler



An adult with gray-blue scales and distinct dark spots
| Thomas Ziegler

3.2 Description

The body shape of *Ptychochromis oligacanthus* is laterally flattened and, as is typical for many cichlids, high-backed.

The body coloration of the species is silver to grayish blue with scattered large dark spots along the flanks. The anal and dorsal fins of males turn reddish during spawning. The males of the species reach a length of up to 20 cm, the females often remain somewhat smaller.



Typical for *Ptychochromis oligacanthus* are the scattered dark spots on the side. These can be variably pronounced, as in these silvery shiny individuals of medium size. | Thomas Ziegler



3.3 Occurrence and Habitat



View over the north of Madagascar with Nosy Be island in the background | Pierre-Yves Babelon/Shutterstock.com

The total range of *Ptychochromis oligacanthus* is very small, with about 3,500 km². The species occurs in freshwater lakes and rivers. The type locality is the crater lake Lac Ampombilava on the northeast offshore island Nosy Be (BLEEKER 1868).

On the mainland, the species occurs in the northwest from the Sambirano River northward to the Andranomaloto River (RAVELOMANANA & SPARKS 2020).

The waters that are colonized on Nosy Be are mostly clear, and the habitats are still intact. In contrast, the rivers and lakes on the mainland are mostly turbid. This turbidity is due to the input of suspended sediment due to increased soil erosion caused by deforestation on the island.



Crater lakes in northern Madagascar are part of the natural range of *Ptychochromis oligacanthus*.

| Pierre-Yves Babylon/Shutterstock



The distribution range of *Ptychochromis oligacanthus* on the main island and the offshore island Nosy Be

| Jonas Lieberknecht



3.4 Threats

The species occurs worldwide exclusively on Madagascar and is represented here with many sub-populations in a distribution area that covers only about 3,500 km². The threat factors are manifold, but the biggest problem is deforestation. In hardly any other country on earth has deforestation progressed as far as in Madagascar. The formerly green island has since become a red island, with over 90 percent of the original forest area destroyed.

This leads to severe soil erosion and an influx of suspended matter into the rivers and lakes, which has a negative impact on the habitat parameters of the fish. (BENSTEAD et al. 2003; RAVELOMANANA & SPARKS 2020).



Deforestation leads to soil erosion and consequent input of suspended sediment into water bodies that serve as habitat for *Ptychochromis oligacanthus*. | Artush/Shutterstock



On the island of Nosy Be, populations of *Ptychochromis oligacanthus* are still largely intact. | Pierre-Yves Babylon/Shutterstock

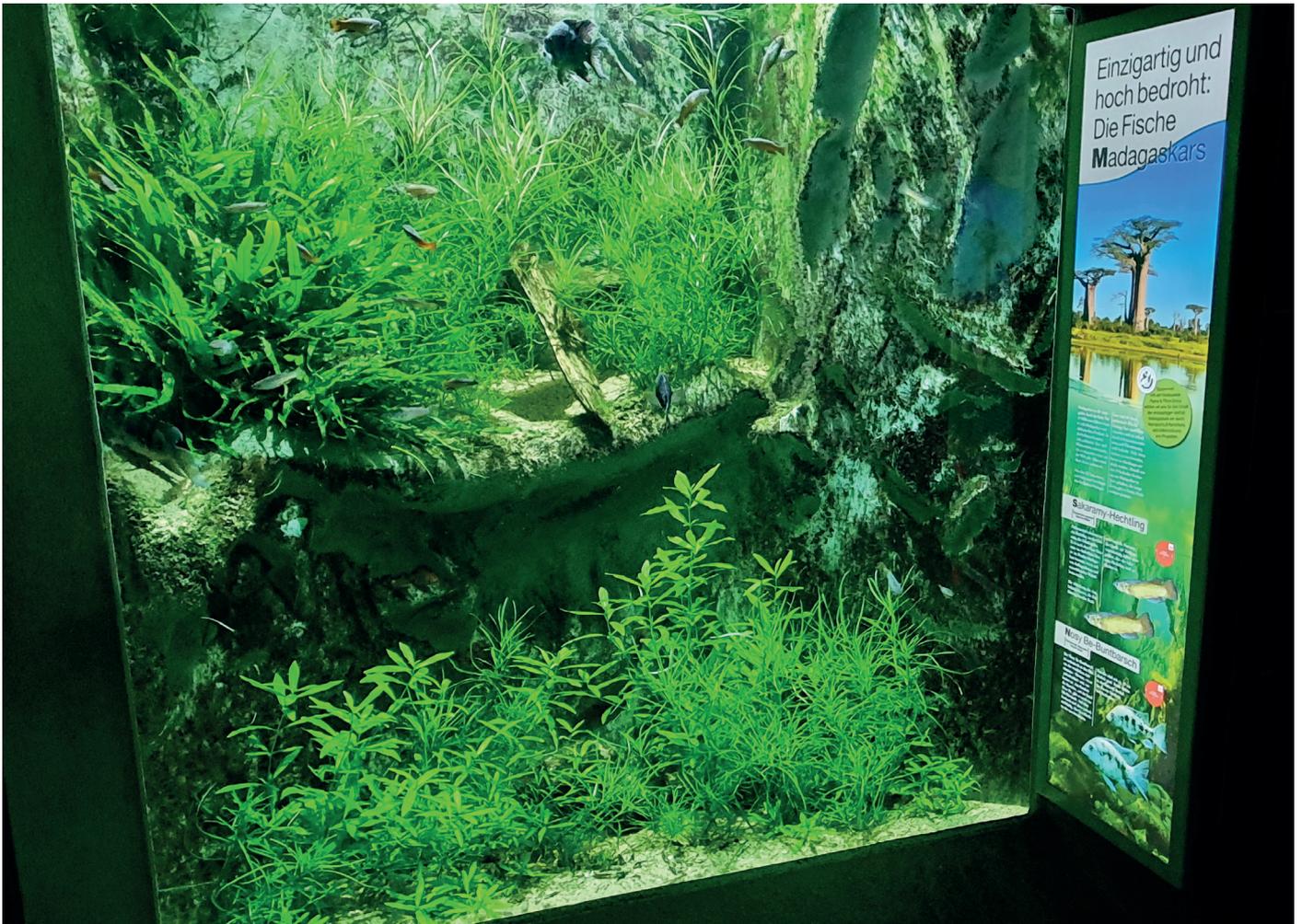
Populations and habitats on the island of Nosy Be are still largely intact, but the threat of invasive species competing for habitat and food and acting as predators are a constant potential threat and can contribute to the local disappearance of local populations at any time. Populations on Madagascar itself are already threatened by overfishing, habitat loss, and the spread of invasive species, which may also lead to local extinction events in individual lakes and rivers in the future.

There is no genetic exchange between individual populations, and the overall population is classified as highly fragmented. *Ptychochromis oligacanthus* is therefore declared „Endangered“ by the World Conservation Union (IUCN) (RAVELOMANANA & SPARKS 2020).



3.5 Conservation Efforts

Ptychochromis oligacanthus has been kept in human care for a long time. In European zoos, however, the species is kept only by the Aquarium de la Port Dorée in Paris and the Cologne Zoo, according to the database „Zootierliste“. At the latter location, it has been maintained since 2020, and the captive breeding efforts of the team led by aquarium director Thomas Ziegler have already been very successful. Together with Citizen Conservation (CC), a conservation breeding network was therefore established to build up a stable reserve population of this species, which is highly endangered in the wild, in captivity in the long term with the involvement of private enthusiasts.



Ptychochromis oligacanthus is also kept in the visitor area at Cologne Zoo. Next to the tank, a display board points out the uniqueness of Madagascar's fauna and flora. | Kidan Patanant



4. Husbandry

The information on keeping is based on the experiences at the Cologne Zoo (contributed by Thomas Ziegler).

With the general conditions given here *Ptychochromis oligacanthus* can be kept and propagated successfully. It is also possible to deviate from these husbandry conditions. In case of major deviations, please discuss them with the CC office beforehand. Please inform the CC office about additional experiences as well. In this way the knowledge about the keeping and breeding of this species shall always be supplemented and updated.

4.1 Documentation Requirements

CC collects the current population figures twice a year in order to document the population development and to manage the population.

Keepers agree to submit their current population numbers to the CC office on 3/1 and 9/1 of each year. A population reporting form will be provided by the CC office. Beginning in September 2023, reporting will be done through the Wild at Home online portal. Generally, reporting of offspring to the CC Office can be done at approximately six months of age when the number of juveniles expected to reach adulthood becomes manageable. Spawn and very small juveniles do not yet need to be reported.

In general, however, knowledge generation is a stated goal of CC, and keepers are encouraged to informally (e.g., by email) submit husbandry data and observations of animals (such as spawning or hatching of juveniles) to the CC office so that such information can be centrally collected.

If an adult animal dies, please inform the CC office immediately and informally about the loss, so that in justified cases of suspicion a necropsy can be arranged if necessary (the commissioning may only take place in consultation with CC; in this case CC bears the costs).

Information on handling and shipping dead fish is available from the CC office.

Failures in spawning or juvenile fish do not have to be reported unless there is suspicion that, for example, a disease is the reason for unusually high mortality rates.

In case of doubt, consult the CC office.



4.2 Transport

If a change of location is imminent, no more feeding should be done one to two days before transport. Catching and transferring is done with a standard aquarium landing net.

For transport, juveniles can be packed in small groups, for adults it is recommended to pack them individually. Fish bags of appropriate size are used for this purpose. These are filled one-third with water and two-thirds with ambient air or pure oxygen (do not „inflate“ the bag with your mouth) and tightly closed with a rubber band. Water must be used from the aquarium in which the animals were previously kept so that water values and temperature remain stable.

The bags are packed in a thermostable box (Styrofoam or similar) and, if the bags do not fill the interior, fixed with filling material (e.g. newspaper) so that they cannot slip around. In appropriate weather conditions, a heat or cool pack should also be inserted. Caution, direct contact of such heating or cooling elements with the fish bags must be prevented (e.g. by wrapping the pack in a cloth) to prevent overheating or undercooling of the water.

4.3 The Aquarium

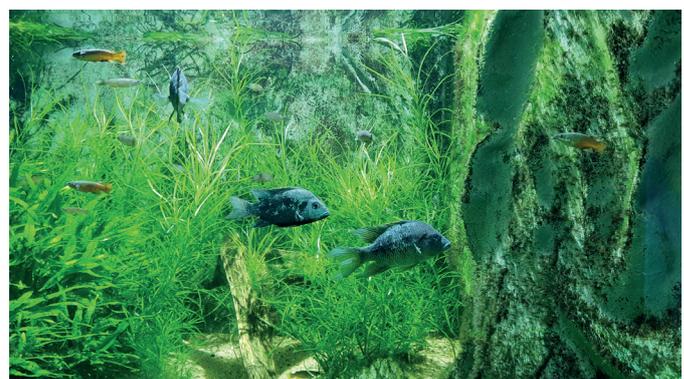
For the furnishing of an aquarium for *Ptychochromis oligacanthus* large stones are suitable, which provide structure, privacy and hiding places and are used for egg laying. Roots and robust aquatic plants (e.g. *Echinodorus* and *Anubias*) can be used to supplement the furnishings and set accents according to personal taste. Commercial aquarium gravel and fine sand are suitable as substrate, which the animals like to „chew through“ in their search for food.

The lighting of the aquarium can be done with commercial LED lights of medium brightness, *Ptychochromis oligacanthus* has no special requirements to the lighting.

The filter equipment of the aquarium should be lush and ensured with external or mat filters. All aquarium water should pass through the filter at least four times per hour to ensure good water quality on a permanent basis.



The aquarium of *Ptychochromis oligacanthus* in the Cologne Zoo is equipped with plenty of aquatic plants and other hiding places. | Thomas Ziegler



Nosy Be cichlids are kept in the visitor area of the Cologne Zoo together with *Pachypanchax sakaramyi*, which also originate from Madagascar. | Thomas Ziegler



Two Nosy Be cichlids of medium size | Thomas Ziegler

4.4 Water Chemistry and Temperatures

The Nosy Be cichlid has proven to be tolerant of various water values. However, before stocking the fish, the aquarium should be „run-in“ long enough so that stable water values and natural bacteria cultures could develop.

Good experiences in keeping and breeding have been made so far with the following water values:

Temperature: 24–25 °C
Carbonate hardness: 3° dH (KH)
Hydrotimetric concentration 5
230 Microsiemens
7,5 pH

A water change of 30-50% should be done once a week.

4.5 Feeding

Ptychochromis oligacanthus is not very choosy when it comes to food, the diet is trouble-free. Depending on the size, the animals can be fed with commercial flake food, frozen food (white, black and red mosquito larvae, artemia and brown shrimps) as well as with live food (artemia, *artemia nauplii*, white mosquito larvae).

The amount of food should be adapted to the stocking of the aquarium. Juveniles can be fed several times a day. Adult animals are also fed daily, with a fasting day once a week.

4.6 Propagation and Raising Juveniles

The Nosy Be cichlid is an open-breeder, with females providing brood care. During the spawning season, the anal and dorsal fins of the males turn reddish.

The clutches contain 100–250 eggs and are preferably deposited on stones. At the Cologne Zoo, no substrate is used in behind-the-scenes husbandry. Here the females lay their eggs also on the aquarium bottom. The male defends the common territory, but does not participate directly in brood care.

At the Cologne Zoo, it has proven effective to remove the clutches, since clutches left in the parent aquarium became fungal or were eaten.

Several days pass until the larvae hatch. The hatched larvae and fry are maintained at identical water values as the adults. Juvenile schools of several dozen individuals are possible. Further rearing usually proceeds without problems.



Juvenile schools of several dozen individuals are possible. | Thomas Ziegler



4.7 Husbandry Challenges

Like *Ptychochromis insolitus*, the Nosy Be cichlid is also prone to rowdy behavior (DE RHAM & NOURISSAT 2004; ZIMMERMANN 2014; ZIEGLER et al. 2020).

Therefore, it is recommended to keep the fish in larger groups and to equip the aquarium with only few furnishings. In this way, the animals are in constant social interaction and permanently defend their small territories. Individuals are thus not too strongly suppressed.



Nosy Be Cichlid in a private keeper's tank | Piotr Korzeniowski



5. Further Reading

BENSTEAD, J. P., P. H. DE RHAM, J.-L. GATTOLLIAT, F.-M. GIBON, P. V. LOISELLE, M. SARTORI, J. S. SPARKS & M. L. J. STIASSNY (2003): Conserving Madagascar's Freshwater Biodiversity. – *BioScience* 53(11): 1101–1111.

DE RHAM, P. H. & J.-C. NOURISSAT (2004): The Endemic Cichlids of Madagascar. – Publication Association France Cichlide, Solliès-Pont, France.

RAVELOMANANA, T. & SPARKS, J.S. 2020. *Ptychochromis loiselei* (amended version of 2016 assessment). The IUCN Red List of Threatened Species 2020:e.T96306872A177065940. <https://dx.doi.org/10.2305/IUCN.UK.20203.RLTS.T96306872A177065940.en>. Downloaded on 08 July 2021.

SCHÄFER FRANK (2021): *Bedotia geayi* - <https://www.aquariumglaser.de/fischarchiv/bedotia-geayi/> [abgerufen am 23.11.2022]

STIASSNY, M. & J. SPARKS (2006): Phylogeny and Taxonomic Revision of the Endemic Malagasy Genus *Ptychochromis* (Teleostei: Cichlidae), with the Description of Five New Species and a Diagnosis for *Katria*, New Genus. – *American Museum Novitates* 3535: 1–55.

ZIEGLER, T., N. FRANK-KLEIN, S. OMMER, R. HÜRCHER, P. V. LOISELLE & M. VENCES (2020): Keeping and breeding of threatened endemic Malagasy freshwater fishes at Cologne Zoo (Germany): a contribution towards the advancement of a conservation breeding network. – *Der Zoologische Garten (Neue Folge)* 88: 123–155.