

# Panther chameleons (*Furcifer pardalis*) – Master of Colours

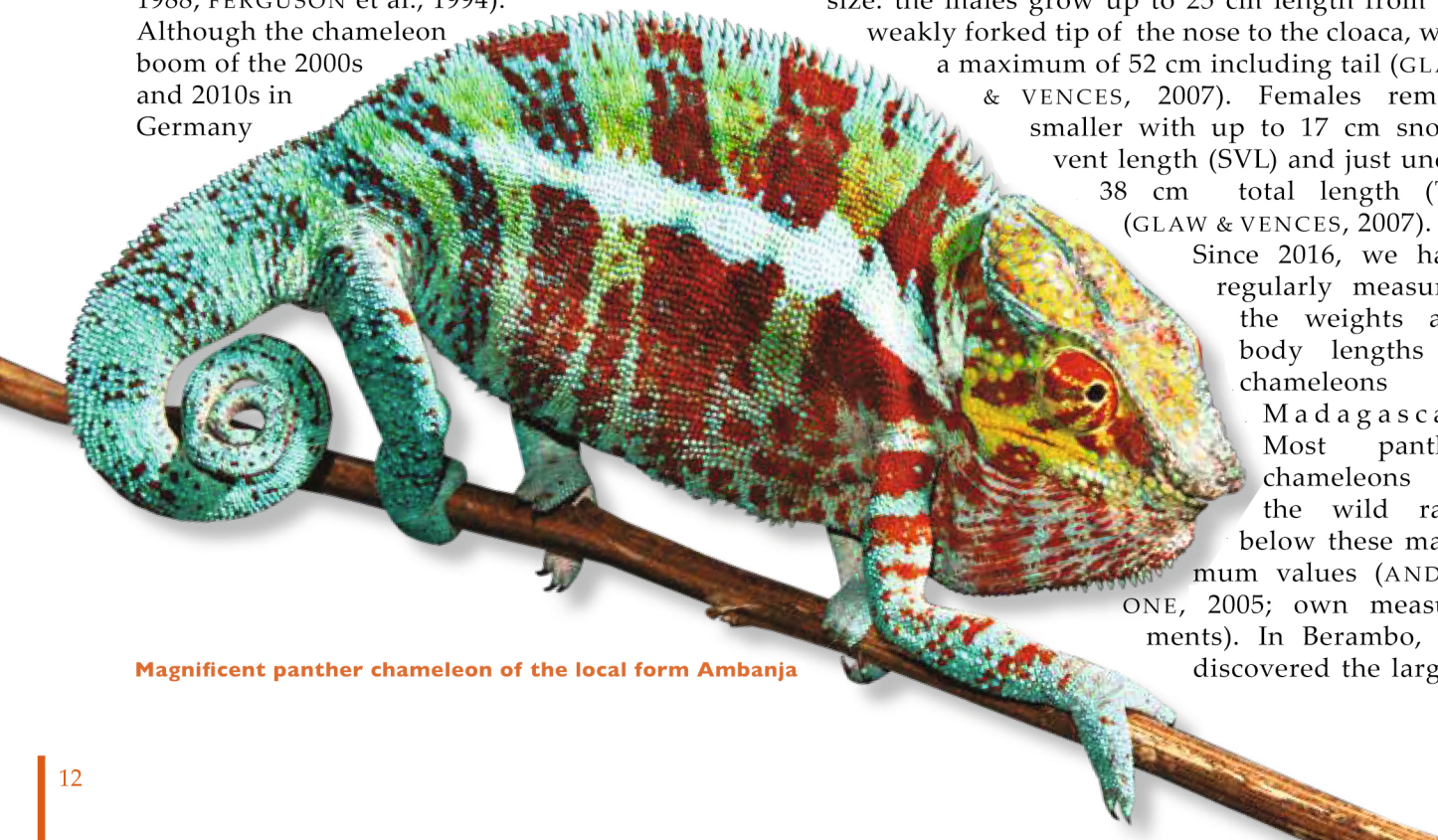
Panther chameleons (*Furcifer pardalis*) are originally found only on Madagascar. In 1829, the French zoologist Georges Léopold Chrétien Frédéric Dagobert Baron Cuvier received a dead specimen from Madagascar, which he described in a single sentence. Whether he christened the animal the panther chameleon because of its actually completely untypical black colouring is open to speculation. But Cuvier simply did not know the animal alive! If he had known what an extraordinary range of colours panther chameleons can show, he would probably have chosen a different name.

Text and photos by Thorsten Negro and Alexandra Laube

Panther chameleons are among the most popular pets in herpetoculture today, mainly because of their bright colours, but they are also relatively easy to breed. Already in the 1980s, offspring were regularly bred (SCHMIDT & TAMM, 1988; FERGUSON et al., 1994). Although the chameleon boom of the 2000s and 2010s in Germany

has now largely subsided, panther chameleons have lost little of their popularity. In addition to the factors already mentioned, the popularity of this beautiful species is also due to the mostly easy-to-handle characters and a very pleasant body size: the males grow up to 25 cm length from the weakly forked tip of the nose to the cloaca, with a maximum of 52 cm including tail (GLAW & VENCES, 2007). Females remain smaller with up to 17 cm snout-vent length (SVL) and just under 38 cm total length (TL) (GLAW & VENCES, 2007).

Since 2016, we have regularly measured the weights and body lengths of chameleons in Madagascar. Most panther chameleons in the wild rank below these maximum values (ANDRE ONE, 2005; own measurements). In Berambo, we discovered the largest



Magnificent panther chameleon of the local form Ambanja



Characteristic habitat on Nosy Faly

male so far with a SVL of 23 cm, and the heaviest not far away in Djangoa with 190 g. Most male panther chameleons tend to reach weights between 100 and 150 g. The females can reach up to 60 g when pregnant in Madagascar and remain rather small with an average SVL of 13 to 15 cm.

## Habitat of the panther chameleons in Madagascar

The range of *Furcifer pardalis* extends exclusively over the northern half of Madagascar. In north western Madagascar, the habitat of the panther chameleon begins a few kilometres south of the village of Ankaramibe. It then extends along the entire north-west coast to the northernmost tip of Madagascar, and then runs along the east coast to about 50 km south of the port city of Toamasina (French Tamatave). Panther chameleons cannot be

found in the central highlands or further south of the mentioned places. Earlier reports of *Furcifer pardalis* occurring in the very dry west as far as the coastal town of Mahajanga have proved to be

false. Presumably, *Furcifer angeli* has been confused with panther chameleons there. In its mostly coastal range, the panther chameleon mainly inhabits any secondary vegetation.



Dry forest and beach on Nosy Hara





Bay of Diego Suarez



Habitat on the rainforest island of Nosy Mangabe

Cocoa and coffee plantations, the edges of rice fields, overgrown gardens, roadsides, but also small forests and open landscapes adjacent to savannahs are used as habitat. Panther chameleons are very adaptable, so that many years ago they were already called "synanthropic". However, you should know that the repeatedly mentioned "gardens" where panther chameleons like to stay in Madagascar cannot be compared to the European idea of

a garden in Madagascar. Likewise, the occurrence of the species within small villages has little to do with the idea that it could reproduce in heavily developed urban environment. Cottage villages in Madagascar are usually very simple dwellings in the midst of extremely lush secondary vegetation of palms, mango and other large fruit trees and tall scrub during the rainy season. This is exactly what panther chameleons are looking for and

needs in terms of habitat - but it has nothing whatsoever to do with "gardens" or "villages" as we have them in Europe. In fact, panther chameleons can sometimes be found in well-kept hotel gardens. Females sometimes lay their eggs there. However, these are almost always hotels that are not located in an inner-city environment. Closed rainforests are in principle part of the habitat of panther chameleons, but they are less frequently found there. Whether this is actually due to the lower occurrence in closed rainforests or to the fact that it is more difficult to find them in very tall, old trees remains to be seen. However, the earlier assumption that they are mainly inhabitants of the treetops is now considered to be disproved (GEHRING, 2005). In rainforests, we have never found the animals above 800 m altitude, and even above 500 m only sporadically. Madagascar's climate is divided into a dry season, which lasts roughly from April to October, and a rainy season from November to March. As the name suggests, the rainy season is characterised by abundant rainfall and regular evening thunderstorms. The annual cyclone season lies at the beginning of the year and mainly affects the east coast of Madagascar. In the dry season, it rains only briefly every few days, in some regions not at all for weeks. The vegetation dries out and becomes yellow and unsightly - this can be seen especially in the north and northwest of the species' distribution range. The always humid east coast is usually not affected by extremely pronounced dry seasons. A decisive difference in climate, however, is not only the rain, but also the temperature. Especially at night, the temperatures drop significantly in the dry season, while they are only slightly below the daytime temperatures in the rainy season.



The famous tongue shot at a grasshopper (left in the picture)

**Life cycle in Madagascar**

The rainy season is the breeding season of the panther chameleons and the "time of colours". Now males and females show their brightest dress. The food supply increases by leaps and bounds. What exactly panther chameleons eat has only been partially researched. From panther chameleons on the Masoala Peninsula it is known that mosquitoes and flies make up more than a quarter of the diet (LUTZMANN, 2006). In addition, there are beetles, hymenoptera, arachnids, grasshoppers, butterflies, dragonflies, cicadas and bugs. Every year at the end of the rainy season, we observe especially a large supply of small cone-headed crickets, which are shot in large numbers by all chameleons. However, panther chameleons generally prefer to eat many small food items rather than a few large ones (LUTZMANN, 2006) and prefer fast-moving or winged insects (own observations). Like many other chameleon species, they are basically opportunists when it comes to feeding. You could also say: What moves fast and fits into

the mouth, gets eaten. This does not always end well - larger geckos can literally get stuck in a panther chameleon's throat. The males start looking for females to mate with a few weeks after the onset of the rainy season. This makes them much more active than in the

This makes them much more active than in the dry season, crossing roads from time to time and often perching on the low borders of cocoa plantations, on improvised fences made of branches and other exposed places from which they can better spot potentially receptive mates. Once a female is found, the male approaches briskly while showing off his best colours and nodding



This juvenile from Ankaramibe does not yet show a recognisable local form in its colour dress





Female laying eggs in Marojejy National Park



Juvenile in Sambava, still without a recognisable local form

his head diligently. Mating itself is usually not very romantic in panther chameleons. If the female wants to escape, the male usually chases her and eventually holds her down to climb onto her back and insert one of his two hemipenes into the female's cloaca. However, females that are not willing to mate can become very defensive. With a threatening open mouth, hissing and swaying

of the body on the branch together with almost black colouring, a female shows that she is not interested. If the male nevertheless becomes pushy, the female may bite. As a rule, however, mating takes place very quickly during the rainy season, after which the two partners separate. Whether panther chameleons exhibit *mate guarding*, a behaviour in which the male accompanies

the female for a few days or even longer after mating and fends off other rivals, is not entirely clear (GEHRING, 2005). In fact, during the rainy season in Madagascar, males and females are often found within a few square metres of each other, even after mating has taken place. However, the pairs usually do not sleep in the same places and often cannot be found together after a few days (own observations). Possibly the very short "guarding" of a female is already sufficient to increase the reproductive success of a male. Here - as with so many behavioural aspects of chameleons on Madagascar - more research would be desirable.

Females that have successfully mated show a change in colouration within a very short time. This signals to interested males from a distance that they no longer need to bother about this female. After 30 to 40 days, the female lays her eggs in a carefully dug hole in the ground or sand (SCHMIDT & TAMM, 1988; GLAW & VENCES, 2007). This usually takes her a whole day. Once the eggs have been laid, the nest is usually so neatly closed that it is hardly possible to see from the outside where a panther chameleon has laid its eggs. In herpetoculture, panther chameleons achieve clutches of up to 50 eggs through rich feeding (FERGUSON et al., 1994; GLAW & VENCES, 2007) - in the wild in Madagascar it is usually somewhat less, clutches between 11 and 35 eggs are known (RAXWORTHY, 1991; GEHRING, 2005; LUTZMANN, 2006; EPPLEY, 2019; own observations).

The panther chameleon does not take further care of the eggs. They are left to their own after being laid. Thus, females can mate and lay eggs several times (FERGUSON et al., 2004) during a rainy season. Panther chameleons, however, are also capable of sperm storage. The eggs remain in the ground during the next dry



A panther chameleon chews on a captured flying insect

season, for about six months (SCHMIDT & TAMM, 1988; GLAW & VENCES, 2007). Unless a hognose snake tracks down the clutch and plunders it - then, unfortunately, all the work has been in vain. The dry season marks the beginning of a resting phase for the panther chameleons (GEHRING & KUBIK, 2005; own observations). They are less active, show pale, greyish colouration and the food supply is significantly reduced, depending on the region. We frequently observe diseases of the stomatitis complex ("mouth rot"), especially on the east coast, after bite injuries by rivals or predators. But also all other injuries, such as tails accidentally cut off by humans during logging, hands and feet deformed after bites and open wounds are not uncommon at the end of the rainy season and the beginning of the dry season. Surprisingly many of these heal, but certainly many panther chameleons die unnoticed during the dry season (BOURGAT, 1968; GEHRING & KUBIK, 2005; own observations). If everything went well with the eggs, the hatching of the young panther chameleons is usually triggered by the massive onset of rainfall in the next rainy season. All the young of a clutch hatch at a relatively short time interval from each other

- this phenomenon is called hatching synchronisation. With the mass hatching of entire clutches, the chance of survival of the individual animal increases. Of course, there are a lot of predators for whom freshly hatched panther chameleons are a welcome snack on the menu. Some snakes, such as the Common Big-Eyed Snake, and smaller mammals,

Birds of prey such as France's Sparrowhawk, various falcons and owls will readily take a larger panther chameleon as prey

such as ring-tailed mongooses, are known to be chameleon predators (JENKINS et al., 2009). However, there are also aerial predators: birds of prey such as France's Sparrowhawk, various falcons and owls will readily take a larger panther chameleon as prey (JENKINS et al., 2009). Even from their own kind, panther chameleons are not safe as juveniles if a hungry adult is in the vicinity (own observations). The last newly hatched juveniles can be found on Madagascar until late March, depending on the local





Local forms of *Furcifer pardalis*

form. Within the next months, the juveniles, whose colouration is still pale and unspectacular at first, grow into adult panther chameleons with the typical local form colouration. Only half of the hatchlings reach sexual maturity (FERGUSON et al., 2004). With the new rainy season, a new reproductive cycle begins. Life expectancy of panther chameleons in Madagascar is not yet well known. In our experience, they can reach a good 5 to 10 years in herpetoculture. Under the adverse conditions in the wild of Madagascar, a much shorter life span of only one to two years is assumed (BOURGAT, 1968; FERGUSON et al., 1994; ANDREONE, 2005).

**The different local forms of the panther chameleons**

A local form is a colouration that occurs isolated in a certain distribution area of the panther chameleon in Madagascar. This refers mainly to the colouration of the males. The females cannot be assigned to their local form based on their colouration alone - they vary equally everywhere from pink to orange with sometimes purple accents. Local forms develop in areas

that are permanently separated from other distribution areas by natural barriers such as wide rivers, mountains or the sea. Since 2010, we have been trying to document the various local forms in Madagascar on our website [www.madcham.de](http://www.madcham.de). Currently, we know of more than 30 distinguishable local forms of panther chameleons in Madagascar. However, there are certainly many more, especially in more remote areas or on smaller islands that are rarely visited. Most local forms on Madagascar are named after a place where they occur. This can be a village, the nearest town, an island or a nearby body of water. The map above illustrates the different places where the local forms currently known to us can be found. Along the distribution range of the panther chameleon, you can follow the Route Nationales for the most part to visit the different local forms. If you drive north from the capital Antananarivo on RN4 and RN6, you will finally reach the regions where panther chameleons can be found after more than 800 km and a driving time of more than two days. The first local form in the northwest is Ankaramy, named after a river - the similar sounding village nearby is called Ankaramibe. The panther chame-



Male of the local form Ankaramy



Female of the local form Ankaramy



Local form Djangoa



Male of the local form Ambanja



Female of the local form Ambanja



Local form Sambirano



Local form Ankify



Local form Nosy Komba





Local form Nosy Hara

leons of the local form Ankaramy wear a characteristic dirty red that cannot be found anywhere else. They used to be called "pink panthers" because of the sometimes very intense colours. To the north, directly along the RN6, separated by two rivers, between the villages of Ankingameloka and Mahilaka, borders the local form Djangoa. Here the males already look completely different. Behind the village of Djangoa itself runs a river called Ambavanidjangoa (translated "in the north of Djangoa" - people keep it very simple linguistically in Madagascar). However,

of the panther chameleon in Madagascar. By the way, the already mentioned Sambirano gives its name to a very unknown local form in a tiny, very special area not far from Ambanja. At the confluence of the Ramena River and the Sambirano, there is a small area that is completely separated from the local form Ambanja by the two rivers and borders on an extensive mangrove area towards the sea. Northwest of Ambanja, a narrow road leads through mangroves

and ylang-ylang plantations to the coast of the Mozambique Channel. There, between palm trees and beach, lies the small village of Ankify. The entire gently hilly landscape between Ankaramibe, Ankify and Ambanja consists almost entirely of secondary vegetation with many ravenalas, small bamboo groves, many mango trees and countless cocoa and coffee plantations. The region along the Sambirano is Madagascar's main cocoa growing area.

From Ankify harbour, you can take a boat to various islands. Almost all of these islands - or at least all that have more than one sandbank - have their own panther chameleon local forms. The largest island, at around 312 km<sup>2</sup>, is Nosy Be (translated simply as "big island"). Around 45,000 people live here, mainly from tourism and fishing. Panther chameleons can be found both in the rainforest of Lokobe National Park and in the open landscapes of the rest of the island. The males of the local form are usually turquoise green or blue, with blue banding and red spots, as they are known in the pet trade. Despite the relatively high colour fidelity, there are small variations within the local form. For example, there are almost completely turquoise-blue coloured animals without distinctive banding on Nosy Be.

Directly opposite Ankify is the almost circular volcanic island of Nosy Komba, which is relatively well developed for tourism due to its proximity to Nosy Be and

and whose local form even looks quite similar. The largest village on the island, Ampangorina, lives from its small harbour and the countless souvenir shops that make up almost half of the huts. Actual protected forest also exists on Nosy Komba, but it only occupies 0.6 km<sup>2</sup>.

Another island used for tourism around eight kilometres southeast of Nosy Be is Nosy Tanikely (translated as "little earth"). The indeed very small, uninhabited dream island is only 3.41 km<sup>2</sup> in size and consists of paradisiacal beaches, which are known for their offshore, very colourful coral reefs, and a little rainforest. The entire island is a national park and thus a protected area. Surprisingly, the males of this local form do not resemble those of neighbouring islands at all. Instead, the male panther chameleons on Nosy Tanikely have blue and turquoise green banding and an orange head. Also within sight of Ankify is Nosy Faly (translated as "happy island"). The people here live exclusively from fishing and are desperately poor. Nosy Faly itself offers landscapes of small savannahs as well as steep beaches, much secondary vegetation and even mangroves. Almost nothing of the original vegetation is left on the island due to consistent deforestation, mainly for firewood. The panther chameleons of Nosy Faly are known in herpetoculture for their turquoise-green to blue males with lots of white and red spots. In nature, however, there are also animals that are almost exclusively dark green and red.

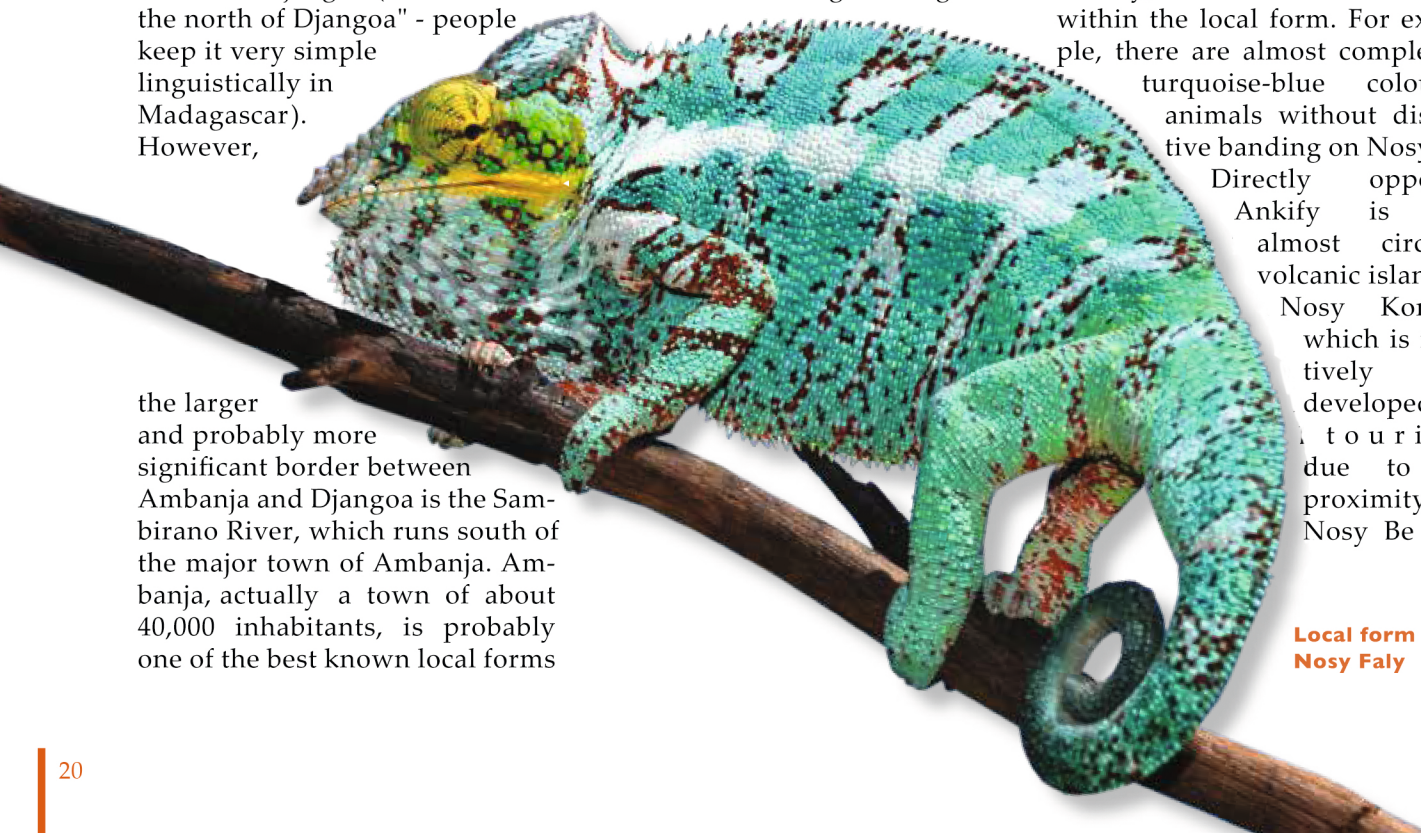
Nosy Mitsio is not a single island, but a group of islands of volcanic origin stretching over 70 km further north on the northwest coast of Madagascar. The largest island is called Grande Mitsio, the smaller ones include Nosy Ankarea and Nosy Hely. The smaller islands, including Nosy Ankarea,



Local form Ambilobe

are mostly uninhabited and thus remain quite pristine. The male panther chameleons of this local form are light green without any banding, with red eyelids. When excited, they turn lemon yellow. Despite the natural isolation of the individual islands from each other, the panther chameleons of the Mitsio archipelago look very similar. With the animals from Nosy Ankarea, we have only been able to observe a greater shade of orange. Back to the mainland: The probably best-known local form of the panther chameleon is

located just under 100 km north of Ambanja behind a large river. Ambilobe is a chaotic and very poor town with about 50,000 inhabitants. The town itself is unfortunately not a very nice place to stay - a lot of cash is consumed here. In herpetoculture, Ambilobe is known for its extremely colourful panther chameleons. These are found less within the town itself, but rather in the surrounding plantations and especially easily along the sand and clay road from Ambilobe to Sirama, which is



the larger and probably more significant border between Ambanja and Djangoa is the Sambirano River, which runs south of the major town of Ambanja. Ambanja, actually a town of about 40,000 inhabitants, is probably one of the best known local forms

Local form Nosy Faly



Local form Nosy Tanikely





Local form Vohimana

lined with rice fields, sugar cane and low bushes. Only 37 km northeast of Ambilobe, behind another river, lies Ankarana National Park. Ankarana is now almost entirely surrounded by savannah-like vegetation, in which panther chameleons are hardly to be found. The Tsingy, an impressive needle rock formation, divides the national park into two large areas: The East and the West, each with extensive dry forests and small oasis-like forest areas within the Tsingy itself. Both Ankarana East and Ankarana West have evolved their own local forms of panther chameleons.

The northernmost tip of Madagascar also has its own relatively widespread local form: Antsiranana (French Diego Suarez) is the northernmost major city with around 80,000 inhabitants. It is situated on a large bay with a picturesque sugar loaf. There are no panther chameleons in Antsiranana itself, but they can be found in the outer areas near the city with secondary vegetation, dry forest, savannah-like areas and simple wooden huts. Due to the lack of natural barriers, the distribution area of this local form extends over a wide area until shortly before Ambohitra (Joffreville).

However, there is one small exception in the immediate vicinity of Antsiranana: the hut village of Mangaoka is actually not far from the big city, but has developed its own local form - presumably due



Local form Sambava

to the salt flats and mangroves in front of it. And those who pass through Mangaoka usually want to go a little further: namely to the coast and to the island of Nosy Hara, which is only 3.2 km² in size. The island is completely protected and home to the second smallest chameleon in the world, *Brookesia micra*. What is special about the island is that it consists mainly of karst rock, which covers the island in layers and resembles the Tsingy. Panther chameleons live here in the sometimes huge trees of the dry forest that squeezes between the rocks all over the island. Since Nosy Hara has been considered *fady* (taboo) by the locals for decades and is uninhabited, the local form of the panther chameleon could develop completely undisturbed.

About 35 km southwest of Nosy Hara and a good 50 km north of the Mitsio archipelago lies another island, Nosy Valiha, in Befotaka Bay. This is probably the local form with the greatest risk of confusion, as there are numerous islands and bays with the same name around Madagascar.

Our local form journey now goes from the northern tip of Madagascar along the east coast back south to the Sava region. Around Vohimarina (French Vohémar) you will find another local form. The people here live mainly from field work and fishing. Rice, cassava and peanuts are cultivated, and there are also very many zebras in the savannah-like



Local form Cap Est



Local form Marojejy



Local form Ankarana East

surroundings. Somewhat lush vegetation with larger and older trees is present along the rivers. The animals of the local form Vohémar look extremely similar to the local form Ankarana East, despite some distance. And it is equally amazing that the panther chameleons of the local form Vohimarina can still be found as far as the dry forest of Loky Manambato near Daraina, although there are a good 50 km and the Manambato River in between.

Sambava lies behind another river about 150 km south of Vohimarina, also on the RN5a on the coast. The town has about 45,000 inhabitants and is famous as the "capital of vanilla". Most people here live from working on the surrounding vanilla plantations or in the associated production facilities, a few also from fishing or rice fields. Outside the town in the secondary vegetation, panther chameleons are easy to find here. About 65 km down RN3a to the south is the village of Manantenina, from where it is a few kilometres' walk to Marojejy National Park. The Marojejy National Park is difficult to reach due to its location in the mountain range of the same name and the lack of infrastructure. Between the rice fields of Manantenina and Mandena and into the rainforest of the national park, you find a beautiful local form of panther chameleons. If you drive from Manantenina on the RN3b diagonally into the country about 100 km to the southwest, you will finally reach



Local form Nosy Mangabe



Local form Ankarana West

Andapa in the middle of banana plantations and rice fields.

Back to the Indian Ocean coast and onto the RN5a: from Sambava, 80 km brings you to the town of Antalaha, the region's fourth eponymous major town. Several rivers such as the Onive separate this local form the animals of Cap Est further south and Masoala to the west. In close proximity to Masoala National Park, Cap Est is located in a buffer zone on the edge of the peninsula. It is not a village, but the name of the easternmost tip of Madagascar, simply an uninhabited piece of land only a little above sea level. Cap Est is difficult to access, which is why hardly any travellers ever get to see it. Due to its isolated location, a very colourful and beautiful local form of panther chameleon can be found at Cap Est.

The 5.2 km² island of Nosy Mangabe (translated as "very beautiful island") in Antongil Bay actually belongs to Masoala National Park. Nosy Mangabe is completely covered by rainforest. Because of its remote location, only a few travellers come here each year - and we are among the small handful of people who spend the night there at all. As an island form, a very colour-faithful local form has developed here, which shows almost no variation.

Directly opposite Nosy Mangabe is the town of Maroantsetra - by the way, we are now in the Analanjirofo region. The town is located in the northern end



Local form Mananara





Local form Nosy Boraha



Local form Soanierana Ivongo



Local form Fenoarivo



Local form Manambato

of Antongil Bay and is thus the starting point for all expeditions to Masoala National Park. As the market and trading centre of the area, it has now grown to around 25,000 inhabitants. Maroantsetra is hardly accessible by land, as the RN5 coming from Toamasina is mostly an impassable mud track and many bridges and ferries are destroyed. Only the Mananara Biosphere Reserve on the southern edge of Antongil Bay is even more inaccessible. The local form journey continues down the east coast and finally back to more touristy areas: The island of Nosy Boraha, better known by its French name St. Marie, is located on the east coast of Madagascar in the Toamasina region of the Indian Ocean. The island is 50 km long and two to seven km wide. Most people here live from tourism and fishing. Especially the white dream beaches of St. Marie are famous, in many places you can dive/snorkel.

A very colourful local form can be found here in bushes, shrubs and trees of the secondary vegetation. Despite its isolation on an island, it resembles the local forms of Mahavelona and Soanierana Ivongo. The males here wear a white-grey, partly bluish colour dress with rust-red banding. A relatively similar colouration, but differing in details and separated from Nosy Boraha mainly by natural barriers, is shown by the local forms of Soanierana Ivongo at the ferry port directly opposite St. Marie, Fenoarivo (French Fénérive) about 65 km further south on the coast and Mahavelona (French Foulpointe) another 45 km down the RN5. This bright colouring has led to the name "snowball". A clearly different looking local form with a lot of white and bright red, also known in herpetoculture, belongs to the largest and most important harbour town on the east coast, Toamasina (French

Tamatave). From the highlands with the capital Antananarivo, Toamasina can be reached via the RN2 within a good six hours by car (215 km). The border of this local form is very clearly demarcated towards the north: about 10 km north of Toamasina, near Ivoloana, the local form colour changes abruptly. A similarly coloured local form is found slightly inland near Vohimana - it is the only local form that borders so close to the highlands. The distribution areas of the last and "southernmost" local forms are about 50 km south of Toamasina at the lakes Ampitabe and Rasoabe, 28 km away, at the hut village Manambato. Both lakes are connected by the Canal des Pangalanes, are only a few hundred metres from the Indian Ocean and own the last remnants of lowland and gallery rainforest in the region. We can only recommend trips to the different distribution areas of the panther chameleons -

no matter how many times you have been to Madagascar, there is something new to discover every time.

### Note on the development of local forms in captivity

We are often asked why panther chameleons in captivity do not always correspond exactly to what we see in Madagascar on our travels. The Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) allows an annual export of 3000 panther chameleons from Madagascar. According to calculations, this number is reasonable for the total population (BRADY & GRIFFITHS, 1999; ANDREONE, 2005). For export, particularly colourful panther chameleons or those from easily accessible areas are preferred. The catchers are usually not chameleon experts and poorly paid. The females cannot be assigned to the actual local form by their appearance alone. Confusions of different local forms certainly occur intentionally or not. In addition, it is forbidden to take animals from protected areas such as national parks, leading to local forms being simply sold under false names. For several years, particularly colour-intensive chameleons have been bred in captivity, which sometimes show unbelievable colour intensities in the males. As in the colour morph breeding of other reptiles, these breeding varieties are not to everyone's taste, but as long as there are no health restrictions, we have to accept them as part of herpetoculture. However, these panther chameleons are not local forms as they occur in Madagascar. Since the colours of these colour morphs do not exist in the wild, they should no longer be "assigned" to a local form in captivity, but named „colour morphs“ to avoid more confusion. ■



## Terraristikbörsen 2023

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<b>Wörth am Rhein</b>	<b>– 01.07.23</b>
<small>Bienwaldhalle (Karlsruhe) (Samstag)</small>	
<b>Rendsburg</b>	<b>– 27.08.23</b>
<b>Bremen</b>	<b>– 01.10.23</b>



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Spectators while we photograph a panther chameleon in the small village of Ambodimatsiko near Sambava

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