

# PARADISE

## Flying Snakes

(*Chrysopelea paradisi*)



### Notes on Captive Breeding and Husbandry

by Dan Mulleary, DM Exotics

#### INTRODUCTION

In August of 2009 my wife and I were on a trip to Thailand, and had no planned itinerary. We had been in the country for a couple of weeks and were trying to decide how we would spend the latter half of our vacation. A few months earlier I had made a new contact in Malaysia, and had imported from him once or twice by that time, but we had never actually met. As is usually the case when traveling, I try to check my email occasionally and was happy to see an email from this exporter asking me how my trip was going. It was then I had an idea, what about heading to Malaysia to visit him? He was very receptive to the idea so the very next afternoon we were on a flight to Kuala Lumpur. Because he had no idea what I looked like, I sent him a bunch of pictures of us to help him identify us in the crowd at the airport. Without a doubt I would be easy to spot in the sea of people coming out of the terminal. It was pretty strange after gathering our luggage and walking through the waiting area and trying to figure out which one of the mystery people standing around was our contact. We quickly made eye contact with one young gentleman who smiled, waved us over and quickly said, "Hello Dan and Apple, welcome to Malaysia." While it was a little disconcerting that we essentially just jumped into a stranger's car in a foreign country, he seemed very genuine and I quickly realized that we were in good hands. In that short car ride with him and his brother, we all quickly realized that we were hitting it off really well. Over the next several days we were given a grand tour of Kuala Lumpur enjoying the food and the culture. However, one of those days stood out in my memory, the day he brought us to his facility. It was on this day that I saw one of the most magnificently colored snake species for the very first time, the Paradise Flying Snake.

#### DESCRIPTION

This small colubrid occurs in Southeast Asia and averages about three feet in length but it is not uncommon to find large adult females in the four foot range. There are five described species of *Chrysopelea* (*C. ornata*, *C. paradisi*, *C. pelias*, *C. rhodopleuron*, and *C. taprobanica*) but only two are really seen in the hobby. This would be the Ornate Flying Snake (*C. ornata*) and the Paradise Flying Snake (*C. paradisi*). These two species are the widest ranging in the genus with the range of the Ornate Flying Snake extending from western India to the Philippines, and Paradise Flying Snake ranging through much of Myanmar, Thailand, Peninsular Malaysia, Singapore, and Indonesia. *C. pelias* ranges from the Malay Peninsula, Borneo, and throughout most of Indonesia. *C. rhodopleuron* occurs on Sulawesi and some of the small neighboring islands in the Moluccas, and *C. taprobanica* is restricted to Sri Lanka.



Above: Paradise Flying Snake habitat in Southern Thailand. Below: The shaded areas in the map below indicate countries where *C. paradisi* has been documented. While *C. paradisi* has been recorded from the Philippines, it is believed that these snakes may belong to a separate, currently undescribed species. These islands are shaded a different color to illustrate this probable difference.



Map by Melissa Nugent, GIS specialist.

Up to this point I had seen plenty of the common Ornate Flying Snakes both in the field and as captives but the Paradise Flying Snake was far different in color. I also was lucky to see a captive *Chrysopelea pelias* also in the warehouse in Kuala Lumpur, but in my opinion the coloration is not as impressive as *C. paradisi*. To describe the Paradise Flying Snake in words is not easy but it is basically a black snake with a uniform colored dot on each scale which can be cream, green or even a bluish color. The most beautiful specimens have bright red spots running in a straight dorsal line from the head to the where the actual tail starts at the vent. They can be completely devoid of this red coloration or just show traces of it. This snake is quite alert and fast moving and when it does move the intricate pattern just blurs and is ac-

tually quite difficult to focus on. Then when it suddenly stops, your eyes are once again overwhelmed by the combination of intricacy and color. The snakes in the genus *Chrysopelia* are often referred to as "flying snakes" due to their unique ability to flatten their body by pulling in their ventral surface to form a concave shape used to create air resistance when launching themselves from trees at height. Once they have committed and are airborne, they will move in an "S" fashion through the air just as they would if on the ground. This unique feature propels them with some forward gliding motion as they descend. When handling these snakes you must keep a steady grasp on them because they will often try to launch themselves right out of your hands with great confidence. The ability to flatten out also gives them

an amazing advantage when climbing smoother surfaces that provide very little grip. They can use this extra surface area to get traction and gain hold on vertical objects such as tree trunks, vertical rocks and human dwellings. *Chrysopelia* are rear-fanged. While a bite from one is generally not considered dangerous to humans, they do have enlarged teeth towards the rear of the mouth and do produce a small amount of venom. The delivery system is not as efficient as front fanged, venomous snakes but a prolonged bite (chew) is ill advised with these and any other ophistoglyph. I have only experienced one bite with no effects; however, this animal did not just give a nip, but went immediately into a chewing motion which I did not allow to continue.



Above: Close up of a high-red *C. paradisi*. Below: View of *C. paradisi* copulating in 2013.



Above Left: My wife and I with a traditional Thai family. In the background you can see the thatched roof structure common to the region that provides habitat for *C. paradisi*. Above Right: *C. ornata* climbing a tree in Thailand.

## FIELD OBSERVATIONS

I have encountered *Chrysopelia* sp. in the wild several times in Thailand, and usually they were near human dwellings. As these snakes are diurnal, they are primarily active during the day and will search out house geckos and other lizards that make housing structures their home. I have seen them hunting along the tops of houses with palm frond roofs, which are common in rural areas in Thailand. These roofs provide many hiding places for lizards, birds and rodents. I once spent a couple of hours laying on a hammock on a beach populated by palm trees watching a *C. ornata* systematically go up each tree. It would poke around and hunt for prey in the fronds at the top, then cautiously

come down and when it seemed safe it would quickly move across the grass to the next palm tree and do the same thing. It was quite interesting and obvious how keen these animals are to their environment. It seemed to notice every movement and would not come down all the way to the ground until no people were around and nothing seemed to be a threat. From that first particular observation I started looking up more often while hiking and saw this behavior a second time, but in a much more remote area. I have also encountered *C. ornata* hunting at night by scent in tree holes and various types of wooden fencing that presented places that lizards could retire for the night.

The smell from getting musked by any of the

*Chrysopelia* is also unique. While the act of musking by many snakes is not uncommon when they feel threatened, the smell from this genus is quite different. While it is repulsive, it is not necessarily disgusting. To me it comes across as a very strong herbal type scent, but is not pleasant. Like the musk of many other snake species, it also does not wash off easily.

## HUSBANDRY

From that day in the warehouse forward, I was consumed with the idea of opening a box from Malaysia and putting a Paradise Flying Snake into one of my cages at home. Over the next couple of years I was able to get a few specimens. I had heard some Asian collectors saying



Above: Clutch laid in 2015. While this female is devoid of red, all babies hatched with the classic red coloring.  
Below: Clutch laid outside the nest box by a normal colored female.



that only the males had the red spotting, but this was easy to dismiss as I had males and females displaying all variations of color. For the adults, I found that females were always the larger of the two which is typical of most snake species. The majority of the animals that I was sent came in with good body weight but some needed a little extra attention with hydration, more humidity for those going through shed cycles, and also providing as much of a stress free environment as possible.

I found that they all readily ate live house geckos, and after a while would develop a feeding response to the point where they would quickly go after anything I put in the cage. This provided an opportunity to switch them over to mice but this was with mixed results. I had some of the largest females switched over and thrive for years on a rodent only diet. However, other times where everything was going solid for months on a diet of house geckos I had lost animals in 2-3 days after consuming their first mouse. This seemed to happen most often with the smaller individuals. Since this was all in an experimental stage, I adopted a rule that I would only feed the smaller animals house geckos, and the larger ones I would alternate between geckos and mice for a time before switching them to an almost 100% rodent diet if my instincts were in accordance.

#### BREEDING

The acclimation process was not easy in the beginning as I was trying to figure out husbandry practices through trial and error efforts with animals that were not available in large numbers. In 2013 I finally had a viable pair of acclimated adults, and figured it was time to try breeding. In preparation for this I had reduced the feeding regimen on the female to one very small meal once per week for several weeks to simulate a dormant season. As I planned for pairing, I took note of shed cycles so that the timing of sheds would be coordinated between the male and female. I increased feeding frequency of the female to the same sized, small meals but now was offering three times per week. After three weeks of this I started introducing the male and courtship started immediately followed by copulation shortly thereafter. I continued removing the male for the frequent feeding of the female and reintroducing afterward. She started developing follicles almost immediately and things progressed unbelievably quickly. From the time I observed actual copulation to the date of egg laying was five weeks. This particular female was a 3-year captive, had never been with a male and laid infertile eggs as a solitary captive two years prior to this. I have found that working with tropical colubrids; food-induced cycling for breeding works quite well and I use that technique often. Because I could find no information on egg incubation techniques for this species, I chose

to incubate the eggs at 81°F (a commonly used temperature for incubating tropical colubrid eggs) with a no substrate technique. The eggs all hatched successfully after 90 days. Unfortunately, the size of the hatchlings immediately posed a problem as they were very small, measuring only about 7" and very slender. I tried various food items such as mouse parts, minnows and even freshly pulled gecko tails hoping the movement and scent would stimulate a feeding response. I had no luck and resorted to assist-feeding mouse tails which caused a lot of stress. Before I knew it, I had lost all eight of the babies. After this bitter-sweet event, I found myself with another clutch of eggs in 2015. I used my prior experience to get to the point of getting the eggs to hatch but this time I had planned ahead and had house gecko eggs incubating and hatching right at the same time as the baby *C. paradisi*.

#### CONCLUSION

This second clutch in 2015 was incubated under the same parameters as the first. The babies hatched successfully and underwent their first sheds after an average of 14 days. It was at this time I was ready to put those baby house geckos to use. Lo and behold, they started feeding. I kept each baby individually, on cypress mulch, some sphagnum moss and some plastic plants, along with various types of thin branches. I kept a water bowl in each cage, but also sprayed a couple of times per week to increase humidity and aid with hydration. The babies were quite alert and had great vision so hunting down their food never seemed to pose any problems. I also experimented by using adult house gecko tails as an alternative when baby house geckos were unavailable. I presented these to the babies by forceps and they were also readily taken. As of this writing the babies are thriving. Hopefully this article provides some guidance for those wishing to work with *Chrysopelae*. As always, it is rewarding to contribute to herpetoculture, even just a very small bit, but hopefully with this can also provide a small foothold in the hobby for the Paradise Flying Snake.



Above: A typical hatchling from the first clutch. Below: Freshly hatched neonates from the 2015 clutch.

