

HAND-REARING A GREAT BLUE TURACO *Corythaeola cristata* AT PARADISE PARK, HAYLE, CORNWALL

by Rebecca Waite

Introduction and background

The Great Blue Turaco *Corythaeola cristata* is the largest member of the turaco family. It measures between 70cm-75cm (approx. 2ft 3in-2ft 6in) in length and weighs between 820g-1,250g. It has a stout body with quite short and rounded wings and a long tail. The plumage is predominantly blue.



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Young Great Blue Turaco aged 83 days.

Both sexes look identical in coloration and this remains so throughout the year. This species lives in sub-Saharan Africa, where it inhabits montane rainforest and gallery forest (forest bordering rivers and streams) from sea level up to about 2,700m (approx. 8,800ft). It feeds mainly on fruits, but

also favours leaves, shoots and flowers.

The pair of Great Blue Turacos at Paradise Park have been together since February 2010. Almost from the moment they met they have displayed and called to each other and now have a very strong pair bond. As soon as we provided them with a nesting place they began to gather flimsy sticks and broad-leafed plants to build a nest.

We tried several different types of nesting places, all of them large platforms with a raised edge or lip to prevent twigs falling off and with various types of nesting substrate, such as wood shavings, sand and hessian sacking. The birds would build a nest and the female would even occasionally lay on these platforms, but after a few days the birds would abandon the eggs. It was thought that the nests they were building were too flimsy and were falling apart. We then managed to purchase some very large wicker baskets one of which we placed in the same area on the existing platform inside the shelter and we placed another basket outside in a sheltered position. The birds took to these very quickly and even if the flimsy nest consisted of only a handful of twigs they would happily sit on it, lay eggs and incubate them.

The first clutch of two eggs was abandoned only three to four days before the eggs were due to hatch. On inspection, the eggs were found to be fully formed and contained what looked to be healthy chicks. The birds laid a second clutch, both eggs of which were fertile, but the same thing happened again. The next clutch of eggs that was laid was removed after the second egg was laid and the eggs were artificially incubated in a Grumbach incubator. One of the eggs proved to be infertile, but the other egg was fertile and the moment the external pip began, the egg was placed under a brooding pair of White-cheeked Turacos *Tauraco leucotis*. We had successfully used this pair of turacos as foster parents many times before to rear other turaco chicks. Initially the pair seemed to be rearing the chick successfully, but by the sixth day it had died. It is thought that the size of the rapidly growing chick and its demand for food, were just too much for the foster parents, who simply could not keep up with it.

Following this set back we again gave the Great Blue Turacos the opportunity to incubate their own eggs and rear the young themselves, in the hope that they just needed more practise in doing this. Finally, in late 2010, our first chick hatched under the female turaco. This breeding attempt was monitored via cameras which we had set up to observe the nest without needing to disturb the turacos. We could easily observe the nest and see exactly what was happening. The female seemed very attentive and appeared to be trying to feed the chick. The following day, however, it was obvious that something was wrong. The chick was not responding to the female's attempts to encourage it to feed and after viewing this on the monitor it was

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The female sitting on the nest in a large wicker basket on the platform inside the shelter.

decided to go in and investigate. Upon closer investigation, we discovered that, unfortunately, the chick had died.

Reluctantly we all agreed that hand-rearing was our most realistic option and despite the difficulties we were likely to encounter, thought we had little to lose. Before embarking on a hand-rearing attempt, we carefully researched all available protocols for hand-rearing this species and after careful consideration decided to adopt the protocol developed at San Diego Zoo in California. We already had good links with staff there, namely Pat Witman and Clancy Hall, and I, together with a colleague at Paradise Park, had been fortunate enough to visit the zoo in November 2009. I had seen how its turacos are kept and the diets that are used for hand-rearing these birds, although it was made clear to us that the zoo's protocol was only partially successful.

During the winter months all our turacos are locked in their heated shelters overnight. Because of the extremely cold and prolonged winter in 2010, we took the decision to prevent the female from continuing to lay and thereby risk egg binding, by shutting the male and female in separate shelters at night and allowing them individual access to the main enclosure during the day, with each bird taking turns outside. Once winter had almost passed, they were once again let out into the main enclosure together during the day (whilst still being locked away at night for extra warmth). They immediately began calling and copulation was frequently observed. Within days the female laid an egg in her shelter. This egg was removed for artificial incubation.



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Day seven.



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Day 13.



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The author feeding the chick on day 22.



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Day 22.

Hand-rearing

The egg was placed in the Grumbach incubator which was used to incubate the previous eggs and, on February 9th 2011, the internal pip began. It was followed a day later by the external pip and then finally on the morning of February 11th the chick had hatched. It weighed 37.14g. We then followed the hand-rearing protocol given to us by staff at San Diego Zoo and used it as a guide to what to feed the chick and when. This protocol had been used to successfully rear chicks there in 2000, 2001 and 2003 but, unfortunately, since then it had not been successful.

After the chick hatched we waited six hours for the begging response to begin before feeding it. We gave it only a Dioralyte solution for the first two feeds (using a syringe), then a mixture of Kaytee Rainbox Exact parrot food soaked in a Dioralyte solution until it was completely hydrated and soft. This can be kept refrigerated for 24 hours before being discarded. However, I always placed the food in a metal dish sitting in warm water to take the chill off the food before feeding it to the chick. I used a pair of tweezers and tore off small chunks of Kaytee to feed to the chick, which took it readily. I always removed the chick from the bowl in the brooder (see below) when feeding it, as it was easier to feed it on a flat surface. I would feed the chick until it no longer wanted any more food. I was very surprised by the amount of food such a small chick consumed at one sitting. On the first day it did not produce any faeces even though we stimulated the cloaca. The first faeces were passed on the second day. It was necessary to stimulate the cloaca only until the third day after which, without any stimulation, the chick would defecate after every meal. The chick's weight was recorded before the first meal each day and checked against the corresponding weight recorded at San Diego Zoo.

The temperature in the brooder was initially set at 36°C (96.8°F) and then decreased by 1°C (~0.6°F) every other day. The humidity was maintained at approximately 65%-75%. The chick was fed every two hours from 06.30hrs-20.30hrs (8.30pm). It was kept in a metal 'coop cup' bowl with a small piece of Astroturf on the bottom to help the feet develop properly and was surrounded with paper towelling which supported the chick and kept it away from the sides of the metal bowl and prevented it from becoming chilled. Using this method meant that the matting and towelling could be changed regularly and the chick kept clean.

For three consecutive days, beginning on the second day, Betamox palatable drops were given once a day as a prophylactic, in case any infection had been picked up during hatching. By the sixth day the pin-feathers on the wings were beginning to develop and the chick became impatient if it was not fed as soon as it was taken out of the brooder. It would actively try to

move towards the bowl containing the food and the tweezers to encourage me to speed up. At this stage the chick's weight was higher than that of those of the same age successfully hand-raised at San Diego Zoo and this continued to be the trend until the chick was about 30 days old, when its weight began to even out and become similar to that of those raised at San Diego Zoo.

On the eighth day very small pieces of soft, steamed broccoli, dipped in the Dioralyte solution were given to the chick towards the end of each feed of Kaytee. The chick seemed to enjoy this so much that by day 12, I had to begin feeding it the colourful Kaytee first and leave any green bits of Kaytee until last, along with the broccoli. If I fed it green Kaytee first this was the only colour food it would eat, presumably thinking that it could be broccoli - which it loved so much.

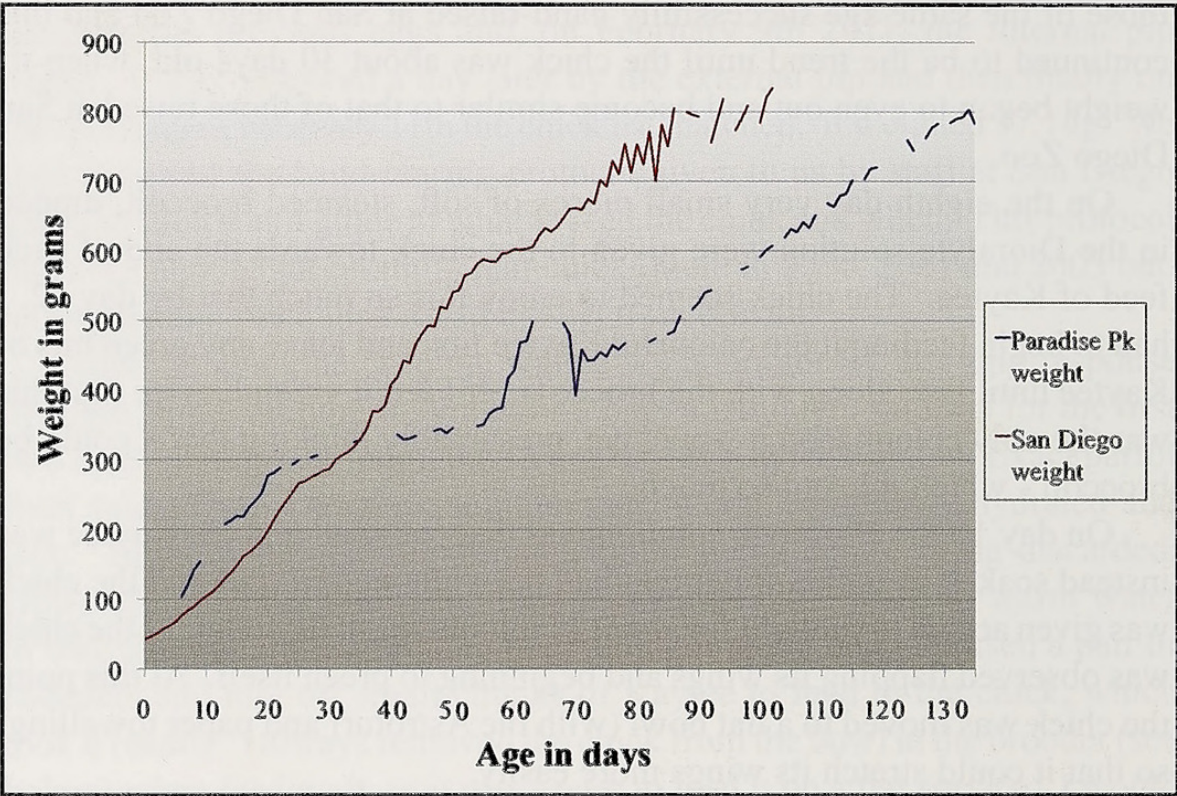
On day 10 the Dioralyte solution was discontinued and the Kaytee was instead soaked in boiled water that had been allowed to cool and the chick was given access to sunlight for about 15 minutes each day. Day 12 the chick was observed flapping its wings and beginning to preen itself. At this point the chick was moved to a flat bowl (with the Astroturf and paper towelling) so that it could stretch its wings more easily.

On day 14 the feeds were cut down to every two-and-a-half hours from 06.30hrs-20.30hrs (8.30pm). The diet was also changed slightly with small pieces of chopped papaya and banana (also moistened in water) being added to it. As with the broccoli, these new additions to the diet were fed to the chick after it had consumed the Kaytee and indeed also after the broccoli. After a day or so I also had to avoid until last, feeding it yellow and orange pieces of Kaytee - as well as pieces of green Kaytee - as it would not eat the other coloured pieces once it had eaten these, again presuming they were banana and papaya.

From day 16 a dish of water and a dish containing some food were left in the brooder with the chick between feeds. The young turaco was standing well by itself by now. By day 17 it was seen eating small amounts of broccoli taken from the dish and on day 18 was seen eating small amounts of banana and papaya. From day 17 it was fed every three hours from 06.30hrs-20.30hrs (8.30pm) and was seen attempting to perch on the edge of the food dish. So, on day 18, perching was placed in the brooder.

From days 21/22 the young turaco vocalised when I entered the room to feed it. By day 22 the nest bowl was removed as it was no longer being used. On day 25 the amount of broccoli, banana and papaya was increased and the Kaytee was not soaked as much, so that it was less sloppy, and was generally fed to the young turaco in large pieces. It was quickly outgrowing the brooder, so was moved to a larger brooder on day 27.

Fig. 1. Comparison of growth rates of Great Blue Turaco chick at Paradise Park and those at San Diego Zoo.



Day 41.

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Taken on July 6th 2011, this photo shows the young turaco at 140/141 days of age.
All that is lacking is the orange-red tip to the bill.

From day 28 the young turaco was fed every four hours from 07.00hrs-18.30hrs (6.30pm). On day 32, figs were introduced into the diet and were readily taken. The following day feeds were cut down to every five hours from 07.30hrs-18.00hrs (6.00pm).

On day 36 the turaco was moved to an indoor pen with perching and

a heat lamp during the day, so that it could stretch its wings and begin to try exploring its environment (each night it was returned to the brooder). Newspaper was used on the floor in preference to wood shavings, as there was a potential risk of the young turaco consuming the shavings. Straight perches were used to limit the risk of the bird becoming caught in a fork of a branch.

By now the turaco was mostly feeding independently or with just a little coaxing. On day 45, apple, pear, melon, grapes, blueberries, softbill Kaytee and a low iron insectile mixture were added to the food bowl which was left in the enclosure. This was similar to the adult diet and the young turaco seemed to enjoy the added fruits. Kaytee Rainbow Exact continued to be provided as the young turaco continued to consume a large amount of this.

The young turaco was later moved to a large outdoor enclosure during the day and was locked away in a heated shelter at night. The young turaco continued to be weighed each morning to ensure that it was gaining sufficient weight. By now it weighed about 100g less than the average weight of a comparable young turaco at San Diego Zoo, but continued to eat well and with the added exercise it was getting in the outdoor enclosure, began putting on weight faster.

On the morning of day 69 I noticed that the young turaco had eaten very little since the previous night and had lost 16g in weight since the previous morning. Occasionally the young turaco's weight had fluctuated for a day or so before it began to gain weight once again, but that morning something did not seem quite right. The young turaco looked fine but was not interested in food, which was extremely unusual as it had always eaten something no matter how full it seemed to be. I monitored its condition throughout the morning. The young turaco took a small amount of food, but not even favourite items such as broccoli and the large orange pieces of parrot Kaytee would tempt it to eat very much. A few times I also observed it drinking water and it was unusual to see it choosing water in preference to food. After consulting the park's Curator who had also been monitoring the young turaco during its development, the vet was called in. The vet agreed that something was not quite right. The young turaco was slightly fluffed-up by now and had sleepy-looking eyes, something I had never observed with this bird before. It was given an injection of Doxycycline and put on a course of Marbocyl tablets. During that one day it had lost over 90g in weight and by the end of the day was passing only very watery faeces.

The next morning, with some trepidation, we went to see how the bird was. To our delight, it was fine. It was almost back to its old self and was eating lots of food and its weight had remained unchanged overnight.

Since then the young Great Blue Turaco has continued to thrive and



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