

Hand rearing Chilean flamingo chicks at Belfast Zoo

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Abstract

This article explains how Belfast Zoological Gardens hand-reared two Chilean flamingo chicks for the first time in the Zoo's 86-year history. The article describes the background to the hand rearing intervention and the methods used, as well as the housing and management of the young flamingos and their behaviour when introduced into the main flock. As to be expected, we learnt a lot with our first chick ("Popcorn") therefore, we were better prepared and had more knowledge of what needed to be done with future chicks ("Peanut" who arrived two weeks later). This was a worthwhile experience, though challenging in the chick's first week, it has assisted in strengthening the population of Chilean flamingos at the Zoo and it has increased capacity for hand-rearing of birds within the team of animal care staff.

Resumen

Este artículo explica cómo los Jardines Zoológicos de Belfast criaron a mano dos polluelos de flamenco austral (*Phoenicopterus chilensis*) por primera vez en los 86 años de historia del zoológico. El artículo describe los antecedentes de la intervención de cría a mano y los métodos utilizados, así como el alojamiento y manejo de los flamencos juveniles y su comportamiento cuando se introducen en la bandada principal. Como era de esperar, aprendimos mucho con nuestro primer polluelo ("Popcorn") por lo tanto, estábamos mejor preparados y teníamos más conocimiento de lo que había que hacer con los futuros polluelos ("Peanut" que llegó dos semanas después). Esta fue una experiencia valiosa, aunque desafiante en la primera semana del polluelo, ha ayudado a fortalecer la población de flamencos australes en el zoológico y ha aumentado la capacidad de cría manual de aves dentro del equipo de personal de cuidado animal.

Résumé

Cet article explique comment les jardins zoologiques de Belfast ont élevé manuellement deux poussins de flamants du Chili pour la première fois en 86 ans d'histoire du zoo. L'article décrit le contexte de l'élevage manuel et les méthodes utilisées, ainsi que l'hébergement et la gestion des jeunes flamants et leur comportement lorsqu'ils ont été relâchés avec le reste des oiseaux. Comme on pouvait s'y attendre, nous avons beaucoup appris avec notre premier poussin («Popcorn») donc, nous étions mieux préparés et avons plus de connaissances sur ce qu'il fallait faire avec le second poussin («Peanut» qui est arrivé deux semaines plus tard). Ce fut une expérience intéressante, bien que difficile au cours de la première semaine du poussin, elle a aidé à renforcer la population de flamants du Chili du zoo et elle a augmenté la capacité d'élevage manuel des oiseaux au sein de l'équipe de soins aux animaux.

Introduction

Belfast Zoological Gardens is home to a flock of 42 Chilean flamingos (*Phoenicopterus chilensis*). Over a quarter of the Zoo's flock is

20 to 22 years of age, and over half are eight to nine years of age. The flock now includes two new chicks, which are the subject of this paper. This is the first time that the Zoo has hatched Chilean flamingo eggs, after many years of encouraging the flock to nest and breed.

“Popcorn” hatched on Monday 17th September 2018 (Chick 1) and “Peanut” hatched on Friday 5th October (Chick 2) the same year. The decision to lift the chicks was a difficult one, but the inclement weather caused by “Storm Helene” in September and “Storm Callum” in October meant that the chick’s chances of surviving the night were extremely low. This article is a personal story of involvement with the process of hand rearing, being the parent to two new flamingos, and watching them develop into adult birds.

Meeting the chicks

I remember when I first heard about being asked to hand rear a flamingo chick. My curator came in and told me that I was a “mummy”, which brought about confusion in my head. Later that morning he brought up an incubator containing this small ball of white fluff which looked like a cotton ball. I instantly fell in love with it. I didn’t know that something so small could take over my life so quickly. When our second chick arrived, two weeks after, I could not believe I was responsible for two of them, excitement took over. Looking back and comparing the size of the two, the chicks grew so much in the first two weeks. Since the day of their hatching, I have been there for every milestone and still, on occasion, pop over to the flamingo lake to check up on them. I hope that over the years Popcorn and Peanut themselves will become parents. That would be the icing on the cake.

Diet

From day one the chicks were weighed before being fed (Figure 1), which occurred every three hours; the temperature of the incubator was recorded at time too. Initially on the day

of their hatching, a small dose of glutalyte (electrolytes and easily absorbable carbohydrates) was given to the chick for nutritional purposes. Over the next three days this was decreased as formula and water increased. The formula, as suggested by WWT Slimbridge and Chester Zoo, was made up of sprats (heads and fins removed), soaked and blended flamingo breeder pellets, hard-boiled egg yolk, calcium carbonate powder, vitamin supplement and Nutrabol (Vetark).



Figure 1: Each chick was weighed before being syringe fed (photo credit: G. Murphy).

There was the occasional time when we tried to increase the formula percentage, but the consistency was too thick, and the chick was not ready to accept it. Around Day 8 I would have a syringe of water as well as the formula and go between the two. Soaked flamingo breeder pellets were introduced at two weeks of age alongside of the formula that the two chicks were still receiving. With the chick consuming 90% formula on Day 18, the amount of water the chick was drinking from the syringe was also recorded at each feed. Tables 1 and 2 show how the time period that the amount of formula was increased for each chick during the hand rearing process.

Table 1: Chick 1, Popcorn, feeding regime

Day	% formula	% water	ml consumed
2	25 (+ 25% glutalyte)	50	3
3	40 (+ 20% glutalyte)	40	4 – 5.5
4	50	50	6 – 8
7	60	40	9 – 10
10	70	30	9 - 11
16	80	20	8 – 12
18	90	10	11 -14
22	100	0	15 +

The variation in ml depends on the time of the feed, if the chick was hungry or not.

Table 2: Chick 2, Peanut, feeding regime

Day	% formula	% water	ml consumed
2	25 (+ 25% glutalyte)	50	4 - 5
3	30 (+ 40% glutalyte)	30	5 - 6
4	40	60	7 - 9
5	50	50	6 – 7
7	60	40	6 - 8
10	70	30	9 - 11
16	80	20	10 – 11
18	90	10	10 – 13
21	100	0	15 +

The reason for the variation in ml is the same as for Table 1.

Once we had the chick on 100% formula, the millilitres each day increased from 14mls – 35mls over 22 days. The number of syringe feeds per day decreased gradually as dry and wet flamingo breeder pellets were introduced. By Day 27 there were five syringe feeds; from Day 35 this was reduced to four feeds; Day 37, three feeds included morning,

midday and night-time; Day 40 was two feeds, first thing in the morning and last thing at night. Finally, at Days 42 and 43 there was a morning feed only. With the decrease of formula being offered to the chick, this meant consummation of pellets increased during the day and overnight.

Physical development

The beginning of Day 3 saw the first kinds of movement from the chick, by the end of the day they were standing more, beginning to walk and even standing to feed. Around a week old, the skin was starting to peel from the chick's legs changing them from bright orange to a salmon pink colour. At twenty days old, the beak of the chick was starting to curve at the front, similar to that of their parents, and over the next week it was getting noticeably sharper as well. A month old and the skin was peeling on the feet and legs again, this time going from pink to grey.

The feathers of the chick didn't start changing until around seven weeks, when dark white/ grey feathers started to appear. The first sign of black primary feathers being visible occurred around week 8 to 9 and pink feathers started developing around nine months.

Between nine months and two years of age, the chicks started to look like adult flamingos, with their legs getting longer, necks becoming slimmer, plus beaks curving, sharpening and changing colour. During this same period, their adult pink and orange feathers came through. Even with this, the chicks were still identifiable due to their grey neck and head feathers, which was gradually disappearing.

Flamingo behaviour

When hand rearing any animal you are concerned that they may not develop traits specific for their species; in the case of flamingos, feeding with their head upside down, stomping their feet in water to release food to the surface or even how to communicate with other flamingos

(important for when the time comes to introduce them back to their counterparts).

Day 3 was, for both flamingo chicks, when they started to stand and walk around for the first time; it was noticeable that Peanut (chick two) moved a lot more as he had the advantage of hearing a real flamingo chick communicating. At around a week old I wanted to get the chicks used to a range of surfaces and substrates, not just wood or towels, in case there may be issues later in life with a fear of something new, i.e. grass. Another anxiety concerned whether the chicks would understand the vocalisations of other flamingos. To ensure that they did, I played flamingo sounds on the internet while they were getting fed plus recorded the chicks themselves and played it back, which they responded to. During the same time there was improvement of standing on one leg, even if they were a bit shaky.

By two weeks old, we offered soaked pellets, which were broken into very small pieces (Figure 2). The chicks were showing signs of pecking at the ground and foraging so I thought it would be an ideal time to try them on pellets. As expected, they were becoming more inquisitive and interacted more with objects around them, biting objects within reach, including their feeding syringe.



Figure 2: Flamingo Breeder pellet was offered dry and soaked throughout the day (photo credit: G. Murphy).

At three weeks the chicks were beginning to explore more and enjoyed walking around after each feed; this had the added benefit of exercise and strengthening their legs. With the benefit of their newly found freedom, a small tray of water was introduced. It took a few days for the chicks to become accustomed to it but in the days that followed they became more inquisitive and started stomping their feet in the water, sitting down in it, turning their head upside down to try and feed and even preening in the tray too.

At one month old the chicks' confidence was growing in all behaviours; standing on one leg (Figure 3), preening, walking in water and even sleeping while standing on one leg. As the weeks passed both chicks were developing more complex behaviours, for example, filter feeding and drinking from water and they also communicated to each other frequently. The final behaviour yet to see was attempts at flying. This occurred around seven weeks old when they started jumping and flapping their tiny wings- an amusing site and one that will never be forgotten!



Figure 3: The two chicks “behaving like flamingos”, resting whilst standing on one leg (photo credit: G. Murphy).

Housing

During the first two weeks, the chicks were housed in an incubator unit. This would be placed in the vet room during the working day as it was warmer, then taken home each evening. While Chick 2 was in the incubator, chick one was placed in cardboard box with a heat lamp overhead. Two weeks later, both chicks were placed into a specially designed crèche during the day, but still taken home each night. The crèche was divided with each chick having their own half. Each section contained a sleeping area, plus a bowl for food and water. During the day, when possible, the chicks were provided with paddling pools for wadding in, a different size for each one.

Thursday 17th November was the first night that the chicks stayed over at the Zoo, a nerve wrecking time for their foster mummy. From this day on, the chicks were together during the day and should fighting occur, we were there to separate them if necessary. We need to remember that at this stage

Chick 2 is only five weeks old and so still very small. We wanted the chicks to bond as we felt that this friendship would help them when it came to them being introduced to the adult birds.

News of the hand reared chicks had now hit social media and they were proving very popular. By the end of November (29th) the chicks were located to a different building to start preparing them for being outdoor birds. This enclosure had more room for them to move around as they were getting bigger, a heat lamp if necessary during the winter months, windows so the public could see them, plus it was a lower overall ambient temperature (again preparation for life outdoors). The chicks spent their winter and spring here before being moved in April 2019 for one final time.

Meeting the rest of the flock

The 12th April was when the chicks saw other flamingos for the first time. We fenced off part of the flamingo paddock for the chicks and added a heat lamp to their shed for particularly cold nights. Initially, the chicks were locked in overnight as we wanted them to get used to the shed and become accustomed to any sounds they may hear for the first time. Over time we noticed that the adult flamingos would come up to the fence, sleep beside it and even communicate with the chicks. We knew this positive behaviour would definitely make it easier when the chicks joined the adults. We wanted to wait until both chicks had turned one year old before letting them join the adults. On 16th October, we introduced the chicks to the flock and everything went as planned. The chicks kept to the outside initially or sometimes standing further up the paddock where their section used to be. Within a few weeks the only way to spot the chicks was by

their grey head and neck, as they had completely bonded with the adults. As foster mummy I stayed away during this time as the chicks needed to get to know the adult birds and fully integrate with the flock overall.

Conclusion

Throughout the whole hand rearing process, our own veterinary team were heavily involved. The vets would see the chicks on a daily basis until they were a few months old. Gradually, health checks on the chicks became monthly to ensure they maintained the correct weight and that physical development and behaviour were both normal and species appropriate.

Overtime, Popcorn and Peanut, who already had developed strong personalities, bonded with the whole group but would still come over if I called them. The younger of the two always had another chick with him from hatching, but the older never had that luxury. Even today, a couple of years later, Popcorn (Chick 1) will still come when called but Peanut (Chick 2) is not so sure. It is great to see that both flamingos, now turning two, are more and more difficult to pick out from their flock mates as each day passes. A successful hand rearing intervention and smooth transition into the rest of the flock.

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