

## Lesser flamingos of Kamfers dam: A review of the rescue and developments during lockdown

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### Abstract

The lesser flamingos (*Phoeniconaias minor*) of Kamfers Dam in Kimberley, Northern Cape, South Africa are one of four breeding colonies in Africa and the only one situated in South Africa. This non-perennial pan was changed into a permanent wetland when the municipality started discarding treated effluent of the nearby sewage plant into the pan. A breeding island was built by a local mining company and nature conservation organisation in 2006 that brought about great breeding success, producing roughly 24000 chicks. This island flooded a few years later and the flamingos started breeding on the South Western side of the dam in 2017. This new breeding site of the lesser flamingos was in danger due to the drought of the 2018-19 breeding season and failing sewage system reducing the dam's water levels. The result of this was a huge rescue effort by the of about 2000 chicks that made the news worldwide and had a global impact.

### Resumen

Los flamencos enanos (*Phoeniconaias minor*) presentes en Kamfers Dam en Kimberley Northern Cape Sudáfrica conforman una de las cuatro colonias reproductoras en África y la única situada en Sudáfrica. Esta cuenca no perenne se transformó en un humedal permanente cuando el municipio comenzó a desechar en la cuenca, el efluente tratado de una planta de aguas residuales cercana. En 2006 se construyó una isla de cría por una empresa minera cercana y una organización de conservación de la naturaleza que generó un gran éxito en la cría, produciendo aproximadamente 24000 polluelos. Esta isla se inundó unos años más tarde y en 2017 los flamencos comenzaron a reproducirse en el lado suroeste de la presa. Este nuevo sitio de reproducción de los flamencos enanos estuvo en peligro debido a la sequía que ocurrió durante el período reproductivo 2018-19 y a un fallido sistema de drenaje que redujeron los niveles de agua de la presa. Como consecuencia de esto, se realizó un enorme esfuerzo de rescate de unos 2000 polluelos que fueron noticia en todo el mundo y tuvieron un impacto global.

### Résumé

Les flamants nains (*Phoeniconaias minor*) du barrage de Kamfers à Kimberley Northern Cape en Afrique du Sud sont l'une des quatre colonies de reproduction en Afrique et la seule située en Afrique du Sud. Ce lac salé saisonnier a été transformée en zone humide permanente lorsque la municipalité a commencé à y rejeter l'effluent traité de la station d'épuration proche. Une île a été construite pour la reproduction par une société minière et une organisation de conservation de la nature à proximité en 2006. Ce projet a été un grand succès résultant en la naissance d'environ 24 000 poussins. Cette île a été inondée quelques années plus tard et les flamants nains ont commencé à se reproduire du côté sud-ouest du barrage en 2017. Ce nouveau site de reproduction des flamants nains était en danger en raison de la sécheresse pendant la saison de reproduction 2018-19 et du système d'égouts défaillant réduisant les niveaux d'eau du barrage. Cela s'est soldé par une énorme

opération de sauvetage d'environ 2000 poussins qui a fait l'actualité dans le monde entier et qui a eu un impact international.

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## Introduction

Kamfers Dam is an ephemeral (non-perennial) pan situated approximately 6 km outside Kimberley South Africa where three biomes, Nama Karoo, Grassland and Kalahari Savanna come together. Kamfers Dam is classified as a Highland Salt pan and is the home of about 60 000 Lesser flamingos. The pan covers between 500 to 600 ha and is on the receiving end of catchment area of roughly 160km<sup>2</sup>(Anderson 2018). This dam has an evaporation rate of around 8.5 -10mm per day in the high summer months. In 2006 this ephemeral pan changed to a permanent wetland when the pan received a steady inflow of treated sewage from the nearby sewage plant (Anderson & Anderson 2010).

Along with this change, a flamingo Island was designed and built by Ekapa Minerals and Mark Anderson along with various partners as an attempt to encourage the undisturbed breeding of the lesser flamingos visiting the pan on a regular basis. This project was completed in 2006. The island was successful for three consecutive years and roughly 24000 flamingo chicks hatched on this Island. Kamfers Dam became the fourth breeding site for Lesser flamingo's in Southern Africa and the first breeding site in South Africa (Anderson & Anderson 2010). In 2010 the island sadly flooded which resulted in the drowning of hundreds of young chicks. However, in 2017 the flamingos started breeding on the South Western side of the dam with great success without the island. In the 2018-19 breeding season about 2000 of the 8000 breeding pairs abandoned the nests with day old chicks (Figure 1) and hatching eggs after a prolonged drought and a dysfunctional sewage work that could not deliver a constant water supply each day.

## Evaluation

On 24 January 2019 the community of Kimberley initiated a rescue attempt to save roughly 2000 of the abandoned chicks and eggs from the pan. About 5500 older chicks remained behind moving into the receding water of the pan.



*Figure 1: Abandoned lesser flamingo chicks at Kamfers Dam in January 2019. Photo credit: E. van der Westhuizen-Coetzer)*

This was an unknown situation for the rescuers and scientists, leading to vets being called in to assist. The main problem was the logistics of how to get all these chicks rehydrated and fed as this was the first rescue attempt of its kind. Birdlife South Africa assisted by supplying a recipe for feeding the day-old chicks similar to the crop milk produced by the parents. This was an egg-based diet that was enhanced with a few other ingredients such as shrimp, vitamins and fish, and it seemed to work very effectively.

Most of the chicks were flown out by plane to various rehabilitation centres across South Africa. Philanthropists and the public opened their hearts all over South Africa and donations were made to the rehabilitation centres to assist with the rearing of these chicks. This was only the beginning of a challenging four-month period to raise the

chicks to a stage that they can self-sustain. Countless hours of feeding, cleaning of cages, washing of young adults and hours of monitoring was needed to achieve this.

Large numbers of chicks died from simply being too weak to survive the trip or as in one case an outbreak of Avian pox at one of the institutions. Chicks had to be fed every three hours through the night for a duration of between four to eight weeks. After this the birds got fed a special blend called AV + that was dissolved in water. This speciality blend was manufactured with a high content of oil that rubbed off on the bird's feathers during preening. This high oil content influenced the bird's waterproofing, and everyone had to be washed beforehand which allowed time to secrete their natural oils to facilitate waterproofing (especially important before eventual release into the wild). This tremendous task, of caring for all of these chicks properly, was undertaken by the team and with assistance from the experts at SANCOB from Cape Town.

Flamingos were released from May 2019 when they reached the release criteria as set out by the ecologists and vets. A decision between hard release or soft release had to be taken. The choice was made to release the first birds using a hard release approach. This approach seemed logical as a soft release would take weeks to achieve and would mean extra shelter and facilities being built at Kamfers Dam, incurring additional costs. Birds would be monitored if assistance was required after release.

All the birds ready to be released were ringed with a colour and a metal ring. Some birds received a backpack tracker as well (in total about 25 throughout the release process) to monitor their movements throughout Africa (Figure 2). Releases occurred at two specific points at Kamfers Dam. First two releases were on the eastern side of the dam and all other releases on the western side. The western side of the dam is privately owned

land and the chicks could be monitored safely at various times of the day.



*Figure 2: Juvenile lesser flamingo released to Kamfers Dam wearing a radio transmitter. Photo credit: E. van der Westhuizen-Coetzer*

A total of 550 birds were released from May to July 2019. The last two released groups were released in winter and were closely monitored each day for about 6 to 8 weeks to make sure that the harsh Northern Cape winters did not influence the group too much with regards to food availability and inclement weather conditions. As the algae blooms in the dam returned to normal, the group became more independent and slowly integrated with the rest of the 70000 wild birds on the dam.

During the monitoring period several patrols were conducted around the dam to determine mortality of the released birds and to recover rings and capture data as accurately as possible. Mortality was due to various predators such as caracal (*Caracal caracal*), mongoose species and African fish eagles (*Haliaeetus vocifer*). Human predation also took place in some areas. Human predation was localised to an area that was managed by the Koi San. The trackers were recovered safely and could be refitted to other birds. Powerline collisions were also a big factor in mortalities. Lesser flamingos tend to travel at night in search of other food resources and then collide with the powerlines. Daily walks along the railway line was also undertaken to

ensure that most rings and injured birds could be recovered if possible. Other causes of mortality were the harsh winter conditions and the lack of algae growth during these unfavourable months.

Human imprinting was another issue that was experienced for some birds due to the hand rearing process. However, all these birds eventually integrated with the wild birds at some stage without returning to humans. Some of the birds that were the most imprinted on humans, rehabilitated before the lesser flamingo imprinted birds.

By the end of September 2019, some of the last birds in Kimberley could be returned to the wild as they all achieved the release criteria. However about 195 birds are still in captivity at some of the rehabilitation centres and still need to be released when they are fit and able.

In October 2019 the adult birds started with nest building in various areas in Kamfers Dam again. This breeding behaviour was closely monitored from a distance. The danger was that late breeders could abandon their nests, having the same outcome as the previous season, which would not be ideal. In February 2020 there was about 3000 nests on the south western side of the dam with birds sitting on them. Eggs were noticed on some nests. Around 8<sup>th</sup> March 2020 several week-old chicks were observed between the adults, finding their way in the water.

The lockdown period in South Africa was announced 22<sup>nd</sup> March 2020 and the team was unable to check up on the breeding at the dam. However, on the 1<sup>st</sup> May when the restrictions allowed it, a visit was made to the dam. Lockdown had a tremendous unexpected effect on the breeding success. About 2000 chicks varying in age from three weeks to two months old were formed into a crèche close to the shoreline. The flamingos had managed to breed with great success during a very difficult time without any human interference.

## **Conclusion**

Lesser flamingos all over the world experience drought and other challenges during breeding season. Never before has a rescue attempt of this capacity been undertaken. However, although about 2000 chicks were rescued from the site only about 550 were released back into the wild and a number of these did not survive the winter conditions. Excluding the birds still in captivity this was a success rate of approximately 27.5%. Does the cost and effort of this rescue operation rationalise the success of the operation or should rescue operations in future rather be avoided? In the author's opinion, the knowledge gained from the experience and the awareness created by the rescue had more value than the success rate. The lesser flamingo is classified as Near Threatened, with a declining population caused (in part) to human activity, therefore these reintroduced birds (regardless of how costly the introduction may have been) can play a vital role in helping improve the future of this species in the wild.