

## Photospot:

# A breeding island for Lesser Flamingos *Phoeniconaias minor* at Kamfers Dam, Kimberley, South Africa

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**Une île pour Flamants nains *Phoeniconaias minor* à Kamfers Dam, Kimberley, Afrique du Sud.** La construction d'une île spéciale à Kamfers Dam, près de Kimberley en Afrique du Sud, en 2006, afin d'inciter des Flamants nains *Phoeniconaias minor* à y nicher, a connu un succès surprenant. Jusqu'à 80.000 flamants étaient présent et 13.000 jeunes sont arrivés à l'envol en une seule saison. En 2009/10, l'augmentation du niveau d'eau a malheureusement causé l'échec de la reproduction dans la plus grande partie de la colonie. Il est toutefois prévu de réparer les dégâts afin d'accroître l'attrait de l'île pour les flamants. Kamfers Dam pourrait devenir un des sites les plus importants au monde pour cette espèce Quasi Menacée.

**K**amfers Dam is a 500-ha perennial wetland located just north of Kimberley, South Africa. This wetland was previously an ephemeral pan, but is now permanently inundated as it receives most of Kimberley's effluent water. It also receives storm-water run-off from Kimberley and from a c.160 km<sup>2</sup> large catchment. Kamfers Dam probably supports the largest permanent population of Lesser Flamingos *Phoeniconaias minor* in southern Africa, with sometimes >80,000 individuals present.

During September 2006, following months of planning and a protracted Environmental Impact Assessment process, a flamingo island was constructed by Ekapa Mining at Kamfers Dam. The construction was a massive undertaking, with more than 26,000 tons of material being moved. The cost of construction was an estimated half a million rand (c.UK£45,000). Within two weeks of the 200-m causeway being removed, the first Lesser Flamingos made use of the island for roosting purposes. Within a few months c.30,000



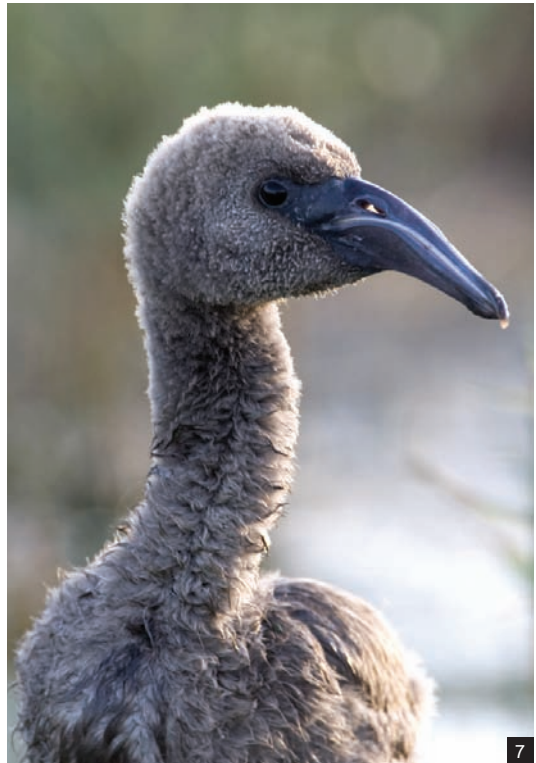
**Figure 1.** Kamfers Dam, prior to the island's construction, with the city of Kimberley visible in the background (Mark D. Anderson)



Kamfers Dam avant la construction de l'île, avec la ville de Kimberley en arrière-plan (Mark D. Anderson)

**Figure 2.** The S-shape limits the area of the island exposed to water and wind erosion, and the two sheltered bays permit the flamingos easy access to the island. The island was constructed mainly of calcrete, from a nearby quarry, but was also topped with a 20-cm layer of clay (providing material for the flamingos to construct their nests). Four large ponds were constructed on the island, fed by water from a pump submerged in the dam and powered by solar panels. The causeway was removed once the island construction was completed (Mark D. Anderson)

L'île a la forme d'un S, limitant ainsi la surface exposée à l'érosion par l'action de l'eau et du vent, et les deux baies abritées facilitent l'accès des flamants. L'île a été construite principalement avec du calcrète provenant d'une carrière proche, auquel une couche d'argile de 20 cm a été ajoutée (fournissant ainsi aux flamants le matériau pour la construction des nids). Quatre grands étangs ont été construits sur l'île, remplis d'eau par une pompe submergée et actionnée par des panneaux solaires. La route d'accès a été enlevée dès que la construction de l'île fut terminée (Mark D. Anderson)





**Figure 3.** The island, covered with Lesser Flamingos *Phoeniconaias minor*, is clearly visible from commercial plane flights between Johannesburg and Cape Town. The large ponds can be seen at the bottom half of the island, and the high-lying area (specifically constructed as an escape area for small chicks should the dam's water level rise) at the top left (Mark D. Anderson)

L'île, couverte de Flamants nains *Phoeniconaias minor*, est clairement visible à partir des vols commerciaux de Johannesburg à Cape Town. Les grands étangs se trouvent dans la moitié inférieure de l'île et la zone élevée (qui a été construite spécifiquement pour permettre aux poussins d'échapper le cas échéant aux eaux montantes) en haut à gauche (Mark D. Anderson)

**Figure 4.** During the 2006/7 summer, the Lesser Flamingos *Phoeniconaias minor* constructed 160 nests and laid eggs, but the breeding event was unsuccessful (Mark D. Anderson)

Pendant l'été 2006/7, les Flamants nains *Phoeniconaias minor* ont construit 160 nids et pondu, mais la tentative de reproduction a échoué (Mark D. Anderson)

Lesser Flamingos were roosting on the island at night, with many birds also using the island during the day. Despite nest construction and egg laying, the 2006/07 breeding attempt was unsuccessful.

**Figure 5.** At the end of the 2007/8 breeding event, there were more than 7,000 nests on the island, increasing to c.10,000 after the 2008/9 breeding event. During winter 2007, a webcam ('FlamCam') was installed; images can be viewed at [www.africam.com](http://www.africam.com) (Mark D. Anderson)

En 2007/8, il y avait plus de 7.000 nids sur l'île, tandis qu'en 2008/9 le nombre avait augmenté jusqu'à environ 10.000. Pendant l'hiver de 2007, un webcam a été installé (Mark D. Anderson). Les images du 'FlamCam' peuvent être visionnées sur [www.africam.com](http://www.africam.com) (Mark D. Anderson)

**Figure 6.** A series of high-resolution images of the island was taken on a monthly basis from a helicopter during one fly-over at an altitude of c.200 m (Mark D. Anderson). There was no visible disturbance to the flamingos. The images were imported into Photoshop and, using a sheep-counter, the total numbers of eggs, chicks, incubating adults, and adults were counted.

Une série d'images à haute résolution a été prise chaque mois à partir d'un hélicoptère survolant l'île à une hauteur d'environ 200 m (Mark D. Anderson). Les flamants ne semblaient pas être dérangés. Les images ont été importées dans Photoshop et le nombre d'œufs, de poussins et d'adultes en train de couver ou non, a été compté.

**Figure 7.** The first chicks were observed on 2 January 2008, with the breeding success being a historic event for Lesser Flamingo *Phoeniconaias minor* conservation (Mark D. Anderson). The chicks seemed to leave their nests 3–4 days after hatching, then remain in the vicinity of the nests for a short period (perhaps a week), before joining the large crèches.

Les premiers poussins ont été observés le 2 janvier 2008, la reproduction constituant un événement historique pour la protection du Flamant nain *Phoeniconaias minor* (Mark D. Anderson). Les poussins semblaient quitter leur nid après 3–4 jours et ensuite rester près du nid pendant une courte période (peut-être une semaine), avant de rejoindre les grandes crèches.

**Figure 8.** A group of immature Lesser Flamingos *Phoeniconaias minor* that fledged from the island (Mark D. Anderson)

Un groupe de jeunes Flamants nains *Phoeniconaias minor* nés sur l'île (Mark D. Anderson)

**Figures 9–10.** Lesser Flamingos *Phoeniconaias minor* bred successfully on the island during 2007/8 and 2008/9, producing an estimated 9,000 and 13,000 chicks, respectively (Mark D. Anderson)

Les Flamants nains *Phoeniconaias minor* ont niché sur l'île avec succès en 2007/8 et 2008/9, produisant environ 9.000 et 13.000 poussins, respectivement (Mark D. Anderson)

Subsequently, for about four months during 2007, no flamingos used the island.

The Lesser Flamingos returned to the island in large numbers in September 2007 when breeding

displays were observed. On 2 January 2008, the first chicks were seen and, by April 2008, it was estimated that 9,000 chicks had hatched during that summer's breeding event. The Lesser Flamingos bred again in 2008/09, this time producing an estimated 13,000 chicks.

The 2009/10 breeding event started a month earlier, in early September 2009, but rising water levels and then heavy rains during early November 2009 resulted in the loss of probably >1,000 chicks and an unknown number of eggs, and the flooding of about three-quarters of the island. It is estimated that c.7,500 nests were destroyed by the rising waters. In early January 2010, the island was still flooded and only c.500 Lesser Flamingo chicks fledged.

The breeding of Lesser Flamingos at Kamfers Dam represents (a) the first time that the species has bred on an artificial structure, (b) the first-ever successful breeding event in South Africa, (c) the third breeding locality in southern Africa, (d) the fourth breeding locality in Africa, and (e) the sixth breeding locality globally (Anderson 2008, Childress *et al.* 2008). In addition to Kamfers Dam, Lesser Flamingos only breed at Etosha Pan in Namibia, Sua Pan in Botswana, Lake Natron in Tanzania and at the Zinzuwadia and Purabcheria salt pans in north-west India (Anderson 2008, Childress *et al.* 2008).

Importantly, the Lesser Flamingos have bred at Kamfers Dam during three successive summers, whilst at other localities they nest less frequently (for example they are successful every ten years at Etosha Pan: Simmons 1996).

Kamfers Dam, the breeding island, and the dam's flamingos currently face several important threats, including: (a) rising water levels (through an increased inflow of sewage water), (b) deteriorating water quality (for the same reason) and (c) the development of Northgate, a massive housing development (comprising 6,500 middle-class homes) on the property adjoining Kamfers Dam. The Save the Flamingo Association ([www.savetheflamingo.co.za](http://www.savetheflamingo.co.za)), Kamfers Dam's landowners (the Booth family), BirdLife South Africa, and the Wildlife & Environment Society of South Africa are addressing these threats through various means, including litigation.

With various anthropogenic threats at the Lesser Flamingo's other breeding sites (problems in their catchments, soda ash plants, etc.), Kamfers

Dam could become increasingly important for the conservation of the Lesser Flamingo, which is considered Near Threatened globally. It is anticipated that global warming will result in less frequent inundation (and therefore less frequent breeding) at the other breeding sites (especially Etosha Pan and Sua Pan), making the potentially more stable regime at the artificial Kamfers Dam of even greater importance.

Ekapa Mining has committed to rebuilding the island, which will mean re-constructing the 200-m causeway and raising the height of the island, but only once the dam's water level stabilises and when the Sol Plaatje (Kimberley) Municipality can deal with the excess water and treat the sewage water to an acceptable quality.

### Acknowledgements

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