



The Black Flamingo of Akrotiri

Akrotirians call her Melani¹, after the presumed cause of her aberrant dark plumage² – and their belief from her slighter build that she must be the female of the species. Their salt lake, part of the largest aquatic system in Cyprus, has been the preferred destination of the world's one and only black flamingo for three of the past four winters, so they are entitled to naming rights. Here Varnavas Michael of the Akrotiri Environmental Education Centre describes the first sighting of the black flamingo in Cyprus:

The first time I saw it... It was 2015, the middle of April. I was looking at the lake. It was dark that day. It was after a big storm. The lake was starting to get more water in it. I saw a small flock – 10 birds, let's say. I saw a black bird. I was thinking maybe it was a black stork. We had these visitors from Germany – it's not easy to tell people you saw a black flamingo! I just got the camera and I ran. It was raining. I got those shots and I posted them on Facebook straight away. In 10 minutes the calls started coming in from everywhere. 16,000 people accessed the black flamingo photo that day. We had 100 visitors the next day. By Sunday the Centre was packed - people were bringing their kids – the media – it was front page of the Cyprus Times, on NBC, BBC... And so the story started.³

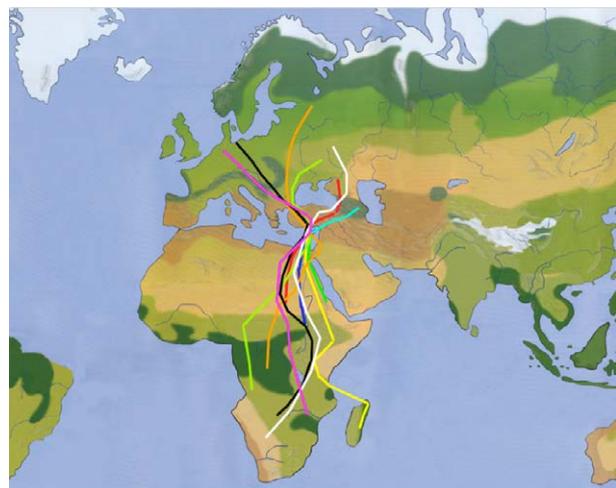
Melani's arrival exemplifies the uncanny capacity of flamingos for detecting rainfall over vast distances. From locations sometimes hundreds of kilometres away they come, across mountain ranges and seas, just when recent storms have made water levels in the various lakes and salt pans they frequent rise to optimum levels⁴. On this score at least, the Black Flamingo is no exception.

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1. pronounced 'Mel-ah-ni' (which means ink in Greek – personal communication Katherine Toumbourou)
 2. Melanins are “pigments, manufactured within cells, that generally produce in birds a range of earthy colours in various shades of black, brown, gray, reddish brown and pale yellow.” I.J.Lovette and J.W.Fitzpatrick (eds) *The Cornell Laboratory of Ornithology Handbook of Bird Biology* 3rd Edition 2017 John Wiley & Sons p135
 3. Varnavas Michael, Akrotiri Environmental Education Centre, Akrotiri Cyprus interviewed by Vivien Johnson 23/04/2018
 4. Anderson, M. *Flamingos: Biology, Behaviour and Relationship to Humans* Nova NY 2017 p99

Akrotiri salt lake, where Melani came in to land, is located within the Western Sovereign Base Area (SBA) on the Akrotiri peninsula, site of one of the last full-scale RAF stations outside the United Kingdom. For more than half a century, the restrictions imposed by the base have sheltered an area with some of the highest levels of endemic wildlife in Cyprus from the crass coastal development rife elsewhere. This advantage is not lost on its “internationally important wintering population of Greater Flamingo *Phoenicopterus ruber*⁵” – and another 250 million migratory birds who over-winter there. “People follow the birds,” Varnavas Michael likes to say, and all avian flyways in this corner of the world lead to Akrotiri, including the Black Flamingo’s.



Greater Flamingos have not always over-wintered at Akrotiri salt lake – if only because the lake as a lake is of relatively recent origin. When about 12,000 years ago humans first made landfall at a rock shelter known as Aetokremnos (“place of the eagles”) set into the cliff face, Akrotiri was a small island that only later merged with the mainland of Cyprus. It is partly because of its long isolation as an island that the peninsula now has so many unique plant and animal species either not found or critically endangered elsewhere in Cyprus⁶. Little is known of the history of the Akrotiri peninsula following this first brief human visitation. There are over 100 ancient ruin sites dating back over 2,500 years, but as yet few have been excavated⁷. We do know that over the next few thousand years Akrotiri became a tombolo or tied island – an elevated rocky outcrop attached to the mainland of Cyprus by a flat sandy isthmus.



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5. <https://www.ramsar.org/news/ramsar-mission-to-cyprus-akrotiri-salt-lake> accessed 5/6/2018 The Ramsar Convention on Wetlands of International Importance 1971 is an international treaty for the conservation and sustainable use of the world’s wetlands. As of March 20, 2003, Akrotiri was added to the Ramsar List. It is site No. 1375.
 6. Akrotiri has 20 Cypriot endemic plant species, 77 arthropods (insects and crustaceans) and 9 endemic snails, 30 species of orchids, 2/3 of those known in Cyprus. The peninsula was declared an Important Bird Area by Birdlife International with more than 300 different species of birds. The coastline of the peninsula hosts some of the few breeding beaches on the island for Green and Loggerhead turtles, both endangered species in the Mediterranean. Important mammal species have also been recorded in the area, such as monk seals, dolphins and bats.
 7. There are currently two excavations under way – one by the University of Leicester Portsmouth and the other at Aetokremnos by the Department of Antiquities Cyprus Government

Up to the 1600s, what is now Akrotiri Salt Lake figures on maps of Cyprus as a lagoon open to the sea on its south-east side. It was a port probably used by successive empires who came to exploit Cyprus' abundant copper, from the Mycenaean Greeks who established Kourion in the 12th century BC, to the 15th century Venetians. The silting up of the lagoon entrance was partly due to the Kouris River, which originally flowed through it to the sea and partly to a sea wall constructed by the Venetians to create a safe harbour for their ships. Four hundred years later, the British Governor Storrs “proposed a typically ambitious scheme to double the lake’s depth by using an ‘ancient Venetian dyke’”⁸ to make it deep enough to land sea planes, but fortunately for the birds, his grand scheme came to nothing. Eventually the port was moved to nearby Kolossi, leaving Akrotiri to the birds and the villagers of Akrotiri, who still today practise the ancient (recently UNESCO-listed) art of soft-weaving baskets with the indigenous reeds and grasses. Many of the older houses are constructed from stone that is thousands of years old, recycled from the ruins of earlier villages around the peninsula.



The Akrotiri Environmental Education Centre was originally the villagers’ idea. Driven by growing concern about the health impacts of huge antennae from the British radio communications station encroaching closer and closer to their homes and the salt lake, they were determined to teach the children of the community about the value and vulnerability of their unique natural and cultural heritage. It was an unusual initiative for Cyprus and took over a decade of agitation to get off the ground. The Centre initially opened in 2003 in rented premises that now house the Akrotiri Tattoo Parlour. In 2007, it became part of the network of environmental education centres of the Ministry of Education of the Republic of Cyprus, which funds two teachers to organise the Centre’s schools program, catering to 8,000 children a year. The SBA funds the other Centre staff and also helped pay for its grand new premises on higher ground overlooking the salt lake. The building was officially opened in November 2014 and boasts “some of the most innovative and environmentally friendly building concepts, including a photovoltaic system on the roof which provides approximately 50% of its energy requirements” and a “fully-interactive educational experience set against a backdrop of some of the most spectacular wetlands areas on island”⁹.

8. Morgan, T. *Sweet and Bitter Island: A History of the British in Cyprus* (I. B. Taurus London New York 2010) p116.
 9. <https://www.sbaadministration.org/index.php/new-eco-center> accessed 6/6/18

What's so special about the black flamingo?

The first known sighting of the black flamingo was in Eilat, the southernmost town of Israel, two and a half years before she first appeared in Cyprus. On the morning of 23 October 2012, a storm system severe enough to cause flash flooding across southern Israel had just passed. Itai Shanni was setting up the 'scopes at the Eilat Bird Centre, an old industrial site converted to a wetland for birds deprived of their Red Sea shoreline by expansion of the tourist industry. For migratory birds, this is the first stopover after the arduous Sahara crossing.

When Shanni checked on the regular over-wintering Greater Flamingo flock, he saw amongst them one dark bird. Given the weather conditions, he did not at first rule out mud staining or oiling as the cause of the bird's odd colouration. But whatever the cause, he was in no doubt that it was something he at least had never seen before.

His response was to contact the experts: Hein van Grouw, Senior Curator of Birds at the Tring branch of the UK Natural History Museum¹⁰, in whose professional opinion "the dark plumage of this bird was caused by melanism"¹¹. Van Grouw also confirmed Shanni's hunch that this was a once in a lifetime sighting:

As far as we know, this is the first record of this plumage aberration for any flamingo species. The bird remained at Eilat salt pans with the flock (60-100) during summer and up to 1,500 during winter and was last seen in the first week of March 2014"¹²

From the great quantity of images of the bird gathered during its extended stay in Israel, we have a detailed description of this black flamingo, whose size, shape and behaviour were all found to be within the "normal range" for a Greater Flamingo. It has to be the same bird Varnavas saw at Akrotiri three years later: Melani's body markings when she first arrived at Akrotiri were identical to those seen in the Eilat photos.

Van Grouw also concluded that the bird was a juvenile. The shift in her eye colour from brown to "yellowish brown" (flamingos' eyes are usually yellow) over the time she was at Eilat indicates an immature bird in the process of maturing. Staying over at the Eilat wetlands all summer and throughout 2013 into 2014 is also consistent with the behaviour of a juvenile flamingo, not yet ready to accompany the flock to the breeding grounds. Significantly, there was no marked difference in the bird's plumage before and after the moult it underwent during its time at Eilat. From this the researchers cautiously concluded that source of the bird's dark plumage was "most likely ... a hereditary type of melanism"¹³. A scholarly article stating all this appeared in the journal *Dutch Birding* after the bird had left Eilat, where she has not been seen since.

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10. A purpose-built facility that houses one of the world's largest and most scientifically important ornithological collections, including Darwin's finches and Wallace's Birds of Paradise. It also incorporates an extraordinary collection of 'aberrant plumages' amassed during the 19th century by Walter Rothschild, whose private museum built to house his vast collection of stuffed avian colour deviations eventually became the basis of the NHM's Herefordshire facility.
 11. Ottens, G. 'Melanistic Greater Flamingo at Eilat, Israel, in October 2012-March 2014' *Dutch Birding* 36: 242-243 2014
 12. Ottens, Gert 'Melanistic Greater Flamingo at Eilat, Israel, in October 2012-March 2014' *Dutch Birding* 36: 242-243 2014
 13. *ibid*



The black flamingo forages with her flock in front of Akrotiri village April 2018
Photo: V Michael Akrotiri Environmental Education Centre

In February 2014, just before the black flamingo left Eilat for perhaps the last time, it had been spotted and photographed by 70-year-old travel agent and amateur wildlife photographer Don Presser of Carmel, California while on a bird-watching tour. The response of the bird guide to Presser's question about what he thought he was seeing was a classic: "That can't be a flamingo. There's no such thing as a black flamingo."¹⁴ Melani is literally "one of a kind": never before in the annals of bird watching (which date back at least to ancient Greece¹⁵) had anyone reported seeing a black flamingo. This despite the fact that there were times, like the 19th century, when birds with 'aberrant plumage' were an ornithological collector's delight. For instance, the vast Walter Rothschild collection of avian coloration oddities of the Tring Natural History Museum to which the black flamingo's Israeli discoverers reported their find, contained no such specimen. As far as anyone knows, there has never before been a black flamingo – all other known flamingos have been pink or pinkish. Their pinkness is a large part of what makes them special among birds in the contemporary popular imagination. That's why Melani stands out so much – there's a kind of perceptual double-take when we behold her amongst her flock: even when that's what we're looking for and expecting or hoping to see. The mind resists the evidence of the senses, so that it's an almost hallucinatory sensation. This is certainly part of what makes seeing the black flamingo with your own eyes such a special experience.

Slowly maturing birds like flamingos – they are one of the longest lived avian species and have been known to live into their 80s in captivity – may take up to seven or eight years to reach their definitive plumage, and over the years Melani's appearance has changed. At first the changes were subtle: some areas of the neck and adjoining sections of her body that in Eilat were chocolate brown rather than black like of the rest of her appear in Varnavas' photos from that first day in Akrotiri to be a paler sooty grey. The changed colour could be due to ongoing maturation – or even to Varnavas' photoshopping of his shots to get a clear enough image of the bird to share on the internet. However when she last re-appeared at Akrotiri after an absence of almost two years her neck had dramatically whitened and now elegantly offsets her delicate white tuft of tail feathers. Her legs on the other hand are now regulation Greater Flamingo pink.

14. www.montereyherald.com/article/zz/20140312/NEWS/140318486 accessed 5/6/2018

15. Curiously the great naturalist Aristotle (384-322BC) made no mention of flamingos of any shade in his encyclopedia *Historia Naturalis* which purported to cover every avian species known to humanity at that time, but there are other mentions of flamingos in the literature of Ancient Greece e.g. Aristophanes Birds translation by Ian Johnston of Vancouver Island University, Nanaimo, BC <https://records.viu.ca/~johnstoi/aristophanes/birds.htm> accessed 24/01/16



From the first there was one intriguing difference between the Israeli and Cypriot sightings of the black flamingo. Unlike the Israeli observers, those watching the bird closely at Akrotiri did *not* consider its behaviour to be entirely “normal” for a flamingo. In the words of Thomas Hadjikyriakou, Manager of Akrotiri Environmental Education Centre: “from our observations it exhibited some restlessness and was not seem to be perfectly integrated with the rest of the group”¹⁶. A video of the bird taken in April 2015¹⁷ just after its arrival confirms this assessment. While the other flamingos feed, preen, look round, but stay in one place, the black flamingo promenades – right around the back of the flock and then around to the camera side, constantly in motion. On a broader scale, Melani’s movements also demonstrate her restless spirit after reaching maturity. Soon after arriving in Akrotiri in 2015, she flew 90km east to check out Cyprus’ other large (though one third the size of Akrotiri) salt lake, alongside the airport at Larnaca. She was there for only a few days before heading back to Akrotiri, where she stayed for another two months before heading off possibly to Turkey with the other flamingos. She returned in 2016 and stayed till June, but no one knows where she went after that until she turned up again in Akrotiri in mid-February 2018.

Such boldness is to be expected of a melanistic individual according to van Grouw: “In general, more strongly melanistic individuals are more resistant to stress, more aggressive and differ in metabolism.”¹⁸ The flamingos of Akrotiri are not – yet – in an urban environment, but Akrotiri is already a more challenging environment than what they might have experienced here over the previous few hundred years, and before the establishment of the military base. As the favoured

16. personal communication 12/02/18, 4:14 PM

17. <https://www.youtube.com/watch?v=LW8Gu2sODgo> uploaded to UTube by George Konstantinou of Cyprus Wildlife Tours

18. Hein van Grouw cites for this observation Roulin & Ducrest 2011, Poelstra 2013, Corbel et al. 2016 in his *The dark side of birds: melanism—facts and fiction* © 2017 The Authors; Journal compilation © 2017 British Ornithologists’ Club Bird Group, Dept. of Life Sciences, Natural History Museum, Akeman Street, Tring, Herts. HP23 6AP, UK

habitats of flamingos – inhospitable and inaccessible – become rarer and flamingos are obliged to accept feeding grounds vulnerable to human observation, could melanistic individuals and their resilience in the face of environmental stress become relevant to the survival of the species? Van Grouw again:

Morphism in a species probably is initiated as an occasional colour aberration. If a selective balance operates between the aberrant and normal colour morphs, based on selective advantage vs. disadvantage, the aberration may become an established morph. Pigment aberrations often combine with different behaviour and physiology, and these differences may prove advantageous in certain habitats, ultimately leading to speciation.

In mediaeval times the ultra-rare appearance of a black flamingo would surely have been seen as a divine symbol – perhaps a harbinger of doom. Melani’s first appearance at Akrotiri did come just three months after the governments of the UK and Cyprus had signed a new agreement allowing “non-military” i.e. commercial development in the non-restricted parts of the Sovereign Base Area. Despite assurances from the SBA’s Information Office that “there will still be a planning regime in the SBA to prevent inappropriate development that is inconsistent with the SBA Policy Statement, military and environmental obligations”¹⁹, it is difficult to avoid the conclusion that Akrotiri stands on the edge of a developmental precipice. Just a few hundred meters from the salt lake, construction is underway on the City of Dreams casino, which its promoters claim will be the largest in Europe. This may be just the beginning of Akrotiri’s commercialisation. There are also natural gas fields off the peninsula where major global resource companies including Total and Exxon Mobil have already staked their claims.

Ironically the most remarkable about Melani may in the end turn out to be her very uniqueness: *how can she be the only one?* Surely, if there can be one melanistic flamingo, there can be more? If Melani was a juvenile back in 2012, she must by now be at least six years old, which may be old enough for a flamingo to breed. Could she have gone this time to the breeding grounds with the rest of her flock? If she does breed – and there is no reason to think that she won’t, since the other flamingos behave towards her in every other respect as a conspecific – will her baby grow up to be black? That’s a trickier question than you might think. Melanism may be usually a dominant characteristic, but females are the heterogametic (sex-determining) sex in birds, so it depends on the location of the melanistic mutation whether it will be passed on to her offspring or only to the males or the females amongst them. But if her chick does turn out to be black, a surreal scenario could one day unfold on the serene waters of Lake Akrotiri...

And if Melani’s fondness for it continues, the fame her recurrent presence will inevitably bring in a flamingo-obsessed world will be some guarantee that the rare and precious ecosystems of Akrotiri will be protected, or at the very least that their fate will not go unnoticed.

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19. www.sbaadministration.org accessed 5/6/18