



Leucoderma in an African Penguin...Black-footed, Well Not Exactly

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Saba's Story



- Born: June 6, 1995 at Jenkinson's Aquarium, Point Pleasant Beach, New Jersey
- Parents: Burt (sire) and Shadow (dam)
- Despite almost 7 years of research into her condition, we have only uncovered two other birds displaying similar characteristics.

What is Leucoderma?

- Leucoderma is defined as a depigmentation of the skin caused by many factors including but not limited to genetic, occupational/chemical, and infection. Vitiligo is a particular type of leucoderma. In general, this condition is seen in both males and females and does not seem to occur at any particular age, though it is most often displayed by younger individuals.

- Melanocytes produce melanin (skin pigmentation) and are found in the basal layer of the epidermis. Melanin is produced in a process called melanogenesis.

- The onset of this depigmentation is generally without additional symptoms such as inflammation, lesions, or weight loss.



- While most of the research we found highlights depigmentation in feathers, Saba's feathers remain unaffected. Her blood work and medical history seem to point to this condition being either hereditary or autoimmune. A much lesser case of leucoderma was seen in Shadow (Saba's mother).

Treatments and Conclusions

- Beginning November 2007, we supplemented her diet daily with vitamin B12, folic acid, and vitamin C. In a relevant study, prolonged oral administration of these vitamins showed a re-pigmentation without side effects.

- After more than five years of supplementation, some black pigmentation returned on the bottoms of her feet, though we are not seeing re-pigmentation of the beak at all.

- As of July 14, 2007, we discontinued these supplemental vitamins to determine their impact on the re-pigmentation seen to date.

Timeline



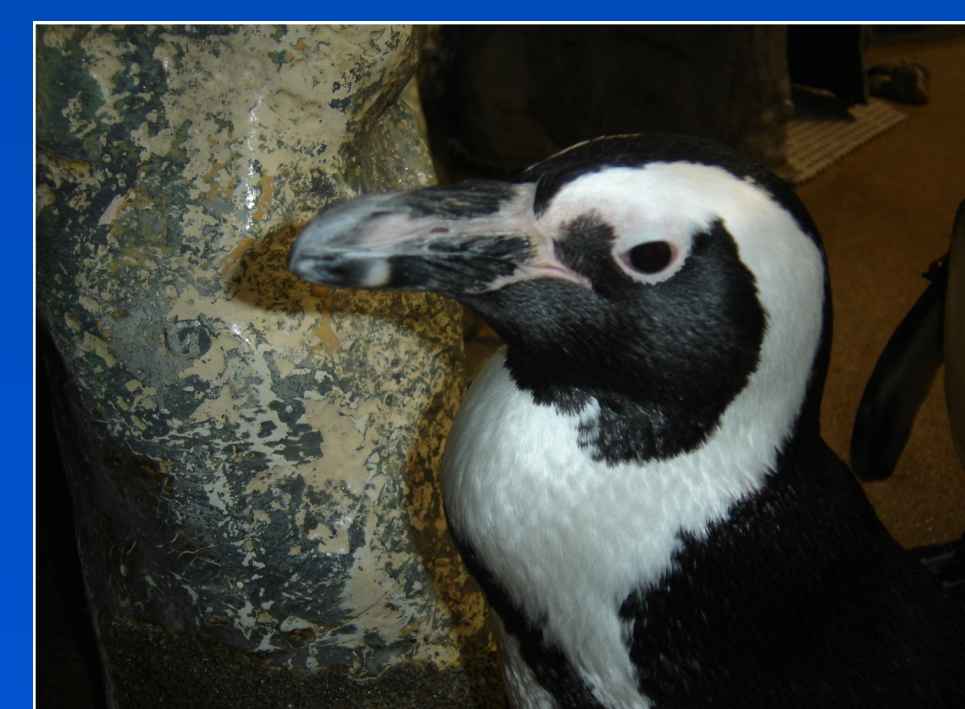
October 2006

Prior to any signs of pigment loss
Appetite normal
Weight normal
Skipped molt cycle for 2006



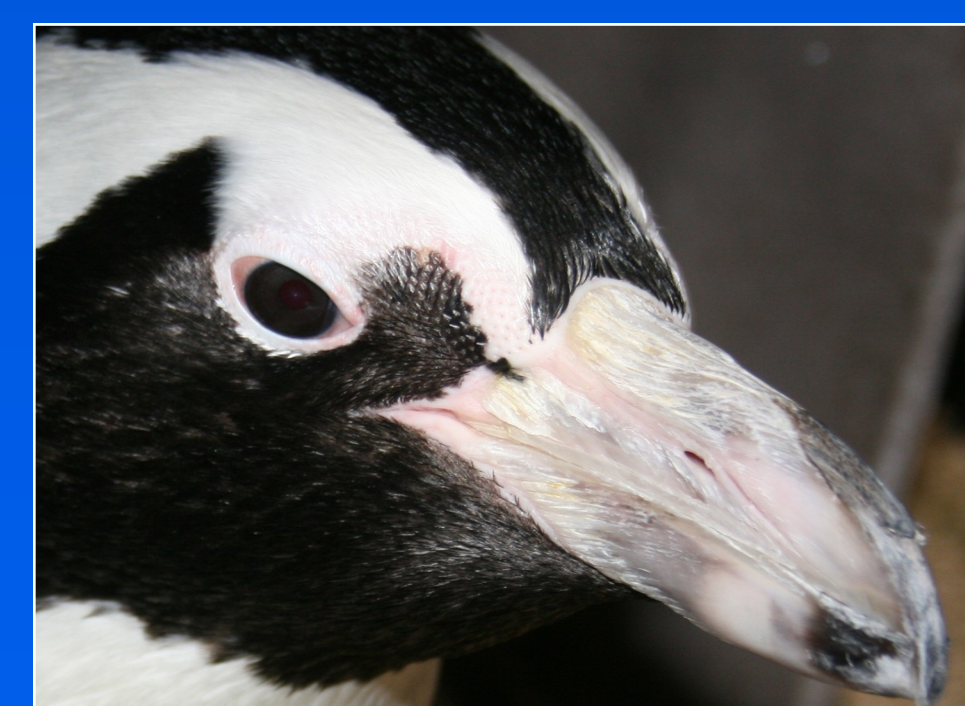
July 2007

Initial loss of pigmentation seen following the end of most recent molt cycle June 6 - July 1, 2007.
A physical exam was performed and blood was drawn specifically for a full avian profile.
This also included tests for thyroid function, nutritional deficiencies, heavy metal toxins, and aspergillus.



August 2007

Continued loss of pigmentation, especially in feet.
Pigmentation loss beginning on beak area nearest feathers.
Results from complete avian profile showed elevated liver enzymes. However without any other cases to reference, we could not attribute these elevated values to her condition.
Appetite and body condition continued to be normal.



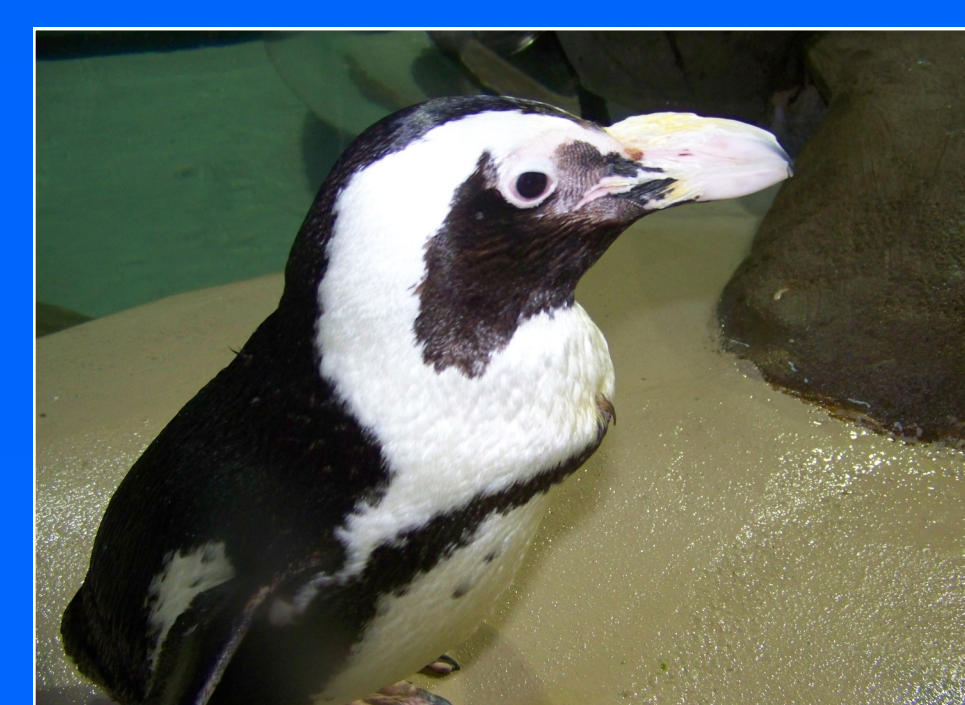
December 2007

Dramatic loss of pigmentation in beak as well as in the nails.
The initial diagnosis at this time was Vitiligo.
Treatment started November 16, 2007.
Treatment schedule as follows:
Daily - 1/4 tablet of 100 mcg B-12 and 1/8 tablet of 500 mg Vitamin C
Once a week - 1/4 table of Folic Acid 400 mcg



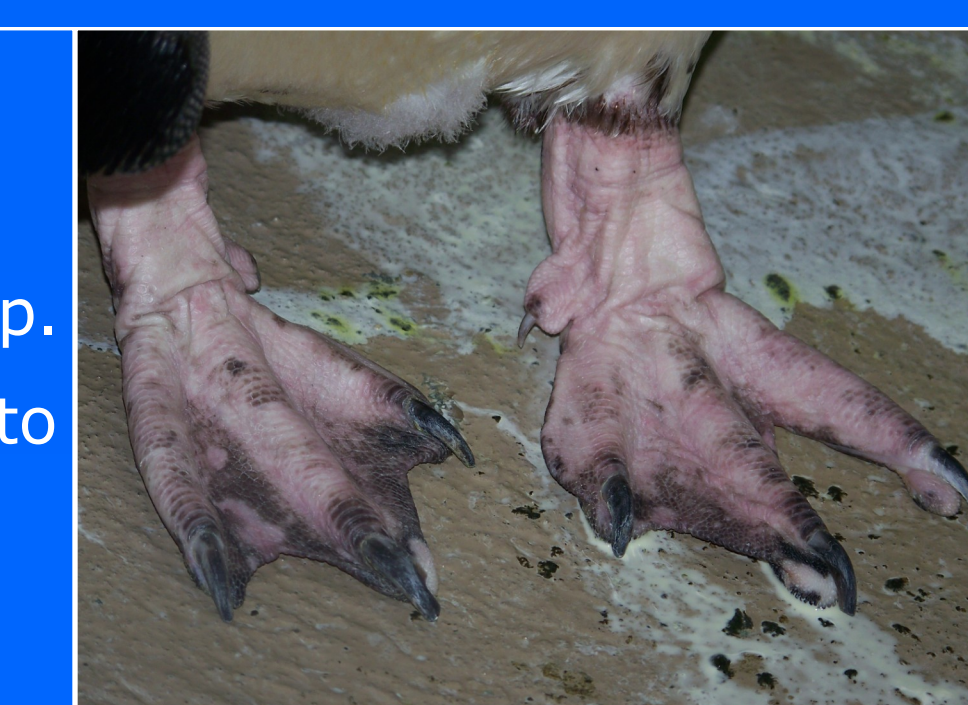
February 2008

Slight re-pigmentation on the tip of the beak and bottoms and edges of her feet.
Based on improvements in both beak and feet, treatment is continued.



July 2013

Re-pigmentation continued to a point then seemed to slow/stop. Our research has led us to change her diagnosis from Vitiligo to Leucoderma, a more accurate term for her condition.



To Be Continued...

- On May 11, 2013, first time mom Saba and mate, Jonesy, welcomed a bouncing baby girl.



- The potential for Saba's new offspring to display this condition, at present, seems likely. At just a few months of age, a unique pattern of pigmentation already exists.



- A recent discovery of at least two additional cases of leucoderma in captive African penguins may offer us further insight into this condition and its origin. To our knowledge, this condition has not been documented in wild populations. (Photos compliment of Racine Zoo, Wisconsin)



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