

# Penguin in Boots: A Renewed Lease on Life

Birds are susceptible to a degenerative foot condition called bumblefoot, & if not treated, can lead to system-wide infection & ultimately, death. The care specialists at San Diego Zoo hopped into action when they diagnosed the condition in Lucas, resulting in a heartwarming outcome.

**Analysis by Dr. Karen Shaw Becker**

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## STORY AT-A-GLANCE

- Lucas, a 4-year-old African penguin living at the San Diego Zoo, has a condition called bumblefoot that causes him balance and mobility problems, along with painful sores on his feet and legs
- Since Lucas's condition is permanent, the Zoo's wildlife health and wildlife care specialists teamed up with the Thera-Paw company to fit him with special boots to make him as comfortable as possible as he goes about his normal daily penguin life
- The boots resulted in an immediate improvement in Lucas's posture, balance, gait, and mobility, giving the little fellow a renewed opportunity to thrive
- African penguins are listed as endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species

Bumblefoot is an all-purpose term for a range of degenerative foot conditions in birds characterized by everything from mild redness to deep abscesses. Left untreated, bumblefoot can lead to sepsis (a system-wide infection) and ultimately, death.

Lucas's medical issues began when he was less than a year old and developed a spinal infection that left him with weak muscles in his legs and the inability to properly stand upright on his toes. The poor little guy was forced to rest on areas of his ankles that would not normally touch the ground.

Lucas was treated with pain medication, physical therapy, and acupuncture treatments to try to improve the condition of his spine, but unfortunately, the treatments were unsuccessful, and sores began to form on his foot and legs.

Since Lucas's bumblefoot is believed to be a permanent condition, the Zoo's wildlife health and wildlife care specialist teams decided to try to fit the penguin with special boots to make him as comfortable as possible to maintain his quality of life.

## Immediate Improvement and an Opportunity to Thrive

For the specially designed boots, the Zoo teams worked with **Thera-Paw**, a national organization that designs and manufactures rehabilitative and assistive products for animals with special needs. Thera-Paw designed and fitted Lucas with custom orthopedic footwear made of neoprene and rubber, with the goal of preventing pressure sores from developing on his feet and ankles when he stands and walks.

The boots should protect the lesions already present on Lucas's feet, while minimizing the risk of developing additional sores.

*"I've known Lucas for a long time, so having the ability to provide him with a chance to live a normal life brings a smile to my face," Dr. Beth Bicknese, senior veterinarian at the San Diego Zoo said in a news release.*

*"The boots are cushioned and Velcroed in place, so they will help Lucas to fully participate in the colony and showcase behaviors that are more typical for a penguin — such as climbing the rocks, swimming, nesting and finding a suitable mate."<sup>1</sup>*

Ilaria Borghese, founder and president of Thera-Paw, had this to say:

*"This was such an amazing opportunity, and we were honored to be asked to assist the team at the San Diego Zoo. Over the years, we've tackled challenging cases like Lucas's, and each is special and memorable. One thing that never gets old is seeing an animal's life dramatically improve after using one of our aids. It inspires and drives us every day."<sup>2</sup>*

Once Lucas was in his boots, the Zoo's wildlife care team noted that his gait improved, which enhanced his ability to move around his rocky habitat. In addition, his posture became more natural, which helped his balance while standing.

*"We were pleasantly surprised at the immediate change in Lucas after we fitted him with his new boots," said Debbie Denton, senior wildlife care specialist at the San Diego Zoo. "Seeing him move about now gives us hope that he may be OK going forward, and able to live a full life."<sup>3</sup>*

## African Penguin Populations Are in Rapid Decline

The African penguin, once one of southern Africa's most abundant seabirds, is currently categorized as endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

The population experienced a dramatic decline from an estimated 1 million breeding pairs to only about 18,000 breeding pairs today, with an incredible 23% decrease in just the last two years. From the San Diego Zoo Wildlife Alliance news release cited above:

*"Historically, penguin eggs and guano were commercially harvested, which had a devastating effect on the population.*

*Although both practices were abolished toward the end of the 20th century, other threats — including a lack of readily available food due to overfishing, climate change, oil and marine pollution, the emergence of avian influenza A (H5N8) virus and habitat degradation — contribute to a continuing population decline."*

The San Diego Zoo Wildlife Alliance is a member of the Association of Zoos and Aquariums' Species Survival Plan (SSP) program and has also partnered with the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB), to help facilitate conservation programs in South Africa.

*"Penguins are a remarkable family of birds," said Denton. "There is no other type of animal that is so widely spread across an enormous geographic range, or displays so many **unique characteristics** among its members. As their numbers fall, every individual bird matters. It's vital that we continue our work to ensure their continued survival for generations to come."*

## Sources and References

[People, September 7, 2022](#)

[1, 2, 3 San Diego Zoo Wildlife Alliance News Release, August 29, 2022](#)

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