The macaw with the titanium beak: disabled parrot gets a prosthetic 3D-printed beak

Posted on **November 12, 2021**

In nature, parrots use their beaks for more than just eating. They use them for climbing, as well as manipulating and crushing objects. Losing a beak is a major handicap. That was the situation faced by Max, a 20-year-old blue and gold macaw from a bird sanctuary in the Western Cape. He lost his beak in 2017, leaving him unable to eat normally.

According to his caretaker, Trevor Glover, “Max was brought to the sanctuary in 2017 after his owner moved overseas. He was aggressive towards the other rescue birds and during hormone season at the end of 2017, he attacked a macaw that retaliated by biting his top beak and cracking the left side from top to bottom.” Max was then placed in a different aviary with another bird. “But in the third week together, they got into a fight, with Max’s weakened beak being ripped off completely,” said Glover.

Max was carefully treated by Dr Brendan Tindall, a veterinary surgeon at the Robberg Veterinary Clinic. Unfortunately, the injury severely affected Max’s ability to eat. “I began to feed him a hot, soft food mix of about 10 nutritious foods twice a day. His weight was monitored daily. He was hand-fed, but soon started lapping food up with his tongue,” said Glover. This couldn’t be a permanent solution, however; without his upper beak, Max’s lower beak continued to grow. “The bottom of the beak grew longer than Max’s tongue, and this prevented him from reaching his food,” Glover explained. Something had to be done.

Dr Tindall contacted Prof. Gerhard Steenkamp of the University of Pretoria’s Faculty of Veterinary Science at Onderstepoort to see what could be done for Max. Prof Steenkamp, a veterinary specialist at the Faculty of Veterinary Science, accepted the challenge to repair Max’s beak. He and his team decided to develop a prosthetic 3D-printed titanium beak to replace his old one.

This required a multi-corporation effort. First, Max’s face was scanned by Dr Craig Muller of Eugene Marais Radiology. Using this data, the prosthetic beak was designed by Philip van der Walt from BunnyCorp. “The beak was subsequently printed by the Centre for Rapid Prototyping and Manufacturing at the Central University of Technology using additive manufacturing and a drill guide in nylon,” Prof Steenkamp explained. Saspine, a company that produces surgical implements, created special anchors and screws for the prosthetic beak. “We developed three anchors that passed through the printed beak, all the way across the beak and locked into the prosthesis on the far end. This ‘locking mechanism’ has never been described in birds,” said Prof Steenkamp. This entire process took nearly two years with COVID-19 lockdowns creating complications at every turn.

The surgery was finally conducted at the Robberg Veterinary Clinic by Prof Steenkamp with Dr Brendan Tindall administering anaesthesia and the assistance of Prof Cules van Heerden, a

prosthodontics specialist and former UP professor. Max now lives a full life with a full beak. His caretaker, Trevor Glover, said, “I am very grateful for the help, kindness, advice and dedication given by the team led by Prof Steenkamp. Max has been given a new lease on life and has gone back to relatively normal behaviour – eating, flying, and climbing as he did before the injury. My heartfelt thanks to all.”

- Author Ali Selebi
- Published by Jimmy Masombuka

- Published in Tukkievaria 12 November 2021+