

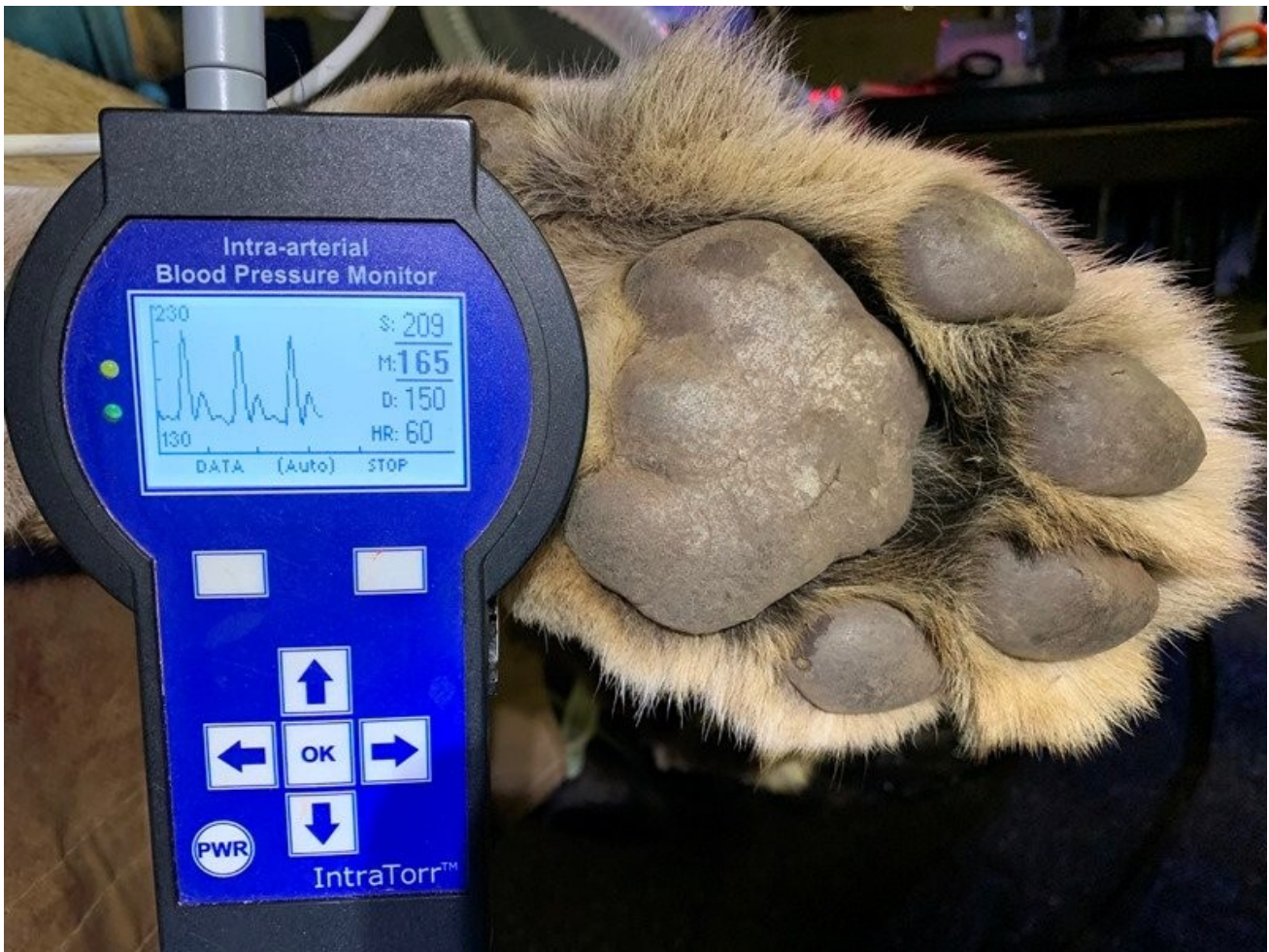
## Using science to improve the safety of lion anaesthesia (immobilization)

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*One of the 36 lions that were part of the study*

Recently, a team from the Faculty, in collaboration with the Brain Function Research Group (BFRG) at Wits University and the SANParks Veterinary Wildlife Services team, conducted research in the Kruger National Park to investigate novel immobilizing drug combinations to facilitate the capture of free-ranging lions for conservation management, monitoring and research purposes.



*Above: The blood pressure of a lion is measured from a catheter in the dorsal metatarsal artery. The trace shows the pulse pressure wave form and the numbers indicate the measured pressures (S: systolic, M: mean, D: diastolic) and heart rate (HR). The pressure of this lion is elevated, which is an effect of the drug combinations used in this animal.*

The aim of the study was to evaluate the effectiveness and safety of ketamine-medetomidine and ketamine-butorphanol-medetomidine as immobilizing drug combinations, compared to the historically used combination of tiletamine-zolazepam-medetomidine. The overall objective was to improve the quality of the immobilization (anaesthesia) and recovery, and the safety of both the lions and people involved.

The study forms part of Ashleigh Donaldson's PhD at the University of Pretoria. During the course of three weeks the team - including her supervisors, Prof Leith Meyer, Director of the Centre for Veterinary Wildlife Research, Prof Andrea Fuller, Director of the BFRG and Dr Peter Buss, SANParks Veterinary Senior Manager - assessed the quality of induction, immobilization and recovery of 36 lions immobilized with the various drug combinations. Cardiorespiratory and metabolic effects of each drug combination were monitored and will be assessed and compared.



*Above: The team with one of the 36 lions that was used in the study to assess the quality of induction, immobilization and recovery. From left to right are Prof Leith Meyer (Faculty of Veterinary Science), PhD candidate, Ashleigh Donaldson, Dr Peter Buss (SANParks), and Prof Andrea Fuller (Wits).*

The study was very successful and the team believes that there will be some exciting findings and novel insights related to the use of ketamine-medetomidine and ketamine-butorphanol-medetomidine in free-ranging lions. They are looking forward to reporting these findings after full analysis and interpretation of the data.





**Left:** Ashleigh Donaldson with one of the lions used for the study which forms part of her PhD. The overall objective was to improve the quality of the immobilization (anaesthesia) and recovery, and the safety of both the lions and people involved. **Right:** This photo not only shows the size of the lion's foot pads, but also the straps that are used to "hobble" the lion. Hobbling immobilized lions is very important to stop the animals from using their front paws to grab someone if they happen to wake up too soon.

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