

Immunocontraception population control to reduce lethal interventions and human-elephant conflict

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Outline

- About African elephants
- The problem
- Our work: 1996-present
- Our long term vision
- Creating a more humane society



Elephant Population and Distribution



HUMANE SOCIETY

EGYPT

SUDAN

SOUTH

SUDAN

UGANDA KENYA

MALAWI

WANDA

ZAMBIAKA

0

ZIMBABWE

PRETORIA 019 (TSHWANE) MBABAN DDIS ARARA

ETHIOPIA

TANZANIAR ES SALAAM

MOZAMBIQUE

SOMALIA

0

Poaching and Human Population







South Africa

- About 80 National Parks and Reserves
- About 60 have elephants
- National elephant population: ~27,000 (2020)
- Kruger National Park population is largest with ~19,000 (2018)



Why the need for elephant population control?

- Elephants are referred to as "system engineers".
- Enclosed reserves, growth rate = 17% p.a. due to irruptive growth.
- Irruptive growth = an extended period of rapid density-independent population growth (Mackey et al. 2007)
- Elephant populations double every 10-15 years.









Why immunocontraception for elephants?

- Native porcine zona pellucida (pZP) immunocontraceptive vaccine extensively researched and used >30 yrs
- Efficacy & control demonstrated in number of zoo species (n = 96) (Kirkpatrick, JF, RO Lyda and K Frank 2011)
- Non-steroidal and non-hormonal
- Biological product of animal origin derived from pig's ovaries.
- Culling no longer publicly acceptable; few areas for translocation.
- Need for non-lethal population control methods arose.





Details

- Vaccine causes immune response, changes shape of egg's sperm receptor sites; sperm cannot penetrate
- Vaccinated remotely with a dart gun; twice first year; once subsequent years – NO IMMOBILISATION REQUIRED
- Dart contains vaccine and dye to mark elephants





Immunocontraception to date

- 1996 present, next year 25th year
- Dozens of scientific papers
- 34 reserves and 1,066 elephant cows
- 53% of breeding age cows outside of Kruger NP (does not use contraception) are on our program









Immunocontraception & HEC?

- Useful tool to reduce local population densities in the medium to long-term
- Reduces competition of local resources, limiting need for animals to leave protected areas to look for resources outside protected areas which leads to HEC
- Important emerging context for Human-Elephant Conflict
- Emerging need for pZP in Asian elephants



pZP immunocontraception – an effective nature-based management tool

- ✓ Mimics natural episodic events
- ✓ No effects on pathology/behaviours
- ✓ Reversible in short- to medium-term use
- ✓ Remotely deliverable
- ✓ Easy implementation
- Method is pliable and adaptive: keystones of adaptive management
- ✓ 8 populations treatments 13 20 years
- Useful to reduce local population densities & therefore important for Human-Elephant Conflict
- ✓ Recognised as current "gold standard" in revised N&S





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HSI's Longterm Vision

- Offer a proven alternative to lethal control
- By 2025, almost 100% of all breeding females outside of KNP are treated and number of reserves outside of KNP increases by 65%
- Implement pZP in 3 other elephant range states





Teamwork

Makes the Dream Work

- Anne-Marie Human, Ofentse Mogoba, Drs. Henk Bertschinger and Martin Schulman at University of Pretoria's Veterinary Population Management Lab
- JJ van Altena, Program Implementation Specialist, Global Supplies,
- Dr Teresa Telecky, HSI, VP Wildlife
- Audrey Delsink, Wildlife Director, HSI Africa
- Partner reserves and grantees







Thank you ANAW & UNEP

Bertschinger, H., Delsink, A., van Altena, J., & Kirkpatrick, J. (2018). **Porcine zona pellucida vaccine immunocontraception of African elephant (Loxodonta africana) cows: A review of 22 years of research.** Bothalia: African Biodiversity & Conservation Biology, 48(2), 8. doi: https://doi.org/10.4102/abc.v48i2.2324







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Create a more humane society

ARAN MAY - MAX

