



Looking Back to Look Forward: Contraceptive Use in the Reproductive Management of Ex Situ Giraffe (*Giraffa camelopardalis*)

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Reproductive Management of Giraffe



- Giraffe breed readily in zoos
- Reproduction is managed to ensure the population does not outgrow available space
- Separation of males from females is an option for preventing reproduction
 - However, zoos often choose to house males with the female group
- Contraception is frequently used

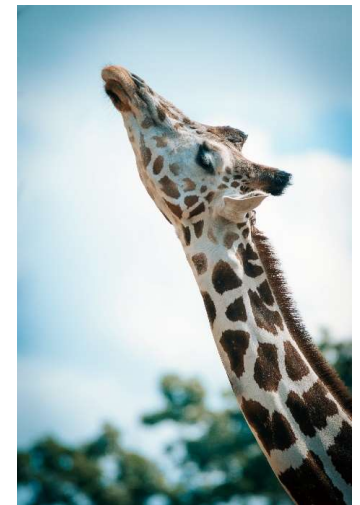
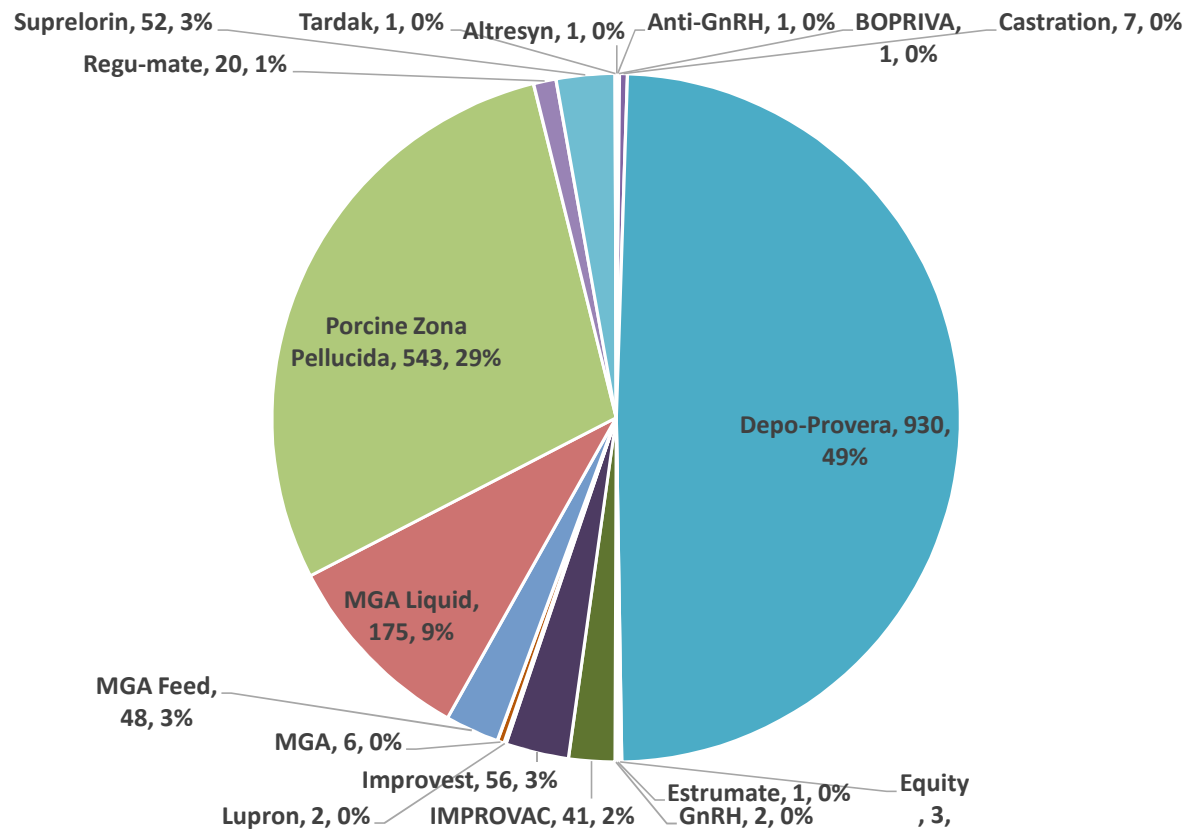
Contraception Options for Giraffe

| Product Type | Common Products | How it works | Pros & Cons |
|--|--|--|---|
| Synthetic progestins <i>(Females only)</i> | <ul style="list-style-type: none"> • Regu-mate (altrenogest) • MGA liquid • MGA feed • MGA implants • Depo-Provera (MPA) injections | <ul style="list-style-type: none"> • Acts like progesterone on the brain – “thinks she’s pregnant” • Decreases follicular growth and ovulation • Cause thickening of cervical mucus and alters lining of the uterus | <ul style="list-style-type: none"> • Animals may still have folliculogenesis and ovulation • Oral products must be given daily • Safe and effective • Reliably reversible |
| GnRH agonists <i>(Females and Males)</i> | <ul style="list-style-type: none"> • Suprelorin (deslorelin) • Lupron | <ul style="list-style-type: none"> • Mimics natural action of GnRH • 1st stimulates the reproductive system • Persistent over-stimulation of the system results in downregulation of GnRH receptors on pituitary | <ul style="list-style-type: none"> • Reproductive behaviors rarely seen • Safe and effective • Time to reversal highly variable/unpredictable • May also reduce testosterone driven aggression • Stimulation phase after placing |

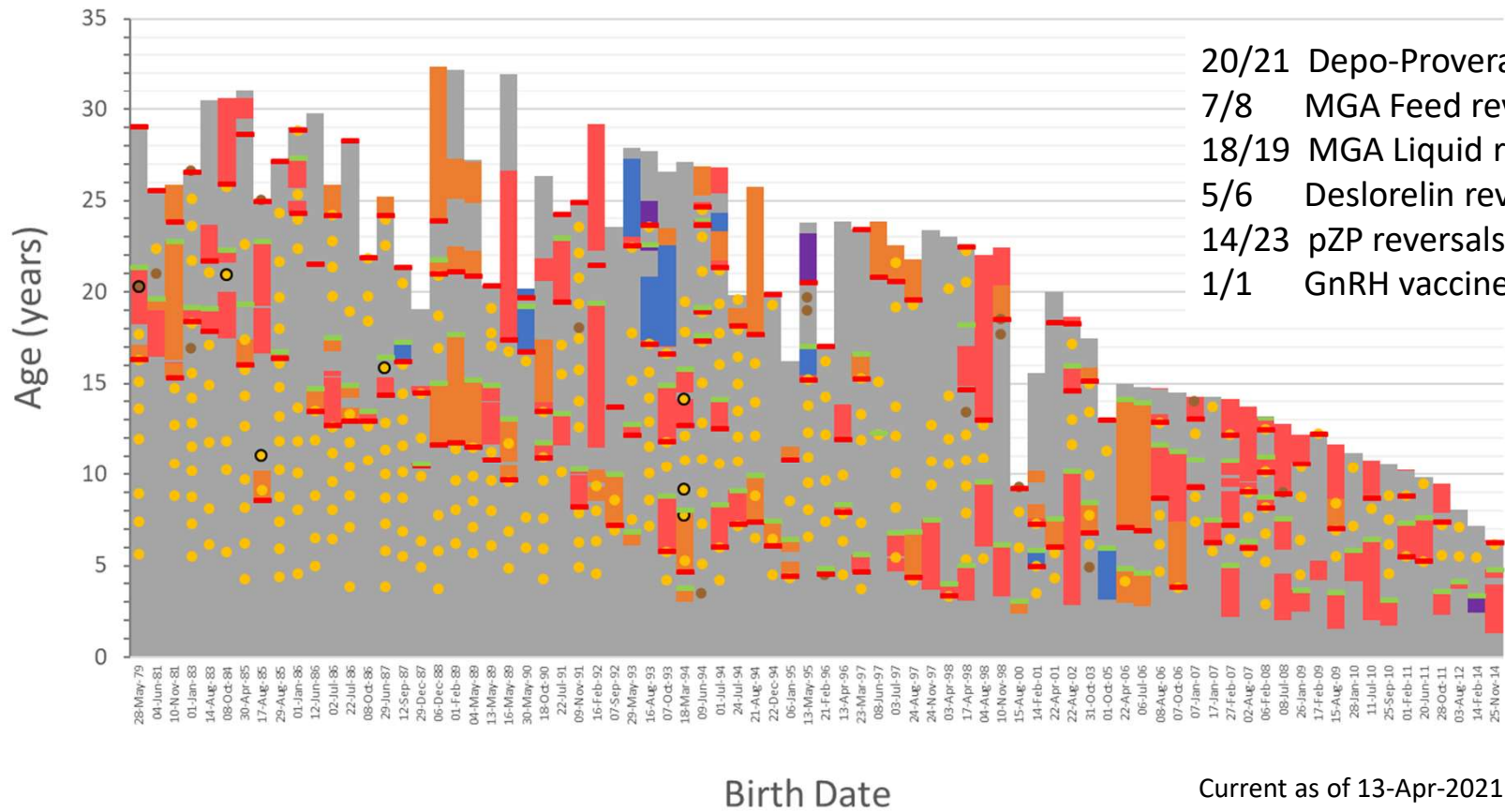
Contraception Options for Giraffe

| Product Type | Common Products | How it works | Pros & Cons |
|-----------------------------|---|---|--|
| Immuno-contraception | <ul style="list-style-type: none">pZP Vaccine (<i>Females only</i>) | <ul style="list-style-type: none">Anti-zona pellucia antibodies are produced by the bodyAntibodies prevent sperm from attaching to/fertilizing the egg | <ul style="list-style-type: none">Female continues to cycleLong term use may lead to sterility |
| | <ul style="list-style-type: none">GnRH Vaccines (Improvast, Improvac, Bopriva) (<i>Females and Males</i>) | <ul style="list-style-type: none">Anti-GnRH antibodies are produced by the bodyPrevents GnRH binding to receptors on the pituitary | <ul style="list-style-type: none">No stimulation phaseOvarian suppressionMay also reduce testosterone driven aggressionLack data on reversibility |

Bouts of Contraception Usage in Giraffe in our Contraception Database



Reproductive Histories for Female Giraffe in the RMC/RMG Contraception Database with a Breeding Opportunity Post-Treatment



20/21 Depo-Provera reversals
 7/8 MGA Feed reversals
 18/19 MGA Liquid reversals
 5/6 Deslorelin reversals
 14/23 pZP reversals
 1/1 GnRH vaccine reversals

Birth Date

Current as of 13-Apr-2021

Why the RMC relies on data entered into our online contraception survey website:



- Unless you tell us, we don't know if:
 - Animals have been treated
 - If treatment was effective (no unplanned pregnancies)
 - The treated animals ever got a breeding opportunity
 - The animals appeared to be ready for breeding (cycling, fertile)
 - The animals were actually put together (and for how long)
 - They were compatible and showed normal breeding behavior
 - Pregnancy was confirmed
 - Any offspring were produced



Data Collection



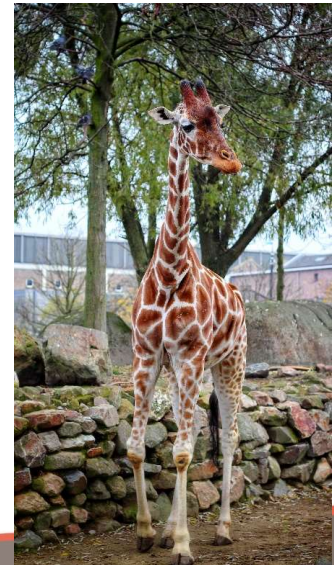
- How are data collected?
 - Contraception Survey Website: www.zoocontraceptiondata.org



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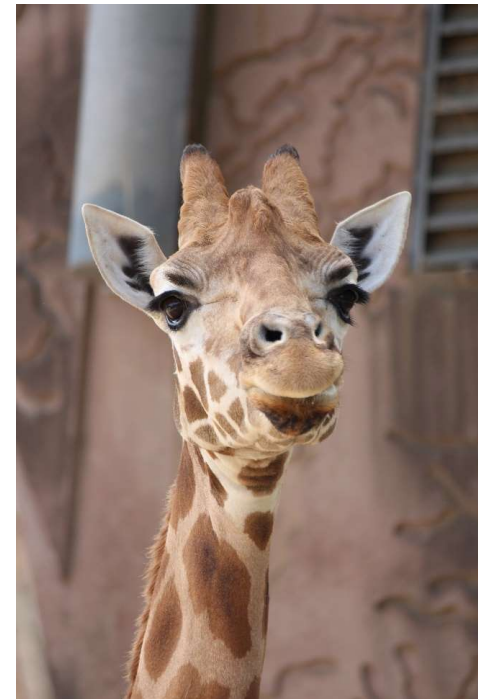
The Contraception Database

- What is it?
 - A compilation of over 51,000 contraceptive bout records from 1968 to present.
 - Shared database with the EAZA Reproductive Management Group (RMG)
- What types of data are collected?
 - Animal information (e.g. taxonomy, ID, age, weight)
 - Contraceptive products used (and removal)
 - Doses, frequency, and number of treatments used
 - Contraception outcomes (e.g. BC failures, reversals, etc)
 - Behavioral and physical changes



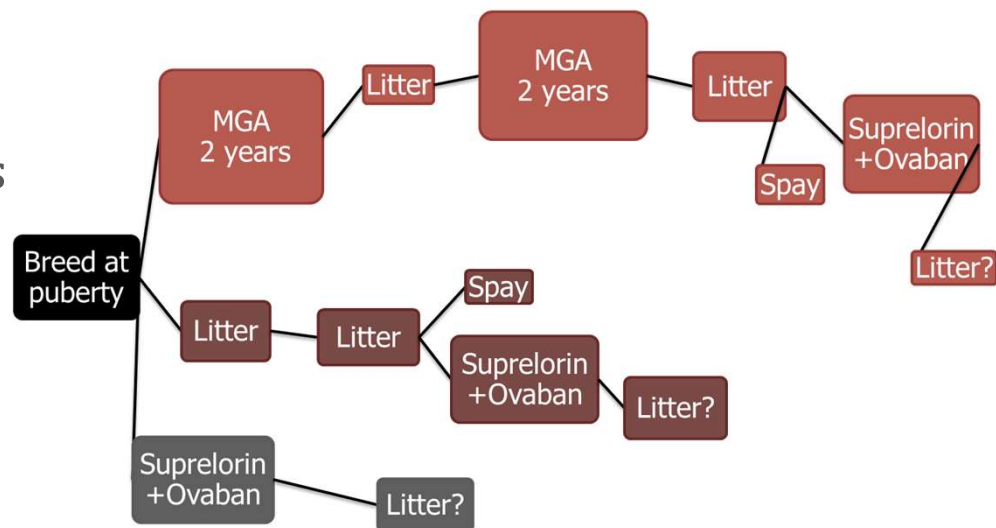
Uses for Contraception Data

- To answer questions for veterinarians
 - Efficacy
 - Dosing requirements (including frequency)
 - Adverse events/pathology associated with use
 - Route/location of administration
 - Expected behavioral changes (or lack thereof)



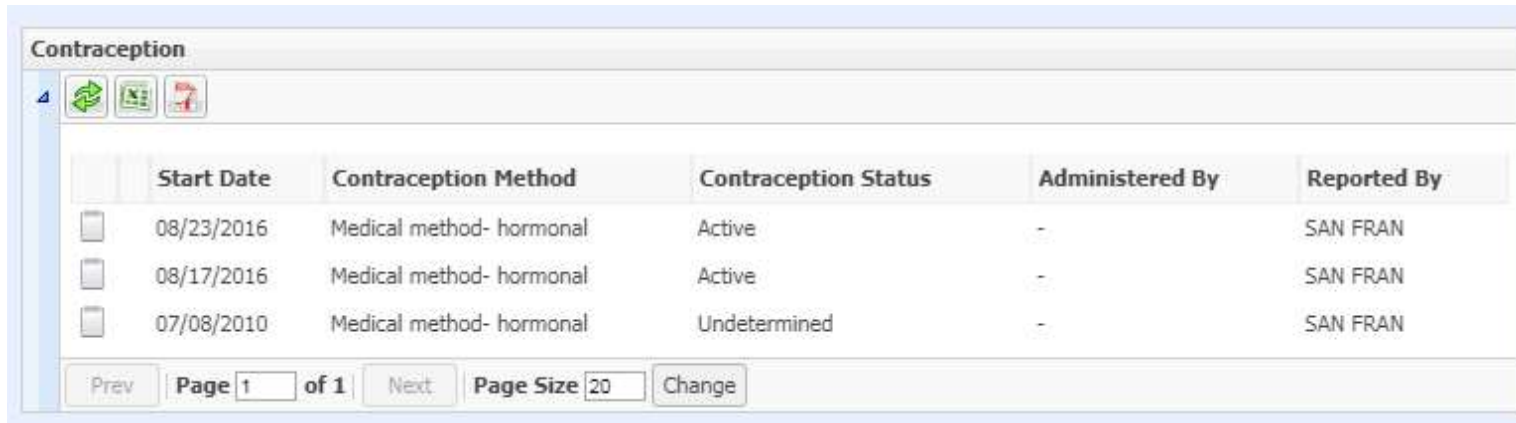
Uses for Contraception Data

- To answer questions for veterinarians
- To assist SSP managers in population planning
 - Providing information on contraception history of individuals
 - Calculation of time to reversal
 - Aggression control
 - Development of breeding strategies (Lifetime Reproductive Planning)



ZIMS Contraception Module

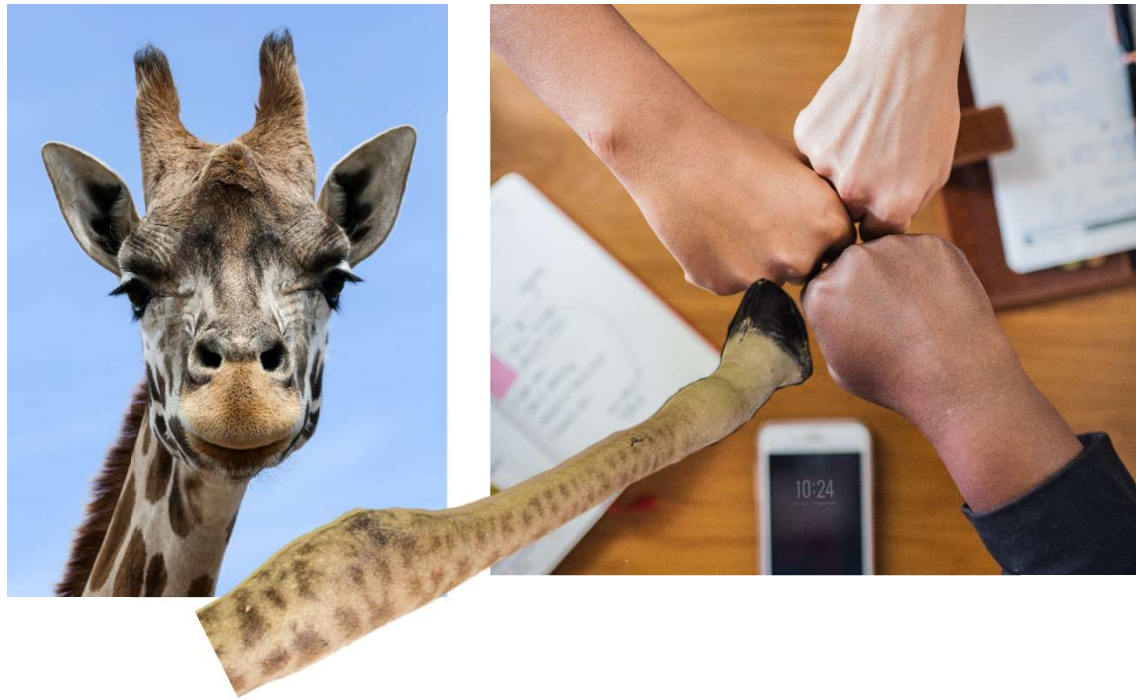
- The RMC has access to see information entered into the contraception module in ZIMS. This is often used as a resource when we are trying to fill in incomplete data.



| | Start Date | Contraception Method | Contraception Status | Administered By | Reported By |
|--------------------------|------------|--------------------------|----------------------|-----------------|-------------|
| <input type="checkbox"/> | 08/23/2016 | Medical method- hormonal | Active | - | SAN FRAN |
| <input type="checkbox"/> | 08/17/2016 | Medical method- hormonal | Active | - | SAN FRAN |
| <input type="checkbox"/> | 07/08/2010 | Medical method- hormonal | Undetermined | - | SAN FRAN |

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You Help Me, I Help You.





Questions?
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