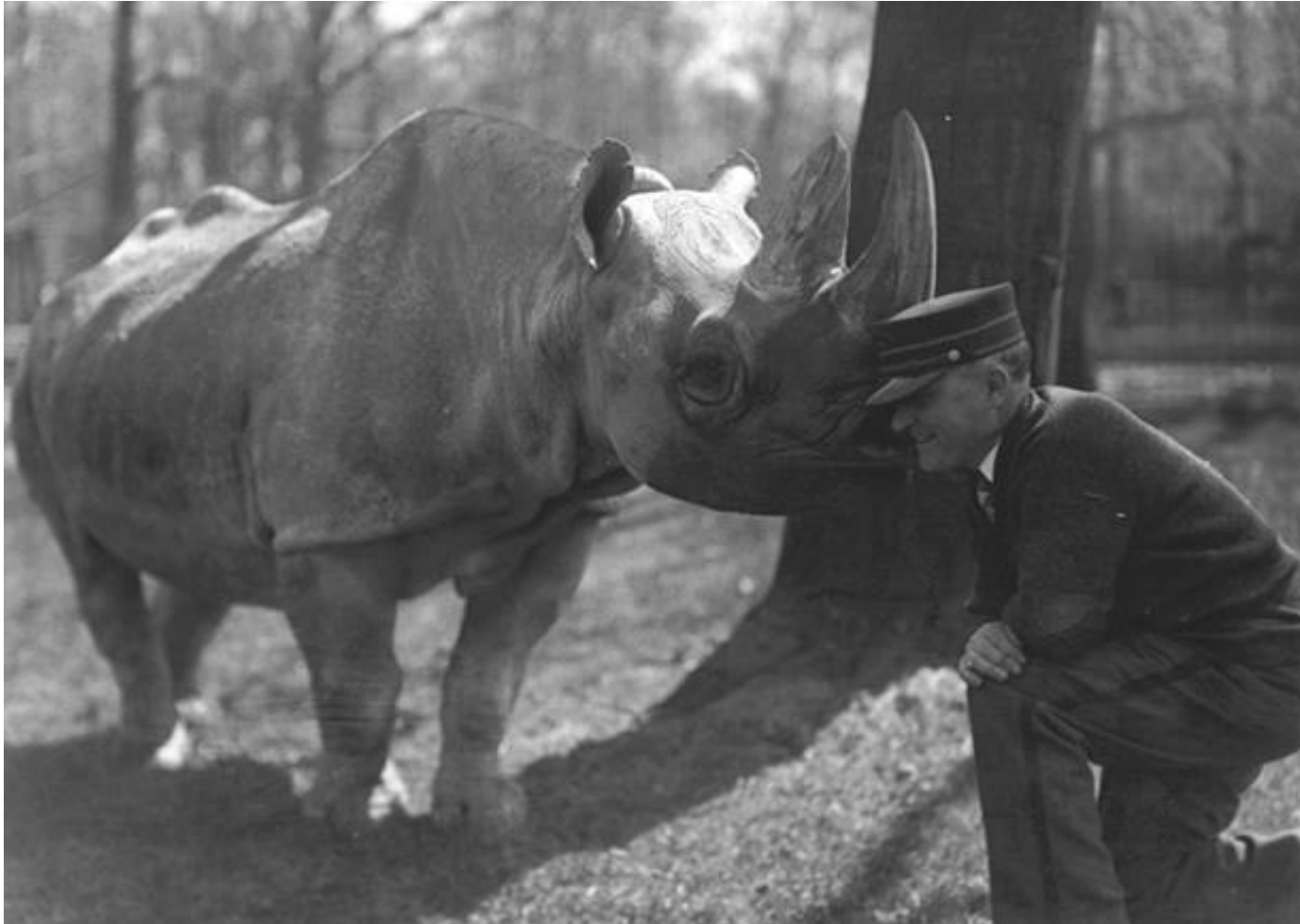


Eastern Black Rhinos and Chester Zoo

Dr Mark Pilgrim and Becca Biddle

Thursday 18th June 09:10 – 10:00

Dr Mark Pilgrim, Director General



Eastern Black Rhinos and Chester Zoo



- Facilities and Rhinos
- Nutrition
- Science and Research
- European Breeding Programme
- Field Work
- Future

Facilities and Rhinos

Facilities and Rhinos

CHESTER ZOO



Facilities and Rhinos

CHESTER ZOO



Malindi & Dakima & Chanua

Magadi

Zuri & Embu

Kifaru

Kitani

Ema Elsa

Manyara

Facilities and Rhinos

CHESTER ZOO



Facilities and Rhinos

CHESTER ZOO



Facilities and Rhinos



Facilities and Rhinos

CHESTER ZOO

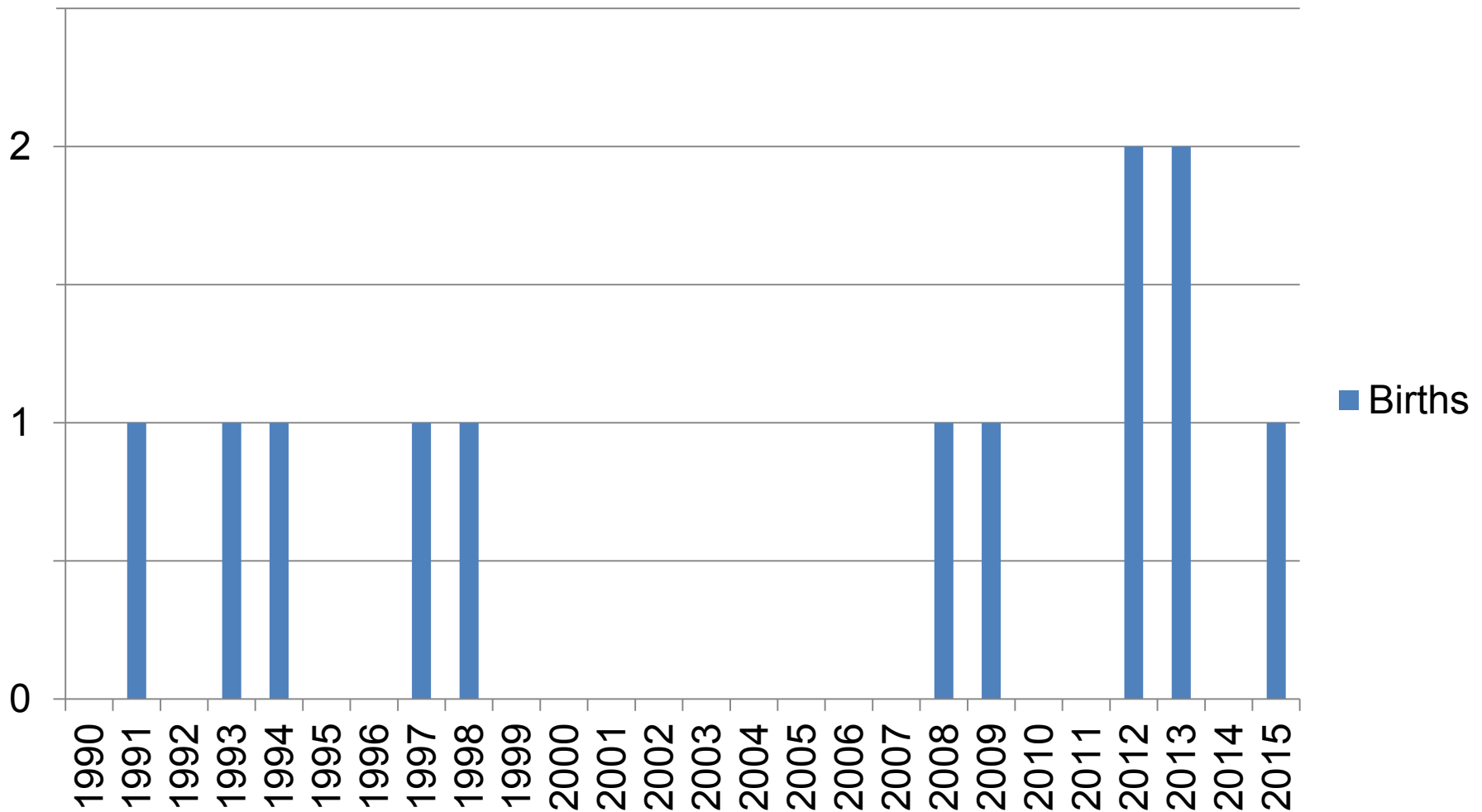


Facilities and Rhinos

CHESTER ZOO

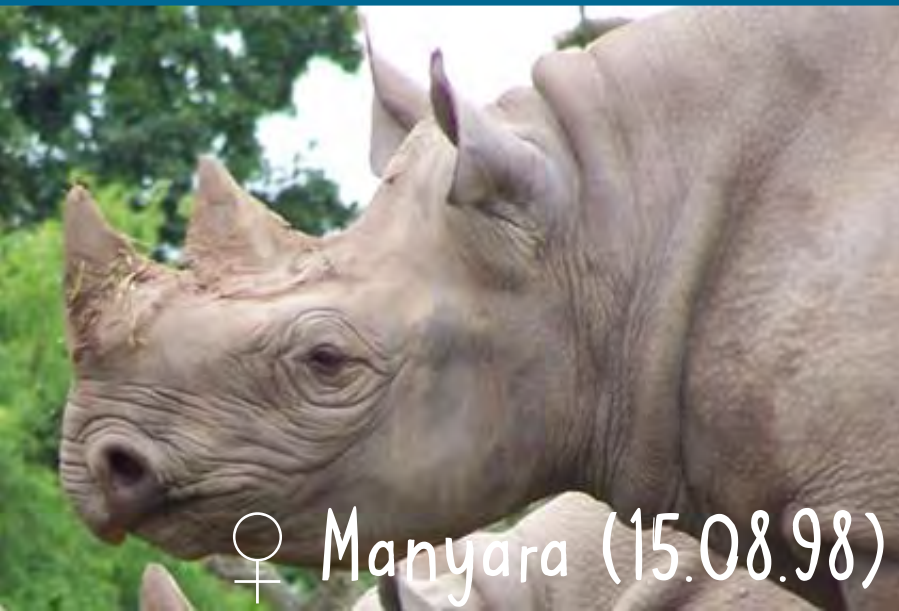


Black Rhino Births at Chester Zoo



Facilities and Rhinos

CHESTER ZOO



Facilities and Rhinos

CHESTER ZOO



♀ Ema Elsa (02.11.02)

Facilities and Rhinos

CHESTER ZOO

♀ Zuri (05.03.07)
and ♂ Embu
(29.06.13)





♀ Malindi (03.11.05) and ♀ Dakima
(07.03.13) and Chanua (03.10.2012) ♀

The rhino with two calves

CHESTER ZOO



Nutrition

Nutrition

CHESTER ZOO

Dr Andrea Fidgett



Black rhino diet evolution

Importance / contribution



< 2002

~2004 -2007

2007 - present

Ele-Vit-E



EQUIVITE[®]



Zebra Cube

With added biotin, calcium and vit E (+ low iron)



Browse browse browse

CHESTER ZOO





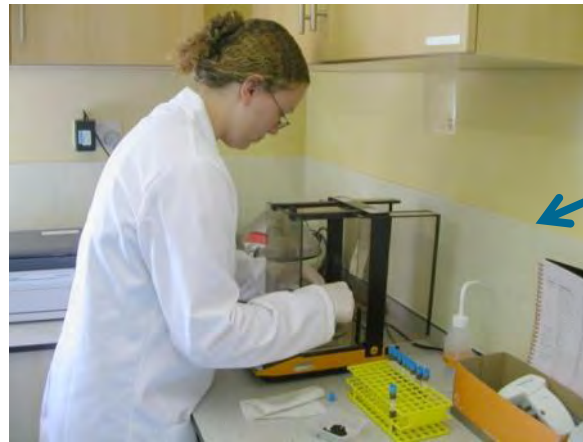
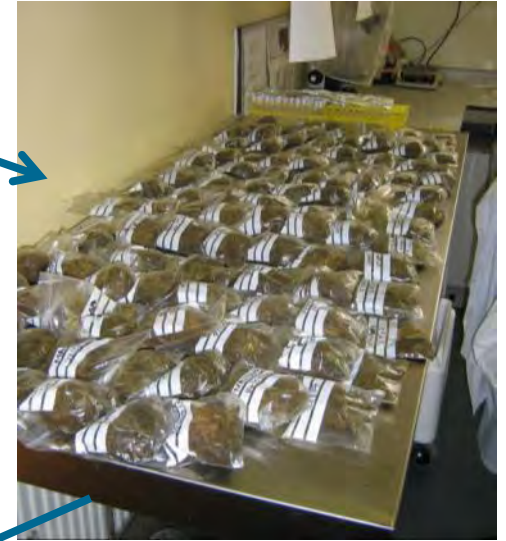


Science and Research

Science and Research

CHESTER ZOO



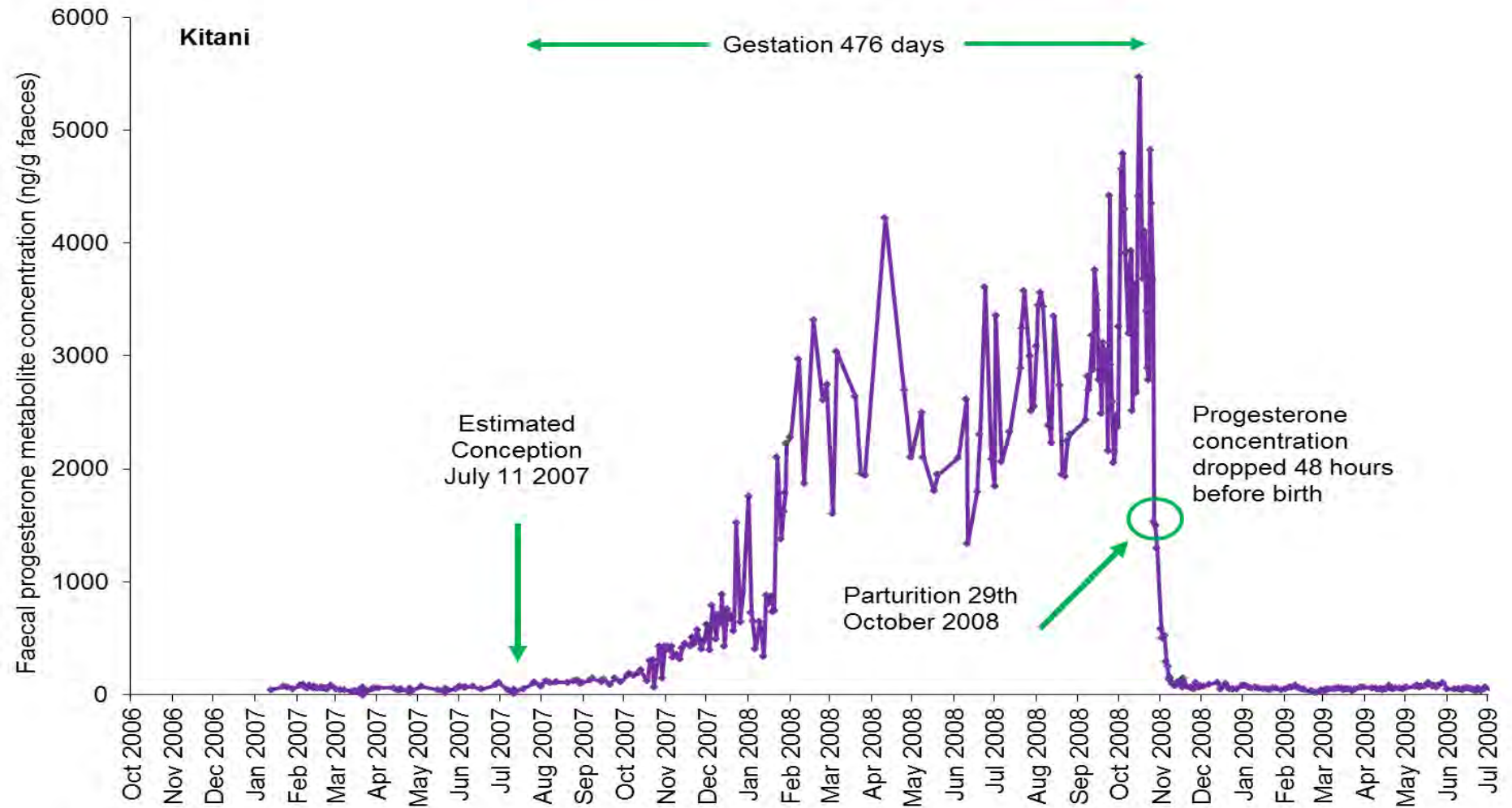


Science and Research

By 3-4 months post-mating, concentration is sufficiently elevated for us to confirm pregnancy.

Progesterone then continues to increase, and remains elevated for 15-16 months (Kitani was pregnant for 476 days).

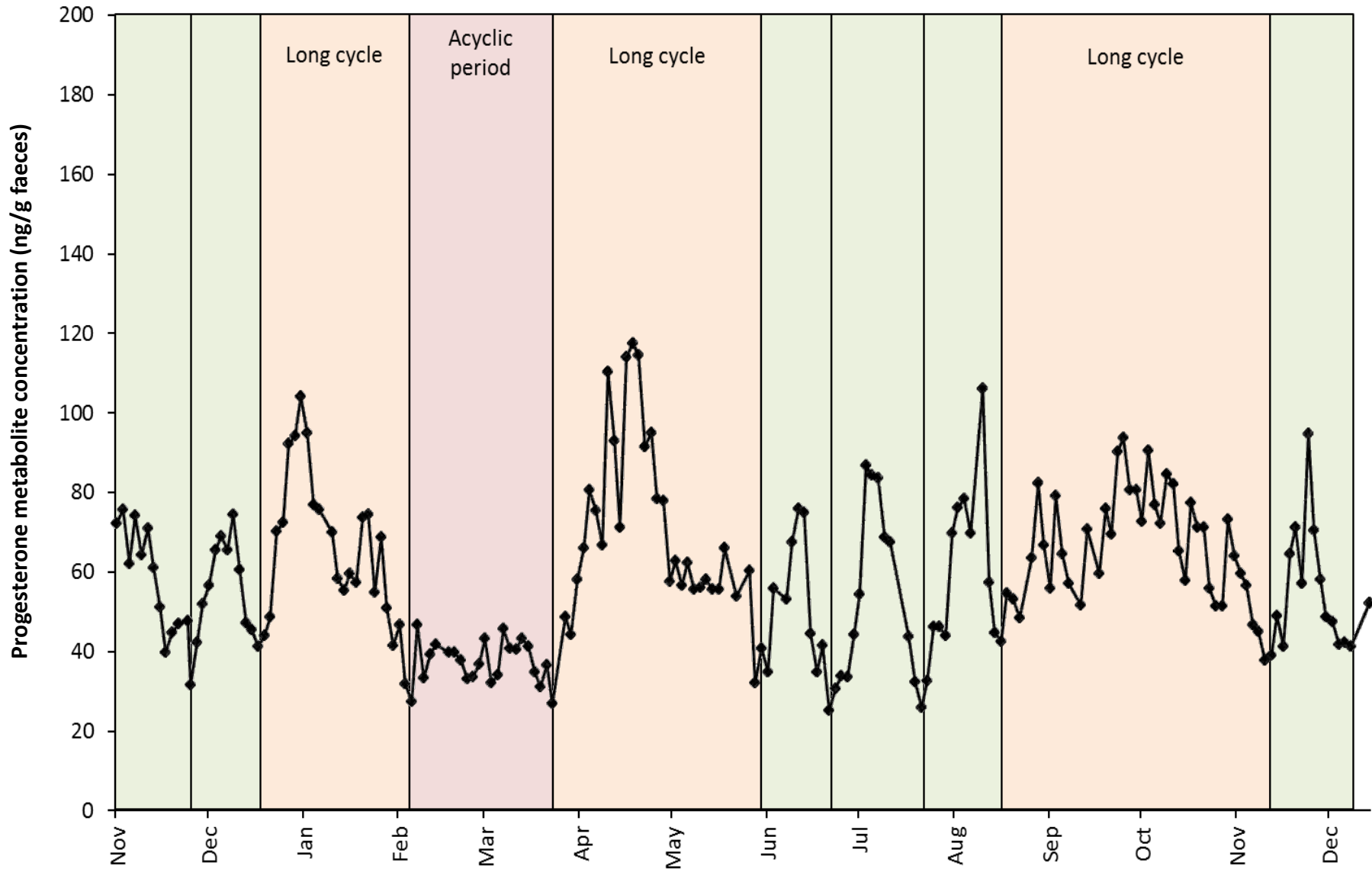
Her progesterone concentration dropped 48 hours before Asani was born on 29th October 2008.



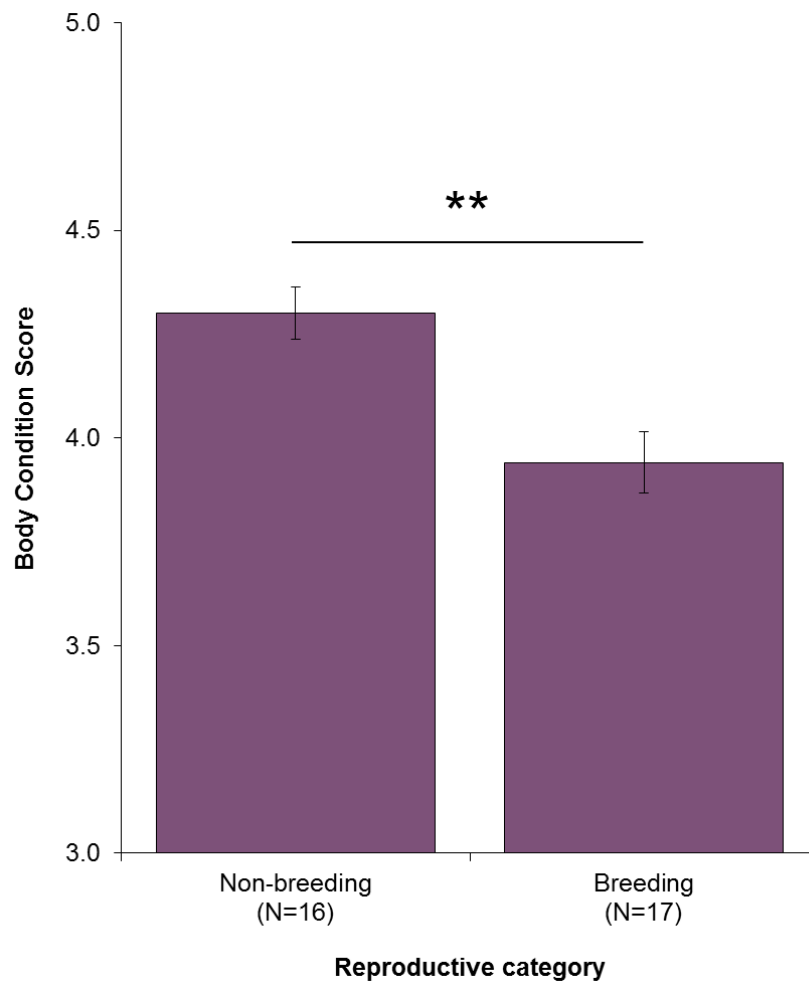


- 11,000 faecal samples
- 90% of European population

Dr Katie Edwards



Body Condition Scoring



Non-breeding females scored higher BCS than breeding females



Black Rhino EEP

Diceros bicornis michaeli

Becca Biddle, Technical Assistant to the Director
General



Black rhino EEP

CHESTER ZOO

System File Edit Window Browse

SPARKS Main Menu
BRHINO

QUERY

Stud_id	Local_id	Sex	Birthdate	Transactio	Datein	HouseName
349	C14674	M	21 Oct 1984	Transfer to	12 Sep 2014	KIFARU II
680	28489	F	16 Jun 1997	Birth	16 Jun 1997	KITANI
696	26055	f	15 Aug 1998	Birth	15 Aug 1998	MANYARA
714	C05265	M	9 Feb 1999	Transfer to	24 May 2005	MAGADI
883	C11443	F	5 Mar 2007	Transfer to	14 Jun 2011	ZURI
898	C0593	F	2 Nov 2002	Transfer to	13 Apr 2005	EMA ELSA
947	C08583	F	3 Nov 2005	Transfer to	25 Sep 2008	MALINDI
998	C12686	F	3 Oct 2012	Birth	3 Oct 2012	CHANUA
1049	C1363	F	7 Mar 2013	Birth	7 Mar 2013	DAKIMA
1051	C13429	M	29 Jun 2013	Birth	29 Jun 2013	EMBU

DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip: 0, Program: FOYDX260

Specimen Relationships

- 1 - Pedigree Chart
- 2 - Sibling Tables
- 3 - Reproductive History
- 4 - Repro Hist for UNKx
- 5 - Descendant Lists
- 6 - Multiple parents

Graph showing a specimen's pedigree...

↑↓ Change

← Select

Any other key returns to previous menu...

DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip: 0, Program: FOXDX280

Species Management Analysis

- 1 - Age Pyramid
- 2 - Mx / Qx & Mortality
- 3 - Inbreeding
- 4 - Census & Details
- 5 - Founders
- 6 - T (generation)
- 7 - Export Data to...
- 8 - Reproductive Param
- 9 - Age

Graph of population structure by age & sex...

Any other key returns to previous menu...

↑↓ Change

← Select

Black rhino EEP

- 2007 – Species Coordinator
- 100% pedigree known
- 41 founders
- Cooperation is key (regional and international)
- ISB analysis

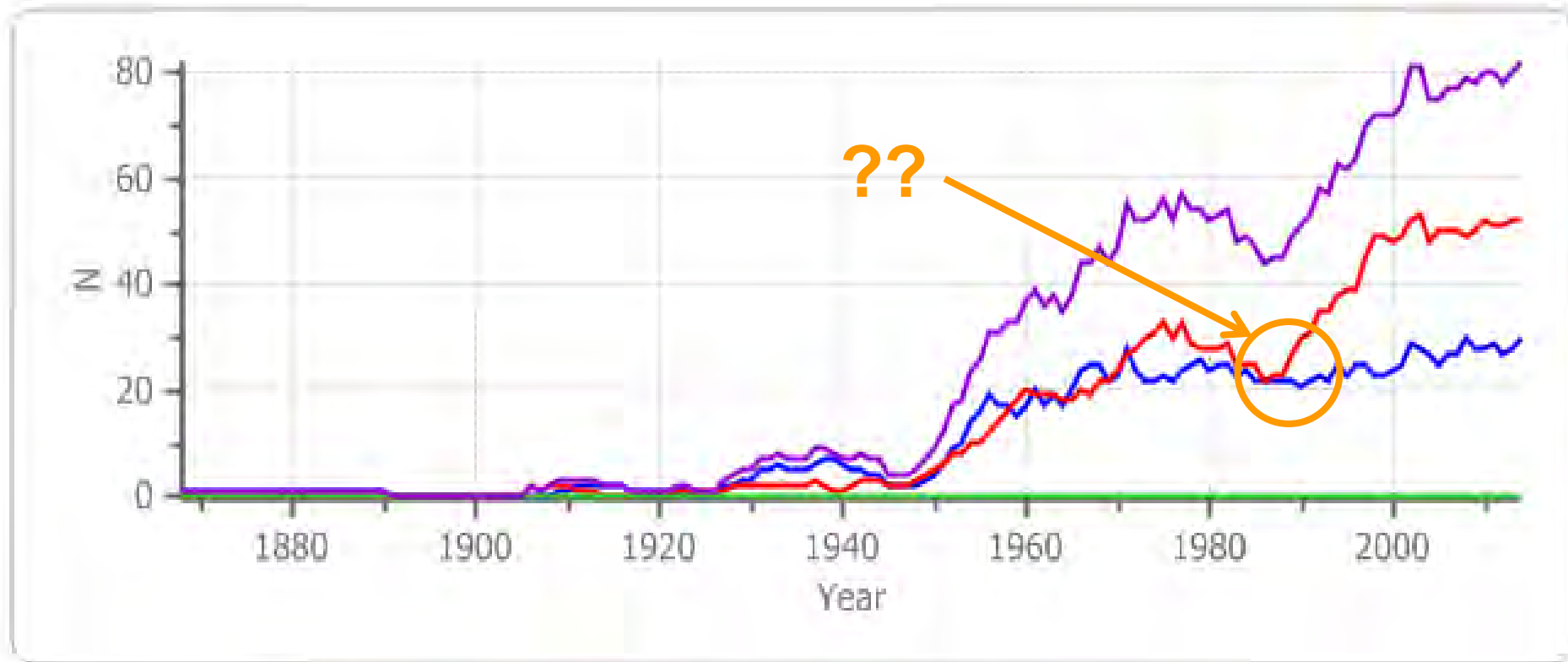


Goals

1. To ensure a healthy and sustainable EAZA population to fulfil the needs of EAZA zoos.
2. To work closely with the African Rhino Specialist Group (AfRSG) and Governments to make Eastern Black Rhino available for return to Africa to supplement populations where needed.



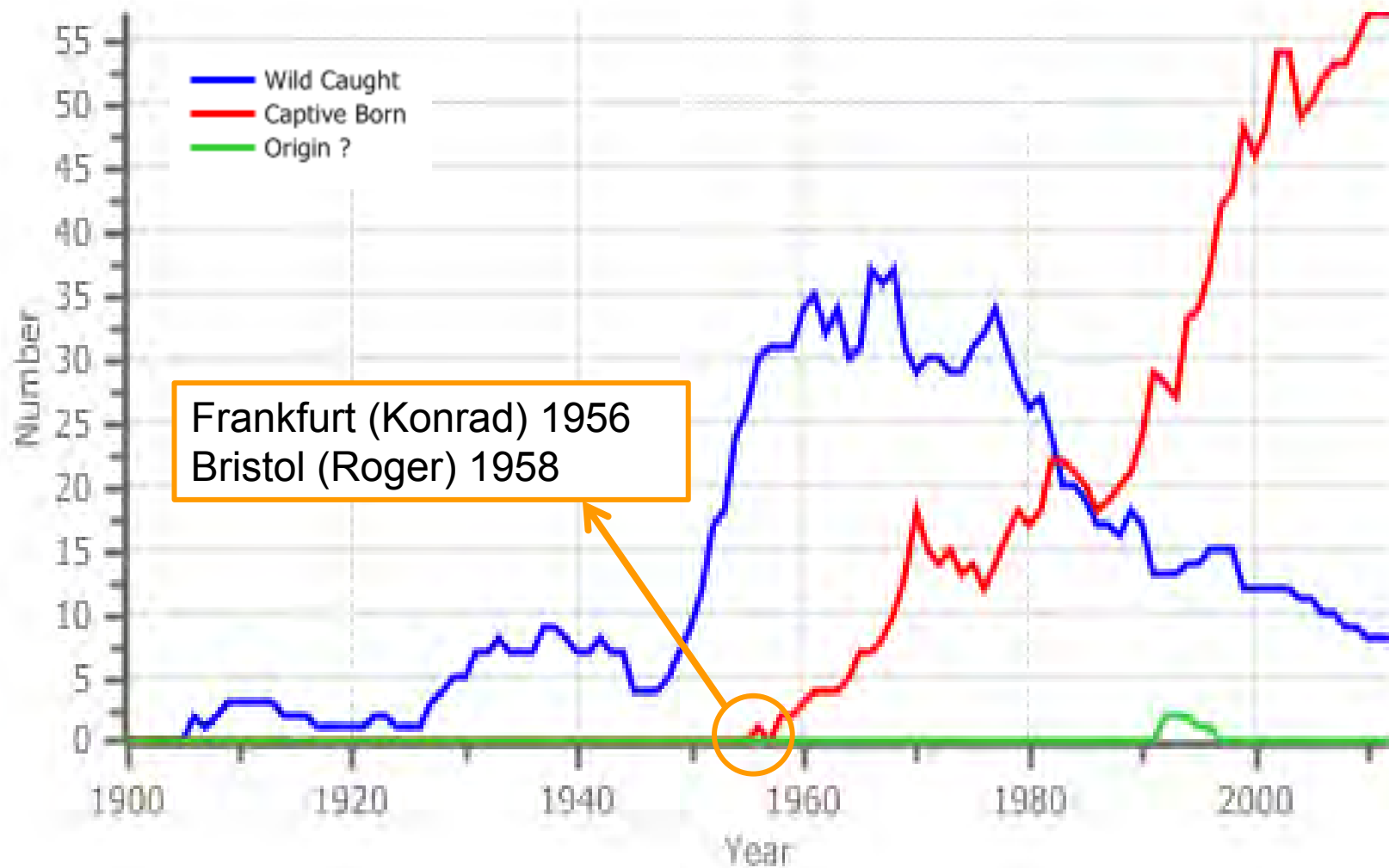
Black rhino EEP



— Males — Females — Others — Total

- First Black rhino on record in 1868
- 322 (151.167.4) in 75 EAZA institutions
- 185 births (77.104.4) in 41 institutions

Black rhino EEP

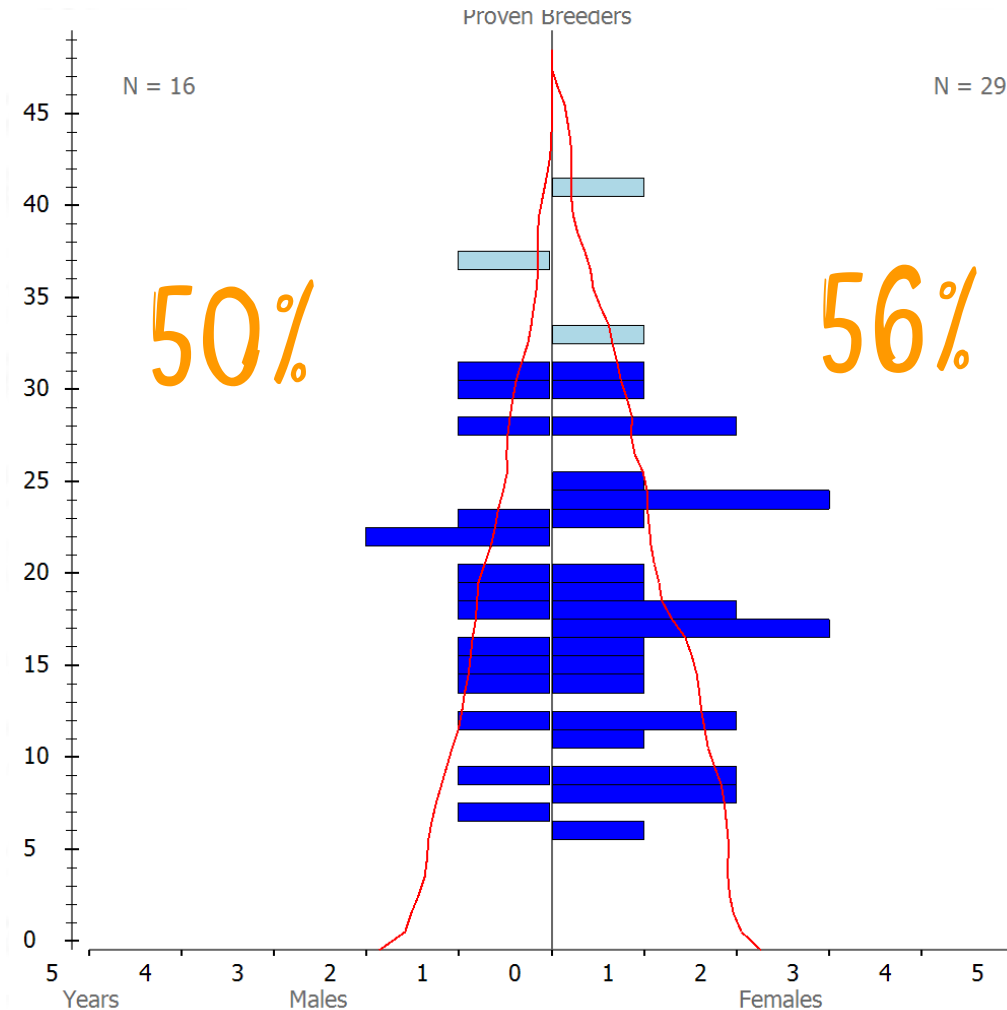


Black rhino EEP



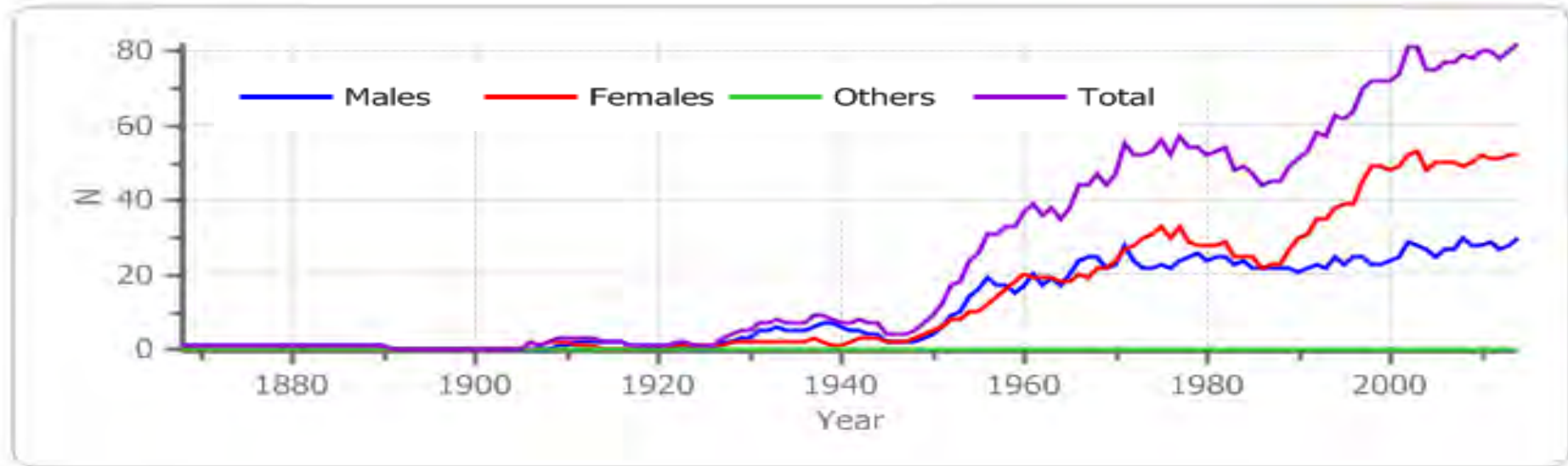
Institution	M	F
Bassin d'Arcachon, France	1	1
Berlin Zoo, Germany	3	5
Chester Zoo, UK	3	7
Cologne Zoo, Germany	1	0
Doue le Fontaine, France	1	2
Dvur Kralove, Czech Republic	6	9
Ebeltoft Safari Park, Denmark	3	1
Frankfurt, Germany	1	1
Hannover Zoo, Germany	1	2
Howletts Wild Animal Park, UK	1	2
Krefeld Zoo, Germany	1	2
Leipzig Zoo, Germany	0	3
Magdeburg Zoo, Germany	2	2
Paignton Zoo, UK	1	1
Pont Scorff Zoo, France	1	0
Port Lympne Wild Animal Park, UK	3	9
Rotterdam Zoo, Germany	1	2
Tallinn Zoo, Estonia	1	1
Zurich Zoo, Switzerland	1	2
19	32	52

Current Demographics



- Size: $32.52.0 = 84$
- Oldest living: 41.5
- T: 16.3 years
- R0: 0.817
- Average age

Black rhino EEP



Year	# Institutions	Lambda from Census	Total N	Total Births	Total Deaths
2005	16	1.000	75	3	3
2006	16	1.027	77	5	3
2007	16	1.000	77	5	3
2008	16	1.026	79	3	1
2009	16	0.987	78	4	2
2010	16	1.026	80	4	2
2011	17	1.000	80	4	4
2012	17	0.975	78	7	6
2013	19	1.026	80	4	2
2014	19	1.025	82	4	2

What about genetics?

- Maintain 90% genetic diversity (from the 41 represented founders) over 100 years?



Black rhino EEP

2013 Transfers - 5.4

Port Lympne to Howletts	1.1
Hannover Zoo to Magdeburg Zoo	1.0
Magdeburg Zoo to Hannover Zoo	1.0
Howletts to Port Lympne	0.1
Howletts to Rotterdam Zoo	1.0
Leipzig Zoo to Rotterdam Zoo	0.1
Berlin Zoo to Tallinn Zoo	1.0
Krefeld Zoo to Tallinn Zoo	0.1

2014 Transfers - 3.2

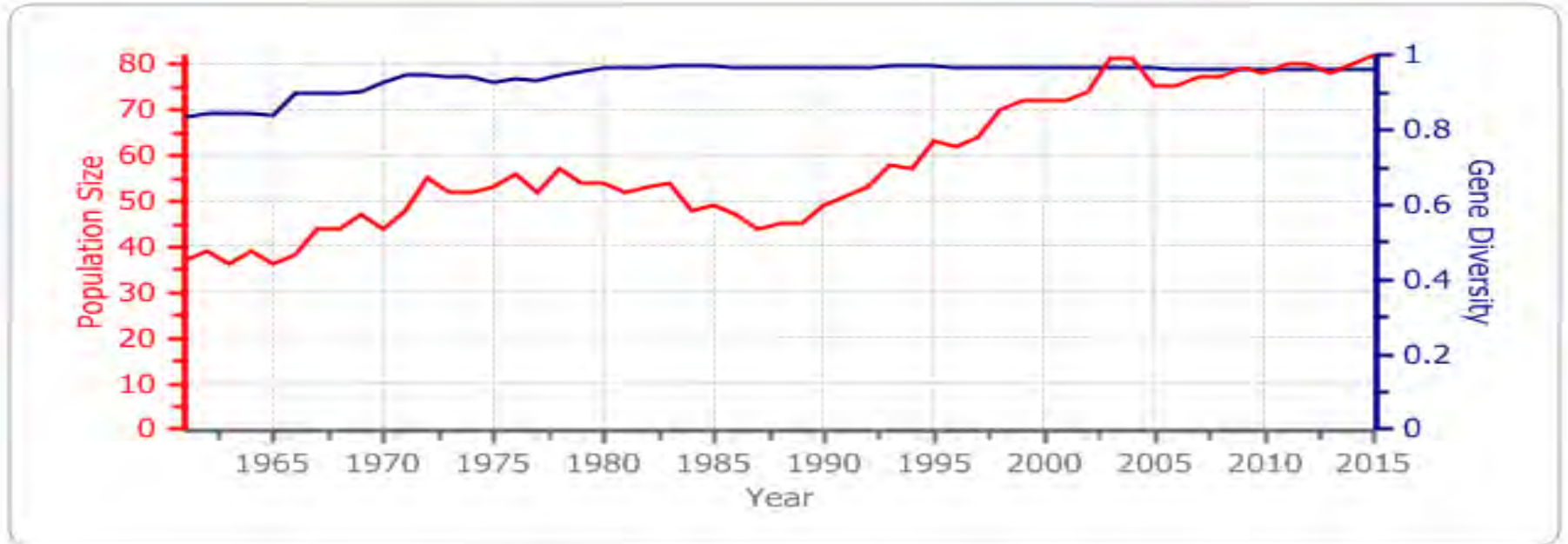
Hannover Zoo to Chester Zoo	1.0
Leipzig Zoo to Hannover Zoo	1.0
Chester Zoo to Port Lympne	1.0
Magdeburg Zoo to Port Lympne	0.1
Zurich Zoo to Rotterdam Zoo	0.1

2012 Transfers – 3.1

Chester to Ebeltoft	0.1
Mageburg to Hannover	1.0
Chester to Lympne	1.0
Hannover to Magdeburg	1.0



What about genetics?



- Founders: 41
- Gene Diversity: 0.9599
- Founder Genome Equivalents: 12.48
- Mean Inbreeding: 0.0085

Black rhino EEP

The EEP is Sustainable but we need to keep breeding and for this we need more space!

Year	# Institutions	Lambda from Census	Total N	Total Births	Total Deaths
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2006	16	1.027	77	5	3
2007	16	1.000	77	5	3
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2011	17	1.000	80	4	4
2012	17	0.975	78	7	6
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2014	19	1.025	82	4	2

Future?



CHESTER ZOO





Eastern Black Rhino EEP

(Diceros bicornis michaeli)

Annual Studbook Report 2013

Rebecca Biddle NEZS Chester Zoo



EAZA Best Practice Guidelines Black rhinoceros (*Diceros bicornis*)



Picture: Black rhino at Chester Zoo

Editors: Dr Mark Pilgrim and Rebecca Biddle MBIolSci., NEZS Chester Zoo

Contact information: Chester Zoo, Cedar House, Caughall Road, Chester, CH2 1LH, 01244 389 879

Email: b.biddle@chesterzoo.org / m.pilgrim@chesterzoo.org

Name of TAG: Rhinoceros TAG

TAG Chair: Dr. Friederike von Houwald

Edition: 1



Black Rhino Husbandry

Welcome Biology Field Data Captive Management **Videos** Contact



Welcome to the website for the EAZA (European Association of Zoos and Aquaria) Best Practice Guidelines for Black Rhinos (*Diceros bicornis michaeli*).

On the pages of this website you will find information on Black rhinos in the field and guidelines for their care in captivity. This information is also available as a pdf document that you can [Download here](#).

Black Rhino Husbandry

Welcome Biology Field Data Captive Management **Videos** Contact

Videos

In this section of the website you will find a number of videos of Black rhinos in captivity. These include training, introductions and births. Some of the pages are password protected, for view by EAZA collections only. For the password or if you have any comments / questions regarding these videos please get in contact with b.biddle@chesterzoo.org.

You are here: [Black Rh](#)
> Videos

Type and press enter to search

- Target Training
- Mixing Pairs
- Mixing Youngsters
- Mating - Zurich Zoo
- Black Rhino Birth
- Young Calf Outside



Released

Young Black rhinos at Chester Zoo



Husbandry Workshop, Ebeltoft, April 2014

CHESTER ZOO



Field Work

Field Work – Chyulu Hills National Park

CHESTER ZOO



Field Work – Chyulu Hills National Park

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Field Work – Massai Olympics

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Field Work – Rafiki wa Faru

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Field Work – Mkomazi

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Field Work – Mkomazi

CHESTER ZOO



Future?

Future?

CHESTER ZOO



Questions?

CHESTER ZOO

