

European Studbook White Rhino, 2017

Ceratotherium simum

Lars Versteegen, Safaripark Beekse Bergen



Current until 31.12.2017

5th edition

European Studbook White Rhino

(Ceratotherium simum)



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Because the technical information provided in the studbook can easily be misread or misinterpreted unless properly analysed, Safaripark Beekse Bergen and EAZA strongly recommend that users of this information consult with the editor in all matters related to data analysis and interpretation.

Acknowledgements

The fifth edition of the European studbook of the white rhino lies before you. If it wasn't for your help, this studbook could not have been realized. Therefore, I would like to thank all the zoos participating in the white rhino EEP for sending their information. It is of the utmost importance that we communicate regularly with each other and make our wishes and changing situations known. We are all working towards the same goal, and with the continuous collaboration of the zoos we can help the conservation of the white rhino.

I hope that this studbook will contain the information needed to get a better view on the white rhino population and the challenges that lie before us. In case of any mistakes or misconceptions please contact me so we can make the information as correct as possible.

With kind regards,

Lars Versteeg



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1. Introduction

According to the IUCN red list the white rhino is rated as Near Threatened (IUCN 2017). There is however an ongoing and increased poaching threat and increasing illegal demand for rhino horn. Without conservation measures, the species would within five years meet the threshold for C1 (small population size and decline of 10% in 10 years) under Vulnerable, and potentially also criterion A3 (population size reduction of 30%) if poaching rates were to further increase. All the more reason that it is important to accomplish a sustainable population *ex-situ*.

The studbook is compiled to give a more detailed overview of the status of the white rhino EEP population. It starts of with the annual report of 2015, 2016 and 2017. The second chapter contains demographic and genetic analysis. For these analyses the computer programs SPARKS (version 1.66) and PMx are used. Before exporting data to PMx a data filter was set in SPARKS selecting animals that were present in the population between 2000 and 2017. Furthermore an association file was made, containing only zoos participating in the white rhino EEP. In chapter 4 the main conclusion regarding the demographic analysis are drawn and important recommendations are given. Chapter 5 contains the SPARKS reports, again alphabetically ordered after the mnemonic. The first report is about the living population, followed by the births, transfers and deaths happened after the last studbook published, 2015-2017.

2. EEP Annual Report 2015/2016/2017

2.1 Program information

- White Rhino (*Ceratotherium simum*)
- EEP established in 1992

2.2 Program personnel

Species coordinator: Ing. Lars Versteegen, Safaripark Beekse Bergen, Hilvarenbeek

Species Committee members:

Richard Osterballe, Givskud / DK
Koen Vanderschueren, Cambron / BE
Barbara Jantschke, Augsburg / DE
Frank Brandstätter, Dortmund / DE
Jiri Hruby, Dvur Kralove / CZ
Rui Bernardino, Lisboa / PT
Tjerk Termeulen, Kerkrade / NL
Jamie Craig, Burford (Cottswold) / GB
Endre Sos, Budapest / HU
Sarah Forsyth, Colchester / GB
Kim van de Put, Arnhem / NL
Flemming Nielsen, København / DK
Ken Mackey, Dublin / IR
Daniel Roth, Borås / SE
Christelle Vitaud, Peaugres / FR

Veterinary advisors:

Chris Walzer, Vienna University
Robert Hermes, IZW Berlin
Torsten Möller, Kolmarden

2.3 Program activities

Species Committee:

- Last election: 2015
- Last meeting: 23-09-2017, EAZA annual conference, Emmen

Publications:

- Studbook previous edition: 2015
- Husbandry guidelines: 2012

Conservation activities:

Participants are encouraged to support the International Rhino Foundation and Save the Rhino International. For more information about the projects check the new EAZA Conservation Database (www.eazaconservation.org).

Research activities:

There is continuous research on nutrition, genetics and veterinary issues. Some examples are listed below:

Schwarzenberger, F., Walzer, C., Versteegen, L., Goeritz, F., Hildebrandt, T.B. & Hermes, R (2012). Reproductive steroid monitoring in white rhinoceroses kept in European zoos. *Wiener Tierärztliche Monatsschrift* 99 (Supplement 1): 36-37.

Taylor, L.A., Müller, D.W.H., Schwitzer, C., Kaiser, T.M., Codron, D., Schulz, E. & Clauss, M. (2012). Tooth wear in captive rhinoceroses (*Diceros*, *Rhinoceros*, *Ceratotherium*, *Perissodactyla*) differs from that of free-ranging conspecifics. *Contributions to Zoology* 83 (Issue 2): 107-117.

Programme goals:

Retain 90% of the genetic diversity for the next 100 years. The first effort is to become sustainable, by increasing the number of births. Due to a higher demand for this species, the target population will be set much higher than genetically needed.

2.4 Status and developments in the EEP population in 2015

Institutions	Status		Births		DNS		Transfers between EAZA zoos				Transfers with non-EAZA zoos				Deaths		Status	
	01-01-2015						In		Out		In		Out				31-12-2015	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
AL-AIN (UAE)	4	4	0	1													4	5
ALMATY (KZ)	1	2															1	2
AMNEVILLE (FR)	3	4					0	1	0	1					1	0	2	4
ARNHEM (NL)	3	4							1	0							2	4
ATHINAI (GR)	3	0															3	0
AUGSBURG (DE)	2	3							1	0					1	0	0	3
AVINTES (PT)	0	0					3	0									3	0
BANDHOLM (DK)	1	2															1	2
BARCELONA-ZOO (ES)	1	0															1	0
BEAUVAL (FR)	1	2	1	0													2	2
BEWDLEY (GB)	1	4															1	4
BLAIRDRUMMOND (GB)	2	2					0	1	0	1							2	2
BOISSIERE-DORE (FR)	2	3															2	3
BORAS (SE)	1	3															1	3
BRATISLAVA (SK)	1	1															1	1
BUDAPEST (HU)	1	2															1	2
BURFORD (GB)	1	3	2	0													3	3
BUSSOLENGO (IT)	2	0															2	0
CABERCENO (ES)	2	2	1	0	1	0	0	1									2	3
CAMBRON-CASTEAU (BE)	1	2					1	0	1	0							1	2
CHESSINGTON (GB)	3	0															3	0
CHORZOW (PL)	1	2															1	2
COLCHESTER (GB)	2	4													0	1	2	3
DALTON-FURNESS (GB)	3	3													1	0	2	3
DEIGNE (BE)	0	2					1	0									1	2
DORTMUND (DE)	1	4															1	4
DUBLIN (IE)	3	4	1	0	1	0			1	0							2	4
DUISBURG (DE)	1	1													0	1	1	0
*DVUR KRALOVE (CZ)	1	2					1	0							0	1	2	1
EMMEN (NL)	1	3							1	0							0	3
ERFURT (DE)	1	2															1	2
ESTEPONA (ES)	2	0															2	0
GELSENKIRCHEN (DE)	1	2															1	2
GIVSKUD (DK)	1	4															1	4
HILVARENBEEK (NL)	1	7	0	1			1	0	1	0							1	8
*HODENHAGEN (DE)	3	8					1	0	1	1			1	0	0	1	2	6
JERUSALEM (IL)	2	0															2	0
KERKRADE (NL)	3	0							2	0							1	0

KESSINGLAND (GB)	1	2																1	2
KOBENHAVN-ZOO (DK)	1	3	1	0					0	1								2	2
KOLMARDEN (SE)	1	3																1	3
KREngLBACH (AT)	2	3																2	3
LE CORNELLE (IT)	1	1					1	1	2	0								0	2
LE VIGEN (FR)	1	0																1	0
LES-MATHES (FR)	1	2																1	2
LILLE (FR)	2	0																2	0
LISBOA-ZOO (PT)	2	3												0	1			2	2
LISIEUX (FR)	1	2																1	2
MADRID-ZOO (ES)	1	2																1	2
MALTON (GB)	2	0																2	0
MARWELL (GB)	0	2					1	0										1	2
MONTPELLIER (FR)	1	2																1	2
MUNSTER (DE)	2	2																2	2
NYIREGYHAZA (HU)	1	2	1	0	1	0												1	2
OSNABRUCK (DE)	1	3					1	0							1	0		1	3
PARIS-ZOO (FR)	2	0																2	0
PEAUGRES (FR)	2	5	1	0					1	0								2	5
PELISSANE (FR)	1	2																1	2
PEMBROKESHIRE (GB)	3	0																3	0
PLAISANCE-TOUCH (FR)	1	1																1	1
PORT-ST-PERE (FR)	1	1					2	0										3	1
POZNAN (PL)	1	1																1	1
PRESCOT (GB)	3	6							2	0								1	6
RAMAT-GAN (IL)	4	7	0	1														4	8
SALZBURG-ZOO (AT)	1	3	2	0														3	3
SCHWERIN (DE)	1	1					0	1	1	0								0	2
SIGEAN (FR)	2	6																2	6
SOFIA (BG)	1	0																1	0
TABERNAS (ES)	1	1																1	1
THOIRY (FR)	0	1					2	0										2	1
TORINO (IT)	1	0																1	0
USTI-NAD-LABEM (CZ)	0	1																0	1
VALENCIA-PARC (ES)	1	2							0	1								1	1
VESZPREM (HU)	2	2																2	2
WARMINSTER (GB)	1	3																1	3
WHIPSNAD (GB)	1	5	0	1	0	1												1	5
WOBBURN (GB)	1	3																1	3
ZLIN (CZ)	1	2																1	2
Total	116	176	10	4	3	1	15	5	15	5	0	0	1	0	4	5		118	174

The total number of white rhino remained stable. A total of 14 animals were born (10.4). Of these, four(3.1) did not survive and a total of eight (4.5) animals died in 2015. Most of these were older animals, but in Augsburg and Lisboa breeding females were lost due to veterinary complications and in Dalton-Furness a young male due to trauma. No animals were imported from South Africa and one young male was sent out to non EAZA after consultation with the EEP, leading to the end status on 31-12-2015 of 118.174 (292 animals).

Transfers:

- Amneville exchanged an adult female with Blair Drummond.
- Arnhem sent their young male, together with a young male from Hilvarenbeek, to Thoiry.
- Augsburg sent their adult male to Cambron-Casteau as they are expecting 2 calves from their females.
- Cambron-Casteau sent their non breeding male to Dvur-Kralove.

- Dublin sent their young male to Marwell as start to establish a new breeding herd.
- Emmen sent their breeding male to le-Cornelle.
- Hilvarenbeek sent 1 male to Thoiry and received a new breeding male from Schwerin.
- Hopenhagen joined the EEP as non EAZA EEP Participant during 2015. One young male was sent to Port St. Pere and one young female to Le-Cornelle in exchange for their adult male. Also one young male was sent out to a non EAZA zoo, negotiated beforehand with the EEP.
- Kerkrade sent out one adult male to Osnabruck and a young male to Avintes so they can treat their remaining male better on his leg wound caused through trauma by the adult male.
- Kobenhavn sent their young female to Schwerin.
- Le Cornelle received an adult male from Emmen after sending their male to Deigne-Aywaille, but had difficulties introducing him to their female and sent him later in 2015 to Hopenhagen in exchange for a young female.
- Peaugres sent their young male to Port-St-Pere.
- Prescott (Knowsley) sent their 2 young males to Avintes.
- Valencia sent one of their females to Cabarceno to get mated by the bull there.

The program difficulties and recommendations are being dealt with in the next two chapters.

2.5 Status and developments in the EEP population in 2016

Institutions	Status		Births		DNS		Transfers between EAZA zoos				Transfers with non-EAZA zoos				Deaths		Status	
	01-01-2016						In		Out		In		Out				31-12-2016	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
AL-AIN (UAE)	4	5															4	5
ALMATY (KZ)	1	2															1	2
AMNEVILLE (FR)	2	4	0	1													2	5
ARNHEM (NL)	2	4	1	1	0	1											3	4
ATHINAI (GR)	3	0															3	0
AUGSBURG (DE)	0	3	1	1													1	4
AVINTES (PT)	3	0															3	0
BANDHOLM (DK)	1	2															1	2
BARCELONA-ZOO (ES)	1	0															1	0
BEAUVAL (FR)	2	2	0	1													2	3
BEWDLEY (GB)	1	4	1	1	0	1											2	4
BLAIRDRUMMOND (GB)	2	2	0	1													2	3
BOISSIERE-DORE (FR)	2	3							1	0							1	3
BORAS (SE)	1	3	0	1													1	4
BRATISLAVA (SK)	1	1															1	1
BUDAPEST (HU)	1	2															1	2
BURFORD (GB)	3	3							0	1							3	2
BUSSOLENGO (IT)	2	0															2	0
CABERCENO (ES)	2	3															2	3
CAMBRON-CASTEAU (BE)	1	2	1	0													2	2
CHESSINGTON (GB)	3	0															3	0
CHORZOW (PL)	1	2															1	2
COLCHESTER (GB)	2	3					0	1	1	1							1	3
DALTON-FURNESS (GB)	2	3	1	1													3	4
DEIGNE (BE)	1	2															1	2
DORTMUND (DE)	1	4															1	4
DUBLIN (IE)	2	4	1	0													3	4
DUISBURG (DE)	1	0															1	0

DVUR KRALOVE (CZ)	2	1					0	1								2	2	
EMMEN (NL)	0	3					1	0						0	2	1	1	
ERFURT (DE)	1	2					0	1	0	1						1	2	
ESTEPONA (ES)	2	0														2	0	
GELSENKIRCHEN (DE)	1	2					1	0	1	0						1	2	
GIVSKUD (DK)	1	4														1	4	
HILVARENBEEK (NL)	1	8														1	8	
HODENHAGEN (DE)	2	6	1	1								0	1			3	6	
JERUSALEM (IL)	2	0														2	0	
KERKRADE (NL)	1	0														1	0	
KESSINGLAND (GB)	1	2					0	1	0	1						1	2	
KOBENHAVN-ZOO (DK)	2	2														2	2	
KOLMARDEN (SE)	1	3	1	0	1	0										1	3	
KREINGLBACH (AT)	2	3					0	1	0	1						2	3	
LE CORNELLE (IT)	0	2														0	2	
LE VIGEN (FR)	1	0														1	0	
LES-MATHES (FR)	1	2					0	1	0	1						1	2	
LILLE (FR)	2	0					2	0	2	0						2	0	
LISBOA-ZOO (PT)	2	2														2	2	
LISIEUX (FR)	1	2					0	1								1	3	
MADRID-ZOO (ES)	1	2												1	0	0	2	
MALTON (GB)	2	0														2	0	
MARWELL (GB)	1	2					0	1								1	3	
MONTPELLIER (FR)	1	2														1	2	
MUNSTER (DE)	2	2							1	0						1	2	
NYIREGYHAZA (HU)	1	2	1	0	1	0										1	2	
OSNABRUCK (DE)	1	3							0	1						1	2	
PARIS-ZOO (FR)	2	0														2	0	
PEAUGRES (FR)	2	5												0	1	2	4	
PELISSANE (FR)	1	2					1	0	1	0						1	2	
PEMBROKESHIRE (GB)	3	0														3	0	
PLAISANCE-TOUCH (FR)	1	1														1	1	
PORT-ST-PERE (FR)	3	1														3	1	
POZNAN (PL)	1	1														1	1	
PRESCOT (GB)	1	6	0	1					0	1						1	6	
RAMAT-GAN (IL)	4	8	1	0												5	8	
SALZBURG-ZOO (AT)	3	3														3	3	
SCHWERIN (DE)	0	2					1	0								1	2	
SIGEAN (FR)	2	6	2	0	1	0								0	2	3	4	
SOFIA (BG)	1	0														1	0	
TABERNAS (ES)	1	1														1	1	
THOIRY (FR)	2	1														2	1	
TORINO (IT)	1	0												1	0	0	0	
USTI-NAD-LABEM (CZ)	0	1														0	1	
VALENCIA-PARC (ES)	1	1														1	1	
VESZPREM (HU)	2	2														2	2	
WARMINSTER (GB)	1	3														1	3	
WHIPSNAD (GB)	1	5														1	5	
WOBBURN (GB)	1	3					1	0								2	3	
ZLIN (CZ)	1	2														1	2	
Total	118	174	12	10	3	2	7	8	7	8	0	0	0	1	2	5	125	176

The total number of white rhino increased with 9 animals !!!! A total of 22 animals were born (12.10), the largest number ever! Of these, 5(3.2) did not survive and a total of 7 (2.5) animals died in 2016. Several of these were older animals, but in Sigean two breeding females were lost due to EMCV and in Emmen one female due to trauma after an introduction with a new male. No animals were imported from South Africa and 1

young female was sent out to non EAZA (Australia) after consultation with the EEP, leading to the end status on 31-12-2016 of 125.176 (301 animals).

Transfers:

- Boisier and Munster sent a young male to Lille as part of their Bachelor group "swap".
- Burford sent their young female to Colchester and Colchester sent their young female to Marwell as part of the initiative to send young females out of their maternal herd.
- Colchester also sent their adult male temporary to Woburn to stimulate breeding there.
- Dvur Kralove received a breeding female from Erfurt.
- Emmen received a new male from the bachelor herd in Lille.
- Erfurt sent one of their breeding females to Dvur Kralove and received a breeding female from Osnabruck.
- Gelsenkirchen exchanged their male with Pelissane.
- Hodenhagen sent a young female to Australia, with EEP approval.
- Kessingland sent an adult female to Lisieux and received a young female from Prescott (Knowsley).
- Krenglbach exchanged a young female with Les Mathes (La Palmyre).
- Lille sent their 2 young adult males to Schwerin and Emmen and received 2 young males in return from Munster and Boissiere as part of their big bachelor group swap.

2.6 Status and developments in the EEP population in 2017

Institutions	Status		Births		DNS		Transfers between EAZA zoos				Transfers with non-EAZA zoos				Deaths		Status	
	01-01-2017						In		Out		In		Out				31-12-2017	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
AL-AIN (UAE)	4	5															4	5
AMNEVILLE (FR)	2	5	1	0													3	5
ARNHEM (NL)	3	4	0	1					1	0					0	1	2	4
ATHINAI (GR)	3	0															3	0
AUGSBURG (DE)	1	4					1	0									2	4
AVINTES (PT)	3	0															3	0
BANDHOLM (DK)	1	2					0	1	0	1							1	2
BARCELONA-ZOO (ES)	1	0															1	0
BEAUVAL (FR)	2	3															2	3
BEWDLEY (GB)	2	4	0	1													2	5
BLAIRDRUMMOND (GB)	2	3							1	0							1	3
BOISSIERE-DORE (FR)	1	3															1	3
BORAS (SE)	1	4							0	1							1	3
BRATISLAVA (SK)	1	1															1	1
BUDAPEST (HU)	1	2															1	2
BURFORD (GB)	3	2	1	1													4	3
BUSSOLENGO (IT)	2	0															2	0
CABERCENO (ES)	2	3															2	3
CAMBRON-CASTEAU (BE)	2	2					1	0	1	0							2	2
CHESSINGTON (GB)	3	0															3	0
CHORZOW (PL)	1	2					0	1									1	3
COLCHESTER (GB)	1	3	1	0					1	0							1	3
DALTON-FURNESS (GB)	3	4	0	1													3	5
DEIGNE (BE)	1	2															1	2
DORTMUND (DE)	1	4							0	1							1	3
DUBLIN (IE)	3	4	1	0													4	4
DUISBURG (DE)	1	0															1	0
DVUR KRALOVE (CZ)	2	2															2	2

EMMEN (NL)	1	1					0	1									1	2
ERFURT (DE)	1	2															1	2
ESTEPONA (ES)	2	0							1	0							1	0
GELSENKIRCHEN (DE)	1	2															1	2
GIVSKUD (DK)	1	4	0	1			0	1	0	1							1	5
HILVARENBEEK (NL)	1	8	0	1	0	1	2	0	0	2							3	6
HODENHAGEN (DE)	3	6	1	0													4	6
JERUSALEM (IL)	2	0															2	0
KERKRADE (NL)	1	0					0	1									1	1
KESSINGLAND (GB)	1	2					1	1									2	3
KOBENHAVN-ZOO (DK)	2	2	1	0					1	0							2	2
KOLMARDEN (SE)	1	3							0	1							1	2
KRENGLBACH (AT)	2	3															2	3
LE CORNELLE (IT)	0	2															0	2
LE VIGEN (FR)	1	0															1	0
LES-MATHES (FR)	1	2															1	2
LILLE (FR)	2	0															2	0
LISBOA-ZOO (PT)	2	2															2	2
LISIEUX (FR)	1	3															1	3
MADRID-ZOO (ES)	0	2					1	0						0	1		1	1
MALTON (GB)	2	0					2	0	2	0							2	0
MARWELL (GB)	1	3															1	3
MONTPELLIER (FR)	1	2					1	0	1	0							1	2
MUNSTER (DE)	1	2	1	0													2	2
NYIREGYHAZA (HU)	1	2															1	2
OSNABRUCK (DE)	1	2															1	2
PARIS-ZOO (FR)	2	0															2	0
PEAUGRES (FR)	2	4															2	4
PELISSANE (FR)	1	2															1	2
PEMBROKESHIRE (GB)	3	0															3	0
PLAISANCE-TOUCH (FR)	1	1															1	1
PORT-ST-PERE (FR)	3	1															3	1
POZNAN (PL)	1	1															1	1
PRESCOT (GB)	1	6															1	6
RAMAT-GAN (IL)	5	8	1	0								2	0	1	0		3	8
SALZBURG-ZOO (AT)	3	3															3	3
SCHWERIN (DE)	1	2															1	2
SHARJAH (UAE)	0	0								2	3						2	3
SIGEAN (FR)	3	4															3	4
SOFIA (BG)	1	0															1	0
TABERNAS (ES)	1	1															1	1
THOIRY (FR)	2	1												1	0		1	1
TORINO (IT)	0	0															0	0
USTI-NAD-LABEM (CZ)	0	1															0	1
VALENCIA-PARC (ES)	1	1															1	1
VESZPREM (HU)	2	2					0	1									2	3
WARMINSTER (GB)	1	3															1	3
WHIPSDADE (GB)	1	5					0	1	0	1							1	5
WOBURN (GB)	2	3															2	3
ZLIN (CZ)	1	2															1	2
Total	124	174	8	6	0	1	9	8	9	8	2	3	2	0	2	2	130	180

*Almaty excluded from EAZA membership in 2017

The total number of white rhino increased with 12 animals !!!! A total of 14 animals were born (8.6), of which all but one female survived and a total of 4 (2.2) animals died in 2017. The two female deaths were older animals, but the two male deaths were one trauma because of fighting, and unfortunately one poaching incident! Sharjah imported 2.3 from South Africa and

two males were sent out to non EAZA (Russia) after consultation with the EEP, leading to the end status on 31-12-2017 of 130.180 (310 animals). A new participant joined the EEP (Sharjah) which imported 2.3 white rhino from south Africa. Unfortunately we also lost one participant (Almaty).

Transfers:

- Arnhem and Kobenhavn sent a young male to Hilvarenbeek as start for their bachelor group.
- Augsburg received their breeding male back from Cambron.
- Bandholm received a young female from Boras and sent an adult female to Whipsnade.
- Blair Drummond sent a young male to Malton together with a young male from Colchester as part of a bachelor group exchange.
- Cambron received a new bull from Montpellier.
- Chorzow received a youngfemale from Kolmarden.
- Dortmund sent a young female to Kerkrade.
- Emmen received an adult female from Givskud.
- Estepona sent one male to Madrid.
- Givskud received a female from Hilvarenbeek.
- Hilvarenbeek sent another adult female to Veszprem.
- Kessingland received a new male from Malton and a female from Whipsnade.
- Montpellier received a new male from Malton.

3. Analysis of the EEP population

3.1 Feasibility goal

Goal of this EEP is to retain 90% gene diversity over a time span of 100 years. According to calculations of the software program PMx, 90% of gene diversity can be maintained up to 270 years. Succeeding in our goal is therefore possible. We could even exceed our goal and maintain around 95.4% of the genetic diversity for the coming 100 years.

However, the question remains whether unexpected difficulties can impede the achievement of these goals. To answer this question the population is analysed in more detail on demographic and genetic level.

3.2 Demographic analysis

Since the start of the EEP in 1992 we have seen a population growth. Currently, 58% of the rhino population are female, compared to 54% in 1992 (Figure 1). A relative overrepresentation of females is beneficial to the population's chances of reproduction as the optimal breeding facility is a rhino herd of at least 1.3 or 2.3 adult animals (Husbandry Guidelines, 2011). But with a growing population it is even more important to have enough bachelor group holders ! The overall population growth indicates that we are moving towards a sustainable population.

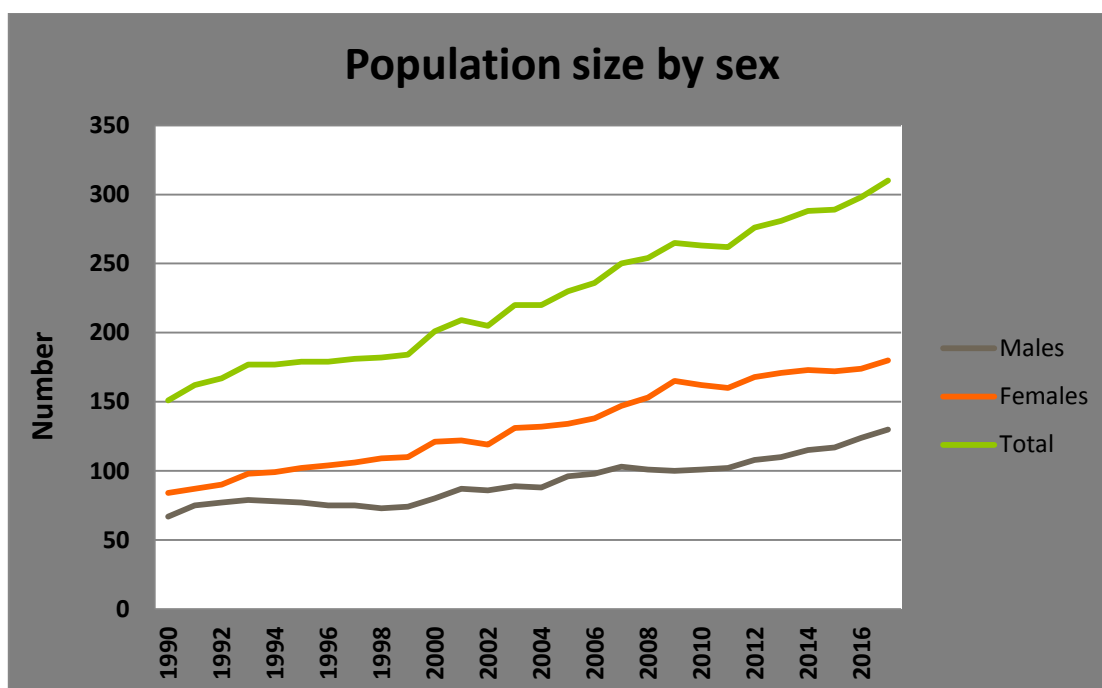


Figure 1: Population size by sex

Figure depicts an in depth overview of causes of population growth over the last 7 years. The number of calves born has been increasing, with a new record of 22 calves born in 2016. The number of deaths has been declining since 2012. This decline should not be attributed to better healthcare, nutrition or other management changes but largely to the original 1970's import animals dying out. Looking at the age pyramid (Figure 4) there is a group of 18 high-age individuals at the top of the pyramid at risk of dying of natural causes, hence these deaths should not be attributed to management choices.

An important notice is the absence of imports in the year 2013 to 2016. In order to maintain a viable population, animals from South Africa were imported in preceding years. This was a result of the sluggish reproduction rate in captivity. But with the increase of births the EEP

has been sustainable for the last 7 years already ! The only reason for the 2017 importation was the geographic location of the new participant.

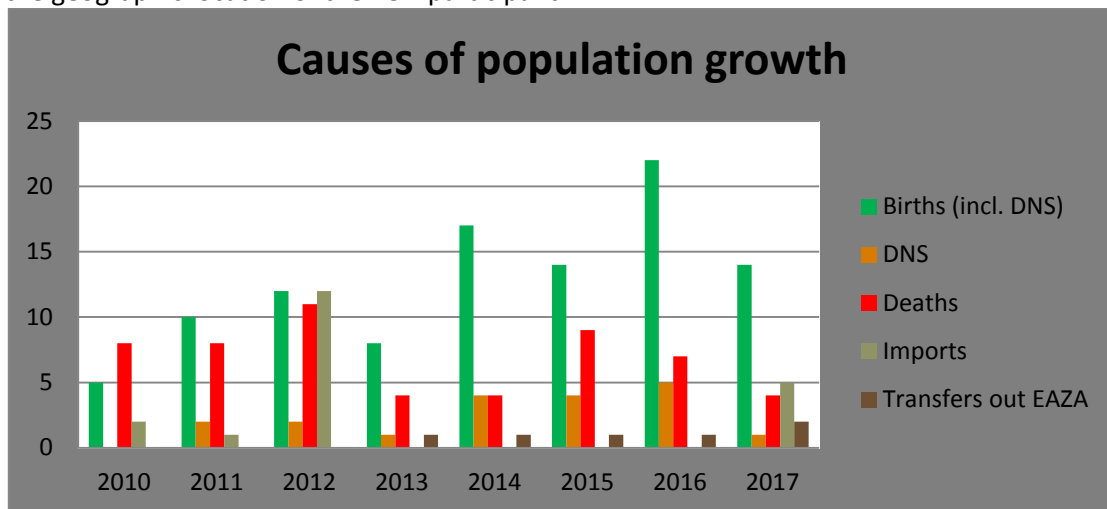


Figure 2: Causes of population growth

As mentioned earlier there is a group of 18 individuals at risk of dying of old age. The setting of the number 18 is realized with the help of the age pyramid combined with the rates for age-specific mortality (Q_x) (Figure 3). Looking at the males there is a rise in the risk of dying at the age of 38, for females this is at an age of 40. Taken this gender specific cut off into account, it can be deferred from the age pyramid that a total number of 18 animals are at an increased risk of dying.



Figure 3: Age-specific Mortality (Q_x)

An important detail that (figure 3) shows is that there is 21% chance that a newborn calf dies before reaching the age of 1 year. This holds for both sexes (males 20%, females 22%). When we want to maintain the growth rate of 1, a minimum of at least 8.4 births is necessary, taking into account the probability that a pair will breed is set to 50%.

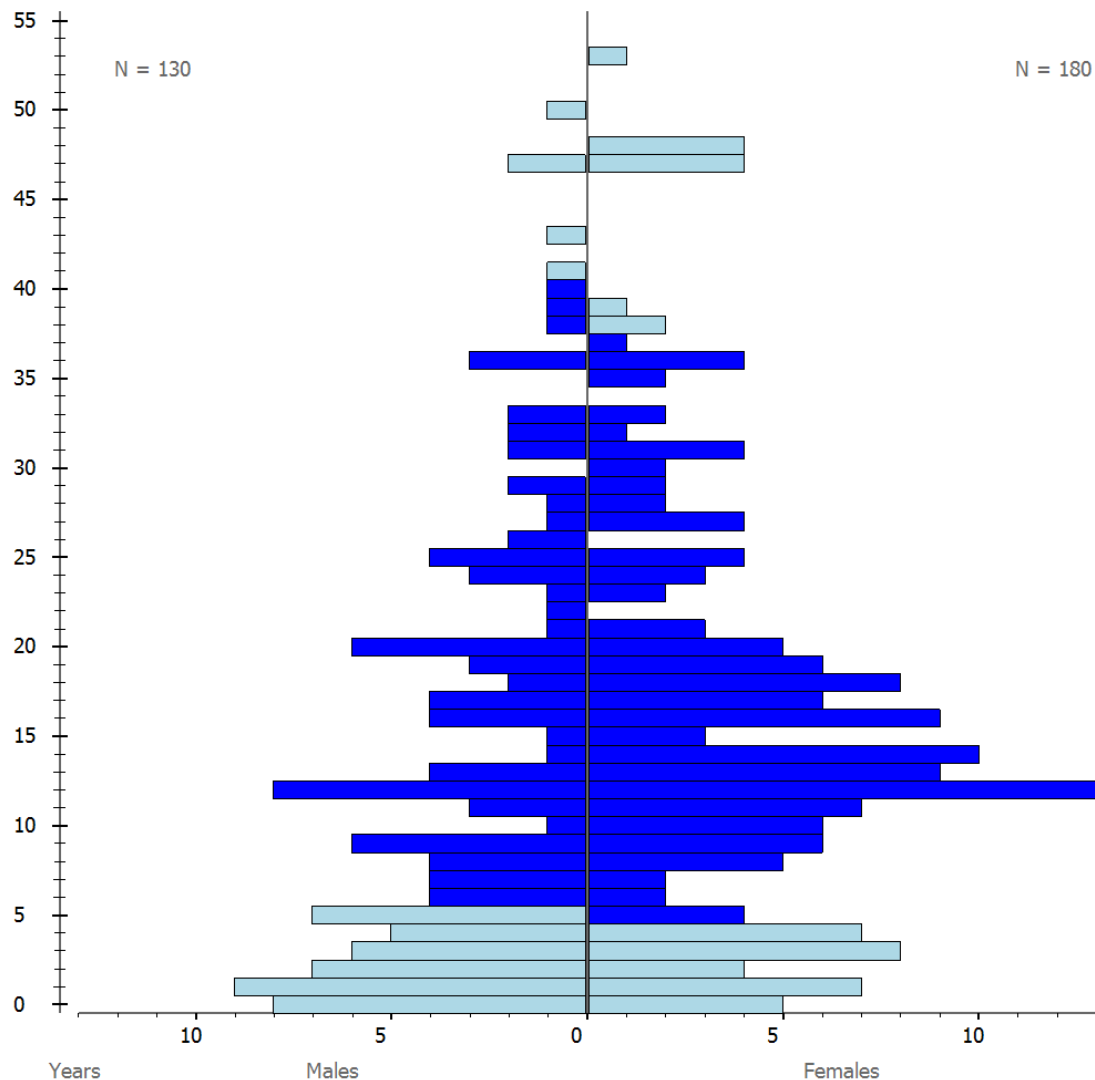


Figure 4: Age pyramid white rhino EEP population

The age pyramid provides us with information about the structure of the population. A healthy population will look like a pyramid. A large number of young animals at the base. When growing older, animals will die, ending with a few old animals at the top. Note that the dark blue refers to fertile animals, while the light blue ones are pre- or post reproductive. Currently, the base of the pyramid is smaller than desirable, especially in the female age class of 6 to 8 year. This is not surprising considering the slow reproductive rate historically. However, the last 6 years were quite successful, which also shows in the age pyramid. There is a high potential of females that could reproduce in the age of 5 – 18 years old.

Another way to look at fertility is age-specific fecundity (Mx). [Figure](#) shows us that females are reproductive at an age of 4 through 34, with a high chance of giving birth between the age of 8 – 16 years. It can be deferred from figure 7 that no female was able to breed after 34 years of age. In reality two females have bred at age 36 (Doris, stb#494 and Nelly, stb# 225). However, statistically they can be regarded as an outlier. In general we can assume that female rhino's are fertile until the age of 34, where after a pregnancy becomes highly unlikely. The raw (i.e. non smoothed) Mx rates can be found in [Appendix 1](#).

Since rhinos can live up to 50 years, the species is reproductive senescence. Meaning that they have a post-reproductive period where they are growing old without reproducing. Males differ

from females in a way that they are reproductive at an age of 5 until 41, with a peak at 7 through 27 years of age. However the numbers regarding the reproductive success of males are an underestimation. Since the social structure requires relatively more females, males are often kept in bachelor groups, depriving them of the possibility to reproduce. It is assumed that the main problems concerning reproduction lies not with the males. Therefore, for further analysis the focus will be on the female rhinos.

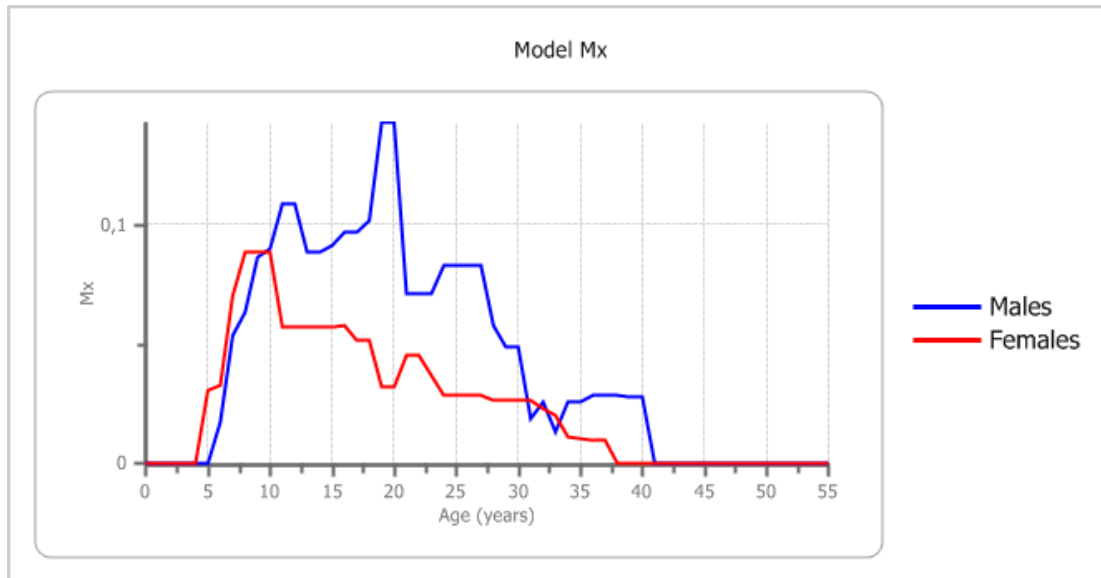


Figure 5: Age-specific Fecundity (Mx)

There are probably multiple reasons that a high percentage of female white rhinos do not breed. As veterinary research suggests one possible explanation is that the development of reproductive pathology and ovarian inactivity is an age-related consequence of long non-reproductive periods. This ageing process of the genital organs can be prevented with the achievement of at least one pregnancy (Hermes *et al.*, 2006). To prevent this from happening, each female between the ages of 6 to 20 years, which fails to reproduce, is checked for reproductive pathologies.

Another initiative taken to stimulate breeding is the transfer of young females out of their maternal herd. Since 2007 it is the strong conviction of the white rhino EEP that it is necessary to transfer adolescent females out of their maternal herd. This would stimulate natural breeding. In nature, adolescent females disperse to nearby regions, eventually joining other adolescent animals or adult females without calves. As of yet, it is too early to conclude whether transferring adolescent females prevents them from becoming a flat liner and/or make them start breeding naturally. However, preliminary results are very positive. Figure displays the females of the white rhino EEP population. They are categorized in breeding or not (yet) breeding. The animals that are not breeding are further divided by age. The percentages refer to the proportions of females of a specific group (e.g. 'Breeding' or 'Not (yet) breeding, age <10') as a function of the total female population. With the data of the three previous studbooks; 2009, 2011 and 2015, a first provisionally view appears.

Female (non) breeders

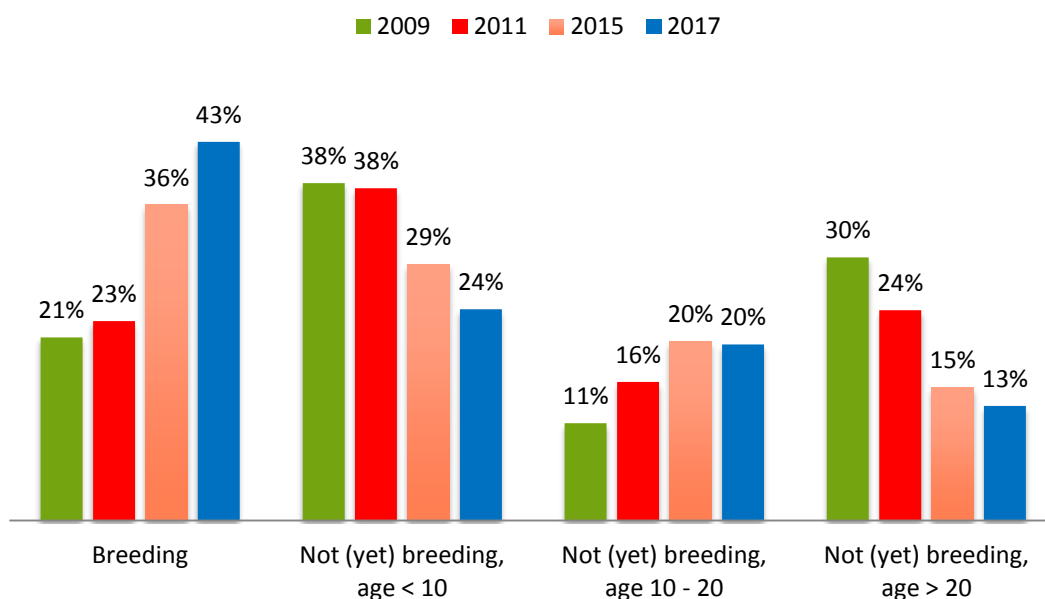


Figure 6: Female (non) breeders

An increase of more than 50% is seen for the females that were able to breed, going up from nearly 21%, 23% and 36% in 2009, 2011 and 2015 respectively, tot over 43% currently. This is of course what we have wished for all those years. Another positive change is the reduction of 14% of animals that did not breed in the age class younger than 10 years. However, an inverse affect can be observed for females that have not (yet) bred in the age class 10 – 20 years, however this stabilised in the last 3 years. For animals in the oldest age class there is again a reduction visible in the percentage of female rhinos that have not (yet) bred. This reduction is probably caused by the death of the elderly animals, resulting in a smaller reference population. Instead of the percentage of female (non) breeders, [Table 1](#) displays the absolute numbers of female (non) breeders per selected class. For a more detailed overview of the numbers of female (non) breeders see appendix 3.

Table 1: Number of female (non) breeders

	2009 <i>n females</i>	2011 <i>n females</i>	2014 <i>n females</i>	2017 <i>n females</i>
Total females EEP population	154	159	173	180
Breeding	32	36	62	77
Not (yet) breeding, age < 10	59	60	50	44
Not (yet) breeding, age 10 – 20	17	25	35	36
Not (yet) breeding, age > 20	46	38	26	23

The age classes previously chosen are in some cases insufficient to analyse the effect of transferring adolescent females out of their maternal herd. For instance, the age class of females not yet breeding under the age of 10 years also contains animals which are pre-reproductive. The same holds true for the oldest age class but now containing animals that are post-reproductive. For future analyses new age classes are setup, see index [Figure 7](#). Another additional change is that animals that did not survive the first month after birth (DNS) are excluded from the analysis. These animals did not reach reproductive age and therefore did not have the chance to contribute to the breeding population.

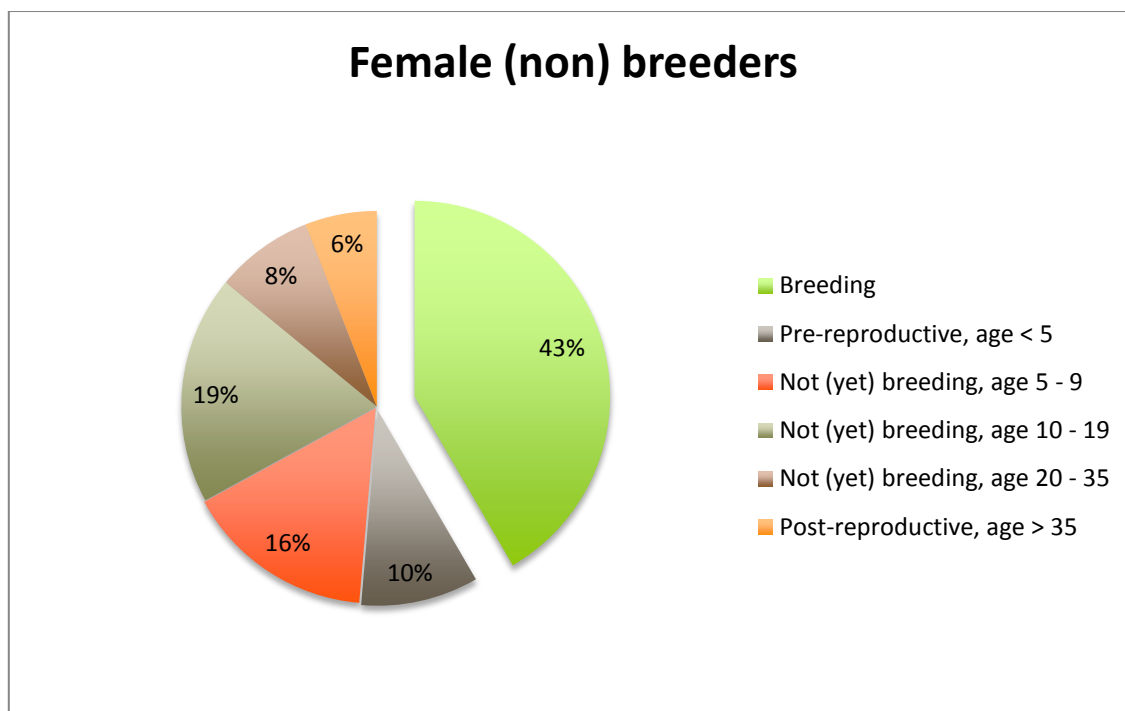


Figure 7: Female (non) breeders, 2017

With the alteration of the age classes it now becomes visible that within the youngest age class, 10% has not reached the reproductive age yet. So instead of thinking that 24% (figure 6) of the female population has not yet managed to breed, this is lowered to 14% (figure 7), a better representation of reality.

Table 2 shows an additional way to look at the female (non) breeders. The first column represents the age classes as in figure 7. The second column displays the number of females of the current EEP population, sorted per age class. The last two columns reflect the females that have not yet reproduced. The percentages noted are not a comparison with the total female population. Instead, it reflects the percentage of animals that have not yet bred in that age class. Looking at the first age class, 0 – 4,99. During 2017, 31 female rhinos were younger than 5 years. Of those 31 animals, none have managed to reproduce, so 100% did not give birth. This is not surprising since female rhinos become reproductive after an age of 5. Looking at the oldest animals, 10 of the 19 females that lived during 2017 have not managed to reproduce. 53% of the older females have not reproduced. Ideally, the percentage starts at 100% and declines rapidly in the next two age classes. With the lowest percentages in the last two age classes. A more detailed overview of the numbers of female (non) breeders see appendix 3.

Table 2: Female (non) breeders, 2017

Age class years	Total females	Not (yet) breeding females	
	<i>n</i>	<i>n</i>	%
Breeding	77	-	-
0 - 4,99*	31	31	100
5 - 9,99	19	13	68
10 - 19,99	77	36	47
20 - 34,99	34	13	38
35 -	19	10	53

* DNS excluded from analysis

3.3 Genetic analysis

Table 3 summarizes the results of the genetic analysis.

The living white rhino EEP population in 2017 was founded by 117 animals. From the founding population there are currently still 201 descendants alive. The gene diversity within the population is 0,9866. With an ancestry known for 100% with a certainty of 98.9% this indicates that the population is genetically diverse. This also reflects in a low mean-kinship value (0,0134) and mean inbreeding (0,0107). The mean-kinship is a measurement of the average relatedness of an individual to the living descendant population.

However, the Founder Genome Equivalents (FGE) and Founder Genome Surviving (FGS) are a lot lower than the population size. The FGE value stands for the number of wild caught individuals (founders) that would produce the same amount of gene diversity as is present in the living, descendant population. FGS reflects the number of original founder genomes surviving in the captive population. Both are a measurement of the loss of genetic variation due to bottlenecks in the founding population, where FGE also reveals disparities in founder representation. **It is known that the wild rhino population underwent a severe population crash in the early 20th century. Resulting that the wild population was derived from a maximum of 100 founders. This makes the assumption that a wild caught animal is unrelated to another wild caught rhino or animal in the captive population, and therefore a potential founder, very unreliable. However, since genetic screening of all the animals is not desirable, for management purposes every wild caught animal that has reproduced a fertile offspring is noted as a founder of the EEP population.**

Of the white rhino EEP population now 43% has managed to breed. This means that not all individuals in the population have contributed to the transmission of genetic material to the next generation. Even the animals that did reproduce did not equally contribute. Therefore the concept of the Effective Population Size (Ne) was developed. The Ne shows the number of breeding individuals in an idealised population that would show the same rate of genetic drift and of inbreeding as the population under consideration. Where a random breeding population of constant size, equal sex ratio, and with non-overlapping generations defines an ideal population. In case of the white rhino EEP population, the Effective Population Size is 80,77 individuals. Goal is to increase the Ne in the future.

Table 3: Genetic summary

Genetic Summary	
Founders	117
Potential (additional)	52
Living Animals (N)	310
Living Descendants	201.5
% Ancestry Known	100%
% Ancestry Certain	98.9%
Gene Diversity	0,9866
Gene Value	0,9856
Population Mean Kinship	0,0134
Mean Inbreeding	0,0107
Founder Genome Equivalents (FGE)	37,40
Founder Genomes Surviving (FGS)	78,42
Effective Population Size (Ne)	80,77
Ne/N	0,2797

4. Conclusion and recommendations

The white rhino EEP is tackling many difficulties. The major problem historically has always been the relatively low growth rate. However, the last couple of years the growth rate is steadily increasing. For the last 6 years the population has had more births than deaths, meaning a growth rate of >1 , so no longer declining but stable. With no import in the last four years, this really is an indication that the white rhino EEP is growing into a self-sustainable population.

The steadily increasing growth rate is co-created by another very positive development, more institutions are starting to breed with their animals. 2015 to 2017 have been very successful years with 14, 22 and 14 calves born. The white rhino EEP is strongly convinced that it is necessary to transfer adolescent females out of their maternal herd, like they do in the wild. It is however too early to find statistical evidence which confirms the hypothesis that young females, which are transferred out of their maternal group, are more likely to start breeding naturally. A very positive trend is that the percentage of female rhinos breeding is increasing, over the last 5 years. By the end of 2014, 43% of the total female rhino population has managed to breed. Each potential breeding animal, which is for some reason not breeding, is recommended to get assessed for hormone profile and after that for reproductive problems by ultrasound. If this does not have any result, an exchange with another female from another herd is recommended.

Every zoo keeping white rhino has to consider the social behaviour aspects of this species. This means that white rhinos preferably should be kept in social groups in large exhibits. The recommendation is to have a rhino breeding facility for at least 1(2).3 (adult) rhinos, with the possibility to create a separate territory for the (second) male. There should also be space to keep calves long enough in the group, with 1 hectare space in the outside exhibit. All zoos that keep one or two animals (not male bachelor groups) should consider this and act accordingly for the benefit of the species. Any zoo with sub-optimal white rhino exhibits should work to improve their facilities or take the decision to stop keeping the species. The challenge in the coming years will be to establish more larger breeding herds and for this more births of females are necessary. Also space for males is welcome, but needs to be carefully planned.

Any zoo that has the intention to import should follow the import guidelines as published by the EAZA Rhino TAG. It is important to select the right age animals (socially experienced) to prevent repeating mistakes made in the past. Also one should think about nature conservation projects in the country of origin. When importing an animal it should not just be a matter of buying a rhino but being serious about nature conservation. Any zoo not meeting the standards for exhibiting white rhino as published by the White rhino EEP should not import the species.

5. SPARKS reports

5.1 Living population during 2015 – 2017

WHITE RHINO Studbook
 Restricted to: (Ceratotherium simum)
 Dates: 1 Jan 2015 - 31 Dec 2017
 Association: \Sparks\RHINO.fed

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name	Transponder
AL AIN - Al Ain Zoo, Al Ain, United Arab Emirates										
2049	M	~ Jan 2006	WILD	WILD	S.AFRICA	~ 2007	NONE	Capture	Jumbo	
					BESTER	~ 2007		Transfer		
					AL AIN	16 Nov 2007	A7110016	Transfer		
2050	M	~ Jan 2006	WILD	WILD	S.AFRICA	~ 2007	NONE	Capture	Rony	
					BESTER	~ 2007		Transfer		
					AL AIN	16 Nov 2007	A7110017	Transfer		
2051	F	~ Jan 2006	WILD	WILD	S.AFRICA	~ 2007	NONE	Capture	Lolida	
					BESTER	~ 2007		Transfer		
					AL AIN	16 Nov 2007	A7110018	Transfer		
2052	F	~ Jan 2006	WILD	WILD	S.AFRICA	~ 2007	NONE	Capture	Lily	
					BESTER	~ 2007		Transfer		
					AL AIN	16 Nov 2007	A7110019	Transfer		
2053	F	~ Jan 2006	WILD	WILD	S.AFRICA	~ 2007	NONE	Capture	Chote	
					BESTER	~ 2007		Transfer		
					AL AIN	16 Nov 2007	A7110020	Transfer		
2097	M	19 Feb 2012	2049	2051	AL AIN	19 Feb 2012	202019	Birth	Neloye	
2098	M	30 Apr 2012	2049	2052	AL AIN	30 Apr 2012	204030	Birth	Leoan	
T17	F	1 Jul 2014	2049	2051	AL AIN	1 Jul 2014	B1407001	Birth		
T45	F	10 Dec 2015	2049	2052	AL AIN	10 Dec 2015	B1512010	Birth	Nola	
Totals: 4.5.0 (9)										
ARNHEM - Royal Burgers' Zoo, Arnhem, Gelderland, Netherlands										
230	F	~ 1971	WILD	WILD	UMFOLOZI	17 Aug 1971	NONE	Capture	FREYA	
					SOEST	????		Transfer		
					ARNHEM	16 Aug 1974	03559	Transfer		
						4 Apr 2017		Death		
[Death by: Unknown means]										
907	F	25 Dec 1987	89	102	WHIPSSNADE	25 Dec 1987	L398	Birth	GINGABELLE	968000001367780
					EMMEN	28 Nov 1991	508003	Transfer		
					ARNHEM	14 Jun 2004	611828	Transfer		
1025	M	8 Aug 1992	91	651	PARIS ZOO	8 Aug 1992	Z92204	Birth	GILLOU	528210000861424
					LISIEUX Z	28 Nov 1995	M95047	Transfer		
					HILVARENB	21 Jun 2000	M92047	Transfer		
					ARNHEM	30 May 2007	613853	Transfer		
1340	F	15 Dec 2000	1011	654	WHIPSSNADE	15 Dec 2000	L3659	Birth	KWANZAA	00-06DC-F0B1
					ARNHEM	23 May 2003	610882	Transfer		
1480	F	1 Jan 2004	WILD	1478	KOLMARDEN	1 Jan 2004	8979	Birth	IZALA	968000005743630
					ARNHEM	5 Nov 2013	618043	Transfer		
T46	M	30 May 2016	1025	1340	ARNHEM	30 May 2016	7057	Birth	Thomas	
T48	F	25 Jan 2016	1025	1480	ARNHEM	25 Jan 2016	6901	Birth		
						25 Jan 2016		Death		
[Death by: Unknown means]										
T76	F	10 Aug 2017	1025	1480	ARNHEM	10 Aug 2017	7649	Birth	Wiesje	
Totals: 2.6.0 (8)										

ATTICAZOO - Attica Zoological Park S A, Spata, Attiki, Greece

1632	M	28 Dec 2007	1011	489	WHIPNADE ATTICAZOO	28 Dec 2007 26 Apr 2010	3210 MCS001	Birth Transfer	JABARI	981000100103017
1636	M	7 Mar 2008	1011	654	WHIPNADE ATTICAZOO	7 Mar 2008 26 Apr 2010	3262 MCS002	Birth Transfer	SHAKA	981000100102569
1648	M	22 Oct 2008	88	902	BUDAPEST ATTICAZOO	22 Oct 2008 3 Oct 2010	100491 MCS003	Birth Transfer	L.PANCHO	961001000048598

Totals: 3.0.0 (3)

AUGSBURG - Zoologischer Garten Augsburg GmbH, Bayern, Germany

360	M	~ 1971	WILD	WILD	HLUHLUWE FLIEGENPI MUNICH SALZBURG AUGSBURG	~ Apr 1971 17 Nov 1974 20 Nov 1974 21 Aug 1991 6 Aug 2008 3 Jun 2015	NONE 078001 M0003 2008FP	Capture Transfer Transfer Transfer Transfer Death	DENNY	
[Death by: Euthanasia (medical) Unknown Unknown (after necropsy) Necropsy not received]										
361	F	~ 1971	WILD	WILD	HLUHLUWE FLIEGENPI MUNICH SALZBURG USTI SALZBURG AUGSBURG	~ Nov 1971 17 Nov 1974 20 Nov 1974 21 Aug 1991 30 Jun 1998 30 Aug 2000 6 Aug 2008	NONE 078002 M0005 UL9834 M0005 2008FQ	Capture Transfer Transfer Transfer Transfer Transfer Transfer	BABY	
1526	M	6 Oct 2005	1011	489	WHIPNADE KERKRADE AUGSBURG CAMBRON AUGSBURG	6 Oct 2005 4 Apr 2008 29 Apr 2014 18 Nov 2015 22 Feb 2017	1546 M05026 2014AV 10164 2014AV	Birth Transfer Transfer Transfer Transfer	BANTU	9680000023036
1625	F	~ 2005	WILD	WILD	S.AFRICA MAFUNYANE AUGSBURG	~ 2007 ~ May 2008 31 Aug 2008	NONE 2008FR	Capture Transfer Transfer	CHRIS	
1626	F	~ 2005	WILD	WILD	S.AFRICA MAFUNYANE AUGSBURG	~ 2007 ~ May 2008 31 Aug 2008	NONE 2008FS	Capture Transfer Transfer	KIBIBI	
T42	M	6 Feb 2016	1526	1626	AUGSBURG	6 Feb 2016	2016AJ	Birth	Kibo	
T43	F	18 Feb 2016	1526	1625	AUGSBURG	18 Feb 2016	2016AP	Birth	Keeva	

Totals: 3.4.0 (7)

AYWAILLE - Monde Sauvage Safari Sprl, Aywaille, Liège, Belgium

1595	M	30 Aug 2006	491	494	HODENHAGN VALBREMBO AYWAILLE	30 Aug 2006 6 Mar 2008 3 Feb 2015	HOD34 HEINI 150009	Birth Transfer Transfer	HEINI	98102255783
2087	F	15 Jun 2006	WILD	WILD	S.AFRICA THABA MAN AYWAILLE	~ 2011 ~ Mar 2012 29 Aug 2012	NONE 120129	Capture Transfer Transfer		
2088	F	15 Jun 2007	WILD	WILD	S.AFRICA THABA MAN AYWAILLE	~ 2011 ~ Mar 2012 29 Aug 2012	NONE 120130	Capture Transfer Transfer		

Totals: 1.2.0 (3)

BANDHOLM - Knuthenborg Safaripark, Maribo, Region Sjælland, Denmark

1363	F	~ Jun 1997	WILD	WILD	S.AFRICA BANDHOLM	~ Jun 1997 24 Oct 2000	NONE CESI03	Capture Transfer	BODIL	001C53876T
1466	M	31 Dec 2003	828	856	MARWELL MALTON BANDHOLM	31 Dec 2003 7 Jun 2007 10 Dec 2012	6603 663 CESI07	Birth Transfer Transfer	SHAKA	956000000709250
T18	F	4 Oct 2014	1233	1338	BORAS BANDHOLM	4 Oct 2014 31 Oct 2017	EN0012 CESI08	Birth Transfer	Jamala	968000010580036

Totals: 1.2.0 (3)

BARCELONA - Parc Zoologic De Barcelona, Barcelona, Spain										
1484	M	~ 1971	WILD	WILD	S.AFRICA	~ 1972	NONE	Capture	PEDRO/PAPA	68000001827266
					RIOLEORES	????		Transfer		
					DECOMISO	25 Jan 1993		Transfer		
					AQUALEON	1 Feb 1993	RB1	Transfer		
					BARCELONA	2 Dec 2003	8556	Transfer		

Totals: 1.0.0 (1)

BEAUVAL - Zoo Parc De Beauval, St Aignan, Cher, France										
1048	M	8 Sep 1994	221	225	HILVARENB	8 Sep 1994	M94056	Birth	SMOSKE	
					ARNHEM	5 Nov 1997	5664	Transfer		
						25 Jul 2002	5664	Transfer		
					BEAUVAL	7 Jun 2006	M0234	Transfer		
1307	F	~ Feb 1998	WILD	WILD	S.AFRICAR	~ Jul 1998	NONE	Capture	SATARA	00-01D0FB70T
					THABA MAN	~ Aug 1998		Transfer		
					BEAUVAL	27 Mar 2000	00049	Transfer		
1463	F	~ May 2001	WILD	WILD	THABAZIMB	~ 2002	NONE	Capture	MAFUNYANE	4302723678
					MAFUNYANE	~ 2003		Transfer		
					MONTPELLI	8 Oct 2003	M01010	Transfer		
					BEAUVAL	13 Mar 2013	M01313	Transfer		
T39	M	3 Dec 2015	1048	1307	BEAUVAL	3 Dec 2015	M01884	Birth	Hawii	250228719002729
T75	F	18 Nov 2016	1048	1463	BEAUVAL	18 Nov 2016	M02089	Birth	Gaya	250228719003502

Totals: 2.3.0 (5)

BEWDLEY - West Midland Safari & Leisure Park Ltd, Bewdley, Worcestershire, United Kingdom										
1062	F	~ 1992	WILD	WILD	NATAL SA	~ 1992	NONE	Capture	MTUBA	
					BEWDLEY	29 Aug 1995	1062	Transfer		
1174	F	1 Jan 1994	WILD	WILD	HLUHLUWE	~ 1994	NONE	Capture	TRIXI	956000000829842
					BEWDLEY	24 Nov 1997	1174	Transfer		
1583	M	21 Sep 2005	1060	1175	BEWDLEY	21 Sep 2005	R9	Birth	BARNOLD	956000000844050
1647	F	8 Oct 2008	WILD	1561	LISIEUX Z	8 Oct 2008	M08128	Birth	KEYAH	250228700000597
					BEWDLEY	24 Nov 2011	1058	Transfer		
2006	F	21 Dec 2009	1475	1473	BLAIRDRUM	21 Dec 2009	BD441	Birth	ALISA	
					BEWDLEY	22 May 2012	1093	Transfer		
T41	F	28 Jan 2016	1583	1647	BEWDLEY	28 Jan 2016	1650	Birth		
						28 Jan 2016		Death		
					[Death by: Stillbirth Unknown Unknown (after necropsy) Necropsy not received]					
T44	M	25 Mar 2016	1583	2006	BEWDLEY	25 Mar 2016	1553	Birth	Ekozu	956000003721167
T77	F	8 Sep 2017	1583	1647	BEWDLEY	8 Sep 2017	1690	Birth	Fahari	956000003714404

Totals: 2.6.0 (8)

BIOPARCVA - Bioparc Valencia Rain Forest S L, Valencia, Spain										
1486	M	1 Dec 1991	1487	1488	RIOLEORES	1 Dec 1991		Birth	CIRILO	968-00-00018-343
					DECOMISO	25 Jan 1993		Transfer		
					AQUALEON	1 Feb 1993	RB3	Transfer		
					BARCELONA	1 Dec 2003	8554	Transfer		
					BIOPARCVA	22 Feb 2007	V07018	Transfer		
1571	F	~ 2004	WILD	WILD	S.AFRICA	1 Oct 2007	NONE	Capture	NOMVULA	0006B9D2B3
					BIOPARCVA	10 Oct 2007	V07207	Transfer		

Totals: 1.1.0 (2)

BLAIRDRUM - Blair Drummond Safari Park, Stirling, United Kingdom										
1445	F	~ Jul 2000	WILD	WILD	S.AFRICAR	~ Jul 2000	NONE	Capture	TSWANE	4315371166
					THABA MAN	????	NONE	Transfer		
					COULANGE	18 Jun 2003	CSS4	Transfer		
					BLAIRDRUM	27 Oct 2015	BD859	Transfer		
1473	F	~ 2000	WILD	WILD	S.AFRICA	~ Feb 2000	NONE	Capture	DOROTHY	RI/433D5F0E0B
					GW LOGIST	????	DOROTH	Transfer		
					BLAIRDRUM	28 Sep 2003	BD19	Transfer		

1475	M	~ 2000	WILD	WILD	S.AFRICA GW LOGIST BLAIRDRUM	~ Feb 2000 ???? 28 Sep 2003	NONE GRAHAM BD21	Capture Transfer Transfer	GRAHAM	WI/43430A6518
T57	F	27 Sep 2016	1475	1473	BLAIRDRUM	27 Sep 2016	BD908	Birth	Bonnie	
Totals: 1.3.0 (4)										

BOISSIERE - Espace Zoologique La Boissiere Du Dore, La Boissiere Du Dore, Loire-Atlantique, France										
1606	M	12 Dec 2006	221	1251	GIVSKUD BOISSIERE	12 Dec 2006 30 Mar 2011	CERS06 HRB001	Birth Transfer	MAX	208224000235726
2109	F	~ 2005	WILD	WILD	S.AFRICA THABA MAN BOISSIERE	~ 2011 ~ Jan 2012 2 Feb 2012	NONE _____ HRB002	Capture Transfer Transfer	Hacuna	900088000432109
2110	F	~ 2005	WILD	WILD	S.AFRICA THABA MAN BOISSIERE	~ 2011 ~ Jan 2012 2 Feb 2012	NONE _____ HRB003	Capture Transfer Transfer	Swanie	990008800043195
T22	F	19 Dec 2014	1606	2110	BOISSIERE	19 Dec 2014	HRB005	Birth	Wasi	250228719001183
Totals: 1.3.0 (4)										

BORAS - Boras Djurpark Zoo, Borås, Västmanlands Län, Sweden										
1233	M	8 Feb 1999	828	856	MARWELL MALTON BORAS	8 Feb 1999 9 Apr 2003 11 May 2007	4453 345 EN0007	Birth Transfer Transfer	BHASELA	956000000815663
1338	F	1 May 2000	1011	329	WHIPSNAD BORAS	1 May 2000 1 Jun 2002	L3501 EN0005	Birth Transfer	ZINZI	968000000594555
1479	F	~ Jul 2001	WILD	1478	UMFOLOZI KOLMARDEN BORAS	1 Jul 2001 10 Dec 2003 27 Sep 2012	NONE 8978 EN0011	Capture Transfer Transfer	MASHIKISHIKI	0006436A81
T54	F	16 Sep 2016	1233	1479	BORAS	16 Sep 2016	EN0013	Birth	Bishara	
Totals: 1.3.0 (4)										

BRATISLAV - Zoologická Zahrada Bratislava, Bratislava, Bratislavský Kraj, Slovakia										
669	M	8 Dec 1981	340	403	MUNSTER LIBEREC BRATISLAV	8 Dec 1981 13 Mar 1984 4 Dec 2002	20228 630004 D041202	Birth Transfer Transfer	NIKO	
1154	F	~ 1984	WILD	WILD	NAMIBIA DELFTS LAVAL BRATISLAV	~ 1984 30 Apr 1986 4 Sep 1986 5 Sep 1986	NONE _____ 1076 M551	Capture Transfer Transfer Transfer	ADA	
Totals: 1.1.0 (2)										

BUDAPEST - Budapest Zool & Botanical Garden, Budapest, Hungary										
902	F	~ 1980	WILD	WILD	NATAL SA SOEST BUDAPEST	~ Oct 1980 1 Oct 1983 8 Oct 1983	NONE _____ 000215	Capture Transfer Transfer	LULU	972 00 00001 521
1049	M	26 Jan 1991	MULT1	241	RAMAT GAN BUDAPEST	26 Jan 1991 24 Nov 2010	910023 100865	Birth Transfer	ZAFRIEL	985170000767462
1610	F	23 Jan 2007	578	902	BUDAPEST	23 Jan 2007	100111	Birth	NATALIA/PANN	
Totals: 1.2.0 (3)										

BURFORD - Cotswold Wildlife Park and Gardens, Burford, Oxfordshire, United Kingdom										
1591	M	25 Apr 2006	829	1026	KNOWSLEY BURFORD	25 Apr 2006 8 Apr 2009	150 MM1323	Birth Transfer	KIFARU	981000000964408
2002	F	~ 2006	WILD	WILD	S.AFRICA BURFORD	~ 2008 20 Oct 2009	NONE MM1402	Capture Transfer	NANCY	4A0B6C0962
2003	F	~ 2006	WILD	WILD	S.AFRICA BURFORD	~ 2008 20 Oct 2009	NONE MM1401	Capture Transfer	RUBY	494C5A3B44

T32	M	27 Mar 2015	1591	2003	BURFORD	27 Mar 2015	MM1948	Birth	Ian	
T35	M	19 Aug 2015	1591	2002	BURFORD	19 Aug 2015	MM1994	Birth	John	
T78	M	13 Sep 2017	1591	2003	BURFORD	13 Sep 2017	MM2199	Birth	Alan	
T79	F	2 Oct 2017	1591	2002	BURFORD	2 Oct 2017	MM2204	Birth	Belle	956000006261870
Totals: 4.3.0 (7)										

BUSSOLENG - Parco Natura Viva, Bussolengo, Veneto, Italy										
305	M	~ 1967	WILD	WILD	UMFOLOZI	~ 1968	NONE	Capture	BUJUKO	
					NATAL PB	25 Dec 1968		Transfer		
					HLUHLUWE	28 Dec 1968		Transfer		
					BUSSOLENG	10 May 1974	CSS002	Transfer		
676	M	31 Dec 1981	618	620	KNOXVILLE	31 Dec 1981	610	Birth	SHERMAN/BENN	
					ZEEHANDLR	14 Jul 1982		Transfer		
					GELSNKRKN	21 Jul 1982		Transfer		
					FLIEGENPI	22 Jul 1982		Transfer		
					HALLE	6 Mar 1984	844008	Transfer		
					LEIPZIG	25 Oct 1988	M00446	Transfer		
					SALZBURG	23 Oct 1991	M0006	Transfer		
					BUSSOLENG	16 Oct 2012	CSS003	Transfer		

Totals: 2.0.0 (2)

CABARCENO - Parque De La Naturaleza De Cabarceno, Obregón, Cantabria, Spain										
865	M	18 Nov 1986	111	114	USTI	18 Nov 1986	UL0706	Birth	SAGAN	
					CABARCENO	3 May 1993	RI-1	Transfer		
988	F	20 Oct 1992	491	915	HODENHAGN	20 Oct 1992	CESI037	Birth	UNA/NORA	
					FUENGIROL	21 Sep 1994		Transfer		
					CABARCENO	23 Sep 1994	RI-2	Transfer		
T38	M	15 Nov 2015	865	1501	CABARCENO	15 Nov 2015	RI-9	Birth		
						18 Nov 2015		Death		
[Death by: Unknown means]										
1501	F	11 Jan 2005	221	1251	GIVSKUD	11 Jan 2005	CERS05	Birth	ZOLA	208224000233675
					CABARCENO	31 Mar 2011	RI-6	Transfer		
1572	F	~ 2004	WILD	WILD	S.AFRICA	1 Oct 2007	NONE	Capture	MAYAYI	0006B9B070
					BIOPARCVA	10 Oct 2007	V07208	Transfer		
					CABARCENO	2 Jun 2015	RI-8	Transfer		
2156	M	26 Sep 2013	865	1501	CABARCENO	26 Sep 2013	RI-7	Birth	Cosme	
Totals: 3.3.0 (6)										

CAMBRON - Pairi Daiza, Cambron-Casteau, Hainaut, Belgium										
1424	M	22 Nov 2001	1011	489	WHIPSNAD	22 Nov 2001	L3826	Birth	JOBY	968000002293975
					KESINGLA	26 Mar 2004	M672	Transfer		
					MONTPELLI	28 Jun 2007	M07161	Transfer		
					CAMBRON	15 Mar 2017	10421	Transfer		
2101	F	~ 2008	WILD	WILD	S.AFRICA	~ 2011	NONE	Capture	Madiba	4B66367B17
					CAMBRON	2 Jul 2012	9323	Transfer		
2103	F	~ 2008	WILD	WILD	S.AFRICA	~ 2011	NONE	Capture	Eleonor	900182000040277
					CAMBRON	15 Aug 2012	9325	Transfer		
T47	M	22 Mar 2016	2102	2103	CAMBRON	22 Mar 2016	10273	Birth	SethembaVasta	981100004306842
Totals: 2.2.0 (4)										

CHESINGTN - Chessington World of Adventures Ltd, Chessington, Surrey, United Kingdom										
2005	M	6 Apr 2010	1025	1340	ARNHEM	6 Apr 2010	615706	Birth	DOZER	00-071A-D4EC
					CHESINGTN	8 Dec 2012	WR01	Transfer		
2037	M	12 Nov 2009	1048	1307	BEAUVAL	12 Nov 2009	M0767	Birth	KANTY	250228700000876
					CHESINGTN	8 Dec 2012	WR03	Transfer		
2059	M	7 Dec 2010	1013	1570	LISBON	7 Dec 2010	11102	Birth	GYASI	
					CHESINGTN	8 Dec 2012	WR02	Transfer		
Totals: 3.0.0 (3)										

COLCHESTR - Colchester Zoo, Stanway, Essex, United Kingdom

607	F	~ 1970	WILD	WILD	UMFOLOZI	~ 1970	NONE	Capture	FLOSSY	
					DELFTS	25 Feb 1972		Transfer		
					COLCHESTR	1 Apr 1972	185	Transfer		
1457	F	~ 2000	WILD	WILD	S.AFRICAR	????	NONE	Capture	EMILY	C1/433E30233A
					COLCHESTR	27 Sep 2003	BLL279	Transfer		
1458	F	~ 1998	WILD	WILD	S.AFRICAR	????	NONE	Capture	CYNTHIA	433D5D2233
					COLCHESTR	27 Sep 2003	BLL280	Transfer		
						15 Oct 2015		Death		
[Death by: Euthanasia (medical) Given to an institution: Generalized Bacterial Necropsy not received]										
2150	F	1 Jul 2013	1591	2002	BURFORD	1 Jul 2013	MM1797	Birth	Astrid	956000003711395
					COLCHESTR	13 Jul 2016	DLL1300	Transfer		
T63	M	5 Feb 2017	1360	1457	COLCHESTR	5 Feb 2017	DLL1407	Birth	Kifaru	
Totals: 1.4.0 (5)										

COPENHAGE - Copenhagen Zoo, Frederiksberg, Region Hovedstaden, Denmark

1361	M	~ Jun 1996	WILD	WILD	S.AFRICA	~ Jun 1996	NONE	Capture	OSCAR	0001C542D37
					BANDHOLM	24 Oct 2000	CESI01	Transfer		
					COPENHAGE	21 Jun 2012	CER004	Transfer		
1542	F	~Jul 1996	WILD	WILD	S.AFRICA	~ 2004	NONE	Capture	MINNA	0006691523
					COPENHAGE	12 Sep 2006	CER002	Transfer		
2067	F	16 Nov 2011	1233	1338	BORAS	16 Nov 2011	EN0009	Birth	Zuri	968000010081367
					COPENHAGE	14 Oct 2014	CER006	Transfer		
T80	M	16 Oct 2017	1361	1542	COPENHAGE	16 Oct 2017	CER008	Birth		
Totals: 2.2.0 (4)										

COULANGE - Parc Zoologique D'Amneville, Amneville, Moselle, France

252	M	~ 1969	WILD	WILD	UMFOLOZI	~ Jul 1969	NONE	Capture		
					NATAL PB	2 Jun 1972		Transfer		
					DELFTS	3 Jun 1972		Transfer		
					COLCHESTR	3 Jul 1972	CLL250	Transfer		
					BLACKPOOL	8 Aug 1972	M72074	Transfer		
					PAIGNTON	20 Feb 1992	909	Transfer		
					COULANGE	15 Jan 2003	CSS1	Transfer		
						17 Mar 2015		Death		
[Death by: Old age Unknown Unknown (after necropsy) Necropsy not received]										
1410	F	27 Jan 2002	1060	1174	BEWDLEY	27 Jan 2002	1410	Birth	LUCY	956000000844612
					BLAIRDRUM	21 May 2012	BD576	Transfer		
					COULANGE	30 Oct 2015	CSS12	Transfer		
1460	F	~ 1999	WILD	WILD	S.AFRICA	~ 1999	NONE	Capture	TALA	43274C1B08
					SO LAKES	28 Sep 2003	CSS003	Transfer		
					COULANGE	4 Jul 2014	CSS10	Transfer		
2073	F	~ 2007	WILD	WILD	S.AFRICA	~ Mar 2011	NONE	Capture	Yoruba	900088000433318
					THABA MAN	~ Jul 2011		Transfer		
					COULANGE	2 Feb 2012	CSS7	Transfer		
2074	F	~ 2004	WILD	WILD	KRUGER	~ Mar 2011	NONE	Capture	Hekaw	900088000432130
					THABA MAN	~ Jul 2011		Transfer		
					COULANGE	2 Feb 2012	CSS8	Transfer		
2075	M	~ 2004	WILD	WILD	S.AFRICA	~ Mar 2011	NONE	Capture	Benny	900088000432442
					THABA MAN	~ Jul 2011		Transfer		
					COULANGE	2 Feb 2012	CSS9	Transfer		
2222	F	2 Jul 2016	2075	2073	COULANGE	2 Jul 2016	CSS13	Birth	Bayami	
T24	M	1 Dec 2014	2075	2074	COULANGE	1 Dec 2014	CSS11	Birth	Shango	250228500029196
T65	M	5 Mar 2017	2075	1460	COULANGE	5 Mar 2017	CSS14	Birth	Timbo	
Totals: 4.5.0 (9)										

DORTMUND - Zoo Dortmund, Dortmund, Nordrhein-Westfalen, Germany

403	F	~ Oct 1969	WILD	WILD	UMFOLOZI	~ 1970	NONE	Capture	NATALA	
					DELFTS	25 Aug 1972		Transfer		
					SAN ROQUE	2 Oct 1972		Transfer		
					GELSNKRKN	25 Feb 1976		Transfer		
					MUNSTER	29 Mar 1977	20225	Transfer		
					ERFURT	20 May 1998	533	Transfer		
					SCHWERIN	6 Nov 2003	003003	Transfer		
					DORTMUND	25 Oct 2006	081008	Transfer		
1581	M	11 Jun 2005	627	1208	ERFURT	11 Jun 2005	2123	Birth	AMARI	968000003533764
					LILLE ZO	6 Jul 2007	2539	Transfer		
					DORTMUND	25 Jan 2011	081011	Transfer		
1627	F	1 Oct 2005	WILD	WILD	S.AFRICA	~ Jan 2008	NONE	Capture	JASIRA	49-2A72-7A5F
					DORTMUND	11 Mar 2009	081010	Transfer		
1659	F	1 Oct 2005	WILD	WILD	S.AFRICA	~ Jan 2008	NONE	Capture	SHAKINA	49-4762-672A
					DORTMUND	11 Mar 2009	081009	Transfer		

Totals: 1.3.0 (4)

DUBLIN - Dublin Zoo - Zoological Society of Irela, Dublin 8, Dublin, Ireland

330	M	10 Oct 1976	70	105	WHIPSHADE	10 Oct 1976	3111	Birth	SAM	
					DUBLIN	10 Nov 1977	77M034	Transfer		
859	F	23 Sep 1986	89	103	SOFIAZOO	23 Sep 1986	100265	Birth	RENI	
					DUBLIN	11 Dec 2000	A0M089	Transfer		
1552	M	~ Dec 2000	WILD	WILD	KRUGER	~ Dec 2000	NONE	Capture	CHAKA	456A7C6631
					DUBLIN	18 Dec 2004	A4M041	Transfer		
1555	F	~ Dec 2000	WILD	WILD	UMFOLOZI	~ Dec 2000	NONE	Capture	ASHANTI	456A1D7003
					DUBLIN	18 Dec 2004	A4M043	Transfer		
1558	F	~ Jun 2001	WILD	WILD	UMFOLOZI	~ Dec 2004	NONE	Capture	ZANTA	456B4A5973
					DUBLIN	18 Dec 2004	A4M042	Transfer		
1688	F	1 Jun 2008	1173	1461	SO LAKES	1 Jun 2008	CSS005	Birth	NYALA	956000008247912
					DUBLIN	18 Apr 2012	A12M40	Transfer		
T34	M	22 Jan 2015	1552	1555	DUBLIN	22 Jan 2015	A15M02	Birth		
						23 Jan 2015		Death		
			[Death by: Euthanasia (medical)]		Incinerate	Unknown (after necropsy) Necropsy not received]				
T52	M	25 Aug 2016	1552	1555	DUBLIN	25 Aug 2016	A16M62	Birth	Zuko	
T81	M	12 Nov 2017	1552	1688	DUBLIN	12 Nov 2017	A17M67	Birth	Mac	

Totals: 5.4.0 (9)

DUISBURG - Zoo Duisburg Ag, Duisburg, Nordrhein-Westfalen, Germany

1284	M	16 Feb 2000	257	989	LISIEUX Z	16 Feb 2000	M00018	Birth	KIFAROU	00-01E2-E092
					MALTON	8 Apr 2003	344	Transfer		
					KESINGLA	6 Jun 2007	M963	Transfer		
					AUGSBURG	29 Jul 2010	2010DC	Transfer		
					DUISBURG	8 Apr 2014	6762	Transfer		

Totals: 1.0.0 (1)

DVURKRALV - Zoo Dvur Kralove A S, Dvur Kralove Nad Lab, Hradec Kr lov,, Czech Republic

371	M	~ 1971	WILD	WILD	UMFOLOZI	~ 1971	NONE	Capture	NATAL	
					NATAL PB	1 Jun 1973		Transfer		
					SOEST	30 Jun 1973		Transfer		
					DVURKRALV	9 Jul 1973	117016	Transfer		
					OSTRAVA	30 Oct 1974	200011	Transfer		
					DVURKRALV	9 Apr 2010	117016	Transfer		
789	F	15 Nov 1983	372	351	DVURKRALV	15 Nov 1983	059010	Birth	NABIRE	00-0600-E82D
						27 Jul 2015		Death		
			[Death by: Unknown means]							
1043	F	11 Jan 1994	491	496	HODENHAGN	11 Jan 1994	CESI006	Birth	BATA/JESSICA	968000005546429
					DVURKRALV	10 Apr 2013	117022	Transfer		
1208	F	1 Jul 1997	1253	1254	SABLE RAN	1 Jul 1997	NONE	Birth	TEMBA	00-01D2-F957T
					ERFURT	25 Nov 1998	535	Transfer		
					DVURKRALV	15 Nov 2016	117024	Transfer		

2102	M	~ 2008	WILD	WILD	S.AFRICA	~ 2011	NONE	Capture	Pamir	4B63172E12
					CAMBRON	2 Jul 2012	9324	Transfer		
					DVURKRALV	19 Nov 2015	117023	Transfer		
Totals: 2.3.0 (5)										

EMMEN - Wildlands Adventure Zoo Emmen, Emmen, Drenthe, Netherlands										
344	F	~ 1971	WILD	WILD	UMFOLOZI	~ 1971	NONE	Capture	JENNY	968000003091103
					SOEST	5 May 1975		Transfer		
					EMMEN	10 May 1975	508002	Transfer		
						2 Dec 2016		Death		
[Death by: Unknown means]										
643	F	22 Apr 1981	167	174	ARNHEM	22 Apr 1981	03565	Birth	PETRA	968000003849074
					EMMEN	14 Jun 2004	508007	Transfer		
						6 Jun 2016		Death		
[Death by: Unknown means]										
812	F	5 Jan 1985	340	403	MUNSTER	5 Jan 1985	20229	Birth	EMILY	968000000485268
					GIVSKUD	3 Jun 2004	CERS04	Transfer		
					EMMEN	2 Feb 2017	508011	Transfer		
1645	M	28 Jul 2008	829	1026	KNOWSLEY	28 Jul 2008	492	Birth	FLANNERY/GEN	981000002061929
					LILLE ZO	27 Apr 2011	2957	Transfer		
					EMMEN	27 Sep 2016	508010	Transfer		
2004	F	21 Nov 2009	1165	1203	HILVARENB	21 Nov 2009	M09151	Birth	ZAHRA	528210002460133
					EMMEN	15 Sep 2012	508009	Transfer		
Totals: 1.4.0 (5)										

ERFURT - Thuringer Zoopark Erfurt, Erfurt, Thüringen, Germany										
1029	M	10 Dec 1993	111	114	USTI	10 Dec 1993	930292	Birth	DINO	
					POZNAN	1 Jun 1995	MK0504	Transfer		
					ERFURT	3 Sep 2013	4297	Transfer		
1207	F	1 Apr 1996	1253	1257	SABLE RAN	1 Apr 1996	NONE	Birth	NUMBI	00-012A-01ACT
					ERFURT	25 Nov 1998	534	Transfer		
1578	F	7 Jan 2005	491	496	HODENHAGN	7 Jan 2005	CESI048	Birth	HILDEGARD/MA	968000003462916
					OSNABRUCK	5 Jun 2008	2312	Transfer		
					ERFURT	12 Dec 2016	4703	Transfer		
Totals: 1.2.0 (3)										

ESTEPONA - Selwo Aventura (parque De La Naturaleza, Estepona, Málaga, Spain										
1709	M	29 Apr 2009	250	1416	MADRID Z	29 Apr 2009	RB6	Birth	CRONOS	
					ESTEPONA	28 May 2012	1R5	Transfer		
Totals: 1.0.0 (1)										

FASANO - Zoosafari, Fasano, Brindisi, Italy										
2022	M	27 Sep 2011	1004	1220	HODENHAGN	27 Sep 2011	CESI011	Birth	ABASI	900200000027575
					FASANO	10 Jul 2015		ltf		
Totals: 1.0.0 (1)										

GELSINKRKN - Zoom Erlebniswelt Gelsenkirchen, Gelsenkirchen, Nordrhein-Westfalen, Germany										
1489	M	26 Sep 2004	627	1207	ERFURT	26 Sep 2004	1991	Birth	RIMBO	968000004739390
					LILLE ZO	6 Jul 2007	2538	Transfer		
					PELISSANE	10 Nov 2010	HRH804	Transfer		
					GELSINKRKN	20 Oct 2016	203004	Transfer		
1575	F	~ Oct 2003	WILD	WILD	S.AFRICA	~ 2005	NONE	Capture	Tamu	4704643B70
					GELSINKRKN	3 Apr 2007	201002	Transfer		
1576	F	~ Oct 2004	WILD	WILD	S.AFRICA	~ 2005	NONE	Capture	Cera	47041C5301
					GELSINKRKN	3 Apr 2007	203003	Transfer		
Totals: 1.2.0 (3)										

GIVSKUD - Givskud Zoo - Zootopia, Give, Region Syddanmark, Denmark										
652	F	25 Aug 1981	117	120	LONGLEAT	25 Aug 1981		Birth	SOPHIE	
					GIVSKUD	10 Oct 1982	100002	Transfer		
T83	F	15 Sep 2017	1393	1616	GIVSKUD	15 Sep 2017	CERS10	Birth	Savannah	

1212	M	14 Jun 1998	139	97	EDINBURGH BEWDLEY WOBURNLTD GIVSKUD	14 Jun 1998 27 Jun 2000 15 Dec 2000 25 May 2011	98FB06 R6 RS03 CERS08	Birth Transfer Transfer Transfer	OTZEE	956000001715884
1251	F	10 Sep 1999	1011	489	WHIPSNAD GIVSKUD	10 Sep 1999 9 Feb 2002	L3388 CERS03	Birth Transfer	INGER/ENKELI	
1616	F	25 Aug 2007	1475	1473	BLAIRDRUM HILVARENB GIVSKUD	25 Aug 2007 23 Apr 2010 31 Jan 2017	BD382 M07148 CERS09	Birth Transfer Transfer	MAZUMBA	981000002977709
1617	F	6 Jan 2008	627	1207	ERFURT GIVSKUD	6 Jan 2008 11 May 2010	2980 CERS07	Birth Transfer	SAMIA	

Totals: 1.5.0 (6)

HILVARENB - Safaripark Beekse Bergen, Hilvarenbeek, Noord-Brabant, Netherlands										
835	F	26 Oct 1985	221	224	HILVARENB	26 Oct 1985	M85307	Birth	KARLIJN	528210000862770
938	contF	17 Oct 1988	221	225	HILVARENB	17 Oct 1988	M88046	Birth	ANSJE	528210000860841
964	F	1 Dec 1990	221	224	HILVARENB MUNSTER HILVARENB	1 Dec 1990 23 Apr 2009 12 Aug 2009	M90042 23978 M90042	Birth Transfer Transfer	YVONNE	528210000861257
1203	F	27 Aug 1998	76	225	HILVARENB	27 Aug 1998	M98062	Birth	DOUNIA	528210000863413
1393	M	6 Dec 2001	627	1207	ERFURT SCHWERIN HILVARENB	6 Dec 2001 19 Apr 2005 22 Apr 2015	1697 003004 M01135	Birth Transfer Transfer	LIMPOPO	
2168	M	23 Jul 2014	1025	1340	ARNHEM HILVARENB	23 Jul 2014 30 Aug 2017	3353 M14164	Birth Transfer	Tank	528257000004039
T23	F	27 Dec 2014	1165	1203	HILVARENB	27 Dec 2014	M14137	Birth	Elena	528210004192936
T25	M	24 Jan 2015	1361	1542	COPENHAGE HILVARENB	24 Jan 2015 30 Aug 2017	CER007 M15132	Birth Transfer	Pilan	208007098901077
T30	F	1 Mar 2015	1165	1616	HILVARENB	1 Mar 2015	M15024	Birth	Sofie	528210004100860
T67	F	28 Mar 2017	1393	938	HILVARENB	28 Mar 2017 29 Mar 2017	M17028	Birth Death		
[Death by: Injury from exhibit mate Unknown Generalized Trauma Necropsy not received]										

Totals: 3.7.0 (10)

HODENHAGN - Serengeti-Park Hodenhagen, Hodenhagen, Niedersachsen, Germany										
494	F	~ 1969	WILD	WILD	UMFOLOZI HODENHAGN	~ 1969 3 Aug 1974	NONE CESI004	Capture Transfer	DORIS	968000005452831
496	F	~ 1969	WILD	WILD	UMFOLOZI HODENHAGN	~ Aug 1969 3 Aug 1974 9 Dec 2015	NONE CESI003	Capture Transfer Death	LIA/MOLLY	968000005544860
[Death by: Euthanasia (medical) Unknown Generalized Unknown after necropsy Necropsy not received]										
990	M	15 May 1992	187	157	SD-WAP BERLIN TP EMMEN VALBREMBO HODENHAGN	15 May 1992 11 Oct 1994 14 Mar 2005 2 Feb 2015 11 Dec 2015	508008 M00124 508008 KUSINI CESI055	Birth Transfer Transfer Transfer Transfer	KUSINI	00-061F-2967
T29	F	7 Mar 2013	1004	1697	HODENHAGN	7 Mar 2013	CESI012	Birth	Makena	982000088267744
T55	M	7 Sep 2016	1004	1220	HODENHAGN	7 Sep 2016	CESI056	Birth	Akono	900200000275692
T60	F	26 Dec 2016	1004	1696	HODENHAGN	26 Dec 2016	CESI057	Birth	Moana	900200000274490
T66	M	3 Mar 2017	1004	1697	HODENHAGN	3 Mar 2017	CESI058	Birth	Tayo	900200000526470
1004	M	13 Sep 1993	491	494	HODENHAGN	13 Sep 1993	CESI005	Birth	SATO/MARTIN	968000005549667
1220	F	26 Sep 1998	491	494	HODENHAGN	26 Sep 1998	CESI007	Birth	CLAUDIA	968000005551070

1696	F	~ 2004	WILD	WILD	S.AFRICA HODENHAGN	~ 2006 23 Dec 2007	NONE CESI008	Capture Transfer	Kianga	48-6B6C-3560
1697	F	~ 2005	WILD	WILD	S.AFRICA HODENHAGN	~ 2006 23 Dec 2007	NONE CESI009	Capture Transfer	Uzuri	48-7649-1275
Totals: 4.7.0 (11)										

JERUSALEM - The Tisch Family Zoological Gardens, Jerusalem, Israel										
487	M	28 Sep 1978	244	240	RAMAT GAN JERUSALEM	28 Sep 1978 9 Sep 2003	780012 1678	Birth Transfer	SHALOM	
945	M	22 May 1989	497	641	RAMAT GAN JERUSALEM	22 May 1989 2 Sep 1998	890016 869	Birth Transfer	CARNI	
Totals: 2.0.0 (2)										

KATOWICE - Silesian Zoological Garden, Chorzów, Poland										
211	F	31 May 1970	WILD	WILD	UMFOLOZI DVURKRALV KATOWICE	~ 1970 31 May 1972 4 Nov 1980	NONE 117013 1583	Capture Transfer Transfer		
1023	M	8 Jan 1994	200	211	KATOWICE	8 Jan 1994	2215	Birth	ZULUS	
1413	F	16 Oct 2001	200	211	KATOWICE	16 Oct 2001	2670	Birth	HOPE	
2157	F	18 Oct 2013	1183	1478	KOLMARDEN KATOWICE	18 Oct 2013 10 Oct 2017	12345 4148	Birth Transfer	Nambi	968000010293290
Totals: 1.3.0 (4)										

KERKRADE - GaiaZoo Kerkrade, Kerkrade, Limburg, Netherlands										
2012	M	2 Apr 2011	1165	1047	HILVARENB KERKRADE	2 Apr 2011 23 May 2014	M11027 M11659	Birth Transfer	THABO	528210002600279
2162	F	21 Apr 2014	1581	1659	DORTMUND KERKRADE	21 Apr 2014 2 May 2017	081012 M14107	Birth Transfer	Abebi	
Totals: 1.1.0 (2)										

KESSINGLA - Zsea Africa Alive!, Kessingland, Suffolk, United Kingdom										
829	M	25 Aug 1985	355	352	KNOWSLEY KESSINGLA	25 Aug 1985 15 Jun 2010	17 M1262	Birth Transfer	BUDWEISER	981000000962608
1125	F	16 Oct 1996	491	496	HODENHAGN TABERNAS KESSINGLA	16 Oct 1996 25 Aug 2000 15 Sep 2011	CESI039 TAM0039 M1388	Birth Transfer Transfer	NORMA/KATERI	985100006772252
1175	F	~ 1992	WILD	WILD	HLUHLUWE BEWDLEY WHIPSNAD KESSINGLA	~ 1992 24 Nov 1997 2 Nov 2011 2 May 2017	NONE 1175 4651	Capture Transfer Transfer Transfer	TOOTSIE	956000000822423
1689	M	11 Sep 2008	1173	1460	SO LAKES MALTON KESSINGLA	11 Sep 2008 10 Dec 2012 25 Apr 2017	CSS006 1682	Birth Transfer Transfer	ZIMBA	956000008562115
2094	F	7 Nov 2012	1119	1120	KNOWSLEY KESSINGLA	7 Nov 2012 14 Apr 2016	1026 M1919	Birth Transfer	Njiri	981000004448852
Totals: 2.3.0 (5)										

KNOWSLEY - Knowsley Safari Park, Prescott, Lancashire, United Kingdom										
1026	F	1 Jul 1994	139	97	EDINBURGH KNOWSLEY	1 Jul 1994 2 Apr 1996	94GB01 18	Birth Transfer	MERU	981000000964338
1119	M	~ 1992	WILD	WILD	NATAL SA KNOWSLEY	18 Aug 1992 30 Aug 1995	NONE 14	Capture Transfer	SHARKA	981000000965246
1120	F	~ 1990	WILD	WILD	NATAL SA KNOWSLEY	~ 1992 30 Aug 1995	NONE 15	Capture Transfer	PIGLET	981000000966944
1121	F	~ 1990	WILD	WILD	NATAL SA KNOWSLEY	~ 1992 30 Aug 1995	NONE 16	Capture Transfer	WINNIE	981000000964857
1584	F	17 Nov 2005	829	1120	KNOWSLEY	17 Nov 2005	129	Birth	BINTA	981000000967032

2041	F	12 Jan 2011	829	1026	KNOWSLEY	12 Jan 2011	757	Birth	JASEERA	981000004447691
T40	F	2 Jan 2016	1119	1026	KNOWSLEY	2 Jan 2016	1276	Birth	Nomvula	981000004449056

Totals: 1.6.0 (7)

KOLMARDEN - Kolmardens Djurpark Ab, Kolmarden, "sterg"tlands L,,n, Sweden

1171	F	6 Feb 1997	1011	962	WHIPSNAD	6 Feb 1997	L2803	Birth	NAMAKULA	968000000545290
					BORAS	16 Dec 1999	EN0004	Transfer		
					KOLMARDEN	26 Sep 2012	12012	Transfer		
1183	M	27 Feb 1998	343	907	EMMEN	27 Feb 1998	508005	Birth	BANYARI	000 02145FCF
					BEAUVAL	15 Apr 2000	00055	Transfer		
					KOLMARDEN	31 May 2006	10002	Transfer		
1478	F	~ 1991	WILD	WILD	UMFOLOZI	~ 2002	NONE	Capture	IMFOLOZI	000642D88C
					KOLMARDEN	10 Dec 2003	8977	Transfer		
T58	M	19 Sep 2016	1183	1478	KOLMARDEN	19 Sep 2016	13093	Birth		
						19 Sep 2016		Death		
[Death by: Stillbirth Unknown Unknown (after necropsy) Necropsy not received]										

Totals: 2.2.0 (4)

LA PALMYR - Parc Zoologique De La Palmyre, Les Mathes Royan, Charente-Maritime, France

767	F	25 Dec 1982	221	225	HILVARENB	25 Dec 1982	M82304	Birth	NOELLE	
					LA PALMYR	23 Jun 1984	229	Transfer		
796	M	23 Mar 1984	221	224	HILVARENB	23 Mar 1984	M84305	Birth	CHRISTIAN	250229600025685
					LA PALMYR	29 Nov 1985	231	Transfer		
					LILLE ZO	20 Nov 1997	867	Transfer		
					PEAUGRES	20 Dec 2006	1666	Transfer		
					LA PALMYR	20 Feb 2008	231	Transfer		
2111	F	21 Oct 2012	1490	1685	SCHMIDING	21 Oct 2012	931047	Birth	Nala	040098100462023
					LA PALMYR	7 Oct 2016	8101	Transfer		

Totals: 1.2.0 (3)

LE VIGEN - Parc Zoo Du Reynou, Le Vigen, Haute-Vienne, France

927	M	21 Mar 1988	390	533	JACKSONVL	21 Mar 1988	888005	Birth	Tonga	985101020071052
					GELSNKRKN	22 Mar 1989		Transfer		
					PREIN	21 Jun 1989		Transfer		
					LE VIGEN	19 Jan 2006	MC8001	Transfer		

Totals: 1.0.0 (1)

LESNA - Zoologicka Garden & Chateau Zlin-Lesna, Zlin-Lesna, Jihomoravski Kraj, Czech Republic

1515	M	9 Jun 2005	1011	654	WHIPSNAD	9 Jun 2005	1334	Birth	KASHKA	956000001484602
					MALTON	7 Jun 2007	662	Transfer		
					LESNA	10 Dec 2012	212220	Transfer		
1559	F	~ 2003	WILD	WILD	S.AFRICAR	????	NONE	Capture	ZANTA	965000000259418
					SKEERPORT	~ 2006		Transfer		
					LESNA	25 Jul 2006	206219	Transfer		
1560	F	~ 2004	WILD	WILD	S.AFRICAR	????	NONE	Capture	NAJA	965000000259793
					SKEERPORT	~ 2006		Transfer		
					LESNA	25 Jul 2006	206220	Transfer		

Totals: 1.2.0 (3)

LILLE ZO - Parc Zoologique De Lille, Lille, Nord-Pas-de-Calais, France

2148	M	23 May 2013	974	1474	MUNSTER	23 May 2013	24464130	Birth	Eno	968000005220738
					LILLE ZO	13 Dec 2016	3236	Transfer		
2161	M	24 Jan 2014	1606	2109	BOISSIERE	24 Jan 2014	HRB004	Birth	Mapenzi	250229600065053
					LILLE ZO	15 Dec 2016	3237	Transfer		

Totals: 2.0.0 (2)

LISBON - Jardim Zoologico / Lisbon Zoo, Lisboa, Portugal

1013	M	~ 1986	WILD	WILD	KRUGER	~ 1986	NONE	Capture	UMKOMBE	
					LISBON	18 Sep 1991	1431	Transfer		

1568	M	~ 2002	WILD	WILD	THABA MAN LISBON	1 Sep 2007 10 Oct 2007	NONE 10246	Capture Transfer		620098100289306
1569	F	~ 2002	WILD	WILD	THABA MAN LISBON	1 Sep 2007 10 Oct 2007	NONE 10247	Capture Transfer		620098100306832
1570	F	~ 2002	WILD	WILD	THABA MAN LISBON	1 Sep 2007 10 Oct 2007 23 Jun 2015	NONE 10248	Capture Transfer Death		620098100305717
[Death by: Unknown means]										
2164	F	4 May 2014	1013	1570	LISBON	4 May 2014	11794	Birth	Andile	
Totals: 2.3.0 (5)										

LISIEUX Z - Cerza Centre D'Etude Et De Recherche Zoo, Lisieux, Calvados, France										
258	F	~ 1969	WILD	WILD	UMFOLOZI NATAL PB WINDSOR LONGLEAT LISIEUX Z	~ Sep 1969 ~ Jun 1972 1 Sep 1972 29 Nov 1993 25 Apr 1995	NONE _____ _____ _____ M95025	Capture Transfer Transfer Transfer Transfer	ROSIE	
1010	M	16 Nov 1992	89	329	WHIPSDADE LISIEUX Z	16 Nov 1992 20 Apr 1994	L1944 M94007	Birth Transfer	CHRIS	
1425	F	11 Dec 2001	1011	962	WHIPSDADE KESSINGLA LISIEUX Z	11 Dec 2001 26 Mar 2004 12 May 2016	L3836 M673 M16038	Birth Transfer Transfer	BETH	953010000853278
1550	F	~ 2001	WILD	WILD	S.AFRICA THABA MAN LISIEUX Z	~ 2006 ~ May 2007 16 Nov 2007	NONE _____ M07151	Capture Transfer Transfer	SUTU	470A406E14
Totals: 1.3.0 (4)										

LONGLEAT - Longleat Safari & Adventure Park, Warminster, Wiltshire, United Kingdom										
1544	M	~ Jul 1999	WILD	WILD	HLUHLUWE LONGLEAT	~ Jul 2003 27 Sep 2003	NONE RW101	Capture Transfer	NJANU	43262C242C
1545	F	~ 1999	WILD	WILD	HLUHLUWE LONGLEAT	~ Jul 2003 27 Sep 2003	NONE RW103	Capture Transfer	MARASHI	4326635461
1551	F	~ 2000	WILD	WILD	HLUHLUWE LONGLEAT	~ Jul 2003 27 Sep 2003	NONE RW102	Capture Transfer	RAZINA	432805332A
1695	F	20 Sep 2009	974	967	MUNSTER LONGLEAT	20 Sep 2009 7 Oct 2010	24041 RW879	Birth Transfer	EBUN	981000004506885
Totals: 1.3.0 (4)										

MADRID Z - Zoo Aquarium De Madrid (grpr), Madrid, Spain										
250	M	~ 1969	WILD	WILD	UMFOLOZI SOEST MADRID Z	???? 7 Oct 1971 15 Oct 1971 29 Mar 2016	NONE _____ RB1	Capture Transfer Transfer Death		982009105378680
[Death by: Unknown means]										
251	F	~ 1969	WILD	WILD	UMFOLOZI SOEST MADRID Z	???? 7 Oct 1971 15 Oct 1971 29 May 2017	NONE _____ RB2	Capture Transfer Transfer Death		
[Death by: Euthanasia Unknown Unknown (after necropsy) Necropsy not received]										
1414	M	~ 1998	WILD	WILD	S.AFRICAR GW LOGIST ESTEPONA MADRID Z	~ Jan 1998 ~ 2000 11 Jan 2000 28 Mar 2017	NONE _____ 1R1 RB7	Capture Transfer Transfer Transfer		00013B4152T
1416	F	~ 1998	WILD	WILD	S.AFRICAR GW LOGIST ESTEPONA VALWO MADRID Z	~ Jan 1998 ~ 2000 11 Jan 2000 ~ 2003 2 May 2007	NONE _____ 1R3 _____ RB5	Capture Transfer Transfer Transfer Transfer	MARINA	0001D0C1F3T
Totals: 2.2.0 (4)										

MALTON - Flamingo Land Ltd, Malton, North Yorkshire, United Kingdom										
T19	M	12 Oct 2014	1475	1473	BLAIRDRUM MALTON	12 Oct 2014 3 May 2017	BD815 2492	Birth Transfer	Bruce	

2167	M	11 Jul 2014	1360	1458	COLCHESTR MALTON	11 Jul 2014 2 May 2017	DLL824 2489	Birth Transfer	Mabaso	
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Totals: 2.0.0 (2)

MANOR HS - Manor House Wildlife Park, Tenby, Pembrokeshire, United Kingdom										
1694	M	4 Oct 2009	88	1458	COLCHESTR MANOR HS	4 Oct 2009 4 Aug 2012	CLL692 SWR001	Birth Transfer	ZAMBA	
1996	M	29 Oct 2009	627	1207	ERFURT KERKRADE MANOR HS	29 Oct 2009 17 Nov 2011 4 Aug 2012	3622 M09142 SWR002	Birth Transfer Transfer	JAMBO	982000161011266
2007	M	10 Dec 2010	1552	1555	DUBLIN MANOR HS	10 Dec 2010 14 Mar 2013	A10M49 SWR003	Birth Transfer	ZUBERI	941000013058256

Totals: 3.0.0 (3)

MARWELL - Marwell Wildlife, Winchester, Hampshire, United Kingdom										
856	F	12 Sep 1986	139	97	EDINBURGH MARWELL	12 Sep 1986 6 May 1988	860922 1083	Birth Transfer	SULA	
868	F	15 Aug 1986	89	329	WHIPNADE MARWELL	15 Aug 1986 18 Aug 1988	3130 1167	Birth Transfer	TRACY / KIRI	
2128	F	13 Apr 2013	1360	1457	COLCHESTR MARWELL	13 Apr 2013 14 Jun 2016	DLL529 9719	Birth Transfer	Pembe	958000010603034
2130	M	26 Apr 2013	1552	1555	DUBLIN MARWELL	26 Apr 2013 13 Oct 2015	A13M26 9620	Birth Transfer	Jabari	941000017119174

Totals: 1.3.0 (4)

MONTPELLI - Parc De Lunaret, Montpellier, H,rault, France										
1306	F	~ Feb 1998	WILD	WILD	S.AFRICAR THABA MAN BEAUVAL MONTPELLI	~ Jul 1998 ~ Aug 1998 27 Mar 2000 14 Mar 2013	NONE 00048 M13007	Capture Transfer Transfer Transfer	MALELANE	00-01D191AAT
1464	F	~ Apr 2001	WILD	WILD	KRUGERSDO MAFUNYANE MONTPELLI	~ Apr 2002 ~ 2003 8 Oct 2003	NONE M01011	Capture Transfer Transfer	JABULANI	4304721773
2039	M	30 Nov 2010	829	1120	KNOWSLEY MALTON MONTPELLI	30 Nov 2010 10 Dec 2012 27 Apr 2017	747 1683 M17031	Birth Transfer Transfer	TROY/BALU	981000004458227

Totals: 1.2.0 (3)

MUNSTER - Westfalischer Zoologischer Garten Munster, Munster, Nordrhein-Westfalen, Germany										
854	F	23 Dec 1986	340	403	MUNSTER	23 Dec 1986	20230	Birth	VICKY	
974	M	28 Dec 1990	89	329	WHIPNADE MUNSTER	28 Dec 1990 24 May 1994	L1337 21180	Birth Transfer	HARRY	
1474	F	~ 2000	WILD	WILD	S.AFRICA MAFUNYANE GW LOGIST BLAIRDRUM MUNSTER	~ Aug 2000 ~ 2001 ~ 2003 28 Sep 2003 5 Oct 2011	NONE JANE BD20 24320	Capture Transfer Transfer Transfer Transfer	JANE	FI/430F7B517E
T68	M	20 May 2017	974	1474	MUNSTER	20 May 2017	2500550	Birth	Amiri	

Totals: 2.2.0 (4)

NYIREGYHA - Nyiregyházi Állatpark Nonprofit Kft (s.o.s., Sóstófürdő, Szabolcs-Szatmár-Bere, Hungary										
1540	M	~Jul 1997	WILD	WILD	S.AFRICA COPENHAGE NYIREGYHA	???? 12 Sep 2006 12 Jun 2012	NONE CER001 M01105	Capture Transfer Transfer	CURT	208206000091737
1556	F	1 May 2001	WILD	WILD	MAFUNYANE NYIREGYHA	1 May 2001 8 Aug 2006	NONE M00412	Capture Transfer	SAKILE	456B4F5703
2016	F	25 Nov 2009	1183	1478	KOLMARDEN NYIREGYHA	25 Nov 2009 13 Sep 2013	11049 M01221	Birth Transfer	JALA	968000005746849

T64	M	12 Oct 2016	1540	1556	NYIREGYHA	12 Oct 2016 13 Oct 2016	M13315	Birth Death		
[Death by: Unknown means]										
Totals: 2.2.0 (4)										

OSNABRUCK - Zoo Osnabrück, Osnabruck, Niedersachsen, Germany										
316	M	7 Jul 1976	221	225	HILVARENB OSNABRUCK	7 Jul 1976 26 Jul 1979 3 Jan 2015	M76298 21	Birth Transfer Death	FLORIS	
[Death by: Unknown means]										
1165	M	29 Sep 1997	404	988	CABARCENO HILVARENB KERKRADE OSNABRUCK	29 Sep 1997 24 Nov 2004 28 May 2014 21 May 2015	RI-4 M97324 M97682 3753	Birth Transfer Transfer Transfer	MIGUELIN	968000001694926
1447	F	31 Dec 2002	491	494	HODENHAGN OSNABRUCK	31 Dec 2002 15 Sep 2007	CESI046 2156	Birth Transfer	FRIEDA/LIA	981 022 70120
1628	F	17 Jan 2007	1004	1220	HODENHAGN OSNABRUCK	17 Jan 2007 6 Nov 2008	CESI051 2313	Birth Transfer	AMELIE	968000005192883
Totals: 2.2.0 (4)										

PARIS ZOO - Parc Zoologique De Paris (mnhn), Paris, France										
2068	M	16 Oct 2011	1048	1307	BEAUVAL PARIS ZOO	16 Oct 2011 6 May 2014	M01070 ZB4390	Birth Transfer	Wami	250228700002082
2080	M	24 Nov 2011	1475	1473	BLAIRDUM PARIS ZOO	24 Nov 2011 20 Nov 2014	BD541 ZB4674	Birth Transfer	Angus	
Totals: 2.0.0 (2)										

PEAUGRES - Safari De Peaugres, Peaugres, Ardèche, France										
224	F	~ 1970	WILD	WILD	UMFOLOZI SOEST HILVARENB PEAUGRES	~ 1971 ???? 6 Jul 1973 8 Jun 2005 13 Mar 2016	NONE M70297 1423	Capture Transfer Transfer Death	PACHA	00-0610-BF66
[Death by: Euthanasia (medical) Incinerate Cardiovascular Circulatory, secondary Necropsy not received]										
847	F	~ 1979	WILD	WILD	UMFOLOZI SOEST LIBEREC PEAUGRES	~ 1979 2 Oct 1983 8 Oct 1983 13 May 2005	NONE 630003 1387	Capture Transfer Transfer Transfer	TOMBI	972000000350671
T31	M	11 Mar 2015	1438	1462	PEAUGRES THOIRY	11 Mar 2015 26 Jan 2018	2770 B8033	Birth Transfer	Unesco	250228500021698
1438	M	20 Sep 2001	829	1120	KNOWSLEY EDINBURGH PEAUGRES	20 Sep 2001 28 Sep 2004 26 Apr 2006	22 M04I08 1555	Birth Transfer Transfer	SAMSON	956000000290477
1462	F	19 Nov 2003	1029	931	POZNAN PEAUGRES	19 Nov 2003 28 Jun 2006	MK1014 1587	Birth Transfer	DUMA	
1596	F	13 Sep 2006	532	1340	ARNHEM LONGLEAT PEAUGRES	13 Sep 2006 7 Oct 2010 23 May 2012	613520 RW878 2404	Birth Transfer Transfer	KARA	00-06C9-EB55
2001	F	~ Jan 2007	WILD	1999	WEENEN MAFUNYANE SALZBURG PEAUGRES	~ 2008 ~ Mar 2009 6 Nov 2009 6 Apr 2011	NONE S938 2250	Capture Transfer Transfer Transfer	MALIA	000689E3E8
Totals: 2.5.0 (7)										

PELISSANE - Parc Zoologique De La Barben, La Barben, Bouches-du-Rhône, France										
1574	M	~ Mar 2004	WILD	WILD	S.AFRICA GELSNKRKN PELISSANE	~ 2005 3 Apr 2007 18 Oct 2016	NONE 203001 HRH904	Capture Transfer Transfer	Lekuruh	47036E272D
1683	F	~ 2003	WILD	WILD	THABA MAN PELISSANE	~ 2008 7 May 2009	NONE HRH603	Capture Transfer	WANZA	4949316775

1684	F	~ 2003	WILD	WILD	THABA MAN	~ 2008	NONE	Capture	BELA	492A793153
					PELISSANE	7 May 2009	HRH703	Transfer		

Totals: 1.2.0 (3)

PLAISANCE - African Safari, Plaisance Du Touch, Haute-Garonne, France

888	M	3 Sep 1986	200	211	KATOWICE	3 Sep 1986	1867	Birth	TAM TAM
					GELSNKRKN	13 Jul 1989		Transfer	
					PLAISANCE	18 Jun 1990	325	Transfer	

1392	F	~ 1982	WILD	WILD	S.AFRICAR	~ 1983	NONE	Capture	MARGARET
					MONACO	~ 1986		Transfer	
					PLAISANCE	11 May 2001	326	Transfer	

Totals: 1.1.0 (2)

POZNAN - Ogród Zoologiczny W Poznaniu, Poznan, Wielkopolskie, Poland

627	M	3 Mar 1981	40	397	MEMPHIS	3 Mar 1981	3238	Birth	LESTZLER/KIW
					FREILASSI	1 Sep 1981	627	Transfer	
					ERFURT	25 Feb 1982	531	Transfer	
					POZNAN	4 Sep 2013	MK1701	Transfer	

931	F	30 May 1987	405	406	PRET LICH	30 May 1987	L92152	Birth	DIUNA / DYNIO0-01BB-1D2B
					POZNAN	4 Sep 1997	MK0615	Transfer	

Totals: 1.1.0 (2)

PT ST PER - Planete Sauvage, Port Saint Pere, Loire-Atlantique, France

184	F	~ May 1964	WILD	WILD	UMFOLOZI	~ May 1964	NONE	Capture	SANA
					L RUHE	~ May 1971		Transfer	
					KREFELD	7 May 1971	115	Transfer	
					KOLN	29 Jul 1987	217	Transfer	
					KREFELD	30 Jun 1988	115	Transfer	
					PT ST PER	28 Oct 1993	P05-0375	Transfer	

505	M	~ 1975	WILD	WILD	UMFOLOZI	9 Jun 1975	NONE	Capture	JAMBO
					DELFTS	9 May 1978		Transfer	
					KRECHTING	9 Jun 1978		Transfer	
					HEIDELBRG	26 Mar 1980	900660	Transfer	
					PT ST PER	3 Sep 2001	P07-1169	Transfer	

T27	M	23 Aug 2013	1004	1220	HODENHAGN	23 Aug 2013	CESI013	Birth	Dinari	968000005543720
					PT ST PER	29 Oct 2015	CS008	Transfer		

2089	M	18 Sep 2012	1438	1462	PEAUGRES	18 Sep 2012	2518	Birth	Goliath	250228730002542
					PT ST PER	27 Feb 2015	15-CS007	Transfer		

Totals: 3.1.0 (4)

QUINTASI - Zoo De Gaia -- Zoo S nto Inacio, PORTO, Porto, Portugal

2078	M	15 Nov 2011	1165	1203	HILVARENB	15 Nov 2011	M11151	Birth	Sam
					KERKRADE	22 May 2014	M11657	Transfer	
					QUINTASI	26 Oct 2015	3162	Transfer	

2095	M	9 Nov 2012	1119	1121	KNOWSLEY	9 Nov 2012	1027	Birth	Thabo	981000004461126
					QUINTASI	18 May 2015	3138	Transfer		

2105	M	20 Dec 2012	1119	1026	KNOWSLEY	20 Dec 2012	1033	Birth	Nonu	981000004461712
					QUINTASI	18 May 2015	3137	Transfer		

Totals: 3.0.0 (3)

RAMAT GAN - Zoological Center Tel Aviv - Ramat Gan, Ramat Gan, Israel

242	F	~ 1971	WILD	WILD	UMFOLOZI	~ 1971	NONE	Capture	MAZAL
					NATAL PB	~ 1973		Transfer	
					RAMAT GAN	12 Aug 1973	730019	Transfer	

497	M	26 Jul 1979	MULT1	241	RAMAT GAN	26 Jul 1979	790010	Birth	ATARI
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641	F	27 Feb 1981	MULT1	242	RAMAT GAN	27 Feb 1981	810026	Birth	CARNAVELLA
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949	F	7 May 1990	MULT1	242	RAMAT GAN	7 May 1990	900017	Birth	MAIA
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1083	F	~ 1993	WILD	WILD	UMFOLOZI	~ 1993	NONE	Capture	TANDAMANSE
					NATAL PB	24 Apr 1994		Transfer	
					JERUSALEM	10 Oct 1995	589	Transfer	

					RAMAT GAN	2 Sep 2003	200884	Transfer		
1630	M	23 Sep 2007	497	1083	RAMAT GAN	23 Sep 2007 8 Mar 2017	202614	Birth Death	TIBOR	
		[Death by: Injury from exhibit mate Unknown Generalized Trauma Necropsy not received]								
2056	F	24 Apr 2010	999	585	PRET LICH PRETORIA RAMAT GAN	24 Apr 2010 30 Aug 2012 27 Dec 2012	L92811 916050 203355	Birth Transfer Transfer	Rihanna	956000002564900
2086	F	~ 2007	WILD	WILD	S.AFRICA PRETORIA RAMAT GAN	~ Nov 2009 1 Nov 2009 4 May 2012	NONE 915930 203270	Capture Transfer Transfer	Keren Peles	88000255409
2169	F	12 Aug 2014	497	1083	RAMAT GAN	12 Aug 2014	203579	Birth	Teshi	
T37	F	24 Aug 2015	497	2086	RAMAT GAN	24 Aug 2015	203739	Birth	Kipenzi	
T51	M	19 Aug 2016	497	1083	RAMAT GAN	19 Aug 2016	203811	Birth	Tupac	
T62	M	26 Jan 2017	497	2056	RAMAT GAN	26 Jan 2017	203838	Birth	Rami	
Totals: 4.8.0 (12)										

ROSTOV - Rostov-on-Don Zoo, Rostov-on-Don, Rostovskaya Oblast', Russian Federation										
913	M	17 Oct 1987	MULT2	241	RAMAT GAN ROSTOV	17 Oct 1987 28 Nov 2017	870017	Birth ltf	ZION	
2083	M	15 Jun 2012	497	1083	RAMAT GAN ROSTOV	15 Jun 2012 28 Nov 2017	203269	Birth ltf	Terkel	
Totals: 2.0.0 (2)										

SALZBURG - Salzburg Zoo Hellbrunn, Anif, Salzburg, Austria										
773	F	24 Oct 1982	52	159	SD-WAP L RUHE WINGST ZO HALLE BERLIN TP SALZBURG	24 Oct 1982 2 Jun 1983 3 Jun 1983 23 Apr 1985 16 Jul 1992 20 Dec 1999	683004 682613 844009 M00126 793	Birth Transfer Transfer Transfer Transfer Transfer	FREDERIKE/KI	
1446	M	20 Oct 2002	491	496	HODENHAGN NYIREGYHA SALZBURG	20 Oct 2002 18 Mar 2005 16 Oct 2012	CESI045 M00190 S1700	Birth Transfer Transfer	Athos	96800000164940
1999	F	~ Jun 1999	WILD	WILD	WEENEN MAFUNYANE SALZBURG	~ 2008 ~ Mar 2009 6 Nov 2009	NONE S936	Capture Transfer Transfer	YETI	0006898ED7
2000	F	~ Jan 2006	WILD	WILD	SPIONKOP MAFUNYANE SALZBURG	~ 2008 ~ Mar 2009 6 Nov 2009	NONE S937	Capture Transfer Transfer	TAMU	0006CC63D9
T33	M	4 Apr 2015	1446	2000	SALZBURG	4 Apr 2015	S2073	Birth	Amadou	
T36	M	5 Sep 2015	1446	1999	SALZBURG	5 Sep 2015	S2142	Birth	Tayo	
Totals: 3.3.0 (6)										

SCHMIDING - Zoologischer Garten Schmiding, Krenglbach, Ober"sterreich, Austria										
1490	M	27 Aug 2004	76	225	HILVARENB KERKRADE SCHMIDING	27 Aug 2004 19 Aug 2008 14 May 2009	M04113 M04070 930994	Birth Transfer Transfer	BRUTUS	528210000858386
1685	F	~ 2004	WILD	WILD	S.AFRICA EFRA SCHMIDING	~ 2006 ~ 2007 20 Jun 2008	NONE 930977	Capture Transfer Transfer	Niki	48771A5C7E
1686	F	~ 2005	WILD	WILD	S.AFRICA EFRA SCHMIDING	~ 2006 ~ 2007 20 Jun 2008	NONE 930978	Capture Transfer Transfer	Nina	4876425228
2093	F	8 Nov 2012	796	767	LA PALMYR SCHMIDING	8 Nov 2012 5 Oct 2016	7010	Birth Transfer	Renette	250228500027041

T21	M	13 Nov 2014	1490	1686	SCHMIDING	13 Nov 2014	931059	Birth		
Totals: 2.3.0 (5)										

SCHWERIN - Zoologischer Garten Schwerin, Schwerin, Mecklenburg-Vorpommern, Germany										
1543	F	~Jul 2003	WILD	1542	S.AFRICA	????	NONE	Capture	KAREN	0006688618/20820
					COPENHAGE	12 Sep 2006	CER003	Transfer		
					SCHWERIN	21 Apr 2015	003007	Transfer		
1652	M	4 Dec 2008	829	1120	KNOWSLEY	4 Dec 2008	527	Birth	KIMBA	981000002049803
					LILLE ZO	27 Apr 2011	2958	Transfer		
					SCHWERIN	27 Sep 2016	003008	Transfer		
1687	F	1 Jan 2006	WILD	WILD	S.AFRICA	~ Jan 2009	NONE	Capture	CLARA	4947645B60
					SCHWERIN	12 Mar 2009	003005	Transfer		
Totals: 1.2.0 (3)										

SHARJAHBR - Sharjah Breeding Centre for Endangered A, Sharjah, Ash Shariqah, United Arab Emirates										
T69	M	~ 2013	WILD	WILD	S.AFRICA	~ Jan 2017	NONE	Capture		00-0799-A5E1
					SHARJAHBR	3 May 2017	WR001	Transfer		
T70	F	~ 2014	WILD	WILD	S.AFRICA	~ Jan 2017	NONE	Capture		90032002856831
					SHARJAHBR	3 May 2017	WR002	Transfer		
T71	M	~ 2014	WILD	WILD	S.AFRICA	~ Jan 2017	NONE	Capture		945000001652662
					SHARJAHBR	3 May 2017	WR003	Transfer		
T72	F	~ 2014	WILD	WILD	S.AFRICA	~ Jan 2017	NONE	Capture		915000001652761
					SHARJAHBR	3 May 2017	WR004	Transfer		
T73	F	~ 2015	WILD	WILD	S.AFRICA	~ Jan 2017	NONE	Capture		00-0799-83F9
					SHARJAHBR	3 May 2017	WR005	Transfer		
Totals: 2.3.0 (5)										

SIGEAN - Reserve Africaine De Sigean, Sigean, Aude, France										
929	F	4 Aug 1988	420	159	SD-WAP	4 Aug 1988	688500	Birth	04-UZIMA	
					ZEEHANDLR	8 Apr 1990		Transfer		
					GELSNKRKN	9 Apr 1990		Transfer		
					SIGEAN	9 Apr 1990	88-002	Transfer		
1295	M	~ 1998	WILD	WILD	S.AFRICAR	~ 1998	NONE	Capture	05-ELMER	0001BFD FEGT
					THABA MAN	~ 1998		Transfer		
					SIGEAN	27 Mar 2000	98-011	Transfer		
1296	F	~ 1998	WILD	WILD	S.AFRICAR	~ 1998	NONE	Capture	07-MARGOT	0001C65CDBT
					THABA MAN	~ 1998		Transfer		
					SIGEAN	27 Mar 2000	98-012	Transfer		
2036	F	~ Jan 2005	WILD	WILD	MAFUNYANE	~ Jul 2009	NONE	Capture	10-DOUALA	4947704338
					SIGEAN	10 Oct 2009	05-014	Transfer		
						29 Oct 2016		Death		
					[Death by: Infection associated Unknown Cardiovascular					
					Viral Necropsy received]					
2038	M	~ Jan 2006	WILD	WILD	MAFUNYANE	~ Jul 2009	NONE	Capture	08-EDGAR	4949206E68
					SIGEAN	10 Oct 2009	06-017	Transfer		
2042	F	~ Jan 2006	WILD	WILD	MAFUNYANE	~ Jul 2009	NONE	Capture	09-EMBEMA	492D6A726D
					SIGEAN	10 Oct 2009	06-018	Transfer		
						3 Dec 2016		Death		
					[Death by: Unknown means]					
2091	F	8 Oct 2012	1295	2036	SIGEAN	8 Oct 2012	12-090	Birth	11-Lima	250229600048709
2159	F	20 Nov 2013	1295	2042	SIGEAN	20 Nov 2013	13-089	Birth	12-Martha	250229600038486
T50	M	28 Jul 2016	2038	1296	SIGEAN	28 Jul 2016	16-112	Birth		
						28 Jul 2016		Death		
					[Death by: Malicious destruction Unknown Generalized Trauma Necropsy not received]					
T53	M	18 Sep 2016	2038	2036	SIGEAN	18 Sep 2016	16-113	Birth	Pyros	
Totals: 4.6.0 (10)										

SO LAKES - Safari Zoo, Lindal-in-Furness, Cumbria, United Kingdom										
1064	M	16 Jan 1996	221	224	HILVARENB	16 Jan 1996	M96006	Birth	HUUBKE	
					SO LAKES	23 Mar 1999	CSS001	Transfer		

1173	M	8 Apr 1997	1011	329	WHIPSSNADE SO LAKES	8 Apr 1997 23 Mar 1999	L2838 CSS002	Birth Transfer	MAZUNGU	
1444	F	~ Jan 2000	WILD	WILD	S.AFRICAR THABA MAN COULANGE SO LAKES	~ Jan 2000 ???? 18 Jun 2003 1 Jul 2014	NONE NONE CSS3 CSS009	Capture Transfer Transfer Transfer	MANZI	4315516672
1461	F	~ 1999	WILD	WILD	S.AFRICA SO LAKES	~ 1999 28 Sep 2003	NONE CSS004	Capture Transfer	NTOMBI	4327521C55
1644	F	28 May 2008	1552	1555	DUBLIN SO LAKES	28 May 2008 17 Apr 2012	A8M028 CSS008	Birth Transfer	ZUKISWA	941000013058290
2079	M	17 Nov 2011	1173	1461	SO LAKES	17 Nov 2011 4 Feb 2015	CSS007	Birth Death	Indiana	
[Death by: Injury from exhibit mate Unknown]					Generalized	Trauma	Necropsy not received]			
T59	M	1 Oct 2016	1173	1461	SO LAKES	1 Oct 2016	CSS010	Birth	Spud	
T61	F	25 Dec 2016	1173	1444	SO LAKES	25 Dec 2016	CSS011	Birth	Mosi	
T82	F	10 Nov 2017	1173	1644	SO LAKES	10 Nov 2017	CSS012	Birth	Zahra	
Totals: 4.5.0 (9)										

SOFIAZOO - Sofia Zoological Gardens, Sofia, Sofia-Grad, Bulgaria										
800	M	23 Sep 1984	89	103	WHIPSSNADE RUSHDEN SOFIAZOO	23 Sep 1984 12 Feb 1986 13 Feb 1986	3125 4068 100264	Birth Transfer Transfer	M'GAMBO/CHIC	
Totals: 1.0.0 (1)										

TABERNAS - Oasys Parque Del Desierto De Tabernas, Tabernas, Almería, Spain										
1221	M	5 Nov 1998	491	496	HODENHAGN TABERNAS	5 Nov 1998 25 Aug 2000	CESI038 TAM0038	Birth Transfer	HEINZ	985100006339985
1406	F	19 Mar 2002	532	230	ARNHEM TABERNAS	19 Mar 2002 13 Sep 2011	6251 TM0591	Birth Transfer	IRIS	00-06DD-8E40
Totals: 1.1.0 (2)										

THOIRY - Thoiry Zoological Park, Thoiry, Yvelines, France										
504	F	26 Sep 1979	89	104	WHIPSSNADE PAIGNTON KESSINGLA THOIRY	26 Sep 1979 30 Jun 1981 1 Feb 2002 12 Apr 2013	3117 207 M477 B3076	Birth Transfer Transfer Transfer	GRACIE	
2090	M	22 Sep 2012	1025	1340	ARNHEM THOIRY	22 Sep 2012 9 Mar 2015 7 Mar 2017	617304 B5017	Birth Transfer Death	Vince	528093490032616
[Death by: Malicious destruction Unknown]					Generalized	Trauma	Necropsy not received]			
2096	M	6 Dec 2012	1165	1616	HILVARENB THOIRY	6 Dec 2012 9 Mar 2015	M12139 B5018	Birth Transfer	Bruno	528210002692268
Totals: 2.1.0 (3)										

USTI - Usti Nad Labem Zoo, Usti Nad Labem, ést; Nad Labem, Czech Republic										
209	F	~ 1970	WILD	WILD	UMFOLOZI DVURKRALV USTI	~ 1970 31 May 1972 19 Nov 1980	NONE 117011 930021	Capture Transfer Transfer	ZAMBA	
Totals: 0.1.0 (1)										

VALBREMBO - Parco Faunistico Le Cornelle, Valbrembo Bg, Bergamo, Italy										
2021	F	30 Aug 2009	1004	1220	HODENHAGN VALBREMBO	30 Aug 2009 19 Jul 2011	CESI053 GERALDIN	Birth Transfer	Geraldine	
2081	F	21 Feb 2011	1004	1697	HODENHAGN VALBREMBO	21 Feb 2011 8 Dec 2015	CESI010 LARA	Birth Transfer	Etana/Lara	982000168852846
Totals: 0.2.0 (2)										

VESZPREM - Kittenberger Klm n Nonprofit Kft, Kittenberger, Veszprém, Hungary

534	M	2 Sep 1977	52	159	SD-WAP	2 Sep 1977	102351	Birth	TONKA/PABLO	972000000307684
					SANJOSECA	9 Sep 1977		Transfer		
					WINGST ZO	9 Jun 1979		Transfer		
					GANSRNDRF	23 Apr 1980	AFM01001	Transfer		
					BORDI G	25 Jan 1984		Transfer		
					TOGNI C	14 Aug 1988		Transfer		
					SAFARIGAN	~ 1992	AFM01001	Transfer		
					HODENHAGN	22 Mar 2005	CESI022	Transfer		
					VESZPREM	28 Jun 2007	175001	Transfer		
					USTI	21 May 2014	14UL53	Transfer		
					VESZPREM	25 Sep 2014	175001	Transfer		
1047	F	25 Nov 1994	89	329	WHIPSSNADE	25 Nov 1994	L2398	Birth	MAKOUBU	981000100109503
					HILVARENB	24 Apr 2009	M94100	Transfer		
					VESZPREM	9 Jun 2017	175006	Transfer		
1280	F	10 Jan 2000	491	1043	HODENHAGN	10 Jan 2000	CESI042	Birth	REBECA	968000005544
					VESZPREM	13 Apr 2010	175003	Transfer		
1525	M	8 Aug 2005	1011	962	WHIPSSNADE	8 Aug 2005	1492	Birth	RAFIKA	9680000022821
					KERKRADE	4 Apr 2008	M05025	Transfer		
					VESZPREM	20 May 2014	175005	Transfer		
1691	F	22 Nov 2008	1004	1280	HODENHAGN	22 Nov 2008	CESI052	Birth	NARUNA	968000005547
					VESZPREM	13 Apr 2010	175004	Transfer		

Totals: 2.3.0 (5)

WHIPSSNADE - Zsl Whipsnade Zoo, Dunstable, Bedfordshire, United Kingdom

489 contF	F	30 Jun 1978	70	102	WHIPSSNADE	30 Jun 1978	L396	Birth	NOWANA	958000001843044
654	F	12 Oct 1981	70	105	WHIPSSNADE	12 Oct 1981	L397	Birth	CLARA	
962	F	24 Sep 1990	139	97	EDINBURGH	24 Sep 1990	90IB06	Birth	MIKUMI	981000100103613
					WHIPSSNADE	17 Jun 1992	L1833	Transfer		
1011	M	~ 1988	WILD	WILD	UMFOLOZI	~ 1988	NONE	Capture	NSISWA	
					WHIPSSNADE	31 Oct 1991	L1741	Transfer		
1362	F	~ Jun 1998	WILD	WILD	S.AFRICA	~ Jun 1998	NONE	Capture	BERTA	0001BFIA78T
					BANDHOLM	24 Oct 2000	CESI04	Transfer		
					WHIPSSNADE	31 Oct 2017		Transfer		
1609	F	15 Jan 2007	627	1208	ERFURT	15 Jan 2007	2748	Birth	TULI	968000005381345
					WHIPSSNADE	20 Apr 2009	3706	Transfer		

Totals: 1.5.0 (6)

WOBBURNLTD - Woburn Safari Park, Woburn, Bedfordshire, United Kingdom

1009	F	8 Oct 1992	221	224	HILVARENB	8 Oct 1992	M92063	Birth	MIRJAM	528210000862171
					WOBBURNLTD	20 Apr 2010	RS09	Transfer		
1352	M	20 Oct 2000	139	97	EDINBURGH	20 Oct 2000	M00J07	Birth	KEI/KAJ	208224000246357
					GIVSKUD	9 Feb 2002	CERS02	Transfer		
					WOBBURNLTD	5 May 2011	RS010	Transfer		
1360	M	~ Oct 1997	WILD	WILD	S.AFRICA	~ Oct 1997	NONE	Capture	OTTO	0001CO7F9AT
					BANDHOLM	24 Oct 2000	CESI02	Transfer		
					COLCHESTR	26 Nov 2009	CLL705	Transfer		
					WOBBURNLTD	2 Nov 2016		Transfer		
1713	F	~ 2005	WILD	WILD	S.AFRICA	~ 2008	NONE	Capture	MKUZI	978000001088039
					WOBBURNLTD	17 Aug 2009	RS07	Transfer		
1714	F	~ 2005	WILD	WILD	S.AFRICA	~ 2008	NONE	Capture	MTUBATUBA	978000001278831
					WOBBURNLTD	17 Aug 2009	RS08	Transfer		

Totals: 2.3.0 (5)

ZOOMTORIN - Zoom Torino Spa, Cumiana, Torino, Italy

664	M	9 Jun 1981	UNK	UNK	LAGUNA HI	9 Jun 1981	_____	Birth	Freddy
					WINGST ZO	17 Mar 1982	_____	Transfer	
					GELSNKRKN	3 Jun 1983	_____	Transfer	
					BORDI G	2 Mar 1984	_____	Transfer	
					VALBREMBO	26 Feb 1991	FREDDY	Transfer	
					ZOOMTORIN	5 Mar 2014	_____	Transfer	
						28 Nov 2016		Death	

[Death by: Unknown means]

Totals: 1.0.0 (1)

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TOTALS: 146.195.0 (341)

81 Institutions

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Stud# | Sex | Birth Date | Sire | Dam | Location | Date | LocalID | Event | Name |
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5.2 Births during 2015 – 2017

Restricted to: (Ceratotherium simum)

Dates: 1 Jan 2015 - 31 Dec 2017

Event: Births

Association: \Sparks\RHINO.fed

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Stud# | Sex | Birth Date | Sire | Dam | Location | Date | LocalID | Event | Name |
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AL AIN - Al Ain Zoo, Al Ain, United Arab Emirates

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T45	F	10 Dec 2015	2049	2052	AL AIN	10 Dec 2015	B1512010	Birth	Nola

Totals: 0.1.0 (1)

ARNHEM - Royal Burgers' Zoo, Arnhem, Gelderland, Netherlands

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T46	M	30 May 2016	1025	1340	ARNHEM	30 May 2016	7057	Birth	Thomas

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T48	F	25 Jan 2016	1025	1480	ARNHEM	25 Jan 2016	6901	Birth	
						25 Jan 2016		Death	

[Death by: Unknown means]

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T76	F	10 Aug 2017	1025	1480	ARNHEM	10 Aug 2017	7649	Birth	Wiesje

Totals: 1.2.0 (3)

AUGSBURG - Zoologischer Garten Augsburg GmbH, Bayern, Germany

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T42	M	6 Feb 2016	1526	1626	AUGSBURG	6 Feb 2016	2016AJ	Birth	Kibo

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T43	F	18 Feb 2016	1526	1625	AUGSBURG	18 Feb 2016	2016AP	Birth	Keeva

Totals: 1.1.0 (2)

BEAUVAL - Zoo Parc De Beauval, St Aignan, Cher, France

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T39	M	3 Dec 2015	1048	1307	BEAUVAL	3 Dec 2015	M01884	Birth	Hawii

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T75	F	18 Nov 2016	1048	1463	BEAUVAL	18 Nov 2016	M02089	Birth	Gaya

Totals: 1.1.0 (2)

BEWDLEY - West Midland Safari & Leisure Park Ltd, Bewdley, Worcestershire, United Kingdom

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T41	F	28 Jan 2016	1583	1647	BEWDLEY	28 Jan 2016	1650	Birth	

28 Jan 2016

Death

[Death by: Stillbirth Unknown Unknown (after necropsy) Necropsy not received]

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T44	M	25 Mar 2016	1583	2006	BEWDLEY	25 Mar 2016	1553	Birth	Ekozu

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T77	F	8 Sep 2017	1583	1647	BEWDLEY	8 Sep 2017	1690	Birth	Fahari

Totals: 1.2.0 (3)

BLAIRDRUM - Blair Drummond Safari Park, Stirling, United Kingdom

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T57	F	27 Sep 2016	1475	1473	BLAIRDRUM	27 Sep 2016	BD908	Birth	Bonnie

Totals: 0.1.0 (1)

BORAS - Boras Djurpark Zoo, Borås, Västergötlands Län, Sweden

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T54	F	16 Sep 2016	1233	1479	BORAS	16 Sep 2016	EN0013	Birth	Bishara

Totals: 0.1.0 (1)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
BURFORD - Cotswold Wildlife Park and Gardens, Burford, Oxfordshire, United Kingdom									
T32	M	27 Mar 2015	1591	2003	BURFORD	27 Mar 2015	MM1948	Birth	Ian
T35	M	19 Aug 2015	1591	2002	BURFORD	19 Aug 2015	MM1994	Birth	John
T78	M	13 Sep 2017	1591	2003	BURFORD	13 Sep 2017	MM2199	Birth	Alan
T79	F	2 Oct 2017	1591	2002	BURFORD	2 Oct 2017	MM2204	Birth	Belle
Totals: 3.1.0 (4)									
CABARCENO - Parque De La Naturaleza De Cabarceno, Obregón, Cantabria, Spain									
T38	M	15 Nov 2015	865	1501	CABARCENO	15 Nov 2015	RI-9	Birth	
						18 Nov 2015		Death	
[Death by: Unknown means]									
Totals: 1.0.0 (1)									
CAMBRON - Pairi Daiza, Cambron-Casteau, Hainaut, Belgium									
T47	M	22 Mar 2016	2102	2103	CAMBRON	22 Mar 2016	10273	Birth	Sethemba Vas
Totals: 1.0.0 (1)									
COLCHESTR - Colchester Zoo, Stanway, Essex, United Kingdom									
T63	M	5 Feb 2017	1360	1457	COLCHESTR	5 Feb 2017	DLL1407	Birth	Kifaru
Totals: 1.0.0 (1)									
COPENHAGE - Copenhagen Zoo, Frederiksberg, Region Hovedstaden, Denmark									
T80	M	16 Oct 2017	1361	1542	COPENHAGE	16 Oct 2017	CER008	Birth	
Totals: 1.0.0 (1)									
COULANGE - Parc Zoologique D'Amneville, Amneville, Moselle, France									
T65	M	5 Mar 2017	2075	1460	COULANGE	5 Mar 2017	CSS14	Birth	Timbo
2222	F	2 Jul 2016	2075	2073	COULANGE	2 Jul 2016	CSS13	Birth	Bayami
Totals: 1.1.0 (2)									
DUBLIN - Dublin Zoo - Zoological Society of Ireland, Dublin 8, Dublin, Ireland									
T34	M	22 Jan 2015	1552	1555	DUBLIN	22 Jan 2015	A15M02	Birth	
						23 Jan 2015		Death	
Death by: Euthanasia (medical) Incinerate Unknown (after necropsy) Necropsy not received]									
T52	M	25 Aug 2016	1552	1555	DUBLIN	25 Aug 2016	A16M62	Birth	Zuko
T81	M	12 Nov 2017	1552	1688	DUBLIN	12 Nov 2017	A17M67	Birth	Mac
Totals: 3.0.0 (3)									
GIVSKUD - Givskud Zoo - Zootopia, Give, Region Syddanmark, Denmark									
T83	F	15 Sep 2017	1393	1616	GIVSKUD	15 Sep 2017	CERS10	Birth	Savannah
Totals: 0.1.0 (1)									
HILVARENB - Safaripark Beekse Bergen, Hilvarenbeek, Noord-Brabant, Netherlands									
T25	M	24 Jan 2015	1361	1542	COPENHAGE	24 Jan 2015	CER007	Birth	Pilan
					HILVARENB	30 Aug 2017	M15132	Transfer	
T30	F	1 Mar 2015	1165	1616	HILVARENB	1 Mar 2015	M15024	Birth	Sofie

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
T67	F	28 Mar 2017	1393	938	HILVARENB	28 Mar 2017 29 Mar 2017	M17028	Birth Death	
[Death by: Injury from exhibit mate Unknown Generalized Trauma Necropsy not received]									
Totals: 1.2.0 (3)									

HODENHAGN - Serengeti-Park Hodenhagen, Hodenhagen, Niedersachsen, Germany									
T55	M	7 Sep 2016	1004	1220	HODENHAGN	7 Sep 2016	CESI056	Birth	Akono
T60	F	26 Dec 2016	1004	1696	HODENHAGN	26 Dec 2016	CESI057	Birth	Moana
T66	M	3 Mar 2017	1004	1697	HODENHAGN	3 Mar 2017	CESI058	Birth	Tayo
Totals: 2.1.0 (3)									

KNOWSLEY - Knowsley Safari Park, Prescot, Lancashire, United Kingdom									
T40	F	2 Jan 2016	1119	1026	KNOWSLEY	2 Jan 2016	1276	Birth	Nomvula
Totals: 0.1.0 (1)									

KOLMARDEN - Kolmardens Djurpark Ab, Kolmarden, "sterg"tlands L,,n, Sweden									
T58	M	19 Sep 2016	1183	1478	KOLMARDEN	19 Sep 2016 19 Sep 2016	13093	Birth Death	
[Death by: Stillbirth Unknown Unknown (after necropsy) Necropsy not received]									
Totals: 1.0.0 (1)									

MUNSTER - Westfalischer Zoologischer Garten Munster, M"nster, Nordrhein-Westfalen, Germany									
T68	M	20 May 2017	974	1474	MUNSTER	20 May 2017	2500550	Birth	Amiri
Totals: 1.0.0 (1)									

NYIREGYHA - Nyiregyhzi "llatpark Nonprofit Kft (sos, Sostofurdo, Szabolcs-Szatm"r-Ber, Hungary									
T64	M	12 Oct 2016	1540	1556	NYIREGYHA	12 Oct 2016 13 Oct 2016	M13315	Birth Death	
[Death by: Unknown means]									
Totals: 1.0.0 (1)									

PEAUGRES - Safari De Peaugres, Peaugres, Ard"che, France									
T31	M	11 Mar 2015	1438	1462	PEAUGRES	11 Mar 2015	2770	Birth	Unesco
					THOIRY	26 Jan 2018	B8033	Transfer	
Totals: 1.0.0 (1)									

RAMAT GAN - Zoological Center Tel Aviv - Ramat Gan, Ramat Gan, Israel									
T37	F	24 Aug 2015	497	2086	RAMAT GAN	24 Aug 2015	203739	Birth	Kipenzi
T51	M	19 Aug 2016	497	1083	RAMAT GAN	19 Aug 2016	203811	Birth	Tupac
T62	M	26 Jan 2017	497	2056	RAMAT GAN	26 Jan 2017	203838	Birth	Rami
Totals: 2.1.0 (3)									

SALZBURG - Salzburg Zoo Hellbrunn, Anif, Salzburg, Austria									
T33	M	4 Apr 2015	1446	2000	SALZBURG	4 Apr 2015	S2073	Birth	Amadou
T36	M	5 Sep 2015	1446	1999	SALZBURG	5 Sep 2015	S2142	Birth	Tayo
Totals: 2.0.0 (2)									

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Stud# | Sex | Birth Date | Sire | Dam | Location | Date | LocalID | Event | Name |
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SIGEAN - Reserve Africaine De Sigean, Sigean, Aude, France
  T50  M   28 Jul 2016   2038   1296 SIGEAN   28 Jul 2016   16-112 Birth
                                           28 Jul 2016   Death
    [Death by: Malicious destruction   Unknown   Generalized   Trauma Necropsy not received]

  T53  M   18 Sep 2016   2038   2036 SIGEAN   18 Sep 2016   16-113 Birth   Pyros

Totals: 2.0.0 (2)
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SO LAKES - Safari Zoo, Lindal-in-Furness, Cumbria, United Kingdom
  T59  M    1 Oct 2016   1173   1461 SO LAKES   1 Oct 2016   CSS010 Birth   Spud

  T61  F   25 Dec 2016   1173   1444 SO LAKES   25 Dec 2016   CSS011 Birth   Mosi

  T82  F   10 Nov 2017   1173   1644 SO LAKES   10 Nov 2017   CSS012 Birth   Zahra

Totals: 1.2.0 (3)
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TOTALS: 29.19.0 (48)
        26 Institutions

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Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
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5.3 Transfers during 2015 – 2017

Restricted to: (Ceratotherium simum)
 Dates: 1 Jan 2012 - 31 Dec 2014
 Event: Transfers
 Association: \Sparks\RHINO.fed

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
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AUGSBURG - Zoologischer Garten Augsburg GmbH, Bayern, Germany

1526	M	6 Oct 2005	1011	489	WHIPSNAD	6 Oct 2005	1546	Birth	BANTU
					KERKRADE	4 Apr 2008	M05026	Transfer	
					AUGSBURG	29 Apr 2014	2014AV	Transfer	
					CAMBRON	18 Nov 2015	10164	Transfer	
					AUGSBURG	22 Feb 2017	2014AV	Transfer	

Totals: 1.0.0 (1)

AYWAILLE - Monde Sauvage Safari Sprl, Aywaille, Liège, Belgium

1595	M	30 Aug 2006	491	494	HODENHAGN	30 Aug 2006	HOD34	Birth	HEINI
					VALBREMO	6 Mar 2008	HEINI	Transfer	
					AYWAILLE	3 Feb 2015	150009	Transfer	

Totals: 1.0.0 (1)

BANDHOLM - Knuthenborg Safaripark, Maribo, Region Sjælland, Denmark

T18	F	4 Oct 2014	1233	1338	BORAS	4 Oct 2014	EN0012	Birth	Jamala
					BANDHOLM	31 Oct 2017	CESI08	Transfer	

Totals: 0.1.0 (1)

BLAIRDRUM - Blair Drummond Safari Park, Stirling, United Kingdom

1445	F	~ Jul 2000	WILD	WILD	S.AFRICAR	~ Jul 2000	NONE	Capture	TSWANE
					THABA MAN	????	NONE	Transfer	
					COULANGE	18 Jun 2003	CSS4	Transfer	
					BLAIRDRUM	27 Oct 2015	BD859	Transfer	

Totals: 0.1.0 (1)

CABARCENO - Parque De La Naturaleza De Cabarceno, Obregón, Cantabria, Spain

1572	F	~ 2004	WILD	WILD	S.AFRICA	1 Oct 2007	NONE	Capture	MAYAYI
					BIOPARCVA	10 Oct 2007	V07208	Transfer	
					CABARCENO	2 Jun 2015	RI-8	Transfer	

Totals: 0.1.0 (1)

CAMBRON - Pairi Daiza, Cambron-Casteau, Hainaut, Belgium

1424	M	22 Nov 2001	1011	489	WHIPSNAD	22 Nov 2001	L3826	Birth	JOBY
					KESSINGLA	26 Mar 2004	M672	Transfer	
					MONTPELLI	28 Jun 2007	M07161	Transfer	
					CAMBRON	15 Mar 2017	10421	Transfer	

Totals: 1.0.0 (1)

COLCHESTR - Colchester Zoo, Stanway, Essex, United Kingdom

2150	F	1 Jul 2013	1591	2002	BURFORD	1 Jul 2013	MM1797	Birth	Astrid
					COLCHESTR	13 Jul 2016	DLL1300	Transfer	

Totals: 0.1.0 (1)

COULANGE - Parc Zoologique D'Amneville, Amneville, Moselle, France

1410	F	27 Jan 2002	1060	1174	BEWDLEY	27 Jan 2002	1410	Birth	LUCY
					BLAIRDRUM	21 May 2012	BD576	Transfer	
					COULANGE	30 Oct 2015	CSS12	Transfer	

Totals: 0.1.0 (1)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
DVURKRALV - Zoo Dvur Kralove A S, Dvur Kralove Nad Lab, Hradec Kr lov,, Czech Republic									
1208	F	1 Jul 1997	1253	1254	SABLE RAN	1 Jul 1997	NONE	Birth	TEMBA
					ERFURT	25 Nov 1998	535	Transfer	
					DVURKRALV	15 Nov 2016	117024	Transfer	
2102	M	~ 2008	WILD	WILD	S.AFRICA	~ 2011	NONE	Capture	Pamir
					CAMBRON	2 Jul 2012	9324	Transfer	
					DVURKRALV	19 Nov 2015	117023	Transfer	
Totals: 1.1.0 (2)									

EMMEN - Wildlands Adventure Zoo Emmen, Emmen, Drenthe, Netherlands									
812	F	5 Jan 1985	340	403	MUNSTER	5 Jan 1985	20229	Birth	EMILY
					GIVSKUD	3 Jun 2004	CERS04	Transfer	
					EMMEN	2 Feb 2017	508011	Transfer	
1645	M	28 Jul 2008	829	1026	KNOWSLEY	28 Jul 2008	492	Birth	FLANNERY/GEN
					LILLE ZO	27 Apr 2011	2957	Transfer	
					EMMEN	27 Sep 2016	508010	Transfer	
Totals: 1.1.0 (2)									

ERFURT - Thuringer Zoopark Erfurt, Erfurt, Thüringen, Germany									
1578	F	7 Jan 2005	491	496	HODENHAGN	7 Jan 2005	CESI048	Birth	HILDEGARD/MA
					OSNABRUCK	5 Jun 2008	2312	Transfer	
					ERFURT	12 Dec 2016	4703	Transfer	
Totals: 0.1.0 (1)									

GELSNKRKN - Zoom Erlebniswelt Gelsenkirchen, Gelsenkirchen, Nordrhein-Westfalen, Germany									
1489	M	26 Sep 2004	627	1207	ERFURT	26 Sep 2004	1991	Birth	RIMBO
					LILLE ZO	6 Jul 2007	2538	Transfer	
					PELISSANE	10 Nov 2010	HRH804	Transfer	
					GELSNKRKN	20 Oct 2016	203004	Transfer	
Totals: 1.0.0 (1)									

GIVSKUD - Givskud Zoo - Zootopia, Give, Region Syddanmark, Denmark									
1616	F	25 Aug 2007	1475	1473	BLAIRDRUM	25 Aug 2007	BD382	Birth	MAZUMBA
					HILVARENB	23 Apr 2010	M07148	Transfer	
					GIVSKUD	31 Jan 2017	CERS09	Transfer	
Totals: 0.1.0 (1)									

HILVARENB - SafariPark Beekse Bergen, Hilvarenbeek, Noord-Brabant, Netherlands									
1393	M	6 Dec 2001	627	1207	ERFURT	6 Dec 2001	1697	Birth	LIMPOPO
					SCHWERIN	19 Apr 2005	003004	Transfer	
					HILVARENB	22 Apr 2015	M01135	Transfer	
2168	M	23 Jul 2014	1025	1340	ARNHEM	23 Jul 2014	3353	Birth	Tank
					HILVARENB	30 Aug 2017	M14164	Transfer	
T25	M	24 Jan 2015	1361	1542	COPENHAGE	24 Jan 2015	CER007	Birth	Pilan
					HILVARENB	30 Aug 2017	M15132	Transfer	
Totals: 3.0.0 (3)									

HODENHAGN - Serengeti-Park Hodenhagen, Hodenhagen, Niedersachsen, Germany									
990	M	15 May 1992	187	157	SD-WAP	15 May 1992	508008	Birth	KUSINI
					BERLIN TP	11 Oct 1994	M00124	Transfer	
					EMMEN	14 Mar 2005	508008	Transfer	
					VALBREMBO	2 Feb 2015	KUSINI	Transfer	
					HODENHAGN	11 Dec 2015	CESI055	Transfer	
Totals: 1.0.0 (1)									

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
KATOWICE - Silesian Zoological Garden, Chorzów, Poland									
2157	F	18 Oct 2013	1183	1478	KOLMARDEN	18 Oct 2013	12345	Birth	Nambi
					KATOWICE	10 Oct 2017	4148	Transfer	
Totals: 0.1.0 (1)									
KERKRADE - GaiaZoo Kerkrade, Kerkrade, Limburg, Netherlands									
2162	F	21 Apr 2014	1581	1659	DORTMUND	21 Apr 2014	081012	Birth	Abebi
					KERKRADE	2 May 2017	M14107	Transfer	
Totals: 0.1.0 (1)									
KESSINGLA - Zsea Africa Alive!, Kessingland, Suffolk, United Kingdom									
1175	F	~ 1992	WILD	WILD	HLUHLUWE	~ 1992	NONE	Capture	TOOTSIE
					BEWDLEY	24 Nov 1997	1175	Transfer	
					WHIPSNAD	2 Nov 2011	4651	Transfer	
					KESSINGLA	2 May 2017		Transfer	
1689	M	11 Sep 2008	1173	1460	SO LAKES	11 Sep 2008	CSS006	Birth	ZIMBA
					MALTON	10 Dec 2012	1682	Transfer	
					KESSINGLA	25 Apr 2017		Transfer	
2094	F	7 Nov 2012	1119	1120	KNOWSLEY	7 Nov 2012	1026	Birth	Njiri
					KESSINGLA	14 Apr 2016	M1919	Transfer	
Totals: 1.2.0 (3)									
LA PALMYR - Parc Zoologique De La Palmyre, Les Mathes Royan, Charente-Maritime, France									
2111	F	21 Oct 2012	1490	1685	SCHMIDING	21 Oct 2012	931047	Birth	Nala
					LA PALMYR	7 Oct 2016	8101	Transfer	
Totals: 0.1.0 (1)									
LILLE ZO - Parc Zoologique De Lille, Lille, Nord-Pas-de-Calais, France									
2148	M	23 May 2013	974	1474	MUNSTER	23 May 2013	24464130	Birth	Eno
					LILLE ZO	13 Dec 2016	3236	Transfer	
2161	M	24 Jan 2014	1606	2109	BOISSIERE	24 Jan 2014	HRB004	Birth	Mapenzi
					LILLE ZO	15 Dec 2016	3237	Transfer	
Totals: 2.0.0 (2)									
LISIEUX Z - Cerza Centre D'Etude Et De Recherche Zoo, Lisieux, Calvados, France									
1425	F	11 Dec 2001	1011	962	WHIPSNAD	11 Dec 2001	L3836	Birth	BETH
					KESSINGLA	26 Mar 2004	M673	Transfer	
					LISIEUX Z	12 May 2016	M16038	Transfer	
Totals: 0.1.0 (1)									
MADRID Z - Zoo Aquarium De Madrid (grpr), Madrid, Spain									
1414	M	~ 1998	WILD	WILD	S.AFRICAR	~ Jan 1998	NONE	Capture	
					GW LOGIST	~ 2000		Transfer	
					ESTEPONA	11 Jan 2000	1R1	Transfer	
					MADRID Z	28 Mar 2017	RB7	Transfer	
Totals: 1.0.0 (1)									
MALTON - Flamingo Land Ltd, Malton, North Yorkshire, United Kingdom									
2167	M	11 Jul 2014	1360	1458	COLCHESTR	11 Jul 2014	DLL824	Birth	Mabaso
					MALTON	2 May 2017	2489	Transfer	
T19	M	12 Oct 2014	1475	1473	BLAIRDRUM	12 Oct 2014	BD815	Birth	Bruce
					MALTON	3 May 2017	2492	Transfer	
Totals: 2.0.0 (2)									

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
MARWELL - Marwell Wildlife, Winchester, Hampshire, United Kingdom									
2128	F	13 Apr 2013	1360	1457	COLCHESTR	13 Apr 2013	DLL529	Birth	Pembe
					MARWELL	14 Jun 2016	9719	Transfer	
2130	M	26 Apr 2013	1552	1555	DUBLIN	26 Apr 2013	A13M26	Birth	Jabari
					MARWELL	13 Oct 2015	9620	Transfer	
Totals: 1.1.0 (2)									
MONTPELLI - Parc De Lunaret, Montpellier, H,rault, France									
2039	M	30 Nov 2010	829	1120	KNOWSLEY	30 Nov 2010	747	Birth	TROY/BALU
					MALTON	10 Dec 2012	1683	Transfer	
					MONTPELLI	27 Apr 2017	M17031	Transfer	
Totals: 1.0.0 (1)									
OSNABRUCK - Zoo Osnabr�ck, Osnabruck, Niedersachsen, Germany									
1165	M	29 Sep 1997	404	988	CABARCENO	29 Sep 1997	RI-4	Birth	MIGUELIN
					HILVARENB	24 Nov 2004	M97324	Transfer	
					KERKRADE	28 May 2014	M97682	Transfer	
					OSNABRUCK	21 May 2015	3753	Transfer	
Totals: 1.0.0 (1)									
PELISSANE - Parc Zoologique De La Barben, La Barben, Bouches-du-Rh�ne, France									
1574	M	~ Mar 2004	WILD	WILD	S.AFRICA	~ 2005	NONE	Capture	Lekuruh
					GELSNKRKN	3 Apr 2007	203001	Transfer	
					PELISSANE	18 Oct 2016	HRH904	Transfer	
Totals: 1.0.0 (1)									
PT ST PER - Planete Sauvage, Port Saint Pere, Loire-Atlantique, France									
T27	M	23 Aug 2013	1004	1220	HODENHAGN	23 Aug 2013	CESI013	Birth	Dinari
					PT ST PER	29 Oct 2015	CS008	Transfer	
2089	M	18 Sep 2012	1438	1462	PEAUGRES	18 Sep 2012	2518	Birth	Goliath
					PT ST PER	27 Feb 2015	15-CS007	Transfer	
Totals: 2.0.0 (2)									
QUINTASI - Zoo De Gaia -- Zoo S nto Inacio, PORTO, Porto, Portugal									
2078	M	15 Nov 2011	1165	1203	HILVARENB	15 Nov 2011	M11151	Birth	Sam
					KERKRADE	22 May 2014	M11657	Transfer	
					QUINTASI	26 Oct 2015	3162	Transfer	
2095	M	9 Nov 2012	1119	1121	KNOWSLEY	9 Nov 2012	1027	Birth	Thabo
					QUINTASI	18 May 2015	3138	Transfer	
2105	M	20 Dec 2012	1119	1026	KNOWSLEY	20 Dec 2012	1033	Birth	Nonu
					QUINTASI	18 May 2015	3137	Transfer	
Totals: 3.0.0 (3)									
SCHMIDING - Zoologischer Garten Schmiding, Krenglbach, Ober�sterreich, Austria									
2093	F	8 Nov 2012	796	767	LA PALMYR	8 Nov 2012	7010	Birth	Renette
					SCHMIDING	5 Oct 2016		Transfer	
Totals: 0.1.0 (1)									
SCHWERIN - Zoologischer Garten Schwerin, Schwerin, Mecklenburg-Vorpomme, Germany									
1543	F	~Jul 2003��m	WILD	1542	S.AFRICA	????	NONE	Capture	KAREN
					COPENHAGE	12 Sep 2006	CER003	Transfer	
					SCHWERIN	21 Apr 2015	003007	Transfer	
1652	M	4 Dec 2008	829	1120	KNOWSLEY	4 Dec 2008	527	Birth	KIMBA
					LILLE ZO	27 Apr 2011	2958	Transfer	
					SCHWERIN	27 Sep 2016	003008	Transfer	
Totals: 1.1.0 (2)									

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
SHARJAHBR - Sharjah Breeding Centre for Endangered A, Sharjah, Ash Shariqah, United Arab Emirates									
T69	M	~ 2013	WILD	WILD	S.AFRICA SHARJAHBR	~ Jan 2017 3 May 2017	NONE WR001	Capture Transfer	
T70	F	~ 2014	WILD	WILD	S.AFRICA SHARJAHBR	~ Jan 2017 3 May 2017	NONE WR002	Capture Transfer	
T71	M	~ 2014	WILD	WILD	S.AFRICA SHARJAHBR	~ Jan 2017 3 May 2017	NONE WR003	Capture Transfer	
T72	F	~ 2014	WILD	WILD	S.AFRICA SHARJAHBR	~ Jan 2017 3 May 2017	NONE WR004	Capture Transfer	
T73	F	~ 2015	WILD	WILD	S.AFRICA SHARJAHBR	~ Jan 2017 3 May 2017	NONE WR005	Capture Transfer	
Totals: 2.3.0 (5)									
THOIRY - Thoiry Zoological Park, Thoiry, Yvelines, France									
2090	M	22 Sep 2012	1025	1340	ARNHEM THOIRY	22 Sep 2012 9 Mar 2015 7 Mar 2017	617304 B5017	Birth Transfer Death	Vince
[Death by: Malicious destruction Unknown Generalized Trauma Necropsy not received]									
2096	M	6 Dec 2012	1165	1616	HILVARENB THOIRY	6 Dec 2012 9 Mar 2015	M12139 B5018	Birth Transfer	Bruno
Totals: 2.0.0 (2)									
VALBREMBO - Parco Faunistico Le Cornelle, Valbrembo Bg, Bergamo, Italy									
2081	F	21 Feb 2011	1004	1697	HODENHAGN VALBREMBO	21 Feb 2011 8 Dec 2015	CESI010 LARA	Birth Transfer	Etana/Lara
Totals: 0.1.0 (1)									
VESZPREM - Kittenberger K lm n Nonprofit Kft, Kittenberger, Veszpr,m, Hungary									
1047	F	25 Nov 1994	89	329	WHIPSNAD E HILVARENB VESZPREM	25 Nov 1994 24 Apr 2009 9 Jun 2017	L2398 M94100 175006	Birth Transfer Transfer	MAKOUBU
Totals: 0.1.0 (1)									
WHIPSNAD E - Zsl Whipsnade Zoo, Dunstable, Bedfordshireý, United Kingdom									
1362	F	~ Jun 1998	WILD	WILD	S.AFRICA BANDHOLM WHIPSNAD E	~ Jun 1998 24 Oct 2000 31 Oct 2017	NONE CESI04	Capture Transfer Transfer	BERTA
Totals: 0.1.0 (1)									
WOBURNLTD - Woburn Safari Park, Woburn, Bedfordshireý, United Kingdom									
1360	M	~ Oct 1997	WILD	WILD	S.AFRICA BANDHOLM COLCHESTR WOBURNLTD	~ Oct 1997 24 Oct 2000 26 Nov 2009 2 Nov 2016	NONE CESI02 CLL705	Capture Transfer Transfer Transfer	OTTO
Totals: 1.0.0 (1)									
TOTALS: 31.24.0 (55)									
37 Institutions									

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
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5.4 Deaths during 2015 – 2017

Restricted to: (Ceratotherium simum)
 Dates: 1 Jan 2015 - 31 Dec 2017
 Event: Deaths
 Association: \Sparks\RHINO.fed

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
ARNHEM - Royal Burgers' Zoo, Arnhem, Gelderland, Netherlands									
230	F	~ 1971	WILD	WILD	UMFOLOZI	17 Aug 1971	NONE	Capture	FREYA
					SOEST	????		Transfer	
					ARNHEM	16 Aug 1974	03559	Transfer	
						4 Apr 2017		Death	
[Death by: Unknown means]									
T48	F	25 Jan 2016	1025	1480	ARNHEM	25 Jan 2016	6901	Birth	
						25 Jan 2016		Death	
[Death by: Unknown means]									
Totals: 0.2.0 (2)									

AUGSBURG - Zoologischer Garten Augsburg GmbH, Bayern, Germany									
360	M	~ 1971	WILD	WILD	HLUHLUWE	~ Apr 1971	NONE	Capture	DENNY
					FLIEGENPI	17 Nov 1974		Transfer	
					MUNICH	20 Nov 1974	078001	Transfer	
					SALZBURG	21 Aug 1991	M0003	Transfer	
					AUGSBURG	6 Aug 2008	2008FP	Transfer	
						3 Jun 2015		Death	
[Death by: Euthanasia (medical) Unknown Unknown (after necropsy) Necropsy not received]									
Totals: 1.0.0 (1)									

BEWDLEY - West Midland Safari & Leisure Park Ltd, Bewdley, Worcestershire, United Kingdom									
T41	F	28 Jan 2016	1583	1647	BEWDLEY	28 Jan 2016	1650	Birth	
						28 Jan 2016		Death	
[Death by: Stillbirth Unknown Unknown (after necropsy) Necropsy not received]									
Totals: 0.1.0 (1)									

CABARCENO - Parque De La Naturaleza De Cabarceno, Obregón, Cantabria, Spain									
T38	M	15 Nov 2015	865	1501	CABARCENO	15 Nov 2015	RI-9	Birth	
						18 Nov 2015		Death	
[Death by: Unknown means]									
Totals: 1.0.0 (1)									

COLCHESTR - Colchester Zoo, Stanway, Essex, United Kingdom									
1458	F	~ 1998	WILD	WILD	S.AFRICAR	????	NONE	Capture	CYNTHIA
					COLCHESTR	27 Sep 2003	BLL280	Transfer	
						15 Oct 2015		Death	
Death by: Euthanasia (medical) Given to an institution: Generalized Bacterial Necropsy not received]									
Totals: 0.1.0 (1)									

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
COULANGE - Parc Zoologique D'Amneville, Amneville, Moselle, France									
252	M	~ 1969	WILD	WILD	UMFOLOZI	~ Jul 1969	NONE	Capture	
					NATAL PB	2 Jun 1972		Transfer	
					DELFTS	3 Jun 1972		Transfer	
					COLCHESTR	3 Jul 1972	CLL250	Transfer	
					BLACKPOOL	8 Aug 1972	M72074	Transfer	
					PAIGNTON	20 Feb 1992	909	Transfer	
					COULANGE	15 Jan 2003	CSS1	Transfer	
						17 Mar 2015		Death	
[Death by: Old age Unknown Unknown (after necropsy) Necropsy not received]									
Totals: 1.0.0 (1)									
DUBLIN - Dublin Zoo - Zoological Society of Irela, Dublin 8, Dublin, Ireland									
T34	M	22 Jan 2015	1552	1555	DUBLIN	22 Jan 2015	A15M02	Birth	
						23 Jan 2015		Death	
[Death by: Euthanasia (medical) Incinerate Unknown (after necropsy) Necropsy not received]									
Totals: 1.0.0 (1)									
DVURKRALV - Zoo Dvur Kralove A S, Dvur Kralove Nad Lab, Hradec Kr lov,, Czech Republic									
789	F	15 Nov 1983	372	351	DVURKRALV	15 Nov 1983	059010	Birth	NABIRE
						27 Jul 2015		Death	
[Death by: Unknown means]									
Totals: 0.1.0 (1)									
EMMEN - Wildlands Adventure Zoo Emmen, Emmen, Drenthe, Netherlands									
344	F	~ 1971	WILD	WILD	UMFOLOZI	~ 1971	NONE	Capture	JENNY
					SOEST	5 May 1975		Transfer	
					EMMEN	10 May 1975	508002	Transfer	
						2 Dec 2016		Death	
[Death by: Unknown means]									
643	F	22 Apr 1981	167	174	ARNHEM	22 Apr 1981	03565	Birth	PETRA
					EMMEN	14 Jun 2004	508007	Transfer	
						6 Jun 2016		Death	
[Death by: Unknown means]									
Totals: 0.2.0 (2)									
HILVARENB - Safaripark Beekse Bergen, Hilvarenbeek, Noord-Brabant, Netherlands									
T67	F	28 Mar 2017	1393	938	HILVARENB	28 Mar 2017	M17028	Birth	
						29 Mar 2017		Death	
[Death by: Injury from exhibit mate Unknown Generalized Trauma Necropsy not received]									
Totals: 0.1.0 (1)									
HODENHAGN - Serengeti-Park Hodenhagen, Hodenhagen, Niedersachsen, Germany									
496	F	~ 1969	WILD	WILD	UMFOLOZI	~ Aug 1969	NONE	Capture	LIA/MOLLY
					HODENHAGN	3 Aug 1974	CESI003	Transfer	
						9 Dec 2015		Death	
[Death by: Euthanasia (medical) Unknown Generalized Unknown after necropsy Necropsy not received]									
Totals: 0.1.0 (1)									
KOLMARDEN - Kolmardens Djurpark Ab, Kolmarden, "sterg"tlands L,,n, Sweden									
T58	M	19 Sep 2016	1183	1478	KOLMARDEN	19 Sep 2016	13093	Birth	
						19 Sep 2016		Death	
[Death by: Stillbirth Unknown Unknown (after necropsy) Necropsy not received]									
Totals: 1.0.0 (1)									

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
LISBON - Jardim Zoologico / Lisbon Zoo, Lisboa, Portugal									
1570	F	~ 2002	WILD	WILD	THABA MAN	1 Sep 2007	NONE	Capture	
					LISBON	10 Oct 2007	10248	Transfer	
						23 Jun 2015		Death	
[Death by: Unknown means]									
Totals: 0.1.0 (1)									
MADRID Z - Zoo Aquarium De Madrid (grpr), Madrid, Spain									
250	M	~ 1969	WILD	WILD	UMFOLOZI	????	NONE	Capture	
					SOEST	7 Oct 1971		Transfer	
					MADRID Z	15 Oct 1971	RB1	Transfer	
						29 Mar 2016		Death	
[Death by: Unknown means]									
251	F	~ 1969	WILD	WILD	UMFOLOZI	????	NONE	Capture	
					SOEST	7 Oct 1971		Transfer	
					MADRID Z	15 Oct 1971	RB2	Transfer	
						29 May 2017		Death	
[Death by: Euthanasia (cull) Unknown Unknown (after necropsy) Necropsy not received]									
Totals: 1.1.0 (2)									
NYIREGYHA - Nyiregyházi állatpark Nonprofit Kft (sos, Sóstófürdő, Szabolcs-Szatmár-Ber, Hungary									
T64	M	12 Oct 2016	1540	1556	NYIREGYHA	12 Oct 2016	M13315	Birth	
						13 Oct 2016		Death	
[Death by: Unknown means]									
Totals: 1.0.0 (1)									
OSNABRUCK - Zoo Osnabrück, Osnabrück, Niedersachsen, Germany									
316	M	7 Jul 1976	221	225	HILVARENB	7 Jul 1976	M76298	Birth	FLORIS
					OSNABRUCK	26 Jul 1979	21	Transfer	
						3 Jan 2015		Death	
[Death by: Unknown means]									
Totals: 1.0.0 (1)									
PEAUGRES - Safari De Peaugres, Peaugres, Ardèche, France									
224	F	~ 1970	WILD	WILD	UMFOLOZI	~ 1971	NONE	Capture	PACHA
					SOEST	????		Transfer	
					HILVARENB	6 Jul 1973	M70297	Transfer	
					PEAUGRES	8 Jun 2005	1423	Transfer	
						13 Mar 2016		Death	
[Death by: Euthanasia (medical) Incinerate Cardiovascular Circulatory, secondary Necropsy not received]									
Totals: 0.1.0 (1)									
RAMAT GAN - Zoological Center Tel Aviv - Ramat Gan, Ramat Gan, Israel									
1630	M	23 Sep 2007	497	1083	RAMAT GAN	23 Sep 2007	202614	Birth	TIBOR
						8 Mar 2017		Death	
[Death by: Injury from exhibit mate Unknown Generalized Trauma Necropsy not received]									
Totals: 1.0.0 (1)									
SIGEAN - Reserve Africaine De Sigean, Sigean, Aude, France									
T50	M	28 Jul 2016	2038	1296	SIGEAN	28 Jul 2016	16-112	Birth	
						28 Jul 2016		Death	
[Death by: Malicious destruction Unknown Generalized Trauma Necropsy not received]									
2036	F	~ Jan 2005	WILD	WILD	MAFUNYANE	~ Jul 2009	NONE	Capture	10-DOUALA
					SIGEAN	10 Oct 2009	05-014	Transfer	
						29 Oct 2016		Death	
[Death by: Infection associated Unknown Cardiovascular Viral Necropsy received]									

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
2042	F	~ Jan 2006	WILD	WILD	MAFUNYANE	~ Jul 2009	NONE	Capture	09-EMBEMA
					SIGEAN	10 Oct 2009	06-018	Transfer	
						3 Dec 2016		Death	
[Death by: Unknown means]									
Totals: 1.2.0 (3)									

SO LAKES - Safari Zoo, Lindal-in-Furness, Cumbria, United Kingdom									
2079	M	17 Nov 2011	1173	1461	SO LAKES	17 Nov 2011	CSS007	Birth	Indiana
						4 Feb 2015		Death	
[Death by: Injury from exhibit mate Unknown Generalized Trauma Necropsy not received]									
Totals: 1.0.0 (1)									

THOIRY - Thoiry Zoological Park, Thoiry, Yvelines, France									
2090	M	22 Sep 2012	1025	1340	ARNHEM	22 Sep 2012	617304	Birth	Vince
					THOIRY	9 Mar 2015	B5017	Transfer	
						7 Mar 2017		Death	
[Death by: Malicious destruction Unknown Generalized Trauma Necropsy not received]									
Totals: 1.0.0 (1)									

ZOOMTORIN - Zoom Torino Spa, Cumiana, Torino, Italy									
664	M	9 Jun 1981	UNK	UNK	LAGUNA HI	9 Jun 1981		Birth	Freddy
					WINGST ZO	17 Mar 1982		Transfer	
					GELSNKRKN	3 Jun 1983		Transfer	
					BORDI G	2 Mar 1984		Transfer	
					VALBREMBO	26 Feb 1991	FREDDY	Transfer	
					ZOOMTORIN	5 Mar 2014		Transfer	
						28 Nov 2016		Death	
[Death by: Unknown means]									
Totals: 1.0.0 (1)									

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TOTALS: 13.14.0 (27)									
22 Institutions									
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Appendix

Appendix 1: Table Mx and Qx for males and females

Appendix 2: Tables (non) breeding females

Appendix 1: Table Mx and Qx for males and females

Age (years)	Age-specific mortality				Age-specific fecundity			
	Males		Females		Males		Females	
	Qx	Risk Qx	Qx	Risk Qx	Mx	Risk Mx	Mx	Risk Mx
0	0,20	82,0	0,22	69,2	0,000	82,0	0,000	69,2
1	0,01	75,1	0,02	63,6	0,000	75,1	0,000	63,6
2	0,01	72,1	0,04	70,5	0,000	72,1	0,000	70,5
3	0,01	67,0	0,00	84,8	0,000	67,0	0,000	84,8
4	0,03	66,2	0,02	98,2	0,000	66,2	0,000	98,2
5	0,00	60,0	0,00	99,9	0,000	60,0	0,030	99,9
6	0,00	57,2	0,00	108,9	0,018	57,2	0,033	108,9
7	0,00	56,8	0,01	113,2	0,054	56,8	0,070	113,2
8	0,00	55,6	0,01	110,7	0,064	55,6	0,091	110,7
9	0,02	53,2	0,01	107,3	0,087	53,2	0,089	107,3
10	0,00	50,4	0,01	105,7	0,091	50,4	0,029	105,7
11	0,00	50,3	0,04	98,2	0,112	50,3	0,112	98,2
12	0,00	46,6	0,01	85,8	0,110	46,6	0,041	85,8
13	0,00	45,6	0,01	78,8	0,088	45,6	0,057	78,8
14	0,00	45,4	0,00	70,6	0,089	45,4	0,058	70,6
15	0,02	46,5	0,00	69,0	0,154	46,5	0,050	69,0
16	0,00	44,6	0,00	64,5	0,092	44,6	0,086	64,5
17	0,05	41,1	0,02	58,8	0,098	41,1	0,052	58,8
18	0,03	39,7	0,02	51,3	0,103	39,7	0,078	51,3
19	0,03	37,7	0,00	50,5	0,151	37,7	0,010	50,5
20	0,00	35,4	0,00	47,4	0,144	35,4	0,032	47,4
21	0,00	36,3	0,02	44,0	0,056	36,3	0,045	44,0
22	0,00	35,6	0,05	41,9	0,072	35,6	0,049	41,9
23	0,00	36,7	0,00	40,6	0,139	36,7	0,037	40,6
24	0,06	34,8	0,00	37,4	0,030	34,8	0,013	37,4
25	0,03	29,7	0,00	34,7	0,084	29,7	0,029	34,7
26	0,00	27,3	0,00	35,3	0,092	27,3	0,057	35,3
27	0,04	26,1	0,00	34,6	0,059	26,1	0,015	34,6
28	0,00	27,7	0,03	32,3	0,128	27,7	0,047	32,3
29	0,09	30,1	0,03	37,4	0,019	30,1	0,027	37,4
30	0,01	32,1	0,03	45,3	0,049	32,1	0,023	45,3
31	0,00	39,8	0,10	46,8	0,013	39,8	0,044	46,8
32	0,00	41,2	0,08	46,9	0,050	41,2	0,011	46,9
33	0,07	41,6	0,07	46,5	0,012	41,6	0,033	46,5
34	0,05	39,6	0,02	50,0	0,026	39,6	0,000	50,0
35	0,05	36,7	0,02	50,7	0,013	36,7	0,020	50,7
36	0,06	34,6	0,02	49,3	0,029	34,6	0,010	49,3
37	0,03	33,5	0,04	48,6	0,030	33,5	0,010	48,6
38	0,06	33,0	0,17	45,0	0,015	33,0	0,000	45,0
39	0,25	27,6	0,05	37,8	0,043	27,6	0,000	37,8
40	0,20	19,6	0,04	35,7	0,028	19,6	0,000	35,7
41	0,18	15,0	0,18	32,1	0,000	15,0	0,000	32,1
42	0,15	12,5	0,13	27,4	0,000	12,5	0,000	27,4
43	0,00	11,1	0,09	24,1	0,000	11,1	0,000	24,1
44	0,20	9,3	0,07	22,4	0,000	9,3	0,000	22,4
45	0,13	8,0	0,26	19,6	0,000	8,0	0,000	19,6
46	0,39	6,2	0,11	14,8	0,000	6,2	0,000	14,8
47	0,06	3,3	0,17	12,4	0,000	3,3	0,000	12,4
48	0,00	2,0	0,33	5,9	0,000	2,0	0,000	5,9
49	0,50	1,9	0,04	2,5	0,000	1,9	0,000	2,5
50	0,00	1,0	0,48	1,6	0,000	1,0	0,000	1,6
51	0,00	1,0	0,00	1,0	0,000	1,0	0,000	1,0
52	0,00	1,0	0,00	1,0	0,000	1,0	0,000	1,0

Age-specific mortality (Q_x) stands for the average proportion of animals that are expected to die within a given age class. The lower the value, the greater the average survival through an age class. Risk Q_x shows the sample size. It contains all animals ever lived in the EEP.

Age-specific fecundity (M_x) stands for the average number of same sex offspring produced by a parent within a specific age class. The value can range from 0 to the maximal number of offspring produced by an individual.

Take into account that when the sample size is below 30 individuals no conclusions can be drawn from the results due to the effect of chance.

Appendix 2: Tables female (non) breeders

Tables associated with figure 6

Table 1: Female (non) breeders, 2009				
	n Total	n Male	n Female	% Female*
Total population	250	96	154	-
Breeding	49	17	32	21
Not (yet) breeding, age < 10	90	31	59	38
Not (yet) breeding, age 10 – 20	33	16	17	11
Not (yet) breeding, age > 20	78	32	46	30
Total not (yet) breeding	201	79	122	79

* Percentage female is calculated compared to the total female population.

Table 2: Female (non) breeders, 2011				
	n Total	n Male	n Female	% Female*
Total population	260	101	159	-
Breeding	55	19	36	23
Not (yet) breeding, age < 10	101	41	60	38
Not (yet) breeding, age 10 – 20	41	16	25	16
Not (yet) breeding, age > 20	63	25	38	24
Total not (yet) breeding	205	82	123	77

* Percentage female is calculated compared to the total female population.

Table 3: Female (non) breeders, 2014				
	n Total	n Male	n Female	% Female*
Total population	287	114	173	-
Breeding	94	32	62	36
Not (yet) breeding, age < 10	96	46	50	29
Not (yet) breeding, age 10 – 20	51	16	35	20
Not (yet) breeding, age > 20	46	20	26	15
Total not (yet) breeding	193	82	111	64

* Percentage female is calculated compared to the total female population.

Table 4: Female (non) breeders, 2017				
	n Total	n Male	n Female	% Female*
Total population	310	130	180	-
Breeding	116	39	77	43
Not (yet) breeding, age < 10	103	59	44	24
Not (yet) breeding, age 10 – 20	51	15	36	20
Not (yet) breeding, age > 20	40	17	23	13
Total not (yet) breeding	194	91	103	57

* Percentage female is calculated compared to the total female population.