

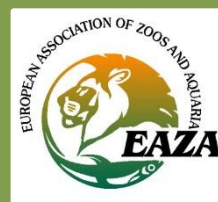


Eastern Black Rhino EEP

(Diceros bicornis michaeli)

Annual Studbook Report 2015

Rebecca Biddle NEZS Chester Zoo



Eastern Black Rhino EEP

Diceros bicornis michaeli

Annual Studbook Report 2015

(Data current as of December 31, 2015)

Species Coordinator: Dr Mark Pilgrim, Chester Zoo, UK

Species Committee members: Adrian Harland (Port Lympne), Andreas Ochs (Berlin Zoo), Gerd Notzold (Leipzig Zoo), Konstantin Ruske (Magdeburg Zoo), Mati Kaal (Tallinn Zoo), Stefan Stadler (Frankfurt Zoo), Tiit Maran (Tallinn Zoo), Tim Rowlands (Chester Zoo)

Latest studbook version published: 2014

Studbook Report compiled by: Rebecca Biddle and Mark Pilgrim

Best Practice Guidelines: available from Chester Zoo and at www.blackrhinohusbandry.org

Contact: m.pilgrim@chesterzoo.org, b.biddle@chesterzoo.org

Cover Photo: Katakata at Bioparc de Doué la Fontaine

Contents

1. Introduction	4
2. EEP Status and Development Table	5
3. Population Overview.....	6
Current Status	6
Events During 2015	6
4. Demographic Overview	7
Census Graphs.....	7
Age Pyramids.....	8
Population Growth.....	8
5. Genetic Overview.....	10
6. SPARKS Reports.....	13
Living as of 31/12/2015.....	13
Births During 2015.....	18
Deaths During 2015.....	19
Transfers During 2015	20

1. Introduction

This studbook report gives an overview of the Black rhino EEP for 2015, including current population, demographic and genetic overviews. If you have any comments or questions please get in touch with the studbook coordinators.

The vision and target for the Black rhino EEP population is:

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

All participants must follow the EAZA EEP rules. Especially that all animals and their offspring are available to the EEP. The receiving institution will normally be responsible for the costs of the transfer, unless a pre agreed local arrangement is made between the institutions. It is the responsibility of the sending institution to ensure that the facilities and level of husbandry at the receiving institution are appropriate.

Although this EEP focuses on the Eastern subspecies *Diceros bicornis michaeli*, a pair of the Southern African subspecies, *D.b.minor* at Frankfurt Zoo is included within the studbook listings. It should be noted that these two animals are maintained and managed separately to the *D.b.michaeli*.

Please note that there are some restrictions on breeding with some individuals. If you have an animal that has a non-breeding recommendation, you will have been made aware of it.

All data and figures used in this report are produced by, or taken from, PMx Version 1.2 and SPARKS Version 1.66.

2. EEP Status and Development Table

Institution	Status (2015 - 01 - 01)			Births			DNS			Transfer EAZA in			Transfer EAZA out			Transfer Non-EAZA in			Transfer Non-EAZA out			Deaths			Status (2015-12-31)					
	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U			
Bassin d'Arachon, France	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Berlin Zoo, Germany	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	4	0
Chester Zoo, UK	3	7	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	3	6	0
Cologne Zoo, Germany	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Doue le Fontaine, France	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Dvur Kralove, Czech Republic	5	8	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	9	0
Ebeltoft Safari Park, Denmark	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0
Flamingo Land, UK	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Folly Farm, UK	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Frankfurt Zoo, Germany	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Hannover Zoo, Germany	1	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Howletts Wild Animal Park, UK	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Krefeld Zoo, Germany	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Leipzig Zoo, Germany	0	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	3	0
Magdeburg Zoo, Germany	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Paignton Zoo, UK	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Pont Scorff Zoo, France	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Port Lympne Wild Animal Park, UK	4	10	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	2	8	0
Rotterdam Zoo, Germany	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Tallinn Zoo, Estonia	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Zurich Zoo, Switzerland	1	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	30	52	0	4	2	0	0	0	0	2	4	0	2	4	0	0	0	0	0	2	0	1	3	0	0	0	0	33	49	0

3. Population Overview

Current Status

As of 31.12.2015 there were 33.49.0 (82) rhinos in EAZA collections. This seems like a large increase from 69 at the end of 2014, but that number did not include 13 animals alive at Dvur Kralove on that date. Now Dvur Kralove is an EAZA member these individuals are included in the EEP and on that date would have brought the total to 82 (30.52). During 2015 there were 6 births, 4 deaths and 2 transfers out of the EEP, so the population has remained the same.

21 collections hold the species - an increase of three collections since last year. These are Dvur Kralove and two new holders in the UK; Folly Farm and Flamingo Land.

The 1.1 held at Frankfurt are of the Southern sub species, *Diceros bicornis minor*, they are included in the demographic but not genetic analysis of this report.

Events During 2015

Births – 6 (4.2) in 5 collections	
Howletts	1.0
Chester	0.1
Dvur Kralove	1.1
Ebeltoft	1.0
Magdeburg	1.0

Deaths – 4 (1.3) in 2 collections	
Chester	0.1 (1 month old)
Port Lympne	0.1 (16 years old)
	0.1 (3 years old)
	1.0 (6 years old)

Transfers – 2.4 within 3 EAZA collections	
Chester to Folly Farm	0.1
Port Lympne to Folly Farm	1.0
Hannover to Leipzig	1.1
Zurich to Flamingo Land	0.2

Additionally 2 young female rhinos were transferred out of the EEP to Japan - Samia from Leipzig to Osaka Zoo and Akili from Berlin Zoo to Yokohama Zoo. These transfers are part of ongoing cooperation with JAZA from who we received bull Sammy in 2002 who is genetically extremely important to our population.

4. Demographic Overview

A full demographic summary is shown in the table to the right.

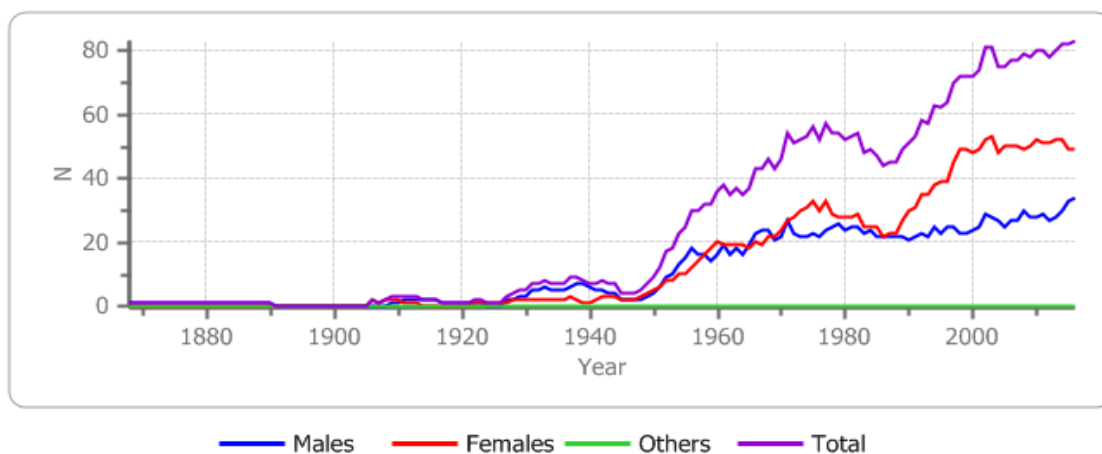
When doing demographic analysis on the Black rhino EEP, we select all animals that were present in the population between 1960 and 2015. This is done using a date filter in SPARKS before exporting data to PMx.

It was not until the 1950s that Black rhinos were born in captivity. Prior to this the captive population was reliant on wild imports, so the demographic data does not represent what we would expect from a self-sustaining population with natural fluctuation caused by birth and death rates. It is recommended that the selected time period spans at least twice the life span of an individual, so for such a long lived species the time span selected (55 years) is a minimum of what we need to create demographic projections and predictions.

Demographic Summary	
Size	33.49.0 (82)
Life Expectancy	17.0
30 Day Mortality	0.15 (N=157)
25% live to	24.9
10% live to	35.5
5% live to	40.5
1% live to	44.7
Oldest Living	42. (ID:220)
Λ (Growth Rate)	0.988
R0 (Reproductive Rate)	0.820
T (Generation Time)	16.3 years

Census Graphs

Graph 1 shows the census for the Black rhino EEP split by sex. There has been a clear sex skew in the population since the mid-80s with more female than males. That trend persists today with 1.5 females for each male in the population. This has caused problems over the last few years in the creation of new young pairs however, the birth of four males during 2015 has evened out the skew slightly.

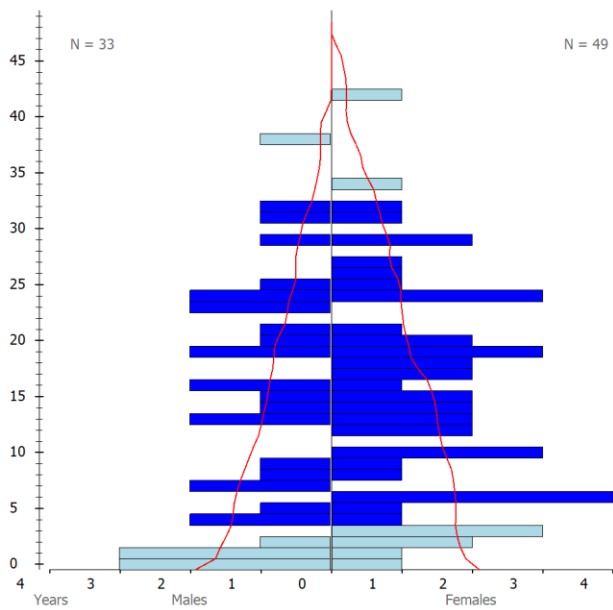


Graph 1 – Census of the Black rhino EEP split by sex.

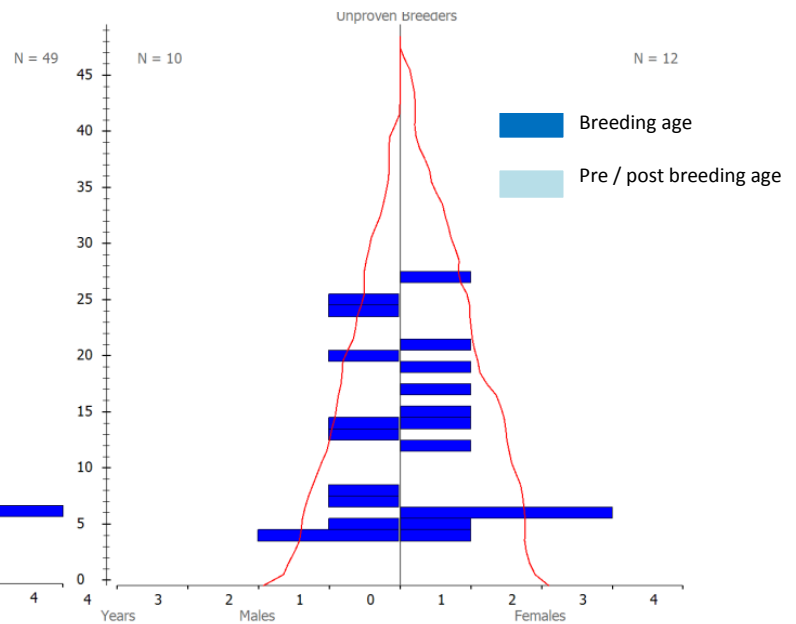
Age Pyramids

Graph 2 shows the age pyramid for the Black rhino EEP. The oldest currently living female is Kilaguni at Berlin Zoo, at 42 years old. The oldest current male is Isis at Dvur Kralove at 38 years old. Of the 82 individuals there are 65 (25.40) of reproductive age and 14 (7.7) that are pre-reproductive.

The generation time (from birth to first reproduction) is 16.5 years for males and 16.0 years for females. Currently just 46 (16.30) individuals are proven breeders (have produced one calf, either living or dead). Graph 3 shows an age pyramid of unproven breeders only.



Graph 2 – Age pyramid for the Black rhino EEP population.



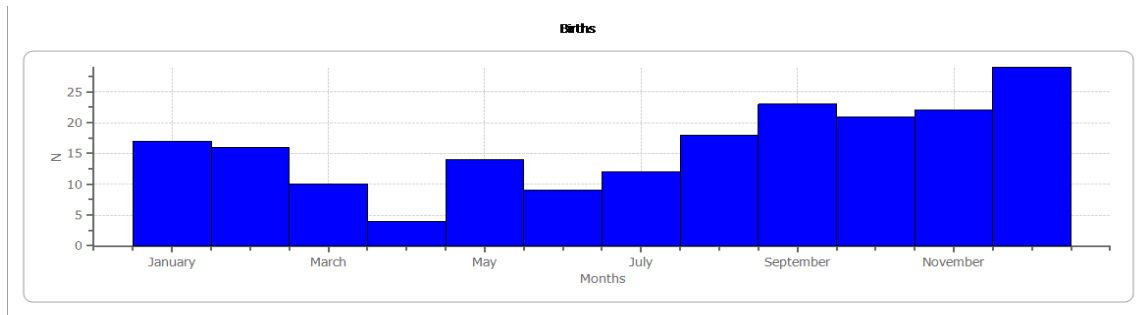
Graph 3 – Age pyramid of unproven breeders (of breeding age) in the Black rhino EEP population.

Population Growth

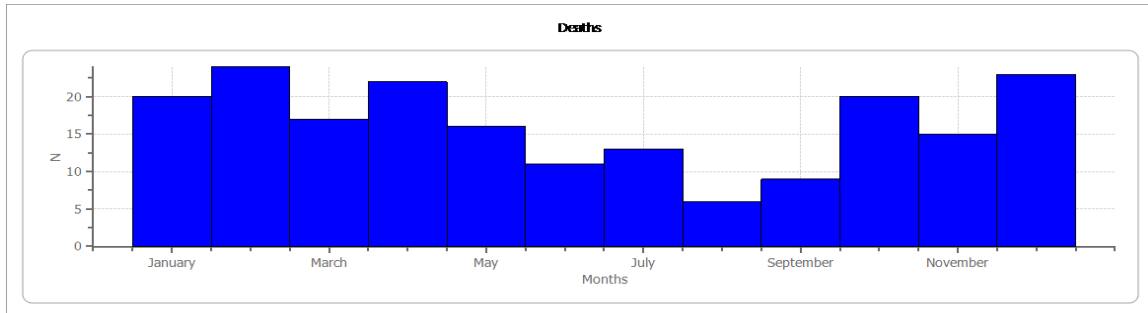
The lambda value from 1960 – 2015 (proportional change in population size from one year to the next) based on the life table calculation and averaged for males and females was 0.98, showing an average decline in the population of 2% per year. For just the last three years however it is 1.01, showing an annual increase of 1%.

After running stochastic projections in PMx we have just a 27% chance of an increase in the population next year (58% chance of decrease and 15% chance of staying the same) so it is essential that we continue to focus our efforts on breeding from recommended pairs. Of course, this is coupled with the need to continue to find new holders for the species, which has increased from 11 in 1991, to 21 today.

Graphs 4 and 5 below show us the birth / death month of all Black rhino within the selected timeframe.

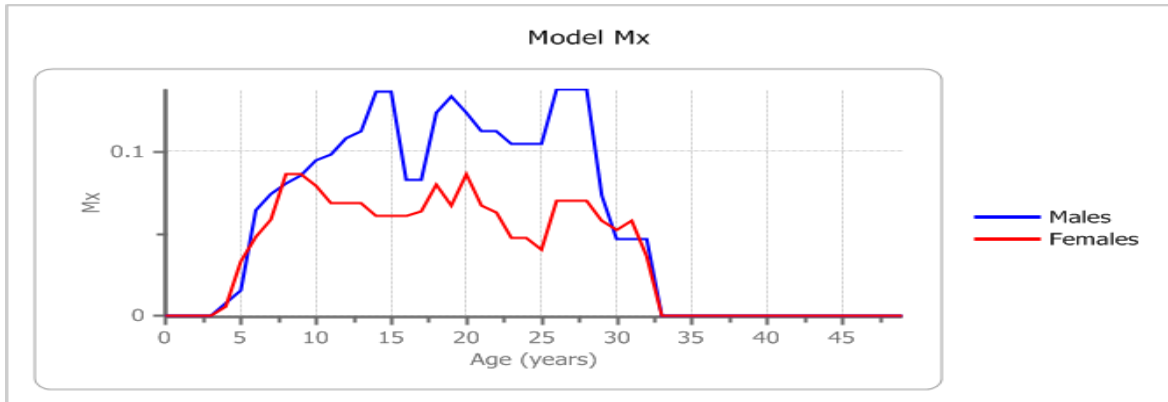


Graph 4 – Birth month for the Black rhino EEP.

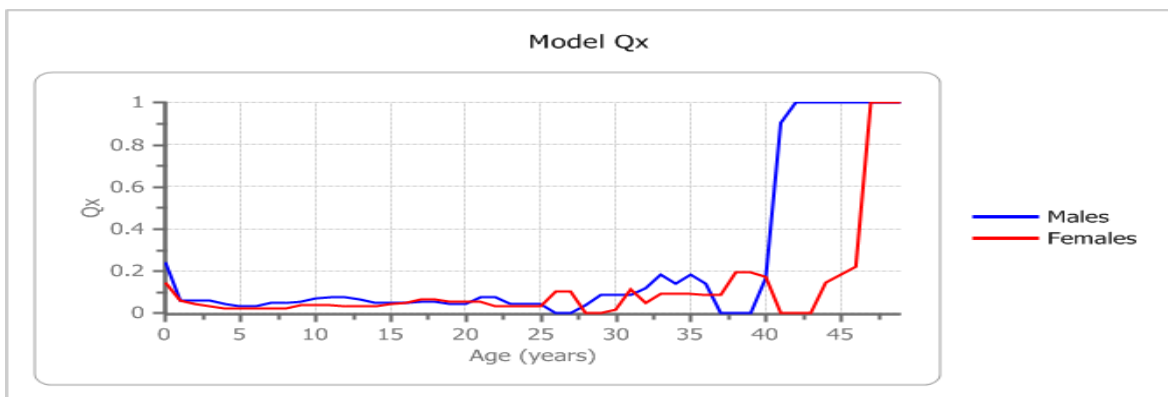


Graph 5 – Death month for the Black rhino EEP

The model Mx graph below shows us the probability of reproduction at each age. Model Qx graph shows us the probability of death at each age. Data for both graphs have been smoothed once.



Graph 6 – Model Mx for the Black rhino EEP.



Graph 7 – Model Qx for the Black rhino EEP.

5. Genetic Overview

For genetic analysis, individuals who offer no potential genetic contribution to the future population are removed. The oldest ever recorded female to reproduce was 32 years old, so individual Kilaguni who is 42 years old is removed from the selection. The oldest male to reproduce was 32 years old also, so male Isis at Dvur Kralove is removed from the selection. One infertile female is removed (Manyara at Chester Zoo); as are two individuals at Frankfurt of the sub species *Diceros bicornis minor*. This reduces our managed population to 77 living individuals.

A full genetic summary can be found in the table to the right.

100% of the captive population ancestry is certain, and the genetic diversity of the 77 selected animals (the probability that two alleles from the same locus sampled at random from the population are not identical by descent from a common ancestor) is 0.96 or 96%.

Our goal is to maintain 90% genetic diversity over 100 years. This can be reached if we maintain a lambda of 1.01 (1% increase per year) and if we increase the effective population size, i.e. get more of the breeding age individuals who have not yet bred (currently 10.12 individuals) to breed.

Genetic Summary	
Founders	41
Living Animals	82
Living Descendants	77
Percent Ancestry Known	100%
Percent Ancestry Certain	100%
Gene Diversity	0.9602
Gene Value	0.9570
Founder Genome Equivalents	12.56
Founder Genome Surviving	20.97
Mean Inbreeding	0.0087
Ne/N	0.4789

The current living population was founded by 41 animals. These are founders as recorded by SPARKS as those with WILD/WILD parents. This does not include other founders to the EEP population who have been transferred into the EEP from outside Europe and are therefore not related to any other rhinos apart from their offspring. For example Sammy (SB number 750) who came from Osaka, Japan in 1999. Of the 41 founders 3 are still alive:

Studbook #	Location	Sex	Age	Descendants	Local ID	House Name
220	Berlin	Female	40	9.0	750016	Kilaguni
558	Lympne	Female	22	3.0	P95039	Vuyu
653	Hannover	Male	21	5.0	400007	Madiba

The table below gives us genetic values for each of the 77 individuals included in the genetic analysis, ordered by location. It includes:

- Mean kinship (MK) - the mean kinship coefficient between an individual and all individuals in the living population.
- Mean kinship rank (MK Rank) - a rank of all the mean kinships in the population (1 being the highest)
- Inbreeding coefficient (F) - the probability that the two alleles at a genetic locus are identical by descent from an ancestor common to both parents.

The most important animals to breed are those with the lowest mean kinship value (MK) or the highest (i.e. rank 1) mean kinship rank (MK Rank). Ideally the inbreeding coefficients (F) should be 0. We must also consider age; the oldest animals with the lowest mean kinships are genetically the most important due to their reduced time left for breeding.

Studbook Number	Sex	Location	House Name	F	MK	MK Rank	Age Years	Living Offspring	Last Reproduction Date
762	F	BEKESBRNE	SALOME	0.0000	0.0400	26F	15	0	--
903	M	BEKESBRNE	ZAMBEZI II	0.0000	0.0347	13M	13	2	2015-09-30
950	F	BEKESBRNE	DAMARA	0.0000	0.0290	17F	10	1	2015-09-30
1053	M	BEKESBRNE		0.0000	0.0351	15M	0	0	--
366	F	BERLINZOO	INE	0.0000	0.0258	10F	29	4	2012-08-06
450	M	BERLINZOO	JASPER	0.0000	0.0732	32M	24	9	2014-10-14
546	F	BERLINZOO	KUMI	0.1250	0.0290	18F	20	2	2014-10-14
886	F	BERLINZOO	MABURI	0.0000	0.0276	15F	13	2	2014-10-02
1056	M	BERLINZOO	HODARI	0.0000	0.0536	25M	1	0	--
1057	M	BERLINZOO	DAYO	0.0000	0.0541	28M	1	0	--
349	M	CHESTER	KIFARU II	0.0000	0.0170	5M	31	3	2016-01-16
680	F	CHESTER	KITANI	0.1250	0.0267	13F	18	0	2015-01-31
714	M	CHESTER	MAGADI	0.0000	0.0329	11M	16	4	2013-06-29
883	F	CHESTER	ZURI	0.0000	0.0345	21F	8	1	2013-06-29
898	F	CHESTER	EMA ELSA	0.0000	0.0504	39F	13	3	2016-01-16
947	F	CHESTER	MALINDI	0.0000	0.0260	11F	10	1	2013-03-07
998	F	CHESTER	CHANUA	0.0000	0.0449	32F	3	0	--
1049	F	CHESTER	DAKIMA	0.0000	0.0327	19F	2	0	--
1051	M	CHESTER	EMBU	0.0000	0.0369	18M	2	0	--
387	F	DVURKRALV	JESSI	0.0000	0.0707	48F	31	6	2015-01-25
483	M	DVURKRALV	BARINGO II	0.0000	0.0349	14M	23	3	2015-01-25
619	F	DVURKRALV	ELBA	0.0000	0.0391	25F	19	3	2009-12-08
659	M	DVURKRALV	MWERU	0.0000	0.0331	12M	19	1	2015-01-26
685	F	DVURKRALV	JOLA	0.0000	0.0479	35F	18	1	2010-09-22
876	F	DVURKRALV	MAISCHA	0.0000	0.0596	46F	10	2	2015-01-26
877	M	DVURKRALV	DAVU	0.0000	0.0415	21M	9	2	2012-09-08
878	F	DVURKRALV	ETOSHA	0.0000	0.0480	36F	9	1	2012-09-08
967	F	DVURKRALV	EVA	0.0000	0.0403	28F	6	0	--
970	F	DVURKRALV	JASMINA	0.0000	0.0561	44F	6	0	--
995	M	DVURKRALV	MANNY	0.0156	0.0538	27M	4	0	--
996	F	DVURKRALV	ELISKA	0.0000	0.0480	37F	3	0	--
1061	F	DVURKRALV	MOLLY	0.0000	0.0496	38F	0	0	--
1062	M	DVURKRALV		0.0000	0.0561	29M	0	0	--

Eastern Black Rhinoceros, *Diceros bicornis michaeli*, EEP Studbook Report 2015

927	M	EBELTOFT	THABO	0.0000	0.0399	20M	7	1	2015-01-01
928	M	EBELTOFT	KITO	0.0000	0.0527	24M	7	0	--
956	F	EBELTOFT	BASHIRA	0.0000	0.0465	33F	6	1	2015-01-01
1059	M	EBELTOFT	MANDELA	0.0000	0.0464	22M	0	0	--
973	M	FOLLYFARM	NKOSI	0.0000	0.0295	8M	4	0	--
453	M	FONTAINE	KATAKATA	0.0000	0.0146	3M	25	0	--
532	F	FONTAINE	TISA	0.0000	0.0234	6F	21	0	--
910	F	FONTAINE	BINTI	0.0000	0.0527	40F	12	0	--
417	F	HANNOVER	SANY	0.0000	0.0536	41F	26	2	2001-03-03
533	M	KOLN	TACO	0.0000	0.0386	19M	20	0	--
437	F	KREFELD	NANE	0.0000	0.0345	21F	24	4	2013-07-13
528	M	KREFELD	USONI	0.0000	0.0355	16M	21	4	2013-07-13
1050	F	KREFELD	NABILA	0.0000	0.0383	23F	2	0	--
689	F	LA TESTE	JANE LEE	0.0000	0.0610	47F	17	0	2007-09-22
926	M	LA TESTE	DZANTI	0.0625	0.0499	23M	8	0	--
436	F	LEIPZIG	SABA	0.0000	0.0264	12F	24	1	2000-01-10
610	M	LEIPZIG	NDUGU	0.0000	0.0248	6M	19	2	2014-10-11
743	F	LEIPZIG	NANDI	0.0625	0.0590	45F	16	1	2013-09-14
767	F	LEIPZIG	SARAFINE	0.0000	0.0546	42F	15	1	2014-10-11
341	M	LYMPNE	KINGO	0.0000	0.0357	17M	32	3	2010-11-04
342	F	LYMPNE	ARUSHA	0.0000	0.0252	9F	32	1	2003-09-16
384	F	LYMPNE	ROSIE	0.0000	0.0146	3F	27	0	--
558	F	LYMPNE	VUYU	0.0000	0.0114	2F	24	3	2009-12-25
663	F	LYMPNE	RUAHA	0.0000	0.0244	8F	19	2	2011-01-22
750	M	LYMPNE	SAMMY	0.0000	0.0065	2M	16	0	2015-01-31
888	F	LYMPNE	SOLIO	0.0000	0.0329	20F	14	0	--
911	F	LYMPNE	NYASA	0.0000	0.0475	34F	12	1	2012-07-01
968	F	LYMPNE	NYOTA	0.0000	0.0268	14F	6	0	--
992	F	LYMPNE	KISSIMA	0.0000	0.0444	31F	3	0	--
295	F	MAGDEBURG	MANA	0.0000	0.0276	15F	34	3	2011-12-24
559	F	MAGDEBURG	MALEIKA	0.0000	0.0406	29F	20	1	2015-03-26
653	M	MAGDEBURG	MADIBA	0.0000	0.0146	3M	23	3	2015-03-26
1063	M	MAGDEBURG		0.0000	0.0309	10M	0	0	--
861	F	MALTON	SAMIRA	0.0000	0.0402	27F	14	1	2014-12-28
1058	F	MALTON	OLMOTI	0.0313	0.0550	43F	1	0	--
428	F	PAIGNTON	SITA	0.0000	0.0235	7F	25	1	2007-03-05
892	M	PAIGNTON	MANYARA	0.0000	0.0304	9M	13	0	--
438	M	PONTSCORF	JAKOB	0.1250	0.0606	30M	24	0	--
662	F	ROTTERDAM	WANDA	0.0000	0.0203	4F	19	0	--
890	M	ROTTERDAM	VUNGU	0.0000	0.0268	7M	14	0	--
974	F	ROTTERDAM	NAIMA	0.0000	0.0429	30F	4	0	--
969	M	TALLIN	KIGOMA	0.0000	0.0536	25M	5	0	--
971	F	TALLIN	KIBIBI	0.0000	0.0383	23F	5	0	--
857	M	ZURICH	JEREMY	0.1250	0.0638	31M	15	1	2014-12-28

6. SPARKS Reports

Living as of 31/12/2015

Restricted to: (Diceros bicornis)
 Dates: On 31 Dec 2015
 Association: \SPARKS\EAZA.fed
 Status: Living on 31 Dec 2015
 Report ordered by: current/last location (alphabetic)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
-------	-----	------------	------	-----	----------	------	---------	-------	------

BEKESBRNE - Howletts Wild Animal Park, Hythe, Kent, England (UK)

762	F	25 Jan 2000	283	282	DVURKRALV	25 Jan 2000	058040	Birth	SALOME
					LYMPNE	27 Nov 2001	P21047	Transfer	
					BEKESBRNE	18 Oct 2004	H20448	Transfer	
903	M	31 Dec 2002	534	408	LYMPNE	31 Dec 2002	P22060	Birth	ZAMBEZI
II					BEKESBRNE	11 Sep 2013	H21286	Transfer	
950	F	18 Dec 2005	302	558	LYMPNE	18 Dec 2005	P20578	Birth	DAMARA
					BEKESBRNE	10 Sep 2013	H21285	Transfer	
1053	M	30 Sep 2015	903	950	BEKESBRNE	30 Sep 2015	H21425	Birth	
Totals: 2.2.0 (4)									

BERLINZOO - Zoologischer Garten Berlin Ag, Berlin, Germany

220	F	~ 1974	WILD	WILD	TANA RIV	~ 1974	NONE	Capture	KILAGUNI
					DEMME	28 Nov 1974		Transfer	
					DE GARDA	1 Dec 1974		Transfer	
					BERLINZOO	19 Oct 1975	0053	Transfer	
						19 Oct 1975	750016	Transfer	
366	F	6 Oct 1986	219	220	BERLINZOO	6 Oct 1986	0087	Birth	INE
						6 Oct 1986	860038	Transfer	
450	M	13 Sep 1991	268	175	DVURKRALV	13 Sep 1991	058025	Birth	JASPER
					LEIPZIG	6 Oct 1993	M01312	Transfer	
					BERLINZOO	5 Nov 1999	990324	Loan to	
546	F	14 Jun 1995	347	366	BERLINZOO	14 Jun 1995	950206	Birth	KUMI
886	F	3 Aug 2002	653	295	MAGDEBURG	3 Aug 2002	400008	Birth	MABURI
					BERLINZOO	7 Jul 2004	MO200002	Transfer	
1056	M	2 Oct 2014	450	886	BERLINZOO	2 Oct 2014	M1400043	Birth	HODARI
1057	M	14 Oct 2014	450	546	BERLINZOO	14 Oct 2014	M1400044	Birth	DAYO
Totals: 3.4.0 (7)									

CHESTER - North of England Zoological Society, Upton-by-Chester, Cheshire, England (UK)

349	M	21 Oct 1984	171	150	ZURICH	21 Oct 1984	840011	Birth	KIFARU II
					FRANKFURT	27 Jul 1987	399	Loan to	
					HANNOVER	27 Sep 1991	IV207	Loan to	
					MAGDEBURG	18 Apr 2012	400011	Transfer	
					HANNOVER	28 Oct 2013	IV207	Transfer	
					CHESTER	12 Sep 2014	C14674	Loan to	
680	F	16 Jun 1997	430	422	CHESTER	16 Jun 1997	28489	Birth	KITANI
					FRANKFURT	16 Jun 1997	38492	Ownership	
714	M	9 Feb 1999	534	194	LYMPNE	9 Feb 1999	P99015	Birth	MAGADI
					CHESTER	24 May 2005	C05265	Loan to	
883	F	5 Mar 2007	341	428	PAIGNTON	5 Mar 2007	8052	Birth	ZURI
					CHESTER	14 Jun 2011	C11443	Transfer	
898	F	2 Nov 2002	283	619	DVURKRALV	2 Nov 2002	058044	Birth	EMA ELSA
					CHESTER	13 Apr 2005	C0593	Loan to	
947	F	3 Nov 2005	653	295	MAGDEBURG	3 Nov 2005	400009	Birth	MALINDI

Eastern Black Rhinoceros, *Diceros bicornis michaeli*, EEP Studbook Report 2015

					CHESTER	25 Sep 2008	C08583	Transfer	
998	F	3 Oct 2012	714	898	CHESTER	3 Oct 2012	C12686	Birth	CHANUA
1049	F	7 Mar 2013	714	947	CHESTER	7 Mar 2013	C1363	Birth	DAKIMA
1051	M	29 Jun 2013	714	883	CHESTER	29 Jun 2013	C13429	Birth	EMBU

Totals: 3.6.0 (9)

DVURKRALV - Zoo Dvur Kralove A S, Dvur Kralove Nad Lab, Vychodocesky, Czech Republic

268	M	3 Nov 1977	247	180	CINCINNAT	3 Nov 1977	M14010	Birth	ISIS
					ZEEHANDLR	13 Nov 1978		Transfer	
					L RUHE	15 Nov 1978		Transfer	
					DVURKRALV	17 Nov 1978	058016	Transfer	
387	F	8 Dec 1984	268	175	DVURKRALV	8 Dec 1984	058019	Birth	JESSI
483	M	3 Dec 1992	142	195	LYMPNE	3 Dec 1992	P92105	Birth	BARINGO
II					CHESTER	23 Oct 2002	CZ641	Loan to	
					LYMPNE	25 May 2005	P92105	Transfer	
					DVURKRALV	5 Jun 2008	058053	Loan to	
619	F	5 Sep 1996	260	431	DVURKRALV	5 Sep 1996	058036	Birth	ELBA
659	M	12 Sep 1996	534	408	LYMPNE	12 Sep 1996	P96037	Birth	MWERU
					DVURKRALV	29 Nov 2001	058042	Transfer	
685	F	25 Oct 1997	277	387	DVURKRALV	25 Oct 1997	058038	Birth	JOLA
876	F	21 Dec 2005	268	678	DVURKRALV	21 Dec 2005	058046	Birth	MAISCHA
877	M	19 Feb 2006	528	437	KREFELD	19 Feb 2006	1687	Birth	DAVU
					DVURKRALV	~ 3 Apr 2008	058052	Transfer	
878	F	4 Sep 2006	283	619	DVURKRALV	4 Sep 2006	058048	Birth	ETOSHA
967	F	8 Dec 2009	483	619	DVURKRALV	8 Dec 2009	058055	Birth	EVA
970	F	13 Dec 2009	483	387	DVURKRALV	13 Dec 2009	058056	Birth	JASMINA
995	M	30 Sep 2011	877	876	DVURKRALV	30 Sep 2011	058058	Birth	MANNY
996	F	8 Sep 2012	877	878	DVURKRALV	8 Sep 2012	058059	Birth	ELISKA
1061	F	26 Jan 2015	659	876	DVURKRALV	26 Jan 2015	058061	Birth	MOLLY
1062	M	25 Jan 2015	483	387	DVURKRALV	25 Jan 2015	058062	Birth	

Totals: 6.9.0 (15)

EBELTOFT - Ree Park - Ebeltoft Safari, Ebeltoft, Arhus, Denmark

927	M	6 May 2008	528	437	KREFELD	6 May 2008	1884	Birth	THABO
					EBELTOFT	21 May 2010	DIB001	Transfer	
928	M	3 Apr 2008	450	366	BERLINZOO	3 Apr 2008		Birth	KITO
					EBELTOFT	6 Oct 2011	DIB002	Loan to	
956	F	15 May 2009	714	898	CHESTER	15 May 2009	C09219	Birth	BASHIRA
					EBELTOFT	22 Jun 2012	DIB003	Loan to	
1059	M	1 Jan 2015	927	956	EBELTOFT	1 Jan 2015	DIB004	Birth	MANDELA

Totals: 3.1.0 (4)

FOLLYFARM - Folly Farm Leisure Ltd, Kilgetty, Pembrokeshire, Wales (UK)

696	neutF	15 Aug 1998	430	312	CHESTER	15 Aug 1998	26055	Birth	MANYARA
					FOLLYFARM	5 Oct 2015	826	Transfer	
973	M	22 Jan 2011	430	663	LYMPNE	22 Jan 2011	P21104	Birth	NKOSI
					FOLLYFARM	15 Oct 2015	890	Transfer	

Totals: 1.1.0 (2)

FONTAINE - BioParc De Doué, Doué-la-Fontaine, Maine-et-Loire, France

Eastern Black Rhinoceros, *Diceros bicornis michaeli*, EEP Studbook Report 2015

453	M	18 Oct 1990	18	19	LYMPNE	18 Oct 1990	P90002	Birth	KATAKATA
					LONDON RP	18 Oct 1990	A1259	Ownership	
					WHIPSSNADE	22 Oct 1993	L2166	Transfer	
					CHESTER	22 Jul 1998	26044	Loan to	
					FONTAINE	9 Jun 2005	2DB90	Transfer	
532	F	20 May 1994	347	220	BERLINZOO	20 May 1994	940061	Birth	TISA
					KOLN	2 Jun 1997	2250	Loan to	
					FONTAINE	4 Aug 2008	4DB94	Loan to	
910	F	2 Nov 2003	450	366	BERLINZOO	2 Nov 2003	M21482	Birth	BINTI
					FONTAINE	11 May 2006	3DB03	Loan to	
Totals: 1.2.0 (3)									

FRANKFURT - Zoologischer Garten Frankfurt, Frankfurt Am Main, Hesse, Germany

393	F	~ 1986	WILD	WILD	MANAPOL	~ 1986	NONE	Capture	TSORORO
					RHODES WD	10 Jan 1989		Transfer	
					FRANKFURT	17 Jul 1989	22109	Transfer	
394	M	~ 1986	WILD	WILD	ZIMBABWE	~ 1986	NONE	Capture	KALUSHO
					RHODES WD	10 Jan 1989		Transfer	
					FRANKFURT	17 Jul 1989	22108	Transfer	

Totals: 1.1.0 (2)

HANNOVER - Zoo Hannover GmbH, Hannover, Lower Saxony, Germany

417	F	1 Oct 1989	268	282	DVURKRALV	1 Oct 1989	058022	Birth	SANY
					HANNOVER	4 Sep 1991	IV206	Transfer	

Totals: 0.1.0 (1)

KOLN - Cologne Zoo, Koeln, N Rhine-Westph, Germany

533	M	6 Feb 1995	349	417	HANNOVER	6 Feb 1995	IV220	Birth	TACO
					ZURICH	6 Feb 1995	950008	Ownership	
					KOLN	10 Jun 1997	2251	Loan to	

Totals: 1.0.0 (1)

KREFELD - Zoo Krefeld GmbH, Krefeld, N Rhine-Westph, Germany

437	F	4 Apr 1991	166	240	BERLINZOO	4 Apr 1991	910035	Birth	NANE
					DVURKRALV	1 Oct 1993	058034	Loan to	
					KREFELD	26 May 1994	740	Transfer	
528	M	1 Jul 1994	252	217	ZURICH	1 Jul 1994	940006	Birth	USONI
					DORTMUND	27 Nov 1996	081004	Loan to	
					KREFELD	30 Oct 2003	1572	Loan to	
1050	F	13 Jul 2013	528	437	KREFELD	13 Jul 2013	739	Birth	NABILA
Totals: 1.2.0 (3)									

LA TESTE - Zooland-Park, La Teste-de-Buch, Gironde, France

689	F	24 Jan 1998	268	175	DVURKRALV	24 Jan 1998	058039	Birth	JANE LEE
					LA TESTE	25 Nov 2011		Transfer	
926	M	24 Nov 2007	283	540	DVURKRALV	24 Nov 2007	058051	Birth	DZANTI
					LA TESTE	25 Nov 2011		Transfer	

Totals: 1.1.0 (2)

LEIPZIG - Zoologischer Garten Leipzig, Leipzig, Sachsen, Germany

436	F	7 Feb 1991	166	220	BERLINZOO	7 Feb 1991	910034	Birth	SABA
						7 Feb 1991	M00447	Loan to	
					LEIPZIG	23 Sep 1993	M00447	Transfer	
					HANNOVER	14 Oct 2003	IV311	Loan to	
					LEIPZIG	8 Dec 2015	M00447	Transfer	
610	M	18 Feb 1996	9	240	BERLINZOO	18 Feb 1996	960019	Birth	NDUGU
					LEIPZIG	4 Jul 2001	M03019	Loan to	
						1 Jan 2002	M03019	Transfer	
					HANNOVER	17 Sep 2014	IV517	Transfer	
					LEIPZIG	25 Jun 2015	M03019	Transfer	

Eastern Black Rhinoceros, *Diceros bicornis michaeli*, EEP Studbook Report 2015

743	F	7 May 1999	450	481	LEIPZIG	7 May 1999	M02619	Birth	NANDI
767	F	10 Jan 2000	450	436	LEIPZIG	10 Jan 2000	M02731	Birth	SARAFINE

Totals: 1.3.0 (4)

LYMPNE - Port Lympne Wild Animal Park, Hythe, Kent, England (UK)

341	M	2 Oct 1983	142	195	LYMPNE	2 Oct 1983	P83001	Birth	KINGO
					CHESTER	21 Jul 1995	25165	Loan to	
					LYMPNE	9 Jul 1996	P83001	Transfer	
					PAIGNTON	16 Jan 2003	4937	Loan to	
					LYMPNE	8 May 2008	P83001	Transfer	
342	F	11 Nov 1983	142	194	LYMPNE	11 Nov 1983	P83002	Birth	ARUSHA
384	F	24 Nov 1988	18	19	LONDON RP	24 Nov 1988	A797	Birth	ROSIE
					CHESTER	10 Aug 1999	M00116	Transfer	
					LYMPNE	13 Jun 2011	P21138	Transfer	
558	F	~ 1991	WILD	WILD	ADDO NP	~ 1991	NONE	Capture	VUYU
					NZP-WASH	2 May 1995		Transfer	
					LYMPNE	6 Aug 1995	P95039	Loan to	
663	F	21 Dec 1996	318	195	LYMPNE	21 Dec 1996	P96046	Birth	RUAHA
750	M	11 Nov 1999	346	183	OSAKA	11 Nov 1999	401	Birth	SAMMY
					CHESTER	10 Apr 2002	CZ54	Loan to	
					LYMPNE	24 Jun 2014	P21387	Loan to	
888	F	30 Jul 2001	534	195	LYMPNE	30 Jul 2001	P21025	Birth	SOLIO
911	F	16 Sep 2003	391	342	LYMPNE	16 Sep 2003	P20331	Birth	NYASA
968	F	25 Dec 2009	341	558	LYMPNE	25 Dec 2009	P20978	Birth	NYOTA
992	F	1 Jul 2012	903	911	LYMPNE	1 Jul 2012	P21233	Birth	KISSIMA

Totals: 2.8.0 (10)

MAGDEBURG - Zoologischer Garten Magdeburg, Magdeburg, Sachsen-Anhalt, Germany

295	F	15 Sep 1981	9	153	MAGDEBURG	15 Sep 1981	400004	Birth	MANA
559	F	23 Dec 1995	386	295	MAGDEBURG	23 Dec 1995	400006	Birth	MALEIKA
653	M	~ 1992	WILD	WILD	ADDO NP	~ 1992	NONE	Capture	MADIBA
					MAGDEBURG	25 Sep 1996	400007	Transfer	
					HANNOVER	18 Apr 2012	IV484	Transfer	
					MAGDEBURG	28 Oct 2013	400007	Transfer	
1063	M	26 Mar 2015	653	559	MAGDEBURG	26 Mar 2015	400013	Birth	

Totals: 2.2.0 (4)

MALTON - Flamingo Land Ltd, Malton, North Yorkshire, England (UK)

861	F	3 Mar 2001	349	417	HANNOVER	3 Mar 2001	IV281	Birth	SAMIRA
					ZURICH	28 Jun 2004	A10031	Transfer	
					MALTON	23 Sep 2015	2205	Transfer	
1058	F	28 Dec 2014	857	861	ZURICH	28 Dec 2014	B40620	Birth	OLMOTI
					MALTON	23 Sep 2015	2204	Transfer	

Totals: 0.2.0 (2)

PAIGNTON - Paignton Zoo Environmental Park, Paignton, Devonshire, England (UK)

428	F	12 Oct 1990	166	298	BERLINZOO	12 Oct 1990	900044	Birth	SITA
					PAIGNTON	19 Sep 2002	4741	Loan to	
892	M	18 Sep 2002	534	456	LYMPNE	18 Sep 2002	P22032	Birth	MANYARA
					PAIGNTON	17 Jun 2010	8372	Transfer	

Totals: 1.1.0 (2)

PONTSCORF - Zoo De Pont-Scorff, Pont-Scorff, Morbihan, France

438	M	23 Jun 1991	386	387	DVURKRALV	23 Jun 1991	058024	Birth	JAKOB
					KREFELD	24 May 1994	739	Transfer	
					PONTSCORF	13 Nov 2002	100324	Loan to	

Eastern Black Rhinoceros, *Diceros bicornis michaeli*, EEP Studbook Report 2015

Totals: 1.0.0 (1)

ROTTERDAM - Rotterdam Zoo, Rotterdam, South Holland, The Netherlands

662	F	3 Jul 1996	252	150	ZURICH	3 Jul 1996	960005	Birth	WANDA
						3 Jul 1996	960005	Loan to	
					ROTTERDAM	12 Nov 2014	Z14493	Transfer	
890	M	8 Nov 2001	341	558	LYMPNE	8 Nov 2001	P21034	Birth	VUNGU
					BEKESBERNE	14 Oct 2004	H20444	Transfer	
					ROTTERDAM	2 Sep 2013	Z13328	Transfer	
974	F	10 Dec 2011	610	767	LEIPZIG	10 Dec 2011	M09769	Birth	NAIMA
					ROTTERDAM	2 Sep 2013	Z13343	Transfer	

Totals: 1.2.0 (3)

TALLIN - Tallinn Zoo, Tallinn, Estonia

969	M	7 Feb 2010	450	886	BERLINZOO	7 Feb 2010		Birth	KIGOMA
					TALLIN	27 Apr 2013	19153	Transfer	
971	F	4 Jul 2010	528	437	KREFELD	4 Jul 2010	2030	Birth	KIBIBI
					TALLIN	27 Apr 2013	19154	Transfer	

Totals: 1.1.0 (2)

ZURICH - Zoo Zürich, Zürich, Switzerland

857	M	21 Dec 2000	283	387	DVURKRALV	21 Dec 2000	058041	Birth	JEREMY
					CHESTER	13 Apr 2005	C0594	Loan to	
					FONTAINE	9 Jun 2005	1DB00	Loan to	
					ZURICH	12 Jan 2010	B00007	Transfer	

Totals: 1.0.0 (1)

=====

TOTALS: 33.49.0 (82)

21 Institutions

Births During 2015

Restricted to: (Diceros bicornis)
 Dates: 31 Dec 2014 - 31 Dec 2015
 Event: Births
 Association: \SPARKS\EAZA.fed
 Report ordered by: current/last location (alphabetic)

```
=====
Stud# | Sex | Birth Date | Sire | Dam | Location | Date | LocalID | Event | Name |
=====
```

BEKESBRNE - Howletts Wild Animal Park, Hythe, Kent, England (UK)

```
1053 M 30 Sep 2015 903 950 BEKESBRNE 30 Sep 2015 H21425 Birth
Totals: 1.0.0 (1)
```

CHESTER - North of England Zoological Society, Upton-by-Chester, Cheshire, England (UK)

```
1060 F 31 Jan 2015 750 680 CHESTER 31 Jan 2015 C1556 Birth FARA
3 Mar 2015 Death
[Death by: Other/Unknown Incinerate Cardiovascular Genetic/Prenatal Necropsy
received]
Totals: 0.1.0 (1)
```

DVURKRALV - Zoo Dvur Kralove A S, Dvur Kralove Nad Lab, Vychodoceky, Czech Republic

```
1061 F 26 Jan 2015 659 876 DVURKRALV 26 Jan 2015 058061 Birth MOLLY
1062 M 25 Jan 2015 483 387 DVURKRALV 25 Jan 2015 058062 Birth
Totals: 1.1.0 (2)
```

EBELTOFT - Ree Park - Ebeltoft Safari, Ebeltoft, Arhus, Denmark

```
1059 M 1 Jan 2015 927 956 EBELTOFT 1 Jan 2015 DIB004 Birth MANDELA
Totals: 1.0.0 (1)
```

MAGDEBURG - Zoologischer Garten Magdeburg, Magdeburg, Sachsen-Anhalt, Germany

```
1063 M 26 Mar 2015 653 559 MAGDEBURG 26 Mar 2015 400013 Birth
Totals: 1.0.0 (1)
```

```
=====
TOTALS: 4.2.0 (6)
```

5 Institutions

Deaths During 2015

Dates: 31 Dec 2014 - 31 Dec 2015

Event: Deaths

Association: \SPARKS\EAZA.fed

Report ordered by: current/last location (alphabetic)

```
=====
Stud# | Sex | Birth Date | Sire | Dam | Location | Date | LocalID | Event | Name |
=====
```

CHESTER - North of England Zoological Society, Upton-by-Chester, Cheshire, England (UK)

```
1060 F 31 Jan 2015 750 680 CHESTER 31 Jan 2015 C1556 Birth FARA
                               3 Mar 2015 Death
```

```
[Death by: Other/Unknown Incinerate Cardiovascular Genetic/Prenatal Necropsy
received]
```

Totals: 0.1.0 (1)

LYMPNE - Port Lympne Wild Animal Park, Hythe, Kent, England (UK)

```
754 F 21 Jun 1999 534 342 LYMPNE 21 Jun 1999 P99052 Birth RUFUJI
                               BEKESBERNE 18 Oct 2004 H20447 Transfer
                               LYMPNE 10 Sep 2013 P99052 Transfer
                               18 Feb 2015 Death
```

```
[Death by: Euthanasia (medical) Incinerate Generalized Unknown after necropsy
Necropsy not received]
```

```
955 M 29 Oct 2008 750 680 CHESTER 29 Oct 2008 C08640 Birth ASANI
                               LYMPNE 3 Oct 2012 P21244 Loan to
                               13 Jan 2015 Death
```

```
[Death by: Unknown means]
```

```
975 F 24 Dec 2011 653 295 MAGDEBURG 24 Dec 2011 400010 Birth MALA
                               LYMPNE 7 May 2014 P21378 Transfer
                               16 Sep 2015 Death
```

```
[Death by: Unknown means]
```

Totals: 1.2.0 (3)

```
=====
TOTALS: 1.3.0 (4)
```

```
2 Institutions
```

Transfers During 2015

Restricted to: (Diceros bicornis)
 Dates: 31 Dec 2014 - 31 Dec 2015
 Event: Transfers
 Association: \SPARKS\EAZA.fed
 Report ordered by: current/last location (alphabetic)

```
=====
Stud# | Sex | Birth Date | Sire | Dam | Location | Date | LocalID | Event | Name |
=====
```

FOLLYFARM - Folly Farm Leisure Ltd, Kilgetty, Pembrokeshire, Wales (UK)

```
696 neutF 15 Aug 1998 430 312 CHESTER 15 Aug 1998 26055 Birth MANYARA
          FOLLYFARM 5 Oct 2015 826 Transfer

973 M 22 Jan 2011 430 663 LYMPNE 22 Jan 2011 P21104 Birth NKOSI
          FOLLYFARM 15 Oct 2015 890 Transfer
```

Totals: 1.1.0 (2)

LEIPZIG - Zoologischer Garten Leipzig, Leipzig, Sachsen, Germany

```
436 F 7 Feb 1991 166 220 BERLINZOO 7 Feb 1991 910034 Birth SABA
          M00447 Loan to
          LEIPZIG 23 Sep 1993 M00447 Transfer
          HANNOVER 14 Oct 2003 IV311 Loan to
          LEIPZIG 8 Dec 2015 M00447 Transfer

610 M 18 Feb 1996 9 240 BERLINZOO 18 Feb 1996 960019 Birth NDUGU
          LEIPZIG 4 Jul 2001 M03019 Loan to
          1 Jan 2002 M03019 Transfer
          HANNOVER 17 Sep 2014 IV517 Transfer
          LEIPZIG 25 Jun 2015 M03019 Transfer
```

Totals: 1.1.0 (2)

MALTON - Flamingo Land Ltd, Malton, North Yorkshire, England (UK)

```
861 F 3 Mar 2001 349 417 HANNOVER 3 Mar 2001 IV281 Birth SAMIRA
          ZURICH 28 Jun 2004 A10031 Transfer
          MALTON 23 Sep 2015 2205 Transfer

1058 F 28 Dec 2014 857 861 ZURICH 28 Dec 2014 B40620 Birth OLMOTI
          MALTON 23 Sep 2015 2204 Transfer
```

Totals: 0.2.0 (2)

=====

TOTALS: 2.4.0 (6)

3 Institutions