AFRICAN STUDBOOK

WESTERN DERBY ELAND

Taurotragus derbianus derbianus (GRAY, 1847)

2014

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DERBIANUS CZECH SOCIETY FOR AFRICAN WILDLIFE

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Editors:

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Czech University of Life Sciences Prague
Derbianus Czech Society for African Wildlife

under the auspices of the Western Derby eland conservation programme
&
Society for the Protection of Environment and Fauna in Senegal

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Content

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CONSERVATION de l'ELAND de DERBY

COOPERATION REPUBLIQUE TCHEQUE - SENEGAL

CZU
CZECH UNIVERSITY OF LIFE SCIENCES IN PRAGUE

RESERVE de FATHALA

Société pour la Protection de l'Environnement et de la Faune au Sénégal

Direction des Parcs Nationaux du Sénégal

Participating organisations and institutions

Society for the Protection of Environment and Fauna in Senegal (SPEFS) founded the semi-captive Western Derby eland conservation programme, hosts the animals in their two nature reserves and provides them with necessary protection, breeding facilities, and management.

Ministry of Environment and Sustainable Development of Senegal (MESD) and **Directorate of National Parks in Senegal** (DPNS) provides the legislative framework and represents the government authority responsible for nature conservation in Senegal.

Czech University of Life Sciences Prague (CULS Prague) provides the Western Derby eland conservation programme with scientific expertise in the domains of ecology, behaviour, and genetic management.

Derbianus Czech Society for African Wildlife (Derbianus CSAW) is a non-governmental organization founded at CULS Prague to provide managing and fundraising activities for the Western Derby eland conservation programme. Derbianus CSAW also arranges professional veterinary services for animal transports, supports the development of infrastructure in the nature reserves and provides environmental education for local people on the periphery of national parks and breeding reserves.

Ministry of Environment of the Czech Republic and **Ministry of Foreign Affairs** are the institutions that support Western Derby eland conservation, breeding management and environmental education, and these under the auspices and funding of the **Czech Republic Development Cooperation**.

Since 2012 the Western Derby Eland Conservation Programme proudly bears the brand of **WAZA** (World Association of Zoos and Aquariums).

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Main partners and sponsors of Western Derby eland **conservation programme and cooperating organisations:**

Preface to the volume seven

The seventh volume of the African studbook for the Western Derby eland (*Taurotragus derbianus derbianus*) brings the current demographic and genetic characteristics of the semi-captive population in Bandia and Fathala reserves, Senegal.

CD in the supplement provides the identification cards (ID) of all living individuals kept in semi-captivity in Bandia and Fathala reserves. Detailed information about Western Derby eland in the wild as well as within the conservation programme may be found in Western Derby eland (*Taurotragus derbianus derbianus*) Conservation Strategy published under the Czech University of Life Sciences Prague in 2013.

All activities of the Czech team within the last four years of the Western Derby eland conservation programme were realized thanks to the support given by people and institutions to the non-profit organisation Derbianus Czech Society for African Wildlife. All donations for the continuation of our work are profoundly welcome.

Editors

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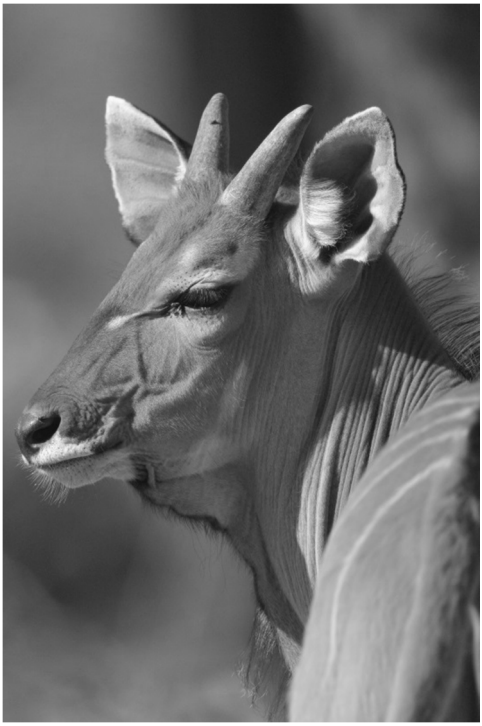
SECTION A:

Western Derby eland conservation programme



Calf of Western Derby eland

Current status of Western Derby eland

The Western Derby eland (*Taurotragus derbianus derbianus*) is currently restricted to only one country in the world – Senegal. There are three important localities: 1) the Niokolo Koba National Park (NKNP) with the only confirmed wild population, 2) the Bandia reserve and 3) the Fathala reserve, both hosting Western Derby eland's managed semi-captive population.

The NKNP in south-eastern Senegal covers 913,000 ha and is the Senegalese largest and oldest national park. Its importance as a well-preserved ecosystem of Sudanese and Sudano-Guinean savanna with extraordinary rich biodiversity concerns the entire region of the West Africa. The area of NKNP supports high diversity of plant and animal species. Since 1981, NKNP is listed as World Heritage and since 2007 as World Heritage in Danger by UNESCO (UNESCO 2014). It is probably the only place in the world where the last wild population of Western Derby eland can be found.

The Bandia reserve is situated 65 km south-east of Dakar, Senegal (14°35' N, 17°00' W), on the south-western border of the classified forest Bandia (Forêt classée de Bandia). The fenced reserve contributes substantially to natural vegetation conservation (Hejcmanová *et al.* 2010). Very few game species are native in the Bandia reserve, the majority of species is introduced from various areas of Senegal, such as African buffalo (*Syncerus caffer brachyceros*), defassa waterbuck (*Kobus ellipsiprymnus defassa*), kob (*Kobus kob*), roan antelope (*Hippotragus equinus koba*), and from South Africa, such as giraffe (*Giraffa camelopardalis giraffa*), greater kudu (*Tragelaphus strepsiceros*), impala (*Aepyceros melampus*),

common eland (*Taurotragus oryx oryx*), and white rhino (*Ceratotherium simum simum*). The Bandia reserve was the first site where the wild-captured Western Derby eland were placed after the capture operation in 2000 and since, the site and the herd management have proved to be appropriate for their successful reproduction. The Bandia reserve is well equipped wildlife reserve with facilities such as boma and enclosures.

The Fathala reserve is the fenced area of the Fathala Forest (Forêt de Fathala), the main terrestrial part of the Delta du Saloum National Park (DSNP) situated on the west coast of Senegal (13°39' N, 16°30' W) near the northern border of the Gambia. The area is flat with dry plateaus, passing into shallow humid valleys, such as "Mare of the Dragon". There is some native game such as bushbuck (*Tragelaphus scriptus*), warthog (*Phacochoerus africanus*), patas monkey (*Erythrocebus patas*); and several introduced game species from Senegal, such as African buffalo (*Syncerus caffer brachyceros*), defassa waterbuck (*Kobus ellipsiprymnus defassa*), roan antelope (*Hippotragus equinus koba*), and from South Africa, as giraffe (*Giraffa camelopardalis*), and white rhino (*Ceratotherium simum*). The Fathala reserve is the second reserve with Western Derby eland semi-captive population, with two herds in enclosures of approximately 160 ha, and 1,800 ha, respectively.

Semi-captive population structure of Western Derby eland

The critical situation of the Western Derby eland (WDE) in the wild enhanced the awareness of urgent need for a conservation action. In 2000, the first semi-captive Western Derby eland population, unique worldwide of that subspecies, was therefore established in Senegal with a clear objective – to establish a viable population in semi-captivity (Nežerková *et al.* 2004). Thereby, a unique conservation programme was launched and has been running till present due to close coordinated cooperation of the partners.

At the beginning of the year 2014 we organized 6th WDE transfers within the Bandia reserve. At first, we removed subadult males from the herd Bandia 3 and moved them into the bachelor herd Bandia 4. The herd was then prepared to receive new breeding females from the large herd Bandia 1. Derby elands in the herd Bandia 1, till this moment the largest breeding herd, were unfortunately mixed together with other reserve animals, including the closely related common eland (*Taurotragus oryx*) in 2012. To avoid risk of potential interbreeding, which may destroy the gene pool of critically endangered WDE, we decided to remove as much breeding individuals as possible from Bandia 1 to other fenced herds. Thanks to the management of Bandia reserve we created a new breeding herd of WDE, Bandia 5. For the new herd we selected two males of the least represented "S" lineage and appropriate females from Bandia 1. We also moved two females from Bandia 1 to the herd Bandia 3. After the transfers, totally 11 animals were removed from the direct contact with common elands. Following our regular observations, the rest of WDE in the herd

Bandia 1 avoids contact with common elands and attempts of interbreeding were not observed. Despite of this, we have started an intensive DNA monitoring, sampling both WDE and common elands from Bandia reserve and all offspring of WDE.

In May 2014, a regular anti-tick treatment was applied in Bandia reserve before the start of rainy season. Unfortunately, it was probably this treatment which had fatal consequences – 6 animals died in Bandia 3 and one male in newly established Bandia 5 herd. The treatment used contained Chlorpyrifos, regularly used for cattle. The exact way how the animals ingested the substance remains unclear.

In the Fathala reserve, both existing herds were reproducing well. The fenced enclosure inhabited by herd Fathala 1 was doubled in size and the WDE inside were in good condition. The herd Fathala 2 in the large enclosure was also doubled in size, allowing WDE and other species to use almost 2,000 ha. In this herd, a problem with a secondary hoof infection appeared in 5 adult males, in some of them probably resulting to death.

Demographic analysis

Western Derby eland pedigree data were processed in SPARKS 1.66 (ISIS 1992) and further corroborated in PMx software for pedigree analyses (Ballou et al. 2011, Traylor-Holtzer 2011). Individuals alive in June 2014 and their ancestors were included into the pedigree. "Founder" means "genetic founder" – wild-born individuals presumed to be unrelated. With regard to the exclusion of sub-adult males from breeding herds, the dominant male was assumed to be the sire of all the descendants in the main breeding herd (Bandia 1) until 2009. In

2010, we left more males in this herd in order to replace the old one. All of them were from the same genetic lineage (same mother-founder). Calves from this herd were then counted as "multiple sired" with probabilities added to each potential sire.

A total of 131 offspring of the Western Derby eland were born from 2000 to 2014 in the herds with 6 founders in fenced areas, initially in the Bandia reserve and later in the Fathala reserve (Fig. 1). Thereby, the Western Derby eland formed a population of 83 living individuals bred in semi-captivity and managed in 6 herds in 2 nature reserves in Senegal in June 2014 (Tables 1 and 2).

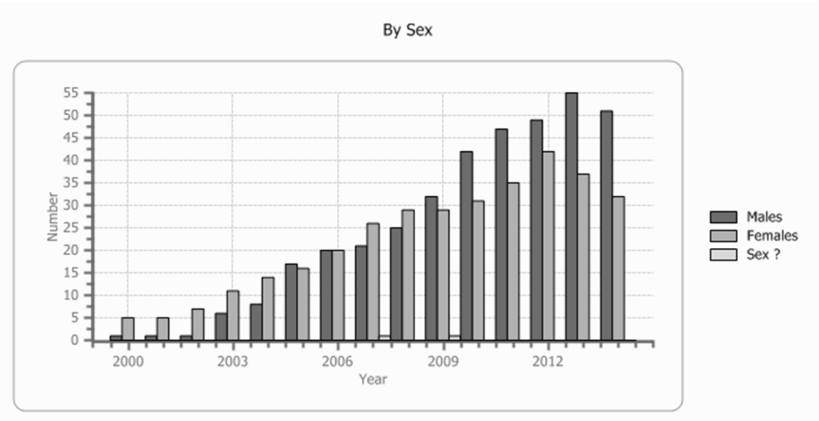


Fig. 1. Population growth rate in the semi-captive Western Derby eland population based on the real data collected between 2000 and 2014.

Tab. 1. The actual structure of herds (June 2014) is following: (location + numerical enclosure designation):

Enclosure designation	***Number of males***	***Number of females***	***Herd category***	***Enclosure size***	***Enclosure type***
Bandia 1	17	12	Reproductive	3,500 ha	Multiple species
Bandia 3	3	5	Reproductive	80 ha	Single species
Bandia 4	13	0	Bachelor	100 ha	Single species
Bandia 5	1	7	Reproductive		Single species
Fathala 1	4	6	Reproductive	160 ha	Single species
Fathala 2	13	2	Reproductive	1,800 ha	Multiple species

Tab. 2. Demographic parameters of the Western Derby eland semi-captive population in June 2014.

Variable	Males	Females	Unknown
Founders	1	5	
Present number of individuals *N*	51	32	
Number of pre-reproductive	17	9	
Number of adults in the population	34	23	
Births total	72	54	5
Deaths total	22	27	5
Generation length	6.1	5.8	
Deterministic population growth rate (λ) [a]	1.112	1.137	

[a] λ >1 indicate population increase

The reproduction of Western Derby eland in the Bandia reserve started in 2002 with 2 female calves born. Mating occurred most likely synchronously (chi sq = 389.7, df = 11, $p < 0.05$), considering that the majority of calves were born from November to January (89 %) and the rest from February to April (Fig. 2). Number of births should increase with increasing number of adults, but it has not been fulfilled in all years as seen from Fig. 3. The age structure (Fig. 4) shows an increasing number of young animals as well as the slightly biased sex ratio (1.24:1).

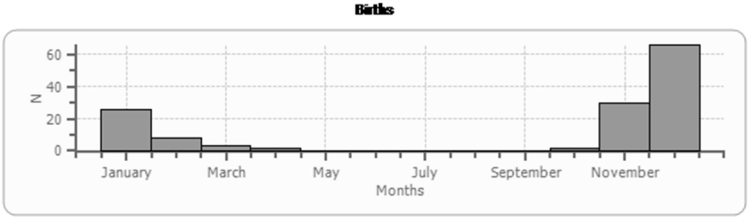


Fig. 2. Birth distributions of Western Derby elands in the Bandia reserve throughout the year in the period of 2002–2014.

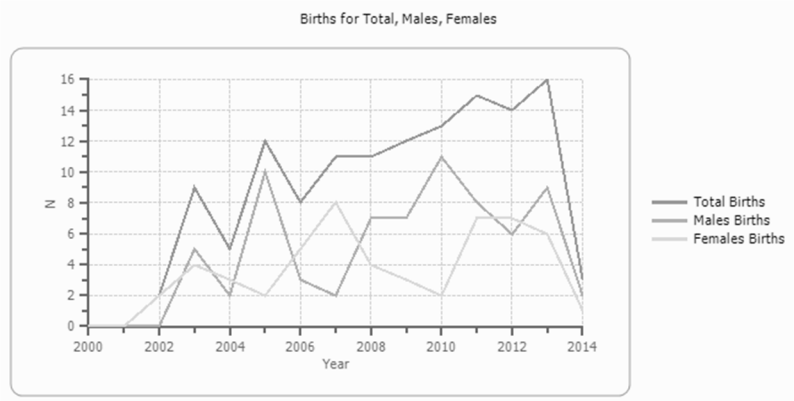


Fig. 3. Number of births of Western Derby eland in semi-captive population in respective years (2000 – 2014).

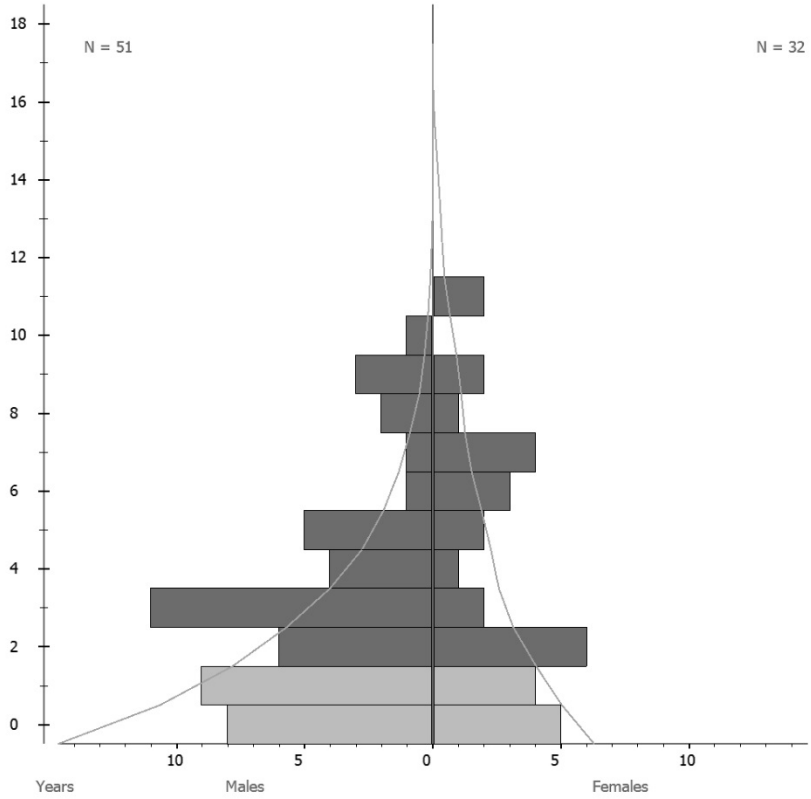


Fig. 4. Male and female age structure of the living individuals of the Western Derby elands held in semi-captivity in June 2014. The light coloured part represents individuals in non-breeding age.

The earliest reproduction occurred at the age of 2 years in both males and females, the latest recorded reproduction at the age of 16 years (female) and 13 years (male) respectively. Average fecundity (M_x = ½ number of offspring born to parent of age x) was 0.7 for males and 0.3 for females (Fig. 5).

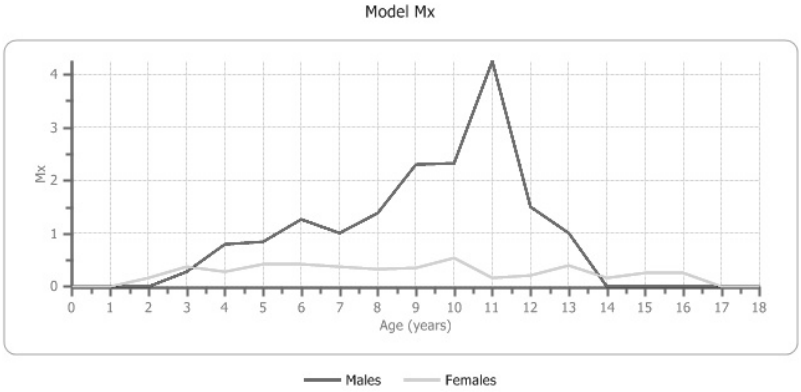


Fig. 5. Mx: Fecundity, or the average number of offspring born to individuals in that age class.

The annual mortality in 2014 reached an alarming value of 21.7 % (Fig. 6). This situation was caused by the fact that the oldest animals in the population reached the age of natural mortality, but there were also other problems in the population, hoof-related problems in Fathala reserve and anti-tick treatment related mortalities in Bandia reserve. Although the average values of mortality (Table 3) have not significantly changed, similar trends in the future could negatively affect the population parameters. Mortality was not seasonally distributed (Fig. 7). Survival values and life expectancies are calculated in Table 4.

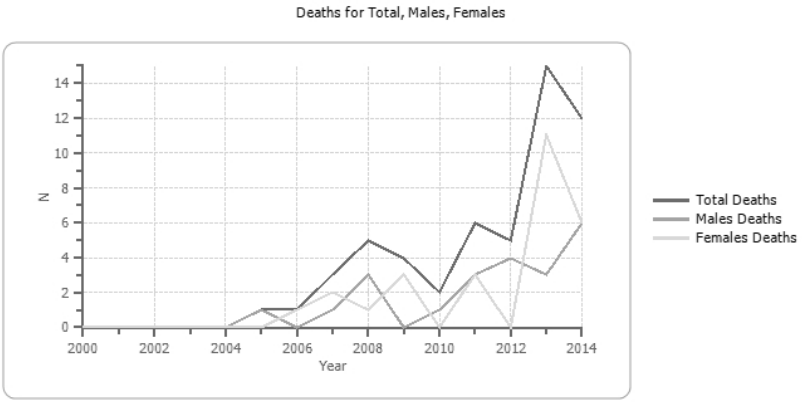


Fig. 6. Overview of deaths of Western Derby eland in semi-captive population since 2000.

Tab. 3. Overview of the mortality in different age categories of semi-captive population of Western Derby eland based on the real data collected between 2000 and 2014.

Mortality	**total**	**males**	**females**
30 Day Mortality	0.06 (N=124)	0.05 (N=71)	0.07 (N=53)
0 Age Class Mortality	0.09 (N=116)	0.07 (N=66)	0.10 (N=50)
Avg. Pre-Repro Mort	0.07 (N=108)	0.05 (N=62)	0.09 (N=47)
Avg. Repro Mortality	0.13 (N=29)	0.14 (N=15)	0.11 (N=14)

Fig. 7. Non-calf mortality in semi-captive population of Western Derby elands based on the real data collected between 2000 and 2014.

Tab. 4. Survival rates of the WDE population. Lx value shows the ratio of population which will reach specific age.

Survival (years)	total	males	females
Lx = 0.50	9.6	8.6	10.5
Lx = 0.25	12.9	11.5	14.4
Lx = 0.10	14.8	13.4	16.3
Lx = 0.05	15.2	13.7	16.6
Lx = 0.01	15.4	13.9	16.9
Life Expectancy	8.8	8.4	9.3
Oldest Living	11.5 (ID:1009)	10.6 (ID:1014)	11.5 (ID:1009)
Oldest Recorded	16.9	13.5	16.9

Analyses of the life table of the Western Derby eland indicated that the deterministic annual population growth rate was 1.21, significantly lower than in the last years. Net reproductive rate (R0), which is the rate of change per generation (average number of offspring that an individual will produce in its lifetime) was 3.68 (5.25 for males and 2.11 for females).

According to the projections assessing the current situation, population size next year should be 92 animals, the same as in 2013 (83 <> 92 <> 104). Stochastic probability of increase is 97 %, decrease should not occur (probability 2 % only). For the population estimates within 20 years horizon see Table 5 and Fig. 8.

Tab. 5. WDE population estimates within 20 years horizon.

Population size	total	males	females
N 20 years	528 <> 874 <> 1257	267 <> 442 <> 642	257 <> 432 <> 628

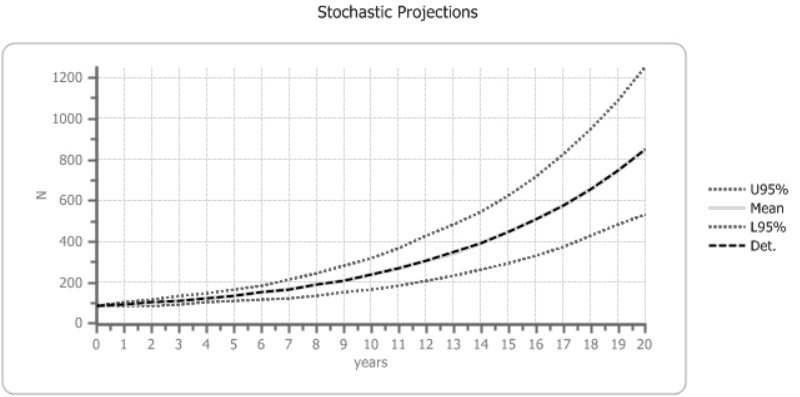


Fig. 8. Stochastic projection of the WDE population size within 20 years horizon.

Inbreeding is not included in the stochastic projections, although it may significantly influence future reproduction. Demographic rates may change if inbreeding accumulates in the population (Traylor-Holzer, 2011). Moreover, the population size in 2014 was **significantly less than predicted** by stochastic projections, showing that other factors then those included in the calculations might have played role in the change of population size.

Demography – graphs

To illustrate the demographic situation of the population, we decided to show following graphs, representing different views on the demographic parameters (Fig. 9 – 14).

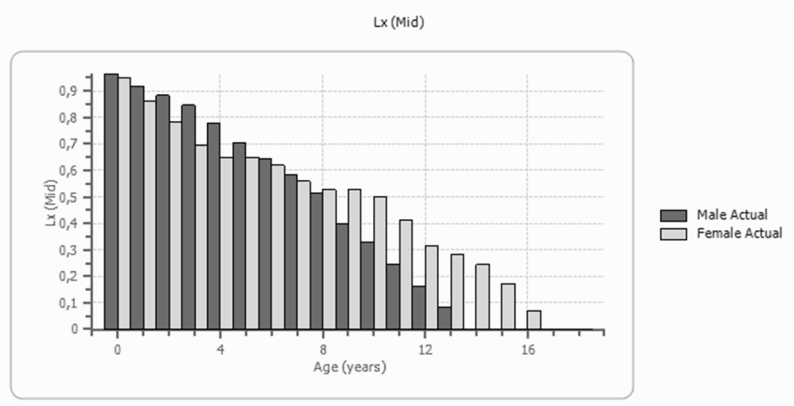


Fig. 9: Lx (mid): Survivorship, or the proportion of individuals surviving from birth to the mid-point of age class x.

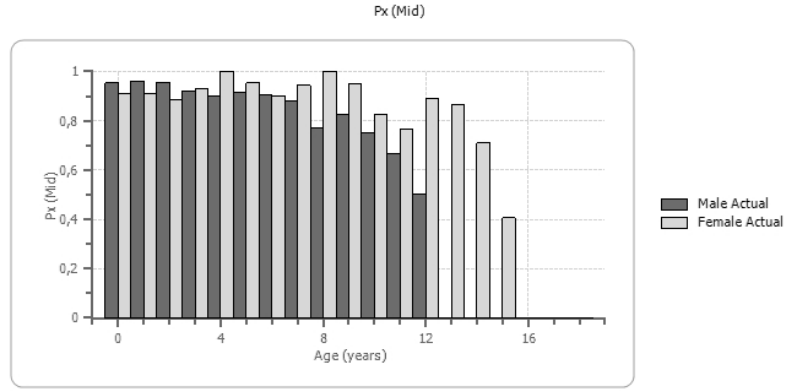


Fig. 10. Px (mid): Survival, or the proportion of individuals which survive from the beginning of age class *x* to the mid-point of age class *x+1*.

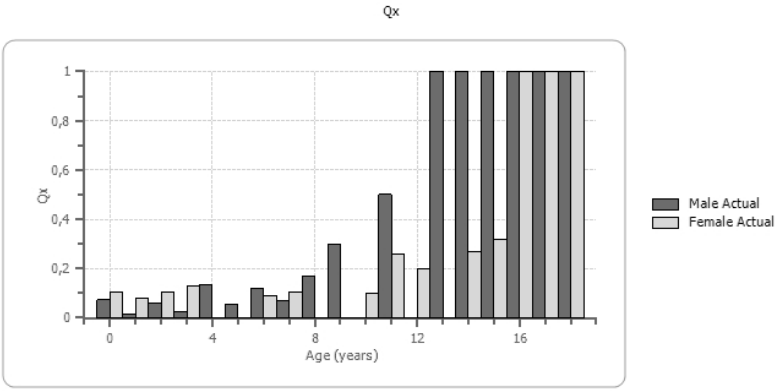


Fig. 11. Qx: Mortality, or the probability that an individual of age x dies during age class x.

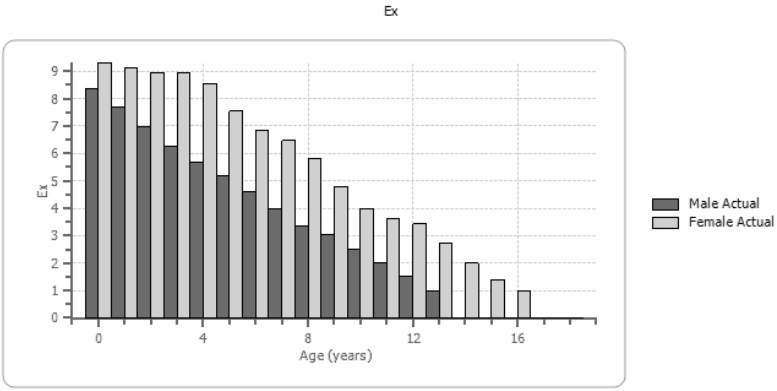


Fig. 12. Ex: Life expectancy, or the average number of additional years an individual in age class x can expect to live.

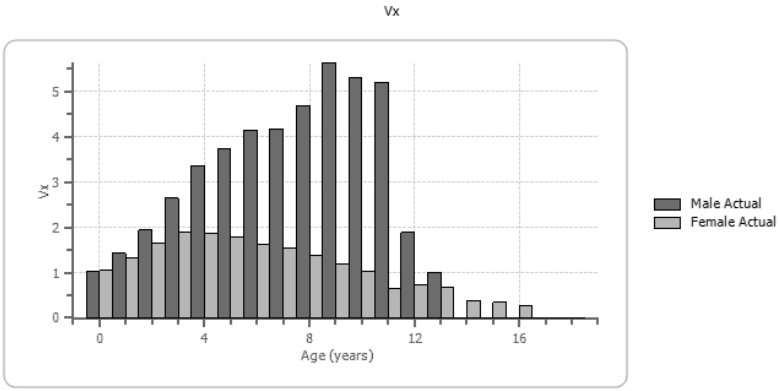


Fig. 13. Vx: Reproductive value, or the expected number of offspring produced this year and in future years by an animal of age x.

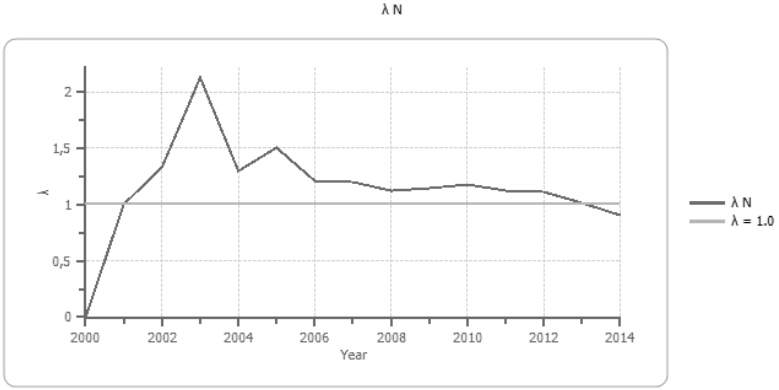


Fig. 14. Lambda: Proportional change in population size from one year to the next. Lambda N is based on observed changes in population size due to all causes.

Harvesting recommendations

As one of the tools for managing populations in which the reserve managers are interested may be a sustainable harvest, we decided to include specific calculations into the studbook.

To maintain the population growth (lambda) at the actual level (1.22), no harvest is available during next 20 years. Any harvest will decrease population growth, which is not desired regarding present situation and high level of mortalities. Decreasing lambda to 1.1 provides one male of the age class 6-8 years after 2 years of no harvest (2016). Harvesting one male (6-8 years old) per year during following 5 years would significantly decrease the population growth to 1.06.

If any of males should be harvested, the optimal selection regarding gene diversity of the population represents the males located in Fathala 2 (ID 1039, 1025, 1031, 2034, 1023). Changes of genetic parameters of the population would be in this case as in Table 6. For the genetic analysis of the population see following capture.

Tab. 6. Change of genetic parameters of the WDE population in case of harvesting males ID 1039, 1025, 1031, 2034, 1023.

	New value	**Change**
Gene diversity	0.7864	-0.0014
Gene value	0.7843	-0.0030
FGE	2.3413	-0.0149
% known	0.9206	-0.0010

Genetic analysis

The actual population size of Western Derby elands in semi-captivity dropped down to 83 individuals. Despite of this, the current effective population size increased to 15.14 (based on 5.2 breeding males and 13.9 breeding females), indicating that more individuals entered the reproduction. The *Ne/N* ratio increased to 0.198. The overall (mean) effective population size has increased due to management of reproduction since 2008, from 3.71 to 6.06.

The animals in the pedigree had 75 % of certain ancestry genotypes in the population. The population still has 92 % ancestry known, but not certain because of multiple sires presented in the pedigree with different breeding probabilities.

The population has retained 78.8 % of genetic diversity (GD) from the founders. This number has been almost stable since 2008 (Fig. 15). In addition, the overall mean level of inbreeding in the population was 0.1719 and increased from 0.1364 in 2008.

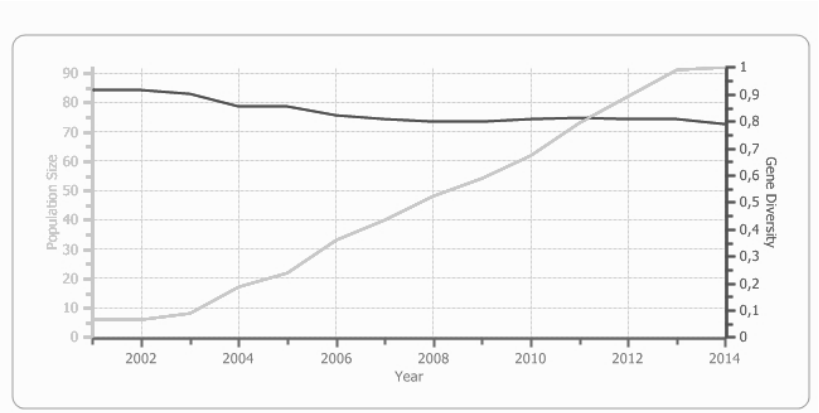


Fig. 15. Development of population size and genetic diversity of WDE in semi-captivity throughout the period of 2001–2014.

Founder genome equivalents (FGE = 2.36) and founder genomes surviving (FGS = 5.82) were low due to the overrepresentation of only one founder male (Fig. 16, Table 7). Contribution of founding female 1004 (Bembou) increased significantly by including her sons into reproduction as a breeding males. Contribution of female 1003 (Salémata) still remains the lowest, and very low is also contribution of 1005 (Malapa). Those two lineages ("S" and "M" lineage) need to be more propagated in the form of breeding males. Males of "S" lineage have been transported into Bandia 5 as breeding ones, their contribution should appear during next years. Males of "M" lineage should be preferably used in Fathala breeding herds in the future.

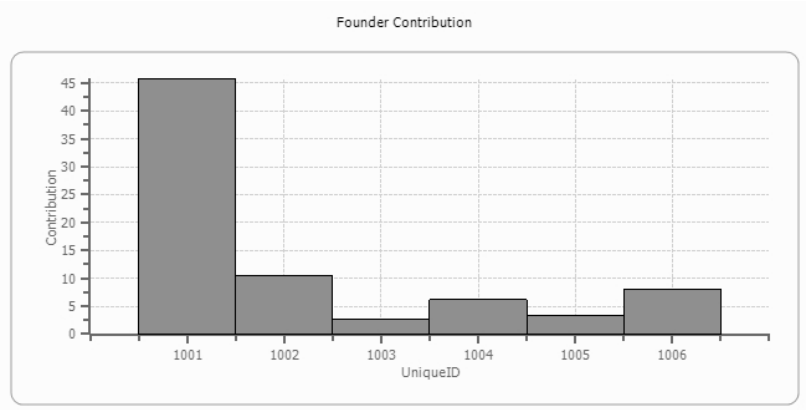


Fig. 16. Founder contributions in the semi-captive Western Derby eland population in Senegal. Unique ID the x axis indicates particular individuals: 1001 – male, 1002 to 1006 – females.

Tab. 7. Founder contributions (FC) for the genetic management of the pedigree in the semi-captive Western Derby eland population in Senegal (Lin. – lineage, Rep. – representation, Cont. – contribution, Desc. – descendants).

Unique ID	Lin.	Sex	Age	Alive	Rep.	Cont.	Allele Retention	Desc.
1001	---	M	13	False	0.5979	45.7375	1.0000	83
1002	D	F	16	False	0.1383	10.5800	0.9945	37
1003	S	F	16	False	0.0343	2.6250	0.9270	8
1004	B	F	14	False	0.0807	6.1750	0.9650	28
1005	M	F	12	False	0.0426	3.2550	0.9450	11
1006	T	F	14	False	0.1062	8.1200	0.9840	37

A significant potential GD of 91.40 % still remains in the population. Furthermore, the retained amount of the original GD of founders is still present in the population and these can be

evaluated by the proper management by mean kinship (MK) that was 0.2122 on average (Table 8).

Tab. 8. Mean kinship (MK) distribution in the semi-captive Western Derby eland population in Senegal in June 2014. Note that the most valuable animals (MK < 0.01) have died out since last year.

Mean kinship range		**No of individuals**	**% of population**
	< 0.1	0	0
0.1156 – 0.1978	0.1 – 0.2	34	41.0
0.2007 – 0.2660	0.2 – 0.3	37	44.6
> 0.3025	> 0.3	12	14.4

Tab. 9. Genetic structure of breeding herds of Western Derby eland in the semi-captive Western Derby eland population in Senegal in June 2014 (Fd – number of founders, Kn. – known, Cert. - certain ; GD – genetic diversity, MK – mean kinship, FGE – founder genome equivalents, Mean F - inbreeding , FGS – founder genome surviving).

Herd	**N**	**Fd**	**Kn.**	**Cert.**	**GD**	**GV**	**MK**	**FGE**	**Mean F**	**FGS**
Bandia 1	29	6	0.94	0.72	0.78	0.79	0.22	2.31	0.14	4.64
Bandia 3	8	5	1.00	0.88	0.75	0.76	0.25	1.20	0.15	3.13
Bandia 4	13	6	0.96	0.77	0.80	0.80	0.20	2.45	0.13	4.20
Bandia 5	8	5	0.94	0.63	0.78	0.78	0.22	2.28	0.11	3.23
Fathala 1	10	2	0.72	0.64	0.52	0.59	0.48	1.04	0.40	1.49
Fathala 2	15	4	0.95	0.88	0.73	0.71	0.27	1.82	0.20	3.30

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Grammar School Na Zatlance
Grammar School Říčany
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Kindergarten and Primary School Radnice
University of Third Grade, Czech University of Life Sciences Prague
Endowment Fund Microfinance
Grammar School Turnov
Grammar School Karlín
Primary School Kříše
Lady Club Břasy
Faculty of Environmental Sciences, J. E. Purkyně University, Ústí nad Labem
Night of Universities (joint meeting of University of Life Sciences Prague, Czech Technical University in Prague and Institute of Chemical Technology in Prague)
Primary School Lysolaje
Week of Science and Technology, Ostrava Zoo
Mikoláš Aleš Primary School
J.A. Komenský Primary School, Kly
Primary School Sunny Canadian, Jesenice
National Technical Library (cooperation with Home Senior, s.r.o.)
Secondary Special School Čakovice

Abstract to scientific outputs published since June 2012

WESTERN DERBY ELAND (*TAUROTRAGUS DERBIANUS DERBIANUS*) CONSERVATION STRATEGY

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Presented publication focuses on important issues connected with the conservation of the world's largest antelope, critically endangered Western Derby eland. Based on the 13-year history of Senegalese-Czech cooperation, we aimed to produce a locally and internationally respected conservation tool for this magnificent creature.

Publication is composed of three integrated parts. First, a complex and thorough status review of the Western Derby eland, covering the history and presence of abundance and distribution, as well as threats and conservation activities. Second, the conservation strategy plan with vision, goals, objectives and activities. And third, the sixth volume of studbook, bringing actual demographic and genetic data for the semi-captive

population within the Western Derby eland conservation programme.

We believe that this publication will improve the chances for the Western Derby eland survival.

DOES SUPPLEMENTAL FEEDING AFFECT BEHAVIOUR AND FORAGING OF CRITICALLY ENDANGERED WESTERN GIANT ELAND IN AN EX SITU CONSERVATION SITE?

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The western giant eland (*Tragelaphus derbianus derbianus*) needs appropriate management for its survival. We measured the effects of supplemental food on activity and browsing patterns during seasons of scarce natural food resources in 2008 and 2009 for a herd of six animals in the Fathala Reserve (Senegal). In response to the provision of high-quality pods of *Acacia albida*, animals reduced foraging time in 2008 and allocated it to resting. This pattern corresponds to the animals' behaviour in captivity without foraging versus vigilance trade-offs and with predictable (in time and space) access to food. In 2009, supplemental feeding had no effect on behaviour and was associated with increased foraging and ruminating times than in 2008, suggesting more limited natural food resources in 2009.We recorded high species diversity in the animals' natural diet. Supplemental food did not induce changes in browsing pattern at the plant species level, probably due to small individual effect on total nutrient and energy intake. Food

supplementation, however, facilitates the animals overcoming unfavourable conditions or alleviates stress with additional rest, and could therefore assist as a conservation intervention to enhance fitness.

Keywords: diet composition, large herbivore, *Tragelaphus derbianus*, West Africa, wildlife management.

DOES A CHANGE IN LAND USE AFFECT WOODY VEGETATION IN SUB-HUMID SUDANIAN SAVANNA IN SENEGAL?

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Little attention has been paid to response of sub-humid savannas to changes in management. The aim of the study was to test whether changes in management had any effect on richness, diversity, composition, and density of woody species in subhumid West African savanna. In Fathala Forest (Senegal), we compared woody vegetation in communal land (FUC) with that on protected area fenced-off for 8 years either with (FFW) or without (FFE) wildlife. Species richness and diversity of woody plants were 5.6 and 0.5 per 0.02 ha plot on average and both were consistent throughout the study area. Density of all woody plants (saplings and full-grown trees together) was 4700 individuals per ha in FFW which was significantly higher than in FFE and FUC. No differences were found among densities of full-grown trees, while density of saplings in FFW (3429 individuals per ha) was higher, although this only differed significantly from FUC. Different management did not affect density of species used for construction, fodder or medicine probably due to low intensity of recent exploitation. We concluded that in subhumid conditions, 8 years of fencing was not enough for manifestation of the change in management and human exploitation of lower

intensity cannot be connected with degradation of sub-humid tropical woodlands.

Keywords: woody plants density; diversity; management; recruitment; vegetation dynamics; West Africa

Selected posters presented at international conferences

Fig. 17. Poster for EAZA and WAZA Conferences 2013

NEW FUTURE FOR THE LARGEST ANTELOPE

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More than 40 experts from seven countries and four continents met in January 2013 in Senegal to create the conservation strategy for the Western Derby eland (*Taurotragus derbianus derbianus*), a critically endangered antelope (ISIS 2012).

The last viable population (170 individuals recorded in 2006) of this antelope lives in Niokolo Koba National Park (NKNP) in Eastern Senegal, threatened by poaching and habitat loss.
A semi-captive population was established in 2000 from six founders captured in NKNP thanks to the Directorate of National Parks in Senegal (DPN) and the Society for the Protection of Environment and Fauna of Senegal (SPEFS) (Nežerková *et al.* 2004).

This semi-captive population has become the base of the conservation programme led by Derbianus Czech Society for African Wildlife NGO, DPN, and SPEFS. Due to careful breeding management, research and education, the semi-captive population reached 95 individuals in 2013, separated into several herds within two fenced reserves (Bandia and Fathala) in Western Senegal (Koláčková *et al.* 2011, 2012).

A Species Conservation Planning workshop for the Western Derby eland was organised by Derbianus Czech Society for African Wildlife, DPN and SPEFS, and supported by Czech University of Life Sciences Prague, Knowsley Safari Park, Prague Zoo, Chester Zoo and IUCN.

During this workshop, a conservation strategy plan for Western Derby eland was established. Before the workshop, the participants had possibility to visit NKNP and see the original habitat of Western Derby elands, which is woody savannah and lateritic plateaus.

We hope that the conservation strategy accepted by all key stakeholders will lead to one plan for the ex situ and in situ population as the ex situ animals may directly contribute to the conservation of the unique ecosystem of West African Savannah.

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Photos by: Tom Junek

www.derbianus.com

Fig. 18. Poster for Behaviour 2013

Fig. 19. Poster for EAZA 2012

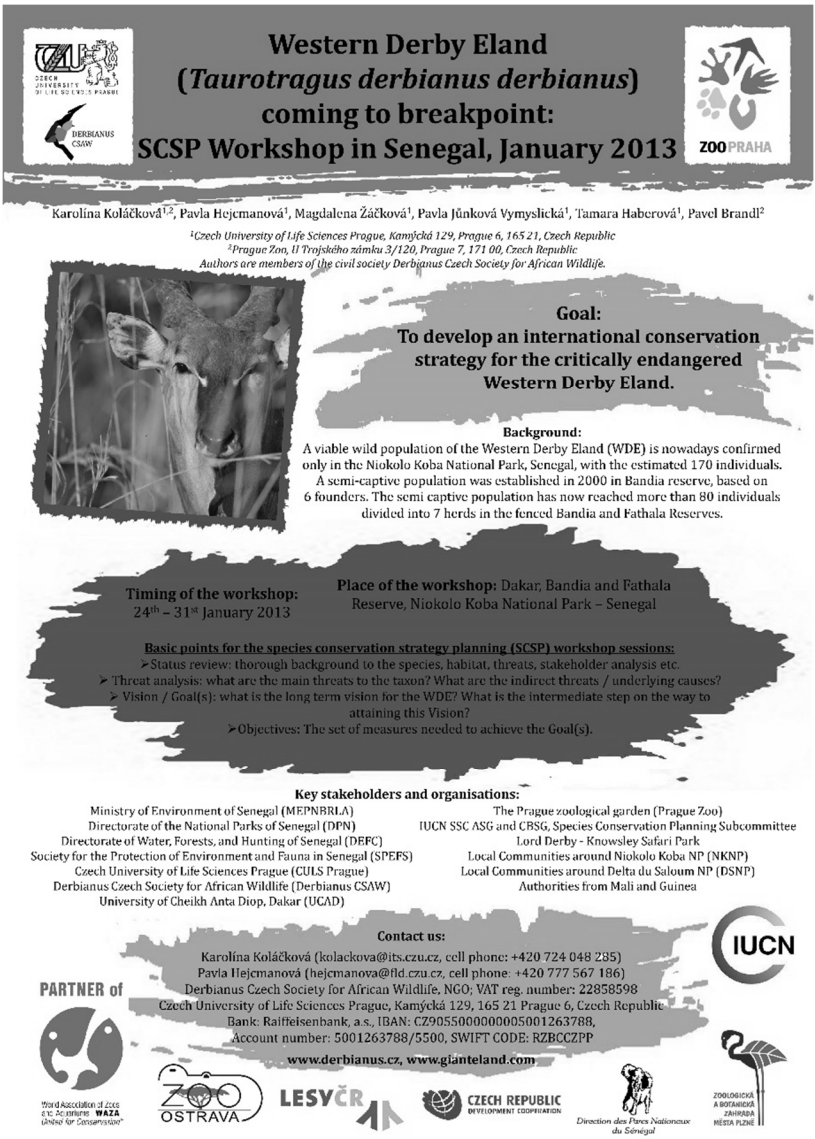

Fig. 20. Poster for EAZA 2012

WHAT ARE THEY BROWSING FOR?

DRIVING FORCE BEHIND THE DIET SELECTION OF SEMI-CAPTIVE POPULATION OF THE CRITICALLY ENDANGERED WESTERN DERBY ELANDS (*Taurotragus derbianus derbianus*)

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INTRODUCTION

Diet selection of many wild herbivores is influenced by nutritional value of plants (Forsyth et al., 2002; Foguem et al., 2011). The quality of animals' feed is highly important for health and fitness of individuals as well as whole population survival. Nitrogen, phosphorus and to lesser extend potassium are considered to be limiting nutrients of herbivores (Grant et al., 2000). Browsers as concentrate selectors generally seek for digestible diet rich in nitrogen with minimum of fibre.

AIMS Our first aim was to reveal the role of nutrients in diet selection of WDE. The second aim was to determine influence of supplemental feeding on WDEs' diet selection.

STUDY SPECIES

Western Derby Eland (*Taurotragus derbianus derbianus*, WDE) is the biggest browsing antelope in the world. WDE with its only confirmed wild population of less than 200 individuals (Renaud et al., 2006) occuring in Niokolo Koba National Park in south-eastern Senegal is classified as critically endangered subspecies (IUCN, 2008). WDEs' semi-captive population is managed in the Fathala and Bandia Reserve in Senegal.

METHODS

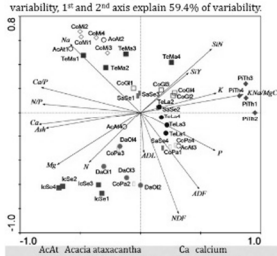
The study was conducted in the conservation breeding enclosure in the Fathala Reserve (FR) in western Senegal. At the basis of direct observation of six animals in situations with and without food supplement (*Acacia albida* pods) and data of the forage availability in the enclosure we determined diet selectivity at the plant species level. 10 of 32 woody plant species recorded in the WDE's diet were analysed for nutrients content.

RESULTS

Selectivity for plant species, both with and without food supplement, was positively correlated with potassium content and KNa/MgCa ratio, and negatively correlated with content of nitrogen, magnesium and calcium. No significant role of phosphorus and fibre fractions content was found (Fig. 1).

The food supplement had a significant effect on selectivity of only some of browsed species (Fig. 2). Supplemental food decreased selectivity for *Saba senegalensis*, *Terminalia laxiflora*, *T. macroptera* and *Piliostigma thonningii* pods, increased for *Combretum paniculatum*.

Fig. 1: PCA analysis of nutrient contents, plant species and selectivity index. 1st axis explains 42.5% of variability, 1st and 2nd axis explain 59.4% of variability.



AcAt	Acacia ataxacantha	Ca	calcium
CoGl	Combretum glutinosum	K	potassium
CoMi	Combretum micranthum	Mg	magnesium
CoPa	Combretum paniculatum	N	nitrogen
DaOl	Daniellia oliveri	Na	sodium
IcSe	Icacina senegalensis	P	phosphorus
PiTh	Piliostigma thonningii	SIY	selectivity index
SaSe	Saba senegalensis		with food supplement
TeLa	Terminalia laxiflora	SIN	selectivity index
TeMa	Terminalia macroptera		without food supplement

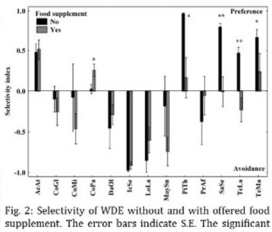


Fig. 2: Selectivity of WDE without and with offered food supplement. The error bars indicate S.E. The significant results of Students' t-test is indicated by * (P< 0.05) or ** (P<0.01).

CONCLUSION AND IMPLICATION

Diet selection is a complex mechanism defined by many factors and varying among individual herbivore species. WDEs of the conservation herd in the FR select diet rich in potassium, not nitrogen as supposed. Knowledge of nutritional requirements of endangered species as well as animals in captivity is necessary for success of conservation programmes and captive populations' welfare. Appropriate supplemental feeding can help meet animals' nutritional requirements and thus be used as effective managerial tool in special conservation situations.

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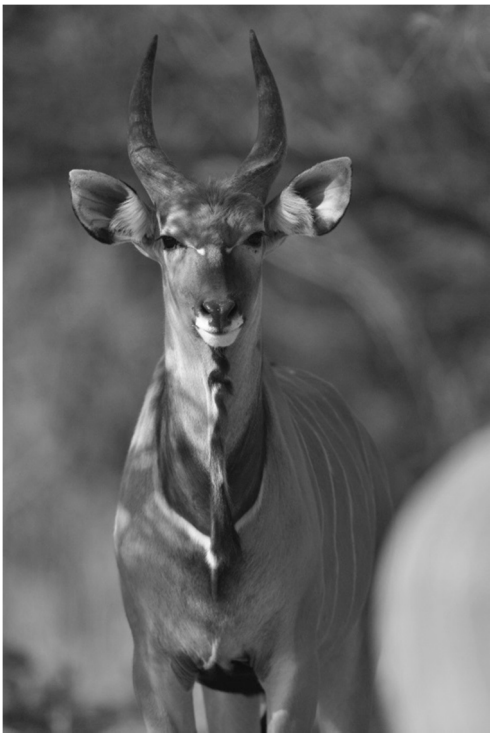
SECTION B:

The African studbook of Western Derby eland



One year old male of Western Derby eland

ID	Location	Name	Sex	Known	Birth Date	Death Date	Sire
1001	Bandia 1	Niokolo	M	1.00	1999-01-01	2012-07-01	WILD
1002	Bandia 1	Dalaba	F	1.00	1997-01-01	2013-07-30	WILD
1003	Bandia 1	Salemata	F	1.00	1997-01-01	2013-12-01	WILD
1004	Bandia 1	Bembou	F	1.00	1999-01-01	2013-12-01	WILD
1005	Bandia 1	Malapa	F	1.00	1999-01-01	2011-08-01	WILD
1006	Bandia 1	Tamba	F	1.00	1999-01-01	2013-01-01	WILD
1007	Bandia 1	Dagana	F	1.00	2002-03-01	2013-10-01	1001
1008	Bandia 1	Thelma	F	1.00	2002-04-01	2013-07-14	1001
1009	Bandia 1	Ndiogoye	F	0.50	2003-01-01	--	1001
1010	Fathala 1	Karang	M	0.50	2003-01-03	2014-01-01	1001
1011	Bandia 1	Guddi	F	0.50	2003-01-05	2013-11-01	1001
1012	Bandia 1	Fathala	F	0.50	2003-02-12	--	1001
1013	Fathala 1	Popenguine	M	0.50	2003-02-23	2007-05-01	1001
1014	Fathala 2	Matam	M	1.00	2003-11-23	--	1001
1015	Fathala 2	Sokone	M	1.00	2003-11-29	2008-08-20	1001
1016	Bandia 2	Bayane	F	1.00	2003-12-10	2006-12-15	1001
1017	Bandia 2	Toubab	M	1.00	2003-12-31	2013-07-01	1001
1018	Bandia 1	Sindia	F	1.00	2004-11-22	--	1001
1019	Fathala 2	Derby	M	1.00	2004-12-02	2014-03-28	1001
1020	Bandia 1	Tuuti	F	1.00	2004-12-04	2007-11-25	1001
1021	Bandia 1	Minna	F	1.00	2004-12-10	--	1001
1022	Fathala 1	Bandia	M	1.00	2004-12-14	--	1001
1023	Fathala 2	Taiba	M	1.00	2005-01-05	--	1001
1024	Fathala 2	Doole	M	1.00	2005-01-11	2013-04-24	1001
1025	Fathala 2	Gaaw	M	0.75	2005-01-25	--	1001
1026	Fathala 2	Souleye	M	1.00	2005-12-04	2008-08-20	1001
1027	Fathala 1	Nelaw	F	0.75	2005-12-12	2009-08-11	1001
1028	Bandia 1	Noname 1	M	1.00	2005-12-18	2005-12-25	1001
1029	Fathala 1	Foog	F	0.75	2005-12-19	--	1001
1030	Bandia 3	Dering	M	1.00	2005-12-21	2014-05-01	1001
1031	Fathala 2	Deedet	M	1.00	2005-12-22	--	1001
1032	Fathala 2	Tukki	M	1.00	2005-12-23	2010-01-01	1001
1033	Bandia 1	Baax	M	1.00	2005-12-24	2012-07-01	1001
1034	Fathala 2	Tidian	M	1.00	2005-12-28	--	1001
1035	Fathala 1	Georgina	F	0.75	2006-02-07	2008-07-01	1001
1036	Fathala 2	Mike	M	1.00	2006-12-16	2014-01-04	1001

Dam	Gen	F	MK Rank	Age (years)	N of offspring	N of living offspring	Last Repro Date
WILD	0.00	0.00	---	13	81	42	2013-03-03
WILD	0.00	0.00	---	16	10	6	2012-12-28
WILD	0.00	0.00	---	16	8	3	2012-12-13
WILD	0.00	0.00	---	14	5	3	2008-12-09
WILD	0.00	0.00	---	12	7	4	2009-12-21
WILD	0.00	0.00	---	14	10	2	2012-02-08
1002	1.00	0.00	---	11	9	6	2012-11-23
1006	1.00	0.00	---	11	6	4	2013-03-03
Mate of 1001	1.00	???	31F	11	7	5	2013-01-11
Mate of 1001	1.00	???	---	10	8	6	2014-04-01
Mate of 1001	1.00	???	---	10	7	2	2012-12-06
Mate of 1001	1.00	???	32F	11	7	6	2013-11-30
Mate of 1001	1.00	???	---	4	0	0	--
1005	1.00	0.00	5M	10	2	2	2013-12-10
1003	1.00	0.00	---	4	0	0	--
1002	1.00	0.00	---	3	0	0	--
1006	1.00	0.00	---	9	24	20	2013-12-30
1003	1.00	0.00	4F	9	5	2	2012-12-26
1002	1.00	0.00	---	9	2	2	2013-12-10
1006	1.00	0.00	---	2	1	0	2007-11-25
1005	1.00	0.00	5F	9	3	3	2013-12-30
1004	1.00	0.00	8M	9	3	2	2014-04-01
1008	1.50	0.25	40M	9	2	2	2013-12-10
1007	1.50	0.25	---	8	2	2	2013-12-10
1011	1.33	0.50	48M	9	2	2	2013-12-10
1003	1.00	0.00	---	2	0	0	--
1009	1.33	0.50	---	3	0	0	--
1005	1.00	0.00	---	0	0	0	--
1012	1.33	0.50	27F	8	3	2	2014-04-01
1002	1.00	0.00	---	8	14	12	2014-01-10
1007	1.50	0.25	45M	8	2	2	2013-12-10
1006	1.00	0.00	---	4	0	0	--
1004	1.00	0.00	---	6	22	16	2013-03-03
1008	1.50	0.25	40M	8	2	2	2013-12-10
1011	1.33	0.50	---	2	0	0	--
1005	1.00	0.00	---	7	2	2	2013-12-10

ID	Location	Name	Sex	Known	Birth Date	Death Date	Sire
1037	Bandia 1	Bonheur	M	1.00	2006-12-18	2013-04-05	1001
1038	Bandia 3	Sao	F	1.00	2006-12-20	2014-05-01	1001
1039	Fathala 2	Georges	M	0.75	2006-12-22	--	1001
1040	Bandia 3	Tagat	F	1.00	2006-12-24	2014-05-01	1001
1041	Bandia 3	Tendresse	F	1.00	2006-12-26	2013-08-01	1001
1042	Bandia 1	Dagou	F	1.00	2006-12-29	--	1001
1043	Bandia 1	Dewene	F	1.00	2007-01-06	--	1001
1044	Fathala 1	Foulamousou	F	0.75	2007-01-09	--	1001
1045	Fathala 1	Nane	F	0.75	2007-01-20	--	1001
1046	Bandia 1	Noname 2	F	1.00	2007-11-25	2007-11-26	1001
1047	Bandia 1	Noname 3	M	1.00	2007-12-03	2008-02-06	1001
1048	Fathala 2	Mansarinku	M	1.00	2007-12-04	--	1001
1049	Fathala 1	Nature	F	0.75	2007-12-11	2009-06-30	1001
1050	Bandia 1	Didi	F	1.00	2007-12-18	--	1001
1051	Bandia 3	Saroudia	F	1.00	2007-12-19	--	1001
1052	Bandia 1	Noname 4	U	1.00	2007-12-20	2008-03-15	1001
1053	Bandia 5	Bandiagara	F	1.00	2007-12-21	--	1001
1054	Fathala 2	Galago	M	0.75	2008-02-15	2014-01-13	1001
1055	Bandia 3	Toubacouta	F	1.00	2008-02-16	2014-05-01	1001
1056	Fathala 1	Fatou	F	0.75	2008-02-18	2009-06-30	1001
1057	Fathala 2	Mango T.	M	1.00	2008-12-04	--	1017
1058	Fathala 2	Dara	F	1.00	2008-12-08	--	1001
1059	Bandia 1	Bisaab	M	1.00	2008-12-09	--	1001
1060	Fathala 2	Nanuk	M	0.75	2008-12-10	--	1001
1061	Fathala 1	Sabar T.	M	1.00	2008-12-12	2011-12-31	1017
1062	Bandia 1	Toko	M	1.00	2008-12-24	--	1001
1063	Fathala 2	Donma	F	1.00	2008-12-28	--	1001
1064	Fathala 3	Soleil	M	1.00	2008-12-31	2011-04-01	1001
1065	Fathala 2	Teranga	M	1.00	2009-01-03	--	1001
1066	Fathala 3	Gaanga	F	0.75	2009-01-05	2011-08-01	1001
1067	Bandia 1	Mbalax	F	1.00	2009-01-10	2011-02-19	1001
1068	Bandia 1	Noname 5	U	1.00	2009-12-01	2009-12-23	[1001|1033|1037]
1069	Bandia 4	Triomphe D.	M	1.00	2009-12-04	2012-07-01	1030
1070	Bandia 5	Salut T.	M	1.00	2009-12-15	2014-05-01	1017
1071	Bandia 1	Mirabelle T.	F	1.00	2009-12-17	--	1017

Dam	Gen	F	MK Rank	Age (years)	N of offspring	N of living offspring	Last Repro Date
1004	1.00	0.00	---	6	28	21	2013-12-30
1003	1.00	0.00	---	7	3	2	2014-01-10
1011	1.33	0.50	48M	7	2	2	2013-12-10
1008	1.50	0.25	---	7	3	3	2013-10-30
1006	1.00	0.00	---	6	4	3	2012-11-05
1007	1.50	0.25	24F	7	2	2	2012-12-22
1002	1.00	0.00	12F	7	5	4	2013-10-31
1012	1.33	0.50	29F	7	3	2	2013-12-30
1009	1.33	0.50	25F	7	1	1	2011-01-01
1020	1.50	0.25	---	0	0	0	--
1007	1.50	0.25	---	0	0	0	--
1005	1.00	0.00	6M	6	3	3	2013-12-10
1009	1.33	0.50	---	1	0	0	--
1002	1.00	0.00	13F	6	4	4	2013-11-30
1003	1.00	0.00	3F	6	0	0	--
1008	1.50	0.25	---	0	0	0	--
1004	1.00	0.00	6F	6	3	2	2013-10-31
1011	1.33	0.50	---	5	2	2	2013-12-10
1006	1.00	0.00	---	6	3	3	2013-11-15
1012	1.33	0.50	---	1	0	0	--
1021	2.00	0.13	13M	5	2	2	2013-12-10
1007	1.50	0.25	23F	5	1	1	2013-12-10
1004	1.00	0.00	7M	5	6	5	2013-12-30
1009	1.33	0.50	50M	5	2	2	2013-12-10
1018	2.00	0.13	---	3	0	0	--
1008	1.50	0.25	44M	5	11	9	2013-12-30
1002	1.00	0.00	10F	5	2	2	2013-12-10
1003	1.00	0.00	---	2	0	0	--
1006	1.00	0.00	9M	5	2	2	2013-12-10
1011	1.33	0.50	---	2	0	0	--
1005	1.00	0.00	---	2	0	0	--
1007	1.90	0.15	---	0	0	0	--
1041	2.00	0.13	---	2	0	0	--
1018	2.00	0.13	---	4	0	0	--
1021	2.00	0.13	9F	4	1	1	2013-11-20

ID	Location	Name	Sex	Known	Birth Date	Death Date	Sire
1072	Bandia 4	Marabout	M	1.00	2009-12-21	--	[1001|1033|1037]
1073	Bandia 1	Fort	M	0.75	2009-12-25	--	[1001|1033|1037]
1074	Bandia 4	Demba T.	M	1.00	2009-12-27	--	1017
1075	Bandia 4	Nguekokh	M	0.75	2009-12-31	--	[1001|1033|1037]
1076	Bandia 1	Touba	F	1.00	2010-01-08	2013-10-01	[1001|1033|1037]
1077	Fathala 1	Noname 6	U	0.63	2009-12-15	2010-01-15	1010
1078	Bandia 4	Souhel	M	1.00	2010-11-07	--	[1001|1033|1037]
1079	Bandia 4	Tamtam D.	M	1.00	2010-11-07	--	1030
1080	Bandia 1	Galope	M	0.75	2010-11-08	2012-03-09	[1001|1033|1037]
1081	Bandia 4	Timbre D.	M	1.00	2010-11-09	--	1030
1082	Bandia 4	Droit	M	1.00	2010-11-11	--	[1001|1033|1037]
1083	Bandia 3	Savanne D.	F	1.00	2010-11-21	2014-05-01	1030
1084	Bandia 1	Tamarin D.	M	1.00	2010-11-25	--	1030
1085	Bandia 4	Destin T.	M	1.00	2010-12-07	--	1017
1086	Bandia 4	Dada T.	M	1.00	2010-12-14	--	1017
1087	Bandia 4	Nemo	M	0.75	2010-11-18	--	[1001|1033|1037]
1088	Bandia 1	Dodo	M	1.00	2010-12-24	--	[1001|1033|1037]
1089	Bandia 1	Sindibad T.	M	1.00	2010-12-26	--	1017
1090	Fathala 1	Fee	F	0.63	2011-01-01	--	1010
1091	Fathala 1	Neige	F	0.63	2011-01-01	--	1010
1092	Bandia 1	Titi	M	1.00	2011-03-01	--	[1001|1033|1037]
1093	Bandia 1	Noname 7	M	0.00	2011-11-04	2011-11-06	UNK
1094	Bandia 3	Dawal	M	1.00	2011-11-07	--	[1001|1033|1037]
1095	Bandia 1	Bunta	F	1.00	2011-11-10	--	1017

Dam	Gen	F	MK Rank	Age (years)	N of offspring	N of living offspring	Last Repro Date
1005	1.40	0.00	2M	4	0	0	--
1012	1.87	0.30	42M	4	6	5	2013-12-30
1043	2.00	0.13	20M	4	0	0	--
1009	1.87	0.30	37M	4	0	0	--
1006	1.40	0.00	---	3	0	0	--
1029	2.20	0.50	---	0	0	0	--
1003	1.40	0.00	1M	3	0	0	--
1041	2.00	0.13	14M	3	0	0	--
1011	1.87	0.30	---	1	0	0	--
1040	2.25	0.19	32M	3	0	0	--
1002	1.40	0.00	4M	3	0	0	--
1038	2.00	0.13	---	3	1	1	2013-12-10
1055	2.00	0.13	14M	3	0	0	--
1043	2.00	0.13	20M	3	0	0	--
1050	2.00	0.13	22M	3	0	0	--
1009	1.87	0.30	37M	3	0	0	--
1007	1.90	0.15	27M	3	0	0	--
1018	2.00	0.13	11M	3	0	0	--
1044	2.20	0.50	30F	3	1	1	2014-01-01
1045	2.20	0.50	26F	3	0	0	--
1006	1.40	0.00	3M	3	0	0	--
UNK	0.00	0.00	---	0	0	0	--
1007	1.90	0.15	27M	2	0	0	--
1053	2.00	0.13	14F	2	1	1	2013-12-30

ID	Location	Name	Sex	Known	Birth Date	Death Date	Sire
1096	Bandia 5	Daraja	F	1.00	2011-11-11	--	[1001|1033|1037]
1097	Bandia 1	Daouda	M	1.00	2011-11-14	--	1017
1098	Bandia 3	Talaata	F	1.00	2011-11-15	--	1030
1099	Bandia 5	Seraphine	M	1.00	2011-11-17	--	1030
1100	Bandia 1	Saanga	F	1.00	2011-11-19	--	1017
1101	Bandia 4	Tuur	M	1.00	2011-11-27	--	1030
1102	Bandia 1	Dakar	M	1.00	2011-12-02	--	1017
1103	Bandia 5	Donja	F	1.00	2011-12-03	--	1017
1104	Fathala 1	Fasoo	M	0.63	2011-12-20	--	1010
1105	Bandia 5	Farata	F	0.75	2012-01-17	--	[1001|1033|1037]
1106	Bandia 1	Noname 8	U	1.00	2012-02-08	2012-02-09	[1001|1033|1037]
1107	Bandia 4	Ted	M	1.00	2012-11-05	--	1030
1108	Bandia 4	Tembo	M	1.00	2012-11-10	--	1030
1109	Bandia 1	Buy	M	1.00	2012-11-21	--	[1017|1062]
1110	Bandia 3	Diego	M	1.00	2012-11-23	--	[1001|1033|1037]
1111	Bandia 1	Felix	M	0.75	2012-11-29	--	[1001|1033|1037]
1112	Bandia 1	Gertrude	F	0.75	2012-12-06	2013-10-01	[1001|1033|1037]
1113	Fathala 1	Fadzai	F	0.63	2012-12-08	--	1010
1114	Bandia 1	Sabali	F	1.00	2012-12-13	2013-05-01	[1001|1033|1037]
1115	Bandia 1	Django	M	1.00	2012-12-22	--	[1017|1062]
1116	Bandia 3	Sultana	F	1.00	2012-12-26	2014-05-01	[1017|1062]
1117	Bandia 5	Daphne	F	1.00	2012-12-28	--	[1001|1033|1037]
1118	Bandia 5	Dine	F	1.00	2012-12-30	--	[1017|1062]
1119	Bandia 1	Desir	M	1.00	2013-01-04	--	[1017|1062]
1120	Bandia 5	Nigella	F	0.75	2013-01-11	--	[1001|1033|1037]
1121	Fathala 2	Dawie	M	1.00	2013-02-14	--	1048

Dam	Gen	F	MK Rank	Age (years)	N of offspring	N of living offspring	Last Repro Date
1002	1.40	0.00	1F	2	0	0	--
1050	2.00	0.13	22M	2	0	0	--
1041	2.00	0.13	15F	2	0	0	--
1038	2.00	0.13	12M	2	0	0	--
1018	2.00	0.13	7F	2	0	0	--
1055	2.00	0.13	14M	2	0	0	--
1042	2.25	0.19	34M	2	0	0	--
1043	2.00	0.13	17F	2	0	0	--
1044	2.20	0.50	51M	2	0	0	--
1012	1.87	0.30	22F	2	0	0	--
1006	1.40	0.00	---	0	0	0	--
1041	2.00	0.13	14M	1	0	0	--
1040	2.25	0.19	32M	1	0	0	--
1053	2.10	0.15	25M	1	0	0	--
1007	1.90	0.15	29M	1	0	0	--
1012	1.87	0.30	39M	1	0	0	--
1011	1.87	0.30	---	0	0	0	--
1029	2.20	0.50	28F	1	0	0	--
1003	1.40	0.00	---	0	0	0	--
1042	2.35	0.23	35M	1	0	0	--
1018	2.10	0.15	---	1	0	0	--
1002	1.40	0.00	2F	1	0	0	--
1050	2.10	0.15	19F	1	0	0	--
1043	2.10	0.15	30M	1	0	0	--
1009	1.87	0.30	21F	1	0	0	--
1063	2.00	0.13	10M	1	0	0	--

ID	Location	Name	Sex	Known	Birth Date	Death Date	Sire
1122	Bandia 1	Tangal	M	1.00	2013-03-03	--	[1001|1033|1037]
1123	Bandia 3	Tana D.	F	1.00	2013-10-30	--	1030
1124	Bandia 1	Noname 9	U	0.98	2013-10-31	2013-11-14	[1017|1037|1059|1062|1073]
1125	Bandia 3	Tatiana D.	F	1.00	2013-11-15	--	1030
1126	Bandia 1	Mammouth	M	0.98	2013-11-20	--	[1017|1037|1059|1062|1073]
1127	Bandia 1	Fanfan	M	0.73	2013-11-30	--	[1017|1037|1059|1062|1073]
1128	Bandia 1	David	M	0.98	2013-11-30	--	[1017|1037|1059|1062|1073]
1129	Bandia 3	Stanley D.	M	1.00	2013-12-10	--	1030
1130	Fathala 2	Dimbal	M	0.97	2013-12-10	--	[1014|1019|1023|1024|1025|1031|1034|1036|1039|1048|1054|1057|1060|1065]
1131	Fathala 2	Damier	M	0.97	2013-12-10	--	[1014|1019|1023|1024|1025|1031|1034|1036|1039|1048|1054|1057|1060|1065]
1132	Bandia 1	Bouba	F	0.98	2013-12-30	--	[1017|1037|1059|1062|1073]

Dam	Gen	F	MK Rank	Age (years)	N of offspring	N of living offspring	Last Repro Date
1008	1.90	0.15	19M	1	0	0	--
1040	2.25	0.19	20F	0	0	0	--
[1043|1053]	2.12	0.18	---	0	0	0	--
1055	2.00	0.13	15F	0	0	0	--
1071	2.63	0.19	24M	0	0	0	--
1012	2.16	0.32	43M	0	0	0	--
1050	2.12	0.15	26M	0	0	0	--
1083	2.50	0.31	18M	0	0	0	--
1063	2.14	0.20	31M	0	0	0	--
1058	2.40	0.28	36M	0	0	0	--
1095	2.63	0.23	18F	0	0	0	--

ID	Location	Name	Sex	Known	Birth Date	Death Date	Sire
1133	Bandia 1	Marketa	F	0.98	2013-12-30	--	[1017|1037|1059|1062|1073]
1134	Fathala 1	Noname 10	F	0.75	2013-12-30	2014-01-01	[1010|1022]
1135	Fathala 1	Fuddan	M	0.69	2014-01-01	--	[1010|1022]
1136	Bandia 3	Saola D.	F	1.00	2014-01-10	--	1030
1137	Fathala 1	Falco	M	0.75	2014-04-01	--	[1010|1022]

Dam	Gen	F	MK Rank	Age (years)	N of offspring	N of living offspring	Last Repro Date
1021	2.12	0.15	11F	0	0	0	--
1044	2.17	0.33	---	0	0	0	--
1090	2.55	0.40	46M	0	0	0	--
1038	2.00	0.13	8F	0	0	0	--
1029	2.17	0.33	47M	0	0	0	--

Explanatory note:

ID:	the studbook unique number given to the animal within the semi-captive population
Location:	location within the conservation programme
Sex:	F – female, M – male
Known:	percentage of known kinship
Sire/Dam:	identification of parents of the animal (the unique ID number)
Gen:	generation
F:	inbreeding coefficient
MK Rank:	mean kinship
N of offspring:	total number of offspring
N of living offspring:	number of living offspring
Last Repro Date:	last reproduction date

SECTION C:
The identification cards of Western Derby eland (living individuals)

This section is included in the CD-ROM version only.

A calf of Western Derby eland suckling from its mother

African studbook. Western Derby eland, *Taurotragus derbianus derbianus* (Gray, 1847)

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