

**Supplementary Table 1.** Results from the analyses of the zebras' serum. \*Reference range for horses provided by Laboklin.

Individual	Date	Cu $\mu\text{mol/L}$	Mo $\mu\text{g/L}$	Fe $\mu\text{mol/L}$	Zn $\mu\text{mol/L}$	Se $\mu\text{g/L}$
Zawadi	23 Mar 2007	12.9		8.9	8.8	164.8
Zambezi	24 Feb 2012	10.5	7.03		8.4	97.2
Lagos	24 Feb 2012	9	3.26		8.7	131.7
Zambezi	24 Mar 2007	13.2		15.1	8.9	125.1
Kiru	24 Apr 2015	10.9		30.6	9.5	94.9
Mala	24 Jul 2009	12.6		24.1	8.9	144.2
Lucky	24 Jul 2009	10.4		28.7	7.7	156.2
Kiru	24 Jul 2016	10.3		25.6	6.4	127.7
Reference*		7.9-21		17.9-64.5	5-14.4	100-200

**Supplementary Table 2.** Liver mineral levels of individual ruminants. The yak consumed the same pellets, but proportionally more pellets and a different type of roughage. The lechwe, sable, and eland were fed a different pellet formulation with other main ingredients aimed at higher energy and protein values, but with a similar premix, proportionally more pellets, and a different type of roughage. Reference A is for cattle and Reference B for antelopes (Puls 1994), provided by Eurofins Agro.

	Cu mg/kg	Zn mg/kg	Se mg/kg
Yak n=2	37	23	1.57
Red Lechwe n=5	46	24	0.18
Sable n=1	16	34	0.42
Eland n=1	20	54	0.44
Reference A	25-100	25-100	0.25-0.50
Deficient		20-40	
Toxic			>1.25
Reference B	15-45	80-100	0.25-0.90

**Supplementary Table 3.** Results of the sand and soil analysis from the enclosure. "Control" refers to a composite sample taken from various locations within the enclosure. "Z spot" refers to the location where the zebras were observed eating sand. P, K, Ca, Mg, Na & Silica (Si) in kg/ha. Fe, Zn, Mn, Cu & Cobalt (Co) in g/ha.

Mineral	Control	Z spot
P	0.6	<0.6
K	617	137
Ca	921	210
Mg	173	226
Na	39	20
Si	20	54
Fe	3792	726
Zn	3000	1488
Mn	>19800	>19800
Cu	<24	66
Co	>66	>66

**Supplementary Table 4.** Diet compositions: Kolmården compared with other Grevy's zebra holders in Europe, based on survey responses and assumptions. \*Proposed diets for zebra and white rhinoceros (Lintzenich and Ward 1997).

	Average	Median	Lowest	Highest	Kolmården	NAG*
Ca %	0.37%	0.34%	0.26%	0.57%	0.51%	0.55-0.63
P %	0.16%	0.14%	0.11%	0.30%	0.31%	0.30-0.38
Mg %	0.11%	0.10%	0.08%	0.21%	0.16%	0.16-0.19
K %	1.4%	1.4%	1.3%	1.9%	1.60%	1.4-1.8
Na %	0.05%	0.03%	0.01%	0.11%	0.06%	0.07-0.12
Fe PPM	101	90	78	193	81	73-84
Zn PPM	30	19	11	69	63	44-71
Cu PPM	6	4	3	14	9	8-14
Mn PPM	40	33	23	68	47	40-55
Se PPM	0.13	0.03	0.01	0.84	0.23	0.10-0.16
I PPM	0.28	0.09	0.01	1.43	0.2	0.20-0.40
Vitamin A IU/g	1.5	0.6	0.2	7.0	1.1	1.2-2.0
Vitamin D IU/g	0.22	0.09	0.02	0.97	0.5	0.30-0.50
Vitamin E IU/kg	52	36	4	173	77	100-160

**Table 5.** Summary of responses from other Grevy's zebra facilities. The mean pellet amount is based on the assumption of an average size of 350 kg and a total intake of 2.2% DM/BW, and expressed in % of the total dry matter intake (DMI).

	Psyllim use	Colic	Mean pellets (% of DMI) (Min-Max)[Median] n=16
No	10	14	
Regularly	0		
When more sand in faeces	2		
No but for other animals	4		
No answer	12	10	
Sand colic		2	
Other type of colic		2	
Other holders			8 (0-21) [6]
Kolmården			10