

GAME COUNTS IN NORTH-WEST NAMIBIA

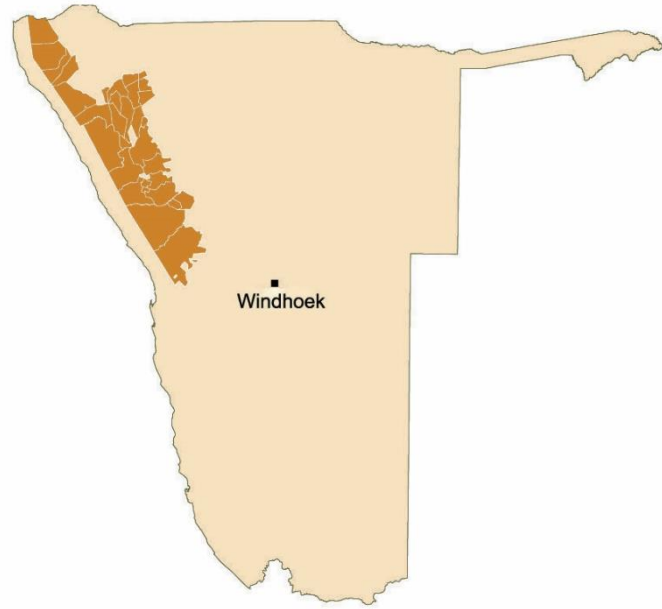
Regional Summary

June 2017

Total Population Estimates

Species	Population estimate	Lower 95% CL	Upper 95% CL
Gemsbok (U)	6,090	4,000	9,250
Kudu (HN)	1,810	1,010	3,240
Ostrich (U)	5,460	4,090	7,290
Springbok (HN)	70,420	52,920	93,710
Steenbok (HN)	6,680	4,730	9,430
Hartmann's Zebra (U)	12,380	8,880	17,270

Estimates are derived using DISTANCE analysis which takes account of drop-off in detectability with distance from the transect line. They are conservative estimates as, on average, 28% of the count area is not sampled (due to inaccessibility) and is consequently assumed to hold no animals. Model selection: U = uniform; HN = half normal.

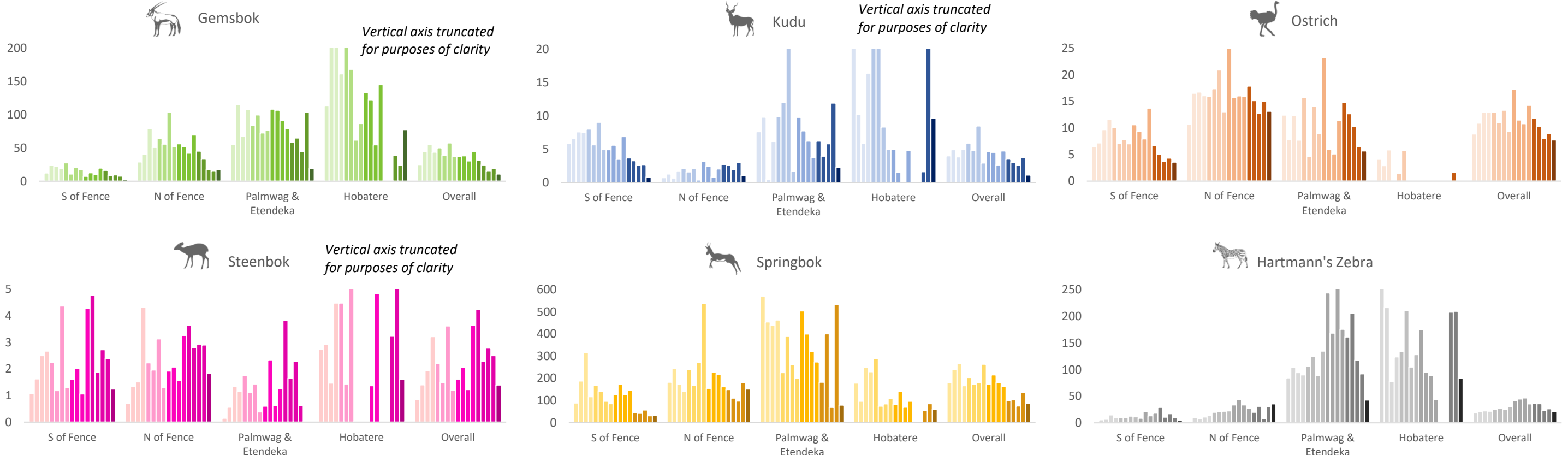


Count area: 6.9 million ha

Total number of animals seen each year

Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Baboon	108	116	203	135	555	165	567	239	310	390	172	510	548	192	334	667	302
Cheetah	5	1	7	7	14	2	4	7	6	3		5	3	11	5		6
Duiker	12	6	3	5	18	3	8		7	6	11	3	14	9	6	11	2
Eland	63	19		12	10	12	45	5	30		13	2		5	45	21	5
Elephant	40	24	45	17	107	5	36	44	72	31	73	39	34	74	64	41	94
Gemsbok	1,616	2,698	3,483	2,749	3,506	2,612	3,898	2,609	2,652	2,755	2,238	3,244	2,413	1,791	1,247	1,510	856
Giraffe	215	232	189	281	213	296	268	231	253	441	362	420	336	256	346	504	354
Hyaena	2			1	7		4	3	1	10	2	1	9	1	5	4	8
Jackal	45	84	60	82	78	94	108	59	81	119	68	91	104	83	89	87	86
Klipspringer	3	14	20	17	34	15	24	5	19	21	10	45	27	21	9	20	14
Kudu	189	297	241	316	413	324	576	207	337	327	190	329	269	221	200	296	88
Ostrich	577	659	815	817	903	741	902	666	1,247	832	772	1,027	911	752	630	706	610
Springbok	11,606	14,560	16,734	10,509	14,227	11,746	12,135	18,729	12,411	15,601	12,818	11,711	7,586	7,531	5,876	10,744	6,823
Steenbok	49	85	122	203	154	101	245	85	117	149	88	261	325	167	218	197	110
Warthog	6	14	8	7	13	11	13	2	2	3	6	8	12	3	8	4	5
H. Zebra	1,210	1,274	1,414	1,376	1,738	1,838	1,684	2,136	3,004	3,248	3,361	2,583	2,790	2,648	1,812	2,084	1,671

Trends - Number of animals per 100km (2001-2017)



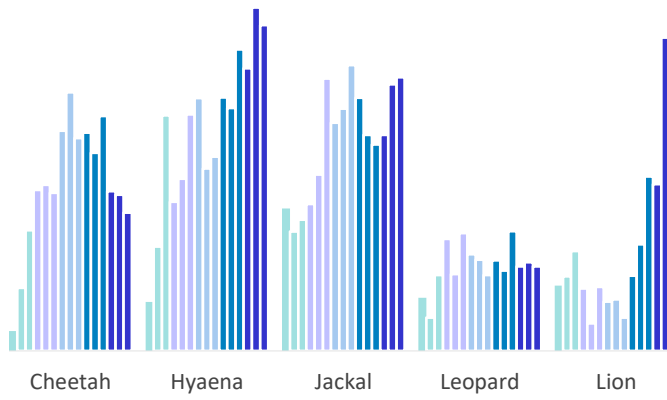
Synopsis

Wildlife populations in north-west Namibia were severely impacted in the 1980s by a combination of severe drought and poaching. Community conservation, formalised in 1996 through conservancies has facilitated an increase in wildlife numbers through controlled utilisation and effective control of poaching. These controlled off-takes, in balance with natural growth rates, resulted in stable or growing population trends for most species between 2003 and 2012. However, a recent prolonged dry phase has resulted in a steady decline in populations of many game species although overall numbers have remained significantly higher than in the 1980s and early 1990s. Predator numbers have also increased over the past 15 years contributing to recent wildlife declines. In response to the decline in numbers, harvesting through controlled hunting has been reduced since 2014.

The North-west comprises 4 distinct sub-areas: conservancies south of the veterinary fence, conservancies north of the fence and the concession areas (where no utilisation is permitted) of Palmwag & Etendeka and Hobatere. There are clear differences in animal density between these areas with the concessions areas having highest densities and the southern area having the lowest.

Species	Estimates by sub-area			
	South of Vet. Fence	North of Vet. Fence	Palmwag & Etendeka	Hobatere
Gemsbok	860	4180	920	125
Kudu	915	560	290	50
Ostrich	1460	3760	235	
Springbok	18930	43360	7820	305
Steenbok	3350	3290		35
H. Zebra	1570	8505	2100	210

Predator sighting index 2002-2016



Harvesting off-take

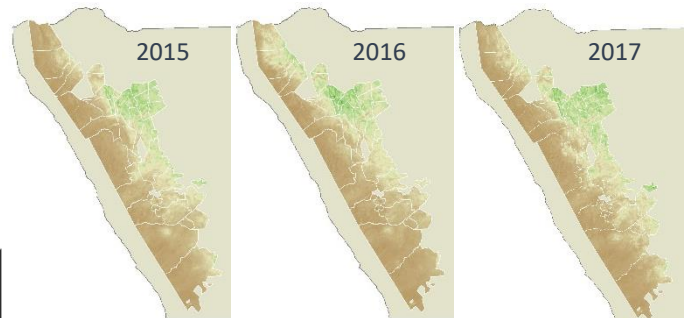
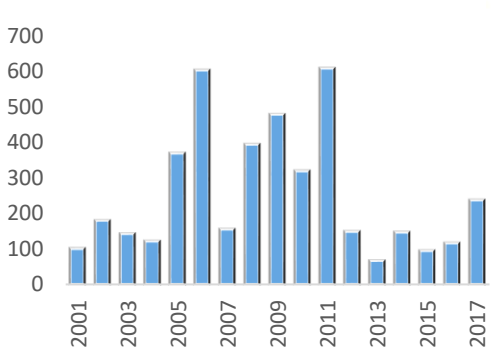
Species	Animals		
	2014	2015	2016
Gemsbok	572	208	163
Giraffe	16	9	6
Jackal	14	5	15
Klipspringer	5	5	7
Kudu	120	49	91
Ostrich	95	75	100
Springbok	1727	821	768
Steenbok	8	3	13
H. Zebra	350	288	150

Differences in population trends are also evident between sub-areas. In conservancies north of the veterinary fence populations of commonly utilised species (with the exception of kudu) have stabilised or have shown upward trends. In the conservancies south of the veterinary fence there is cause for concern as several key species (Gemsbok, Kudu, Hartmann's zebra) show continuing declines.

The concession areas of Palmwag and Etendeka (which represent only slightly more than 9% of the region) are important natural refuges for many wildlife species, containing an estimated 32%, 26% and 17% of the region's springbok, gemsbok and Hartmann's zebra respectively. Trends in these areas often show radical spikes between years reflecting animal movements within the concessions and eastward or westward movements between concessions, conservancies and freehold land. Many animals may also be missed due to under-sampling in counts; 43% of the area is excluded. The drop in overall estimates for the NW region for kudu, gemsbok, springbok and Hartmann's zebra in 2017 is largely a consequence of the significant drop in animals seen in these concession areas.

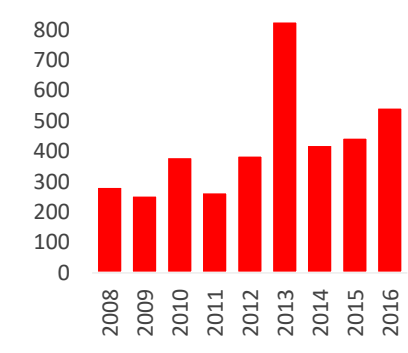
Estimates for the 4 sub-areas are indicated opposite. There is also a poster available for each sub-area, depicting trends, sightings and wildlife estimates in these areas.

Average rainfall (mm)



NDVI is a measure of the density of chlorophyll in vegetation cover. It can be used as an indicator of the amount of biomass available to wildlife. The maps here show the average values for Feb-Apr in the current and previous game count year.

Mortalities: number of animals



Animals seen(*) during this count and minimum estimates (**)

	Total	!Khoros !Goreb	#Khoedi !Hanas	Anababb	!Audi	Doro Nawaas & Utpasen Twyfelfontein	Eh-Rovipuka	Etendeka	#Gangu	Hobatere	!Huab	Marientluss	Ohungu	Okangundumba	Okonjombi	Onatendeka	Ombujokangui	Ongongo	Orupembe	Orupupa	Ojambangu	Ojikondavirongo	Ojimboyo	Ojju-west	Ouzemba	Ozondundu	Palmwag	Puros	Samitatas	Sestfontein	Sorris sorris	Torra	Tsiseb
Total Route km	7,698	75	465	207	40	375	269	95	709	62	413	291	186	138	194	210	161	78	304	207	58	130	102	90	107	90	558	309	165	303	216	524	567
Total area (km2)	69,154	1,337	3,358	1,636	335	4,137	1,979	633	7,756	2,129	3,034	1,245	1,130	1,643	1,613	657	619	2,616	1,775	348	1,067	432	1,208	741	743	5,891	3,564	1,446	2,469	2,290	3,492	7,908	
Number of routes	150	2	9	5	2	6	5	3	10	3	8	5	3	3	4	4	3	4	6	3	1	4	2	2	3	2	11	6	4	7	4	8	8
% area excluded	28	45	45	51	0	6	28	44	17	5	4	28	14	29	16	48	26	53	10	44	74	58	30	71	26	55	43	31	28	42	18	25	16
NDVI Difference (%) (***)	-16.3	-18.7	-13.2	-1.8	-19.3	-14.0	-10.6	-13.6	-8.0	-17.6	-6.8	-1.0	-20.2	-27.4	-18.1	-17.9	-19.4	-23.7	-18.1	-15.2	-29.6	-3.1	-17.8	-10.2	-14.5	-19.1	-22.6	-24.4	-20.7	-10.1	-21.1	-10.3	
Average Rainfall (mm)	407	350	313	503	177	391	254	145	396	304	187	289	450	227	385	394	348	183	445	400	336	228	320	506	388	174	195	202	203	214	177	150	

Species	Total	!Khoros !Goreb	#Khoedi !Hanas	Anababb	!Audi	Doro Nawaas & Utpasen Twyfelfontein	Eh-Rovipuka	Etendeka	#Gangu	Hobatere	!Huab	Marientluss	Ohungu	Okangundumba	Okonjombi	Onatendeka	Ombujokangui	Ongongo	Orupembe	Orupupa	Ojambangu	Ojikondavirongo	Ojimboyo	Ojju-west	Ouzemba	Ozondundu	Palmwag	Puros	Samitatas	Sestfontein	Sorris sorris	Torra	Tsiseb	
Gemsbok	45	17	6	33	2	48	125	71	3	132	93	20	43	175	12	29	2																	
Giraffe	38	21	13	23	26	12	801	13	54	12	310	168	222	495	79	121	36																	
Kudu	22	21	8	107	51	11	65	11	11	2	19	11	14	34	19	14	24	51	1	18	2													
Ostrich	14	30	136	32	80	684	67	80	319	73	47	89	241	7	28	36	181	16	30	322	180	89	354	220	57	401								
Springbok	35	122	534	1	73	473	367	234	38	4	178	24	74	101	1243	157	19	562	48	173	2	42	48	13	148	161	71	1171	68	417	222	966		
Steenbok	14	60	8	37	39	20	14	23	24	9	30	7	59	19	6	2	3	16	40	10														
Hartmann's Zebra	14	311	15	34	160	52	43	144	202	41	106	14																						

(*) Values in bold are numbers of animals seen along transects.

(**) Values shaded yellow are minimum estimates assuming all animals within 500m on each side of the transect line are detected i.e. there is no adjustment for drop off in detection with distance from the transect line. In addition, for springbok, gemsbok and giraffe, large groups were excluded from extrapolations and added afterwards. The sum of these values will be significantly lower than the totals indicated in the top left table as the total estimates take account of species detection curves.

(***) NDVI is a measure of 'greenness' or biomass cover. The value presented is the % difference between the current year and the long term average (2001-17). A negative value (red or orange) indicates there was less biomass cover than average while a positive value (green) indicates there was more cover.