

**2^e Réunion des États de l'aire de répartition de
l'Initiative conjointe CITES-CMS pour les carnivores d'Afrique (ACI2)**

Entebbe, Ouganda, 1 – 4 mai 2023

CITES-CMS/ACI2/Inf.14

IUCN RED LIST ASSESSMENT 2016: LION (*PANTHERA LEO*)

SUPPLEMENTARY INFORMATION

Lion (*Panthera leo*)

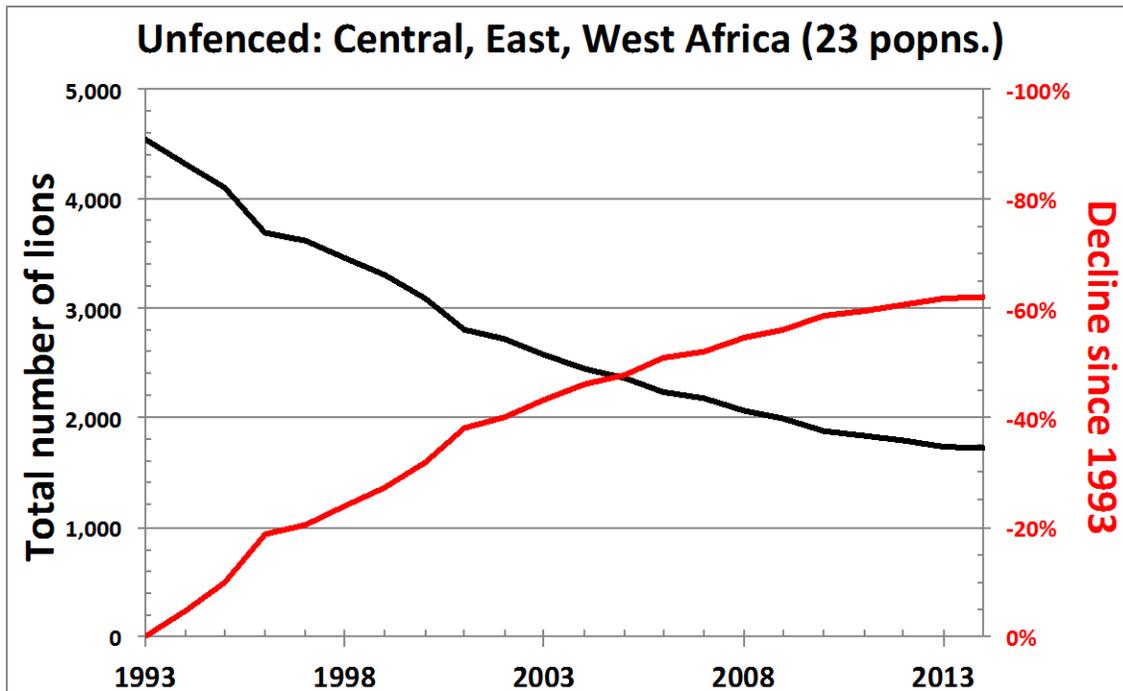


Figure 1. Combined Lion numbers from 1993-2014 (black) and overall decline (62%) since 1993 (red) in 23 unfenced subpopulations from 11 countries across Central, East and West Africa including Zambia, which is sometimes categorized as part of southern Africa. *Benin*: Pendjari, *Cameroon*: Bénoué, Waza, *Côte d'Ivoire*: Comoe, *Ghana*: Mole, *Kenya*: Laikipia, Maasai Mara, Mbirikani, Nairobi, Samburu, Taita, *Niger*: W, *Nigeria*: Kainji, Yankari,, *Senegal*: Niokolo, *Tanzania*: Katavi, Matambwe, Ngorongoro Crater, Serengeti, Tarangire, *Uganda*: Murchison Falls, Queen Elizabeth, *Zambia*: Luangwa

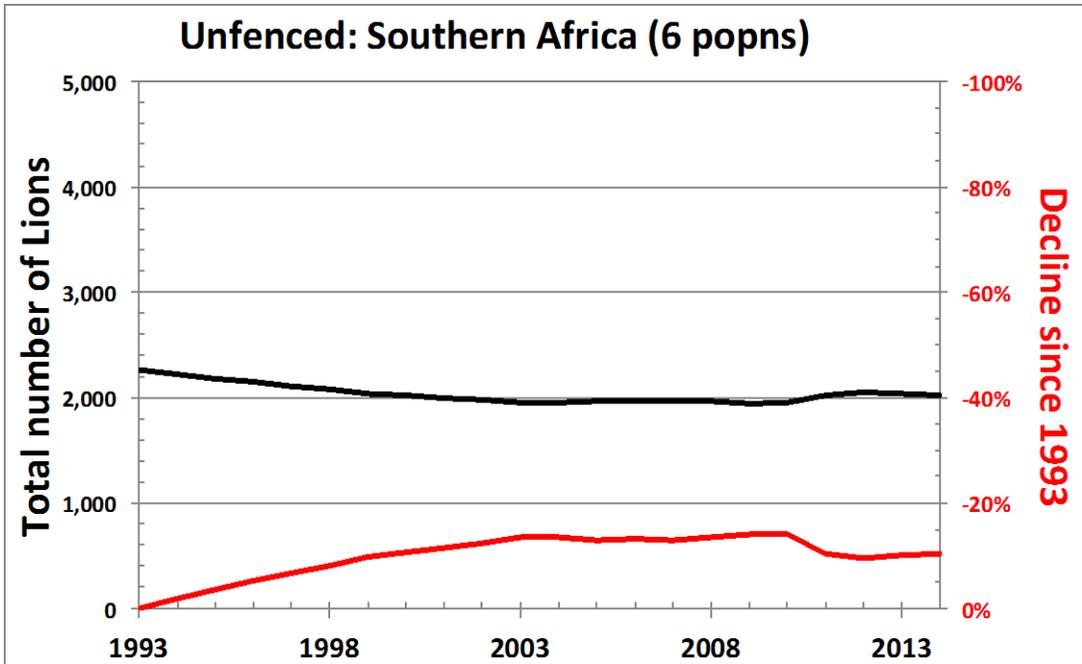


Figure 2. Combined Lion numbers from 1993-2014 (black) and overall decline since 1993 (red) in six unfenced subpopulations from three countries in Southern Africa. *Botswana*: Okavango, Kwando/Chobe, Makgadikgadi; *Namibia*: Kunene, *Zimbabwe*: Gonarezhou, Hwange.

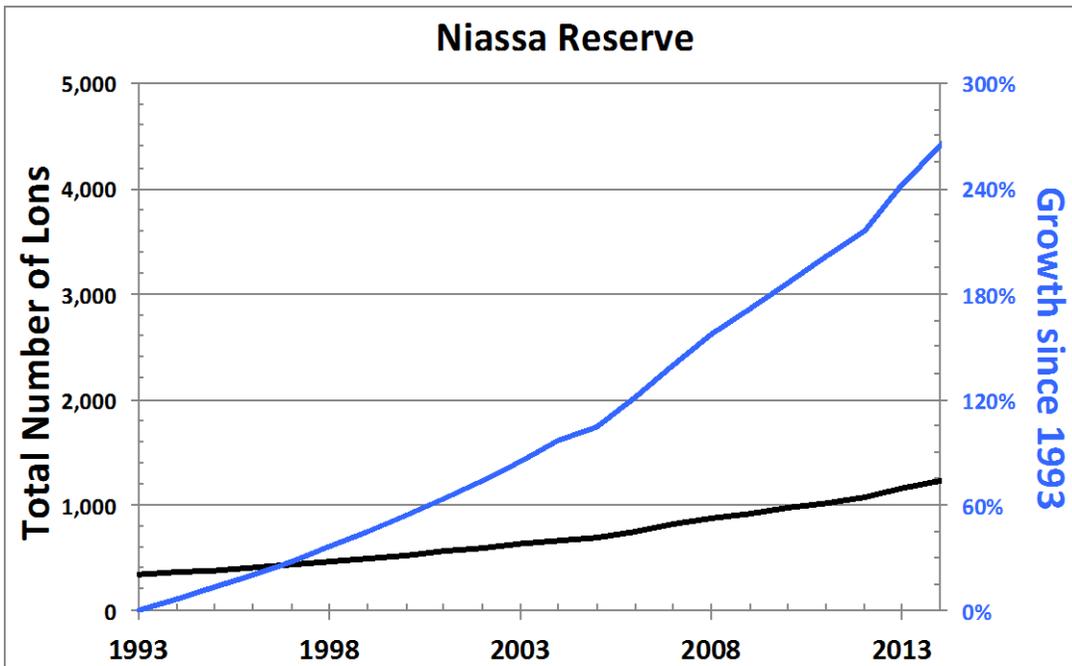


Figure 3. Estimated Lion numbers (black) and overall population growth (blue) in the Lion population in Niassa Reserve, Mozambique.

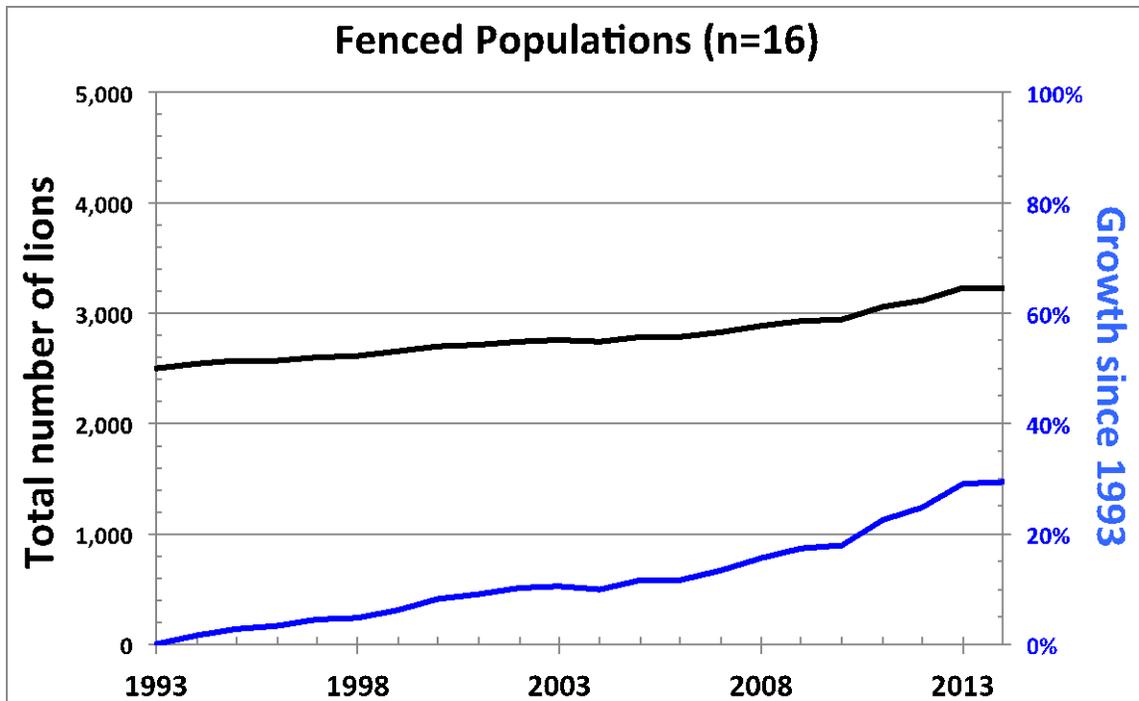


Figure 4. Combined Lion numbers from 1993-2014 (black) and growth since 1993 (blue) in 16 fenced subpopulations from four different countries. *Kenya:* Ol Pejeta, *Namibia:* Etosha, Ongava, *South Africa:* Hluhluwe iMfolozi, Kgalagadi, Kruger, Kwandwe, Madikwe, Makalali, Phinda, Pilanesberg, Tembe, Welgevonden, *Zimbabwe:* Buby Valley, Malilangwe, Save Valley.

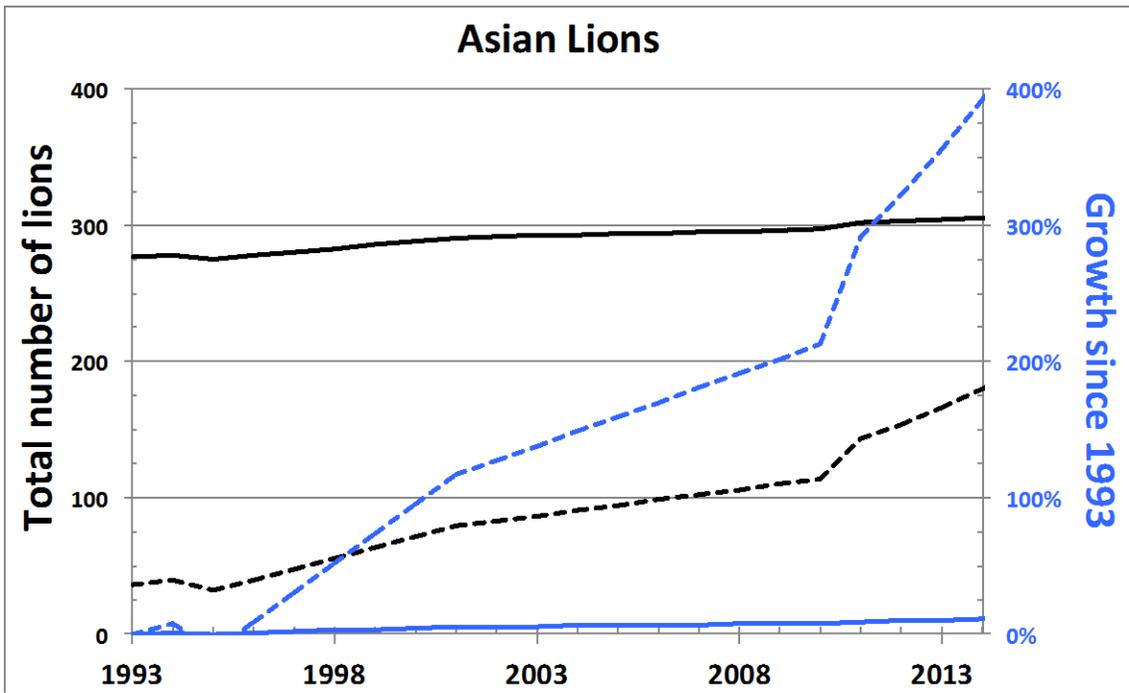


Figure 5. Lion numbers from 1993-2014 (black) and overall growth since 1993 (blue) inside India’s Gir National Park (solid lines) and the surrounding “satellite” areas (dashed lines).

Table 1. Lion Range States according to literature and unpublished records (this list is based on evidence at our disposal which may be incomplete, international organizations in need of a list of Range States should first consult governments of the countries concerned and give them opportunity to provide evidence).

Region	Country	Historical range		IUCN 2008		Present assessment			Recently extirpated	Possibly extirpated	Remarks	
		Absent	Present	Absent	Possible	Present	Absent	Possible				Present
West Africa	Benin		1			1			1			
	Burkina Faso		1			1			1			
	Côte d'Ivoire		1			1	1			1		
	Gambia		1	1			1			1		
	Ghana		1			1		1			1	reports of roars in Mole NP
	Guinea		1			1		1			1	
	Guinea Bissau		1			1	1			1		
	Liberia	1		1			1					
	Mali		1			1	1			1		
	Mauritania		1	1				1			1	
	Niger		1			1			1			
	Nigeria		1			1			1			
	Senegal		1			1			1			
Sierra Leone		1	1				1			1		

	Togo	1		1			1			1	reports of roars in Oti- M. NP	
Western Africa		1	14	4	1	10	7	3	5	6	3	
	Cameroon	1				1			1			
	C.A.R.	1				1			1			
	Chad	1				1			1			
	Congo	1				1	1			1		
Central Africa	D.R.C.	1				1			1			
	Equatorial Guinea	1		1			1					
	Gabon		1			1	1			1		
	Sudan		1			1			1			
	South Sudan		1			1			1			
	Central Africa		1	8	1	0	8	3	0	6	2	0
		Burundi		1			1	1			1	
		Djibouti		1	1			1			1	
	Eritrea		1	1			1			1		
East Africa	Ethiopia		1			1			1			
	Kenya		1			1			1			
	Rwanda		1			1		1		1	recently reintroduced	

	Somalia	1			1			1			
	Tanzania	1			1			1			
	Uganda	1			1			1			
Eastern Africa		0	9	2	0	7	3	1	5	3	1
	Angola	1				1			1		
	Botswana	1				1			1		
	Lesotho	1	1				1			1	
	Malawi	1				1			1		
	Mozambique	1				1			1		
Southern Africa	Namibia	1				1			1		
	South Africa	1				1			1		
	Swaziland	1				1			1		extirpated but reintroduced
	Zambia	1				1			1		
	Zimbabwe	1				1			1		
Southern Africa		0	10	1	0	9	1	0	9	1	0
Total											
Sub Saharan Africa		2	41	8	1	34	14	4	25	12	4
India		1				1			1		

Table 2. Regional trends for 47 monitored Lion subpopulations (listed in Table 3) from 1993-2014.

Region	Estimated lions in sample subpopulations		Percent change
	1993	2014	
Asia	312	485	+55%
Southern Africa*	4,887	5,265	+8%
Eastern Africa	3,112	1,266	-59%
West and Central Africa	1,304	439	-66%
Total	9,615	7,455	-22%
Niassa Res, MZ**	339	1,235	+265%

Regions include the following countries with known or possible Lion presence in 2014, sorted by three African regions following the IUCN (2006) regional conservation strategies. Number of sample subpopulations in parentheses; two transboundary subpopulations were allocated as follows: W National Park (Benin), Kgalagadi (South Africa).

**Mozambique's Niassa Reserve is treated as an outlier and not included in this regional analysis.

Central and West Africa (9): Benin (2), Cameroon (2), Central African Republic, Chad, Democratic Republic of the Congo, Gabon, Ghana (1), Guinea, Côte d'Ivoire (1), Niger, Nigeria (2), Senegal (1), Togo

Eastern Africa (14): Ethiopia, Kenya (7), Somalia, South Sudan, Tanzania (5), Uganda (2)

***Southern Africa (23):** Angola, Botswana (3), Malawi, Mozambique (1) (outlier shown separately and not included in regional totals), Namibia (3), South Africa (10), Swaziland, Zambia (1), Zimbabwe (5).

Asia (1): India (1)

Table 3. Inferred Lion population trend based on interpolated census data from 1993-2014 in 47 monitored Lion subpopulations (note that these are study subpopulations not necessarily representing total site subpopulation).

This Table shows how countries were grouped for purposes of assessing overall species trend according to whether the majority of their sample subpopulations declined or increased. Trends in the sample Lion subpopulations are summarized on a national basis for informational purposes only, and cannot be interpreted literally as representative of overall national Lion population trends except in a few cases for countries which have few Lion subpopulations, all monitored over time. In general, the sample size of monitored subpopulations is generally too small to be used to definitively infer total Lion population trends on a national basis.

Region	Country	Sample subpopulation	Fenced?	State run	Trophy hunt**	*Data points	Data sources (see legend)	Estd Lions (1993)	Estd Lions (2014)	Percent change
Asia	India	Gir National Park***	Y	Y	N	3	4,5	276	306	11
	India	Gir satellite areas***	N	N	N	3	4,5	36	179	397
	India								312	485
Eastern Africa	Kenya	Laikipia	N	N	N	11	1	135	59	-56
		Maasai Mara	N	Y	N	2	1	455	209	-54
		Mbirikani	N	N	N	7	1	2	41	1,950
		Nairobi	N	Y	N	8	1	30	17	-43
		OI Pejeta	Y	N	N	6	1	11	85	672
		Samburu	N	Y	N	8	1	26	20	-23

		Taita	N	N	N	7	1	89	18	-80
	Kenya							748	449	-40
		Ngorongoro Crater	N	Y	N	15	1	61	55	-10
		Katavi	N	Y	Y	8	1	1,118	0	-100
	Tanzania	Matambwe (Selous GR)	N	Y	N	5	1	124	98	-21
		Serengeti	N	Y	N	15	1	232	314	35
		Tarangire	N	Y	N	8	1	252	141	-44
	Tanzania							1,787	608	-66
		Murchison	N	Y	N	5	1,4	347	75	-78
	Uganda	Queen Elizabeth	N	Y	N	4	1,4	230	134	-42
	Uganda							577	209	-64
		Kwando/Chobe	N	Y	N	2	4	155	286	84
	Botswana	Makgadikgadi	N	Y	N	2	4	148	327	121
		Okavango	N	Y	N	2	4	1,932	1,050	-46
	Botswana							2,235	1,663	-26
	Mozambique	Niassa	N	Y	Y	3	1,4	339	1,235	264
		Etosha	Y	Y	N	3	1,4	505	472	-7
	Namibia	Kunene	N	N	Y	13	1	6	242	3,933
		Ongava	Y	N	N	10	1	4	11	175
Southern Africa										

Namibia							515	725	41
South Africa	Hluhluwe-iMfolozi	Y	Y	N	8	1	60	108	80
	Kruger	Y	Y	N	2	1	1,733	1648	-5
	Kwandwe	Y	N	N	9	1	1	22	2,200
	Madikwe	Y	Y	N	5	1	9	37	311
	Makalali	Y	N	N	11	1	10	30	200
	Phinda	Y	N	N	12	1	12	27	125
	Pilanesberg	Y	Y	N	5	1	6	33	450
	Tembe	Y	N	N	10	1	1	15	1,400
	Welgevonden	Y	N	N	9	1	3	23	667
SA/Botswana	Kgalagadi	Y	Y	N	3	1	111	131	18
South Africa							1,946	2,074	-7
Zambia	Luangwa	N	Y	N	5	4	139	100	-28
Zimbabwe	Bubye	Y	N	Y	5	1	9	330	3,567
	Gonarezhou	N	Y	N	5	4	1	80	7,900
	Hwange	N	Y	Y	10	1,4	21	39	86
	Malilangwe	Y	N	Y	7	1	18	42	133
	Save Valley	Y	N	Y	5	1	3	212	6,967
Zimbabwe							52	703	1,252
Benin	Pendjari	N	Y	N	3	1,2,4	25	108	332

West and Central Africa	Benin/Burkina Faso/Niger	W	N	Y	N	3	2,4	76	63	-17
	Cameroon	Benoue	N	Y	N	4	1,2,4	253	208	-18
		Waza	N	Y	N	4	1,2,4	69	11	-83
	Cameroon							322	220	-32
	Ghana	Mole	N	Y	N	4	1,2,4	131	0	-100
	Côte d'Ivoire	Comoe	N	Y	N	4	1,2,4	265	0	-100
	Nigeria	Kainji	N	Y	N	4	2,4	155	21	-86
		Yankari	N	Y	N	5	2,4	129	11	-91
	Nigeria							284	32	-89
	Senegal	Niokolo	N	Y	N	5	2,4	201	16	-92

*Data points: number of years per site with census data; the remaining years are interpolated as described in the text

**Trophy hunt: Trophy hunting allowed or known to affect population (Packer *et al.* 2013)

**Gir NP and satellite area lions are graphed separately in Figure 5 but treated as a single subpopulation otherwise.

Table 4. Based on Table 3, four range countries (excluding Mozambique*) had overall increasing trends in sampled Lion subpopulations; Botswana is included with this group due to its relatively small rate of overall decline. In contrast, the remainder of African range states had decreasing trends in sampled subpopulations.

	Estimated Lions in sample subpopulations		Percent change
	1993	2014	
Five range countries: Botswana, India, Namibia, South Africa and Zimbabwe	5,199	5,750	+11%
Botswana, Namibia, South Africa and Zimbabwe	4,887	5,265	+8%
Remainder of African range	4,416	1,705	-61%

*Niassa (Mozambique), treated as an outlier, as described in the text

Table 5. Estimated percentage of species population in four southern African countries (Bauer *et al.* 2005) in 2002, used to estimate the proportion of total species population that has increased by 11% since 1993 (Table 6).

	ALWG	IGF
Botswana+Namibia+South Africa+Zimbabwe	7,581	9,436
Total estimated African population	23,000	39,373
Four country percentage of African population	33%	24%

ALWG = African Lion Working Group (Bauer and Van der Merwe 2004, national totals as given in Bauer *et al.* 2005).

IGF = International Foundation for the Conservation of Game (Chardonnet 2002, national totals as given in Bauer *et al.* 2005)

Table 6. Calculation of Lion decline over three generations (1993-2014) from observed rate in sample subpopulations in two different parts of extant range.

	5 countries: Botswana, India, Namibia, South Africa, Zimbabwe	Remaining range (Africa)	Total
Starting proportion of population in 1993	25	75	100
Population average annual trend	+0.5%	-2.9%	
Total change over 3 generations	+11%	-61%	
Ending proportion of population	28	29	57 (43 % decline)

Table 7. Regional trends for 47 monitored Lion subpopulations from 1993-2014 and putative number of Lions if those trends are applied to 2002 estimates.

Region	Estimated Lions in sample populations		Percent change	Putative 2014 Lion numbers, trend applied to 2002 estimates	
	1993	2014		Bauer and Van Der Merwe (2004)	Chardonnet (2002)
Asia	312	445	+55%	-	-
Southern Africa	4,887	5,265	+8%*	10,385	15,925
Eastern Africa	3,112	1,266	-59%	7,345**	13,316
West Africa	1,304	439	-66%	406***	406***
Central Africa				590	1,748
Total putative Lions in Africa				18,841	31,394

* excludes outlier Niassa, as explained in the text; with Niassa: +24%.

** Ruaha and Tarangire ecosystems recognized as substantial missing data

*** trend applied to Central Africa only, West Africa from Henschel *et al.* (2014)

Note: References mentioned above are cited in full under the Bibliography page for the species on *The IUCN Red List of Threatened Species*TM.