



Update on African Rhino Status and Poaching Trends from IUCN SSC African Rhino Specialist Group (AfRSG)

Richard H Emslie & Michael H Knight

Rhino numbers

IUCN SSC's African Rhino Specialist Group (AfRSG) held its tenth meeting at Naru Moro, Kenya in February 2013 just prior to CITES CoP 16. At the meeting, provisional continental rhino population estimates (as of 31st December 2012) were compiled. These were made available to Parties at CITES CoP16 in Inf Doc 51 and during the presentation of the report in plenary. These numbers were finalised after CoP16 following further review and in light of additional information received. The final figures however only marginally differed from the provisional numbers presented at CoP16. Figure 1 shows the trend in estimated numbers of both species in the wild since 1992 and Table 1 gives the final continental rhino number estimates by country and subspecies for Africa (as of 31 December 2012)

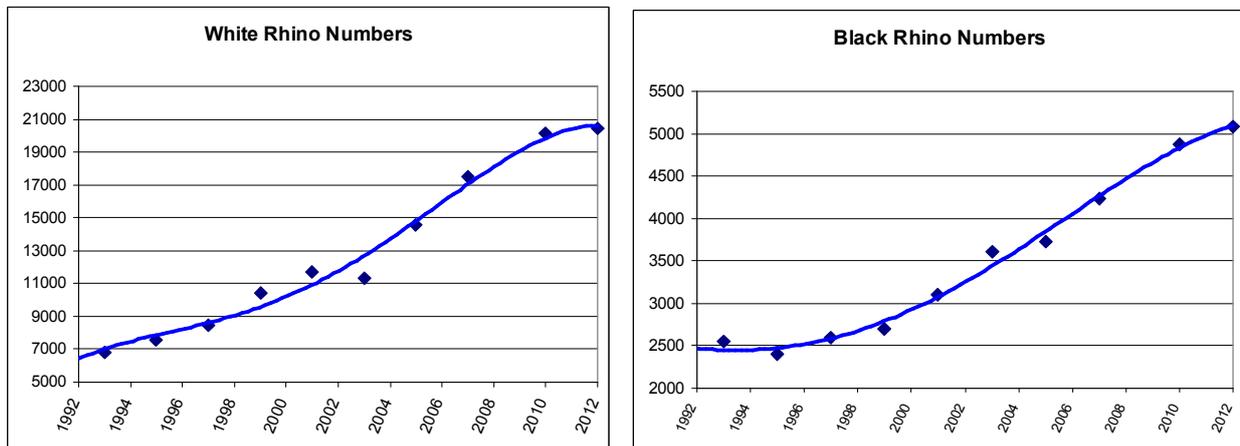


Figure 1. White Rhino and Black Rhino population trends 1991-2012 Changes in estimated numbers of white and black rhino in Africa since 1991 with fitted second-order polynomial trend line (IUCN SSC AfRSG data).

Table 1: Revised final estimated numbers of white and black rhinos in Africa as of 31 Dec 2012 by country and subspecies

Species	White rhino				Black rhino			Total		
	C.s.cottoni	C.s.simum	TotalWR	Trend	D.b.bicornis	D.b.michaeli	D.b.minor			
	(northern)	(southern)			(south-western)	(eastern)	(southern-central)			
Angola					1			1	Min	1
Botswana		185	185	Up			9	9	Up	194
Kenya	4	390	394	Up		631		631	Up	1,025
Malawi							26	26	Up	26
Mozambique		1?	1	Down			0?	0	?	1
Namibia		524	524	Up	1,750			1,750	Stable	2,274
South Africa		18,933	18,933	Up	208	68	1,792	2,068	Up	21,001
Swaziland		84	84	Stable			18	18	Up	102
Tanzania						100	27	127	Up?	127
Uganda		14	14	Up						14
Zambia		10	10	Up			27	27	Stable	37
Zimbabwe		284	284	Down			424	424	Down	708
Totals	4	20,424	20,429		1,959	799	2,323	5,081		25,510

While estimated total numbers of both African rhino species shown in Table 1 were up from when they were last compiled for the end of 2010 two years previously; Figure 1 suggests that growth is slowing in response to the rise in poaching. The relative distribution of rhinos remains similar with 98% (25,000) continuing to be conserved by four range States: South Africa, Namibia, Kenya and Zimbabwe. Just over 500 rhino occur within three other Range states (Botswana, Tanzania and Swaziland) with each conserving over 100 rhinos. Encouragingly, after a period when poaching levels were sufficient to depress rhino numbers, Zimbabwe's rhino numbers have again been increasing in response to the reduced rhino poaching.

Intensive helicopter block counts were completed in Kruger NP in 2013. The results suggest that white rhino numbers in this AfRSG rated **Key1** population of continental significance are currently around 8,968 (95% CI: 8,394-9,564), and indications are that the tipping point may have been reached with this population just starting to decline (Sam Ferreira *pers. comms*). SANParks plans to increase removals from Kruger not only on strategic grounds (to move some animals to safer locations further from Mozambique) but also to enhance metapopulation growth rates. There are also plans to set up an Intensive Protection Zone in the south of the Park where most of the rhinos live.

Poaching update

The AfRSG has updated rhino poaching numbers up to the end of June 2014 (Table 2). While poaching encouragingly continues to decline in Zimbabwe, poaching at a continental level continued to escalate in 2013 with just over 1,100 being recorded poached.

South Africa conserves 82% of Africa's rhinos and it also has experienced the most poaching in absolute terms since 2009. Poaching also spiked in Kenya in 2013, and in relative terms while at similar levels, rhino poaching in Kenya is now a little higher than in South Africa. While poaching levels in both these countries are currently still at sustainable levels (i.e. not currently leading to population decline); both are approaching the tipping point where poaching ceases to be sustainable and deaths will start to exceed births. Encouragingly, Table 2 shows that at a continental level poaching in the first half of 2014 has levelled off and remains at average 2013 levels (3.00 rhinos poached/day).

Table 2: Reported numbers of white and black rhinos poached in Africa from 1 Jan 2006 to 30 June 2014 (Data from IUCN SSC AfRSG, TRAFFIC and CITES Rhino Working Group) *Note that these figures represent the minimum number reported poached, and the true figure is likely to be higher as some carcasses will not have been detected (especially in very large areas or in the case of very young animals). Young calves that disappeared or died after their mothers were poached and injured animals that subsequently died are considered as a poaching deaths. A few of the immobilised animals that had horns hacked off have survived but these too have been counted as poached.*

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014 1H	Up to	Simple 2014 Projection	Country Totals 2006-June 2014	2012 as % of end 2012 Rhino Num	2013 as % of end 2012 Rhino Num	2014 Proj as % of end 2012 Rhino Num
Botswana	-	-	-	-	-	-	2	2	-	16-Jun	-	4	1.0%	1.0%	0.0%
DR Congo	-	-	2	2	-	-	-	-	-	n/a	-	4	n/a	n/a	n/a
Kenya	3	1	6	21	22	25	29	59	23	12-Jun	52	189	2.8%	5.8%	5.1%
Malawi	-	-	-	-	-	-	2	1	2	23-Jun	4	5	7.7%	3.8%	15.4%
Mozambique	-	9	5	15	16	10	16	17	1 (Min)	31-Mar	4+	89	1600.0%	1700.0%	400.0%
Namibia	-	-	-	2	2	-	1	6	10	30-Jun	20	21	0.0%	0.3%	0.9%
South Africa	36	13	83	122	333	448	668	1,004	496	30-Jun	1,000	3,203	3.2%	4.8%	4.8%
Swaziland	-	-	-	-	-	2	-	-	1	23-Jun	2	3	0.0%	0.0%	2.0%
Tanzania	-	-	2	-	1	-	2	-	2	23-Jun	4	7	1.6%	0.0%	3.1%
Uganda	-	-	-	-	-	-	-	-	-	26-Jun	-	-	0.0%	0.0%	0.0%
Zambia	-	1	-	-	-	-	-	-	-	24-Jun	-	1	0.0%	0.0%	0.0%
Zimbabwe	21	38	164	39	52	35	29	18	4	12-Jun	9	400	4.1%	2.5%	1.3%
Total	60	62	262	201	426	520	749	1,107	539		1,095	3,926	2.9%	4.3%	4.3%
Poached/day	0.16	0.17	0.72	0.55	1.17	1.42	2.05	3.03	3.00		3.00				

Figure 2 below also shows poaching rates in South Africa have stabilised over the last 15 months. Table 2 also shows that after exponentially increasing since 2007, recorded average poaching levels in South Africa in the first half of 2014 are the same as 2013 average levels (3.00 rhinos poached/day). It remains to be seen whether this apparent levelling off in poaching in South Africa (and indeed also continental levelling off) will continue, or whether poaching will once again continue to trend upwards as happened after a period of about a year of relative stability in South Africa 2010/11.

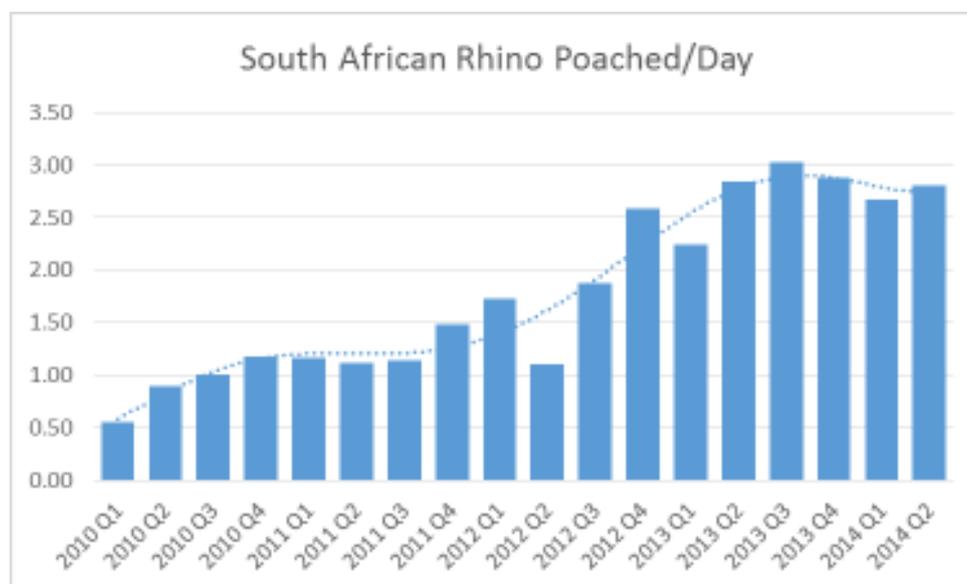


Figure 2: South African reported rhino poaching by quarter from Jan 2010 to June 2014 (South African Department of Environmental Affairs/SANParks data with a fitted polynomial trend line).

In addition to the trend of increasing arrests discussed in Inf Doc CoP16-51; Stoprhinopoaching.com reports that an increasing number of poachers in South Africa have suffered fatal wounds in shoot outs with anti-poaching units. A minimum of 54 poachers died following shoot outs in 2011 and 2012 increasing to at least 50+ in 2013 with the majority in Kruger Park and small numbers in KwaZulu-Natal. So far this year a further 30 poachers have died as a result of armed contacts in Kruger and another 2 in KwaZulu-Natal.

While poaching in Namibia remains relatively low, Table 2 worryingly shows that poaching now appears to be increasing there. In addition to the number poached, some horns were also recovered in a bust at Windhoek airport in 2014.

Animals moving across the border into Mozambique from Kruger continue to have a very low life expectancy given the very high poaching pressure there. The Mozambique poaching total would also have been much higher had it not been for the efforts of local conservationists and hunters in Mozambique who have chased many rhinos back across the border into South Africa where they are safer. Poaching information for Mozambique is incomplete and true numbers poached could well be higher. Recent Tanzanian poaching information is also incomplete (especially for the Selous where information is lacking).

Although poaching in Malawi in absolute terms is low, in relative terms (as a % of population) it is high and so far this year is at unsustainable levels.

Legislation and Prosecutions

It is be welcomed that Mozambique has in April 2014 finally approved new legislation criminalising rhino crimes with significantly increased penalties available. However the extent to which this new legislation will be applied and the conviction rates and penalties handed

down remains to be seen. Concern continues to be expressed about arrested suspects in Mozambique being released without trial and what has happened to some firearms and rhino horns taken from poachers and handed into authorities.

Since CoP16, Kenya has also changed its legislation to include stiffer penalties to punish wildlife offenders. Its new Wildlife Conservation and Management Act passed on 24th December 2013 includes provision for penalties of life imprisonment or a minimum fine of KSh 20 Million, equivalent to US\$ 250,000 for poaching rhinoceros or African elephant (*Loxodonta africana*) or trafficking their parts or derivatives. The clause in the section that contains these new sentences has been considered ambiguous by some. What this means is that the New Wildlife Act, though better than the old one, is unlikely in practice to provide any deterrent to the big dealers. Currently there are deliberate efforts between some NGOs, Kenya Wildlife Service, the Directorate of Public Prosecutions, Judicial officers and legal experts, to amend the Act to operationalize the clause containing these new sentences, 'Section 92', through a motion in parliament to strengthen it even further.

CoP16 Inf Doc51 mentioned the trend of increasing arrests of poachers in South Africa in recent years. However while most of the rhino cases that have been prosecuted have led to convictions (some with significant deterrent custodial sentences), concerns remain about the low case completion rate and the time it is taking for cases to come to court.

The USA has changed its internal threatened status for southern white rhino to assist its law enforcement officers deal with illegal rhino horn dealing.

In Zimbabwe, the case completion rate has improved, although delays in finalising some court cases continue to be experienced, even in clear cut cases (such as for want of an interpreter). It has been reported that rhino criminals frequently abscond after being granted bail, with some returning to rhino poaching and other crimes. Case management within the court system also needs to be improved given that records between the High Court and the lower courts go missing and there is no evidence of a self-regulating system for ensuring that the rhino case files sent from a the magistrate's court are acted upon at their intended destination. As a result of this, lawyers defending rhino criminals know that once they have filed a successful appeal and have secured release of their client on bail pending appeal, the case almost always ends there as the filed papers never get to the High Court or if they do there is such a backlog of cases that the papers inevitably get lost in the system.

Decline in live white rhino sale turnover in South Africa following upsurge in poaching and implications for conservation funding and continued growth of rhino range and numbers in South Africa

IUCN SSC'S African Rhino Specialist Group has collated live white rhino sale data from the three biggest sellers: Ezemvelo KZN Wildlife, South African National Parks and Vleisscentraal Auctioneers (Figure 3). This shows that inflation adjusted annual turnover has declined considerably in recent years following the upsurge in poaching (Figure 3). After an initial rush to sell rhinos in 2009 soon after poaching had started to take off, turnover has declined considerably since. This is primarily as the major conservation agencies have fewer surplus rhinos to sell due to the poaching. Figure 3 shows this significant decline in turnover is primarily due to the decline in number of animals being sold (Figure 3). Fewer live sales has significantly reduced funding for state conservation agencies such as Ezemvelo KZN Wildlife and South African National Parks. For example the decline in turnover for these two conservation organisations (adjusted for inflation to 2013 Rand values) from 2007 (the year before poaching started to escalate) to 2012 was almost R 35.9m (close to US\$3.8m at prevailing exchange rates). In addition, the trend of increasing numbers of private sector owners in South Africa getting rid of some or all their rhino given the increased security costs and increased risks that have accompanied the upsurge in poaching shows no sign of abating. This may reduce the range available for expansion of rhino range and numbers.

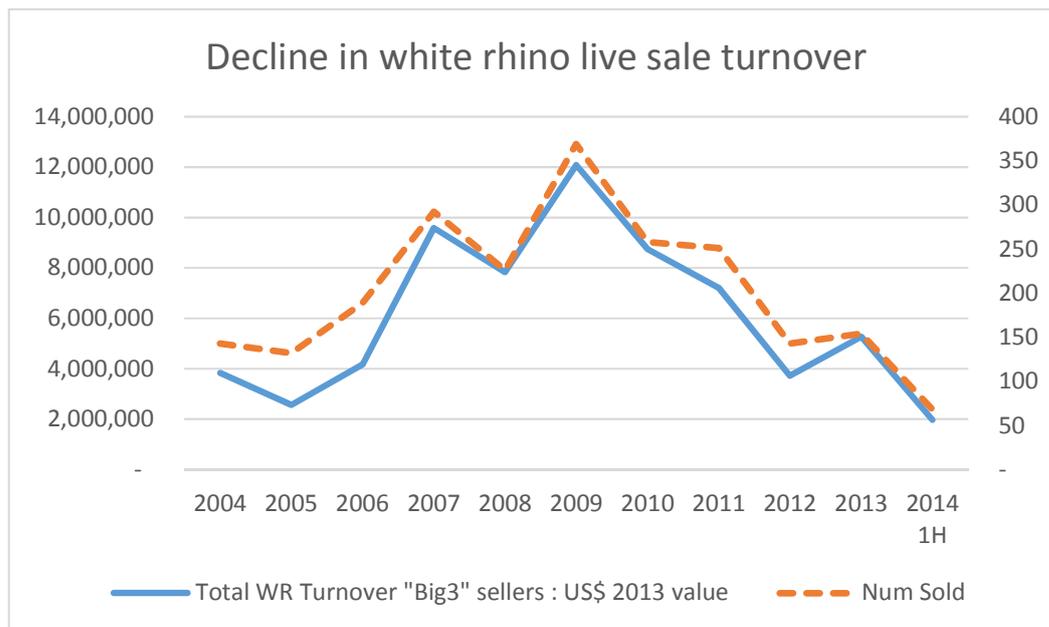


Figure 3: White rhino live sale turnover in South African by the three biggest sellers (based on data supplied by Ezemvelo KZN Wildlife, SANParks and Vleisscentraal auctioneers). NB The 2014 figure only refers to the first half of 2014 and the total turnover for 2014 will be higher than this.

Modelled tipping point when rhino numbers are projected to start declining

The increase in poaching raises the question as to when (if escalating poaching from 2008-13 were to continue to increase exponentially) the tipping point is likely to be reached (when rhino numbers start to decline at a continental level). Using the HGROWTH^{TM1} function (which uses all data points in its calculation giving greater weight to more recent years) it is estimated that, continentally, poaching has been growing by 38.76% a year from 2008-2013. If continental poaching continues to escalate exponentially at this rate, modelling predicts (for a range of underlying population net reproductive growth rates from 5% to 9%) that the tipping point (when rhino numbers start to decline at a continental level) could be reached sometime between 2014-2016 (Figure 3). Furthermore, if poaching continued to increase exponentially at this rate rhino numbers are predicted to drop to less than 10,000 (by over 60%) by the end of 2019 and reach 0 the following year. The latter extinction in the wild however will be unrealistic as this simplistic modelling ignores the likelihood that the last few rhinos are likely to be harder to find and poach and most probably would be under very high protection. Thus in reality it probably would take longer to reach extinction than predicted by this simple model.

Just as businesses cannot keep growing earnings at 40%+ a year forever, poaching growth rates may slow in future. Modelling a more conservative arithmetic (rather than the previous exponential) increase in poaching (using both the average increase over the three years 2010-13 of +225/year and the 351 more rhinos/year reported poached from 2012-13) predicts the tipping point would also be reached very soon (from 2014-17 at +351/yr) with numbers projected to drop below 10,000 by 2022-26 (at +351/yr) and 2024-31 (at 225/year). Simple extrapolated projected times to extinction under the two scenarios were 2024-2028 (+351/yr) and 2027-33 (+225/year). These crude models highlight the urgent need to stop poaching increasing or at the very least significantly slowing the rate of poaching increase to buy more time for other initiatives such as demand reduction to work and prevent the gains of two decades being destroyed.

¹ HGROWTH is a measure of annualised growth rate of a sequence of historical data that uses all data points and not just the first and last. It is primarily used in financial estimation of growth in sales or earnings per share. It also places more emphasis on recent data compared to older data, and makes special adjustments for extreme outliers, negative data and data near zero. (Price 2011, 2013)

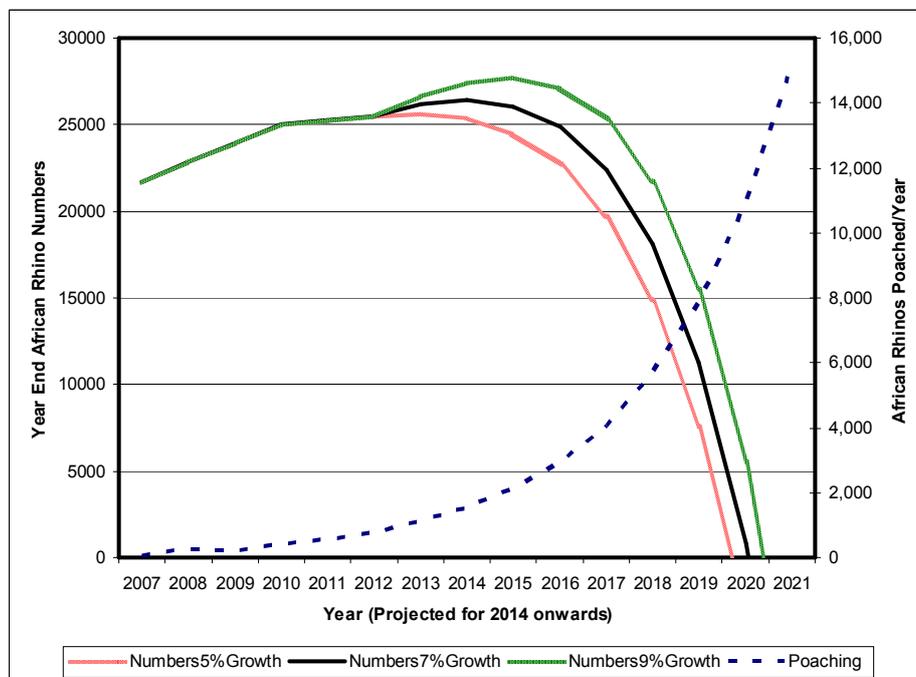


Figure 4: Projected rhino numbers if poaching continues to escalate exponentially in 2014 onwards as it has done since 2008-13 (+38.76% increase per year) for a range of underlying net reproductive population growth rates from 5% to 9%.

Seen against this background, the apparent levelling off in poaching in the first half of 2014 is to be welcomed as current poaching levels of 4.3% of rhino numbers are just sustainable.

Acknowledgements and main sources of information

Updated information on African rhino poaching in this document was supplied by rhino range States and conservationists working in range states. The support and cooperation of range States is appreciated. The AfRSG is grateful to U.S. Fish and Wildlife Service's Rhino and Tiger Conservation Fund, WWF, Save the Rhino International, the UK's Department of Environment, Food and Rural Affairs (DEFRA), International Rhino Foundation for providing funding support to enable the AfRSG Scientific Officer to assist in the preparation of this report. The Endangered Wildlife Trust is also thanked for administrative support. Richard Jenkins and Dena Cator of IUCN are thanked for commenting on a draft of this document.

References

Emslie RH, Milliken T, and Talukdar B (2012) *African and Asian Rhinoceroses – Status, Conservation and Trade*. CoP16, Doc. 54-2-Annexe 2 CITES Secretariat, Geneva, Switzerland.

Emslie RH (2013) Latest trends in African rhino numbers and poaching – An update to Doc54.2 Annexe 2 from the IUCN Species Survival Commission's (IUCN/SSC) African Rhino Specialist Group to the CITES Secretariat Pursuant to Resolution Conf. 9.14 (Rev CoP15). Inf Doc 51 CITES Secretariat, Geneva, Switzerland

Government of Kenya 2013. The wildlife conservation and management Act, 2013. Government of Kenya, Nairobi, Kenya.

Price J (2011) *The Conscious Investor – Profiting from the timeless Value approach* Wiley Finance

Price J. (2013) *Valuesoft Investment System Version 3.2 – Functions from the Conscious Investor - Software Manual*