

CONVENTION ON INTERNATIONAL TRADE IN
ENDANGERED SPECIES OF WILD FAUNA AND FLORA



Monitoring the Illegal Killing of Elephants

UPDATE ON ELEPHANT POACHING TRENDS IN AFRICA TO 31 DECEMBER 2014

Introduction

The CITES programme for Monitoring the Illegal Killing of Elephants, commonly known as MIKE, was established by the Conference of the Parties (CoP) at its 10th Meeting (Harare, 1997) in accordance with the provisions in Resolution Conf. 10.10 (Rev. CoP16) on *Trade in elephant specimens*. The MIKE Programme is managed by the CITES Secretariat under the supervision of the CITES Standing Committee. Since implementation began in 2001, the operation of the MIKE Programme in Africa has been possible thanks to the financial support of the European Union.

MIKE aims to inform and improve decision-making on elephants by measuring trends in levels of illegal killing of elephants, identifying factors associated with those trends, and building capacity for elephant management in range States. MIKE operates in a large sample of sites spread across elephant range in 30 countries in Africa and 13 countries in Asia. There are some 60 designated MIKE sites in Africa, which together hold an estimated 30 to 40% of the African elephant population, and 27 sites in Asia.

MIKE data is collected by law enforcement patrols and other means in designated MIKE sites. When an elephant carcass is found, site personnel try to establish the cause of death and other details, such as sex and age of the animal, status of ivory and stage of decomposition of the carcass. This information is recorded in standardized carcass forms, details of which are then submitted to the MIKE Programme. A database of more than 15,000 carcass records has been assembled so far, providing a substantial information base for statistical analysis.

MIKE evaluates relative poaching levels based on the Proportion of Illegally Killed Elephants (PIKE), which is calculated as the number of illegally killed elephants found divided by the total number of elephant carcasses encountered by patrols or other means, aggregated by year for each site. Coupled with estimates of population size and natural mortality rates, PIKE can be used to estimate numbers of elephants killed and absolute poaching rates.

While PIKE provides a sensitive measure of poaching trends, it may be affected by a number of potential biases related to data quality, carcass detection probabilities, variation in natural mortality rates and other factors, and hence results need to be interpreted with caution. However, the fact that the quantitative results presented below are in good agreement with quantitative information available from the Elephant Trade Information System (ETIS), as well as with qualitative information from the IUCN/SSC African elephant Specialist Group, gives confidence as to the robustness of the results.

Trend analysis 2014

Previous trend analyses of MIKE data using standardized methodology have been presented to the 15th and 16th Meetings of the Conference of the Parties to CITES; to the 61st, 62nd and 65th Meetings of the CITES Standing Committee, as well as to other meetings such as the African Elephant Summit (Gaborone, December 2013). In addition, analyses of MIKE data have been published in the peer-reviewed scientific literature (Burn et al. 2011; Wittemyer et al. 2014). Since the report submitted to the 65th Meeting of the Standing Committee (SC65), records for 1,440 carcasses found in 2014 were received from 46 sites in Africa.

The data set used for analysis consist of 13,511 records of elephant carcasses found between 2002 and the end of 2014 at 53 MIKE sites in 29 range States in Africa, representing a total of 488 site-years.

Figure 1 shows empirically derived time trends in PIKE at the continental level for reporting African MIKE sites, with 95% confidence intervals. The chart shows a steady increase in levels of illegal killing of elephants starting in 2006, peaking in 2011 and slightly declining and leveling off thereafter. The PIKE level in 2014 remained virtually unchanged compared to 2013.

Despite the slight decline since 2011, estimated poaching rates overall remain higher than the normal growth rate of elephant populations. Therefore, the elephant population at MIKE sites overall is likely to have continued to decline in 2014. In some areas, a decline in PIKE may be the result of a substantial decline in the elephant population, making it more difficult for poachers to find suitable targets in such areas. However, without recent and reliable elephant population estimates from such areas, it is difficult to verify the impact of poaching on such populations.

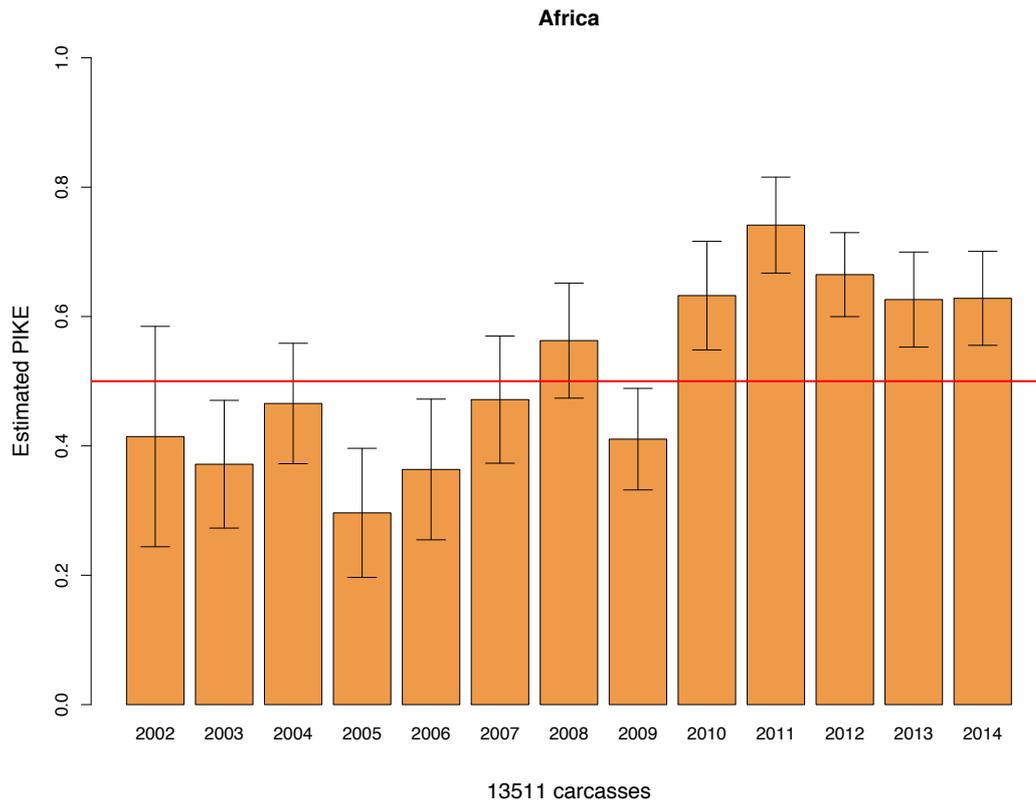


Figure 1. PIKE trends in Africa with 95 % confidence intervals. PIKE levels above the horizontal line at 0.5 (i.e. where half of dead elephants found are deemed to have been illegally killed) are likely to be unsustainable. The number of carcasses on which the chart is based is shown at the bottom of the figure.)

It is also difficult to estimate poaching impact at the site level, especially in sites that do not have sufficiently large carcass sample sizes, or where there may be indications of bias in reported PIKE levels. Among sites that have reported 20 or more carcasses in 2014, where the site-level PIKE can be taken to be relatively reliable, those that remain of particular concern (with a PIKE level of 0.7 or higher) in 2014 include Bangassou (Central African Republic); Garamba (Democratic Republic of the Congo); Niassa (Mozambique); Pendjari (Benin); and Selous-Mikumi (United Republic of Tanzania). On the other hand, substantial declines in PIKE in 2014 have been reported in Caprivi (Namibia); Chewore (Zimbabwe); Meru and Samburu Laikipia (Kenya); Ruaha-Rungwa (United Republic of Tanzania); and South Luangwa (Zambia).

The stability in PIKE levels in the last two years is also reflected at the subregional level, although there are differences between the subregions (Figure 2). The downward trend since 2011 in Central Africa was broken in 2014 with a slight (but not statistically significant) increase over 2013. The downward trend did continue in Eastern Africa, although the PIKE value in 2014 is not significantly different from the value recorded in 2013. It is nevertheless worth noting that, for the first time since 2010, the PIKE level in Eastern Africa in 2014 was below 0.5. In Southern Africa, PIKE in 2014 remained very similar to the levels recorded in 2012 and 2013. The only subregion where a substantial increase in PIKE was recorded in 2014 was West Africa, but the

paucity of carcass data from that subregion continue to make inferences on trends unreliable. However, it is worth pointing out that the value of PIKE for West Africa in 2014 is the highest ever recorded in that subregion.

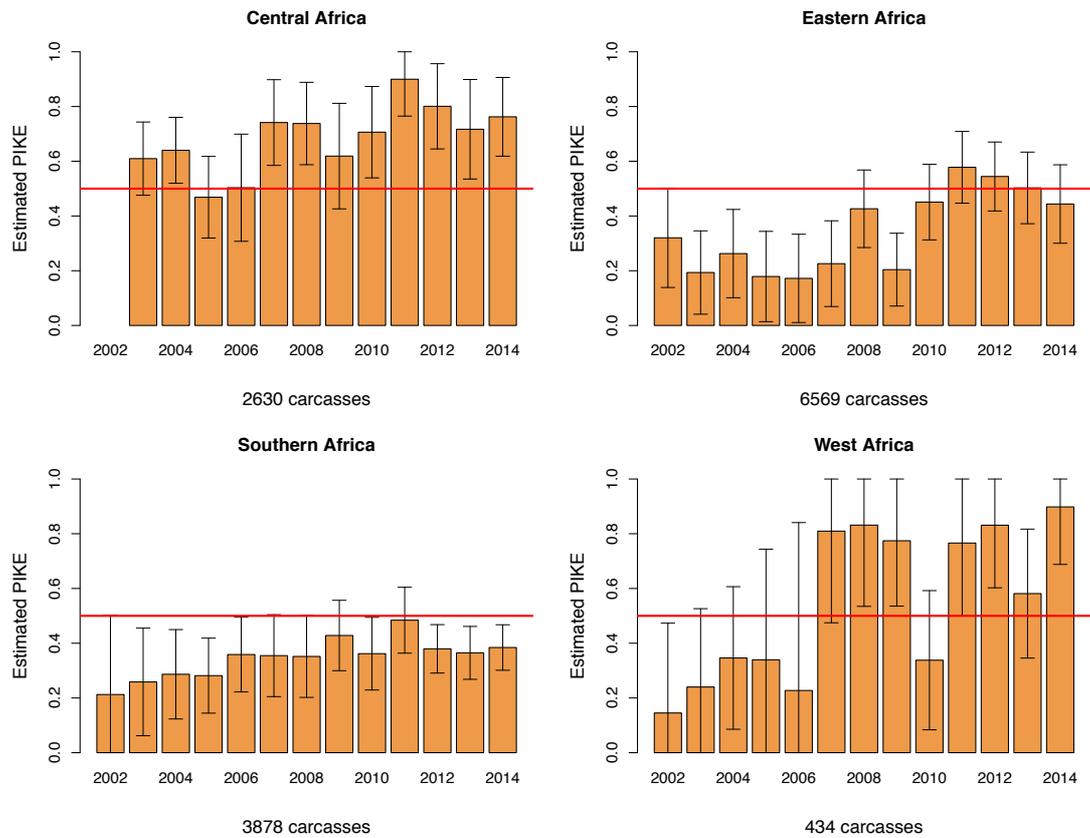


Figure 2. Subregional PIKE trends with 95 % confidence intervals. The numbers of carcasses on which the graphs are based are shown at the bottom of each graph.

In conclusion, while poaching levels seem to be stabilizing across MIKE sites, they remain above the likely sustainability threshold, especially in Central and West Africa, but also in specific sites in Eastern and Southern Africa.

References

- Burn, R.W., Underwood, F.M. & Blanc, J., 2011. Global trends and factors associated with the illegal killing of elephants: a hierarchical Bayesian analysis of carcass encounter data. *PLoS ONE*, 6(9), p.e24165.
- Wittemyer, G. et al., 2014. Illegal killing for ivory drives global decline in African elephants. *Proceedings of the National Academy of Sciences*, 111(36), pp.13117–13121.