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

TRENDS IN LEVELS OF ILLEGAL KILLING OF ELEPHANTS IN AFRICA TO 31 DECEMBER 2015

Background on MIKE

The CITES programme for Monitoring the Illegal Killing of Elephants, commonly known as MIKE, was established by the Conference of the Parties (CoP) to CITES 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 generous 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 ranger patrols in the field 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 to date, providing the most substantial information base available for making a statistical analysis of the levels of illegal killing of elephants.

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 other sources, gives confidence as to the robustness of the results.

Details of the MIKE trend analysis for 2015

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, in 2010 and 2013 respectively; to the 61st, 62nd, 65th and 66th Meetings of the CITES Standing Committee, as well as to other meetings such as the African Elephant Summit (Gaborone, December 2013) and its follow-up meeting (Kasane, March 2015). 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 66th Meeting of the Standing Committee (SC66) held in Geneva in January 2016, which included records received up to the end of 2014, records for 1,334 elephant carcasses encountered in the course of 2015 were received from 40 sites in Africa. While the number of reporting sites has declined compared to 2014, when 46 sites reported, the number of carcass records received is comparable.

The data set used for analysis consist of 14,606 records of elephant carcasses found between 2003 and the end of 2015 at 54 MIKE sites in 29 range States in Africa, representing a total of 505 site-years. Data for Asian sites is still being compiled and will be presented in the MIKE report to the 17th Meeting of the Conference of the Parties to CITES, which will be held in Johannesburg, South Africa, in September-October 2016.

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 2015 remained virtually unchanged compared to 2013 and 2014.

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 2015.

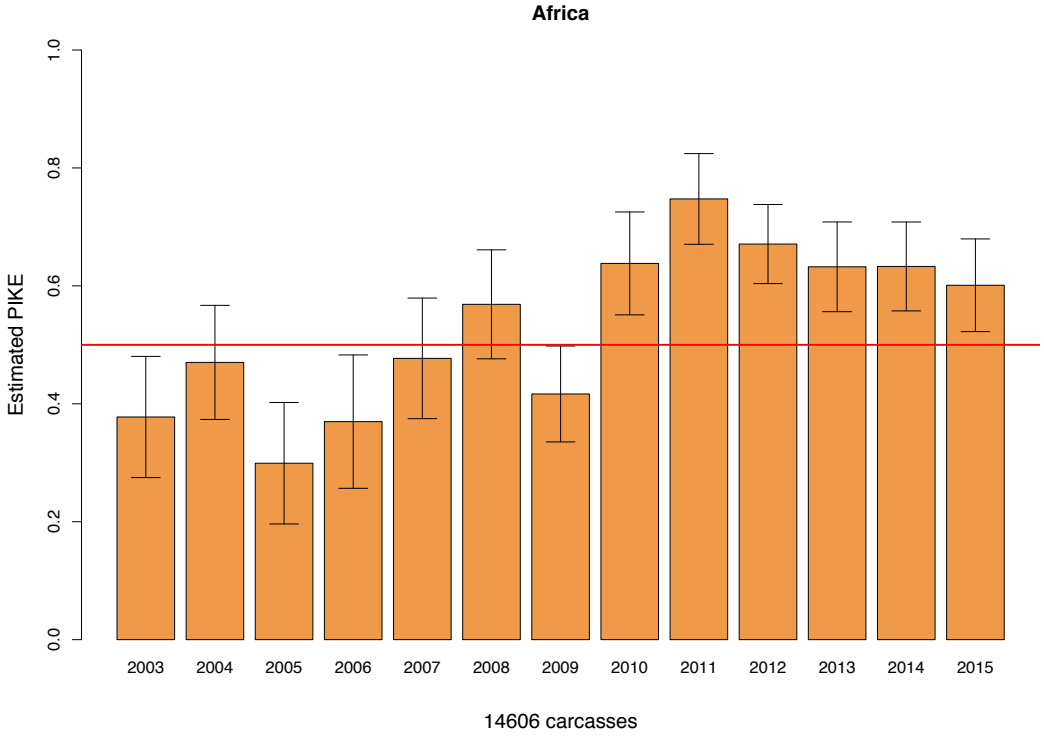

Figure 1. PIKE trends in Africa with 95 % confidence intervals. PIKE levels above the horizontal line at 0.5 (i.e. where half of dead elephants found are deemed to have been illegally killed) are likely to be unsustainable. The number of carcasses on which the chart is based is shown at the bottom of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

It is 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 2015, where the site-level PIKE can be taken to be relatively reliable, those that remain of particular concern (with a PIKE of 0.7 or higher) in 2015 include Pendjari (Benin); Garamba (Democratic Republic of the Congo); Niassa (Mozambique); Katavi-Rukwa, Ruaha-Rungwa and Selous-Mikumi (United Republic of Tanzania).

Sites where a substantial decline in PIKE was recorded in 2015 were Tsavo (Kenya), where PIKE dropped from 0.49 in 2014 to 0.33 in 2015—a 16% decrease —and Pendjari (Benin), where PIKE declined by 10%.

A substantial increase in PIKE was recorded in Kruger (South Africa), which went from 0.17 in 2014 to 0.41 in 2015 (a 23% increase). While the PIKE level in Kruger is still below the sustainability threshold in 2015, the substantial increase of poaching in what had been one of the most secure sites for elephants in Africa is a cause for concern. PIKE also increased substantially in Ruaha-Rungwa (United Republic of Tanzania; by 16%) and Chewore (Zimbabwe; by 12%).

The overall stability in PIKE levels over the last three years is reflected at the subregional level, with the PIKE values in all four African subregions in 2015 being statistically indistinguishable from those reported in 2014 (Figure 2). PIKE levels remained below 0.5 in Eastern and Southern Africa, while they remained above that level in Central and West Africa. It is worth noting that 2015 was the fourth consecutive year in which the PIKE value declined in Eastern Africa since the peak in 2011. The PIKE value for eastern Africa in 2015 is comparable to the levels recorded in that subregion in 2008.

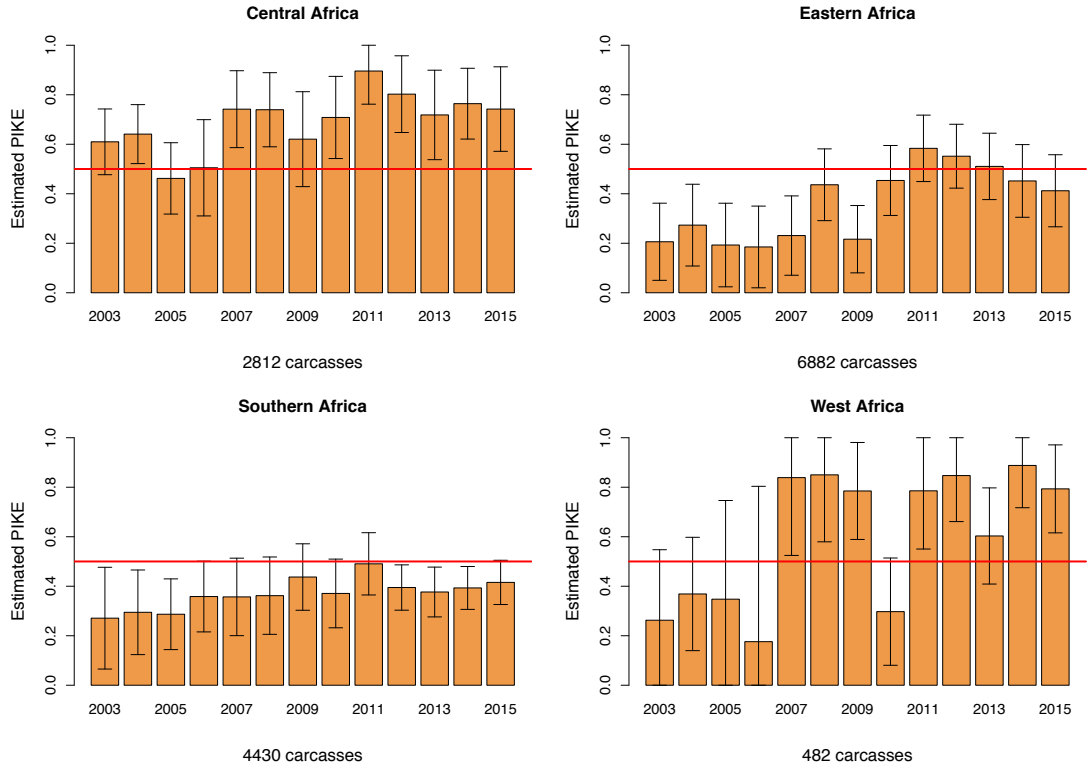

Figure 2. Subregional PIKE trends with 95 % confidence intervals. The numbers of carcasses on which the graphs are based are shown at the bottom of each graph.

With only eight sites reporting data for 2015, West Africa continues to be a cause for concern in terms of data quantity and quality, making reliable inference on trends impossible for the subregion. In this context, it is worth mentioning the case of Gourma (Mali), for which 18 carcasses were reported to MIKE in 2015, whereas the United Nations Peacekeeping mission in Mali (MINUSMA) reported at least 57 dead elephants in Gourma between January and June 2015 (Farge 2015).

Despite variation at the site level, poaching levels remained stable across African MIKE sites overall in 2015, albeit at unacceptably high levels, especially in Central and West Africa and specific sites in Eastern and Southern Africa.

References

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Farge, E., 2015. Poaching threatens Mali's rare desert elephants: UN mission. *Reuters Africa*. Available at: http://af.reuters.com/article/topNews/idAFKCN0S30MR20151009 [Accessed February 23, 2016].

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