Elephants, Ivory, and Trade

Article *in* Science · March 2010

DOI: 10.2307/40544600

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CONSERVATION

Elephants, Ivory, and Trade

Trade decisions made by the Convention on International Trade in Endangered Species must place science over politics.

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Tanzania and Zambia are petitioning the Convention on International Trade in Endangered Species (CITES) to "downlist" the conservation status of their elephants to allow sale of stockpiled ivory. But just 2 years after CITES placed a 9-year moratorium on future ivory sales (*1*), elephant poaching is on the rise. The petitioning countries are major sources and conduits of Africa's illegal ivory (*2*–*4*). The petitions highlight the controversy surrounding ivory trade (*5*) and broader issues underlying CITES trade decisions.

With illegal wildlife trade in all species worth tens of billions of dollars annually (*4*), CITES must link decisions on legal trade in vulnerable species to (i) the species' role in its ecosystem, (ii) adequate controls on exploitation that can be verified by independent and effective monitoring programs, and (iii) the petitioning country's record in combating illegal trade.

An adult female and a juvenile examine the broken tusk of a fallen elephant. Elephants often spend long periods inspecting bones of their dead.

Ecological Impacts

Loss of keystone species like elephants impacts the integrity of ecosystems and their services (*6*). Repercussions are likely to be marked in Central Africa, coinciding with major reductions in elephant populations (*7*–*9*). Local extirpation of the primary seed disperser of large trees in Central African forests may substantially affect long-term viability of the second most important carbon capture forests in the world (*9*, *10*).

In Zambia, elephants maintain the transition zone separating the habitats of genetically distinct savannah and forest elephants. In Tanzania, they play a major role in shaping woodland structure of extensive areas like the Selous Game Reserve (SGR)—the second largest World Heritage site on Earth.

Lack of Adequate, Verifiable Controls

Recent work strongly suggests that poaching is reducing Africa's continent-wide elephant population (*3*). Elephant population declines were under way at many locations (*7*–*9*) in 2007 when CITES gave its final approval to petitions allowing South Africa, Botswana, Namibia, and Zimbabwe to sell 110 tons of stockpiled ivory to China and Japan, despite heated debate. This debate focused on one key question: Does legal sale influence levels of poaching across Africa (*11*)? That question could not be resolved, partly because MIKE (Monitoring Illegal Killing of Elephants), created by CITES in 1997 to assess poaching rates on a continental scale, is unable to deliver data relevant to the causality mandate (*12*–*14*). With no reliable verification in place, the European Union brokered a compromise, making the 2008 sale contingent on a 9-year moratorium on future stockpile sales. The moratorium would provide time to enhance enforcement and to monitor the impact of the sales in the absence of further legal trade. CITES, however, restricted the moratorium to the four countries involved in the initial sale (*1*) and never addressed whether poaching levels were so serious that any further trade could ultimately jeopardize elephant survival throughout most of Africa.

Ivory Trade from Tanzania and Zambia

Tanzania and Zambia (*15*, *16*) are exploiting this restricted moratorium in their petitions. Approval requires demonstration that their elephant populations are secure, law enforcement is effective, and sales will not be detrimental to elephants. Yet, Zambia

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and Tanzania are among the largest sources of, and transit countries for, Africa's illegal ivory (*3*, *4*). China and Japan, the only two approved importing countries, are also among the three largest consumers of illegal ivory (*2*, *4*). They too are failing to control illegal trade, risking legal sales becoming cover for black-market ivory.

Ivory seizures are one of the most rigorous metrics of illegal ivory markets, illustrating the scale of involvement by country. Since the ivory ban, seizures of illegal ivory peaked in 2002, 2006, and 2009 (*2*). Zambia and Tanzania were among the most heavily involved in this trade during each peak; they also petitioned CITES to downlist their elephants in those same years. The largest single ivory seizure since the ivory trade ban (6.5 tons in Singapore) in 2002 was shown by DNA analyses to have originated almost entirely from Zambia (*3*). Zambia unsuccessfully petitioned CITES to downlist their elephants that year, and other similarly sized seizures followed (*17*).

Tanzania shipped 41% of the seizures in the 2006 peak (11 of 27 tons) (*2*, *4*). DNA testing on 2600 kg from Hong Kong and 5200 kg from Taiwan confirmed origins from the Selous (southern Tanzania) and Niassa (northern Mozambique) Game Reserves complex (*4*). Tanzania also submitted, but then withdrew, a petition to downlist their elephants in 2006, only to resubmit in 2009—when more than 14 tons of ivory shipped from Tanzania were seized (*18*, *19*). Tanzania has the greatest average seizure size of any country in the Elephant Trade Information System (ETIS)—established by CITES to monitor trends in the illegal ivory trade. These large seizures are indicative of organized crime and suggest that Tanzania and Zambia's abilities to address these challenges are considerably compromised (*2*). But this was not always the case.

In 1989, Tanzania launched Operation Uhai, a highly successful antipoaching offensive by the wildlife department, police, and military. That year, Tanzania submitted one of six proposals to CITES that led to the 1989 ivory trade ban.

In recent years, Tanzania and Zambia have become less transparent about population sizes and poaching-related mortalities. Three weeks before the CITES decision, information on Tanzanian elephant population trends and mortalities was still unavailable, impeding scientific assessment. Carcass counts, often an important metric of population trends (*20*), were either not collected or inaccurate in many recent aerial surveys. This year, SGR's carcass count was reportedly less than 2%, low even for populations with minimal mortality (*20*). Transparent, scientific peer review of census methods and results is needed for verification.

The proportion of elephant mortality attributed to illegal killing (PIKE)—an index of poaching threat (*12*, *21*)—in Tanzania's SGR rose from 22% in 2003 to 63% in 2009 (*2*, *12*). Recent PIKE values are unavailable for western Tanzania, where illegal killing of elephants when reported was as high as or higher than in the Selous (*12*), and reputedly remains so. In Zambia, PIKE is rising, with record levels of 88% in 2008 (*12*). Monitoring data for Zambia are deficient, with small sample sizes limiting interpretation.

CITES decisions should be based not only on national trends in population size and illegal killing but also on trends for subpopulations within ecological aggregations (some of which span national boundaries) (*5*, *22*, *23*). Tanzania shares elephant populations with Kenya (Tsavo-Mkomazi, Amboseli-Kilimanjaro, and Mara-Serengeti) and Mozambique (via the Selous-Niassa Corridor), but neither country was consulted by Tanzania on its downlisting and trade proposal.

Review of petitions is undertaken only by bodies selected by the CITES secretariat, with no engagement of the wider scientific community. The report of the Panel of (four) Experts evaluating the current petitions is a case in point. A system of peer review should be adopted, with greater reliance on knowledgeable independent experts.

Conclusion

Proceeds of a sale of Tanzania's 90 tons and Zambia's 22 tons of ivory are likely to be on the order of $14 million and $3.5 million, respectively, depending on ivory price at auction [~$150/kg at average values achieved in 2008 sales (*24*)]. This represents less than 1% of annual tourism revenues for Tanzania (*25*). Ivory sales could jeopardize those revenues, either from tourist sanctions or by triggering widespread poaching.

The scale of illegal ivory trade demonstrates that most of Africa lacks adequate controls for protection of elephants. The petitioning countries are not succeeding in responsibly controlling their illegal trade, nor are the countries likely to act as buyers of the ivory. Furthermore, MIKE, the system of verification, is currently unable to meet its full mandate, and an analysis integrating data from both MIKE and ETIS is lacking (*12*). In the absence of data, precautionary principles should be applied.

We contend that no "one-off" ivory sales should be approved, regardless of who is the seller or buyer. Such sales split the appendix listing of a single species (which CITES itself recommends against); introduce uncertainty of supply into the marketplace, encouraging poaching; and stimulate conflict among people working for effective elephant conservation. Ultimately, CITES will only meet its mandate to protect wildlife if criteria that place science above politics are applied to all CITES trade decisions. The implications reach far beyond trade species, potentially affecting ecosystem health (*6*), climate (*10*), and even the spread of zoonotic disease (*26*).

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27. We thank A. Estes, D. Stiles, S. Waterland, W. Travers, and M. Rice for comments.

10.1126/science.1187811