

ELEPHANT CULLING IN ZIMBABWE

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INTRODUCTION

Zimbabwe has a population of 100 000 elephant in habitats that can support about half that number. This does not indicate successful conservation, but failure of the conservation authority to preserve natural values. By not fulfilling its mandate the authority is guilty of allowing elephant to prejudice their habitats, those of other animals and the nation's biological diversity. It also encourages local destruction of the country's long-term ecological productivity. Put differently, mismanagement of over abundant elephant is a serious danger to the human environment and to wildlife and its habitats, including healthy elephant populations.

No species, other than man, can modify habitats as rapidly and extensively as elephant. As dominant herbivores, elephant damage has a cascading effect through the ecosystem, affecting many sympatric plants and animals. Commonly, ecosystems are simplified with a loss of species and an impoverishment of the soil/water relationships, which is accentuated in ecologically sensitive sites or poor rainfall years. For example, a frequent manifestation of too many elephant is a loss of large trees and perennial grasses, leading to bush encroachment, a loss of sensitive grazing species like roan, sable and tsessebe, and their replacement by thickets and increased numbers of impala and kudu. The process is often accompanied by soil capping, reduced infiltration and increased run off of rainwater, leading to accelerated soil erosion.

Veld degradation, including that caused by elephant obeys two principles. Firstly, it is not a uniform process, but proceeds past a series of critical thresholds over which recovery is, at best, problematical. If recovery occurs naturally, or can be induced, it may take hundreds of years, or cost many times the market value of the land. Secondly, recovery is more rapid in successively higher trophic levels of the ecosystem, making it ecologically and economically preferable to deal with an over abundance of herbivores before it suppresses the plant cover and soils past one or more thresholds.

This article briefly considers the public response to elephant numbers and the over abundance that emerged in Zimbabwe in the latter part of the Twentieth Century. Low numbers at the turn of the Century built up rapidly and necessitated action to curb populations from the 1960s.

HISTORY OF ELEPHANT POPULATIONS IN ZIMBABWE

Little is known of elephant and their use in present Zimbabwe during the late Nineteenth Century, before the advent of white government in 1893. Ivory had dominated Tribal politics and it had been exported from the continent for about a thousand years (Parker and Amin, 1983). With no wheel and few transport animals most ivory was carried on the heads of slaves who were sold as a by-product of the ivory trade to South East Asia, India and Arabia. This trade may explain the low numbers of elephant in and around Zimbabwe at the beginning of the Twentieth Century, although that is by no means sure.

Prior to 1893, elephant could be hunted in most of Zimbabwe only with permission from Chief Lobengula of the amaNdebele. Despite this control, numbers were low in the second half of the

Nineteenth Century when people like Selous (1881) hunted extensively in Zimbabwe and Botswana. Strict regulation of elephant hunting continued in Zimbabwe and required a permit signed personally by the Governor until after 1923. Summarising the written and oral evidence, it is safe to conclude that elephant numbers were low, patchy and limited to remote parts of Zimbabwe and Botswana until the 1930s. Numbers then increased and spread rapidly during the mid 1940s. For example, large numbers of elephant from the Hwange National Park, colonised adjacent parts of Botswana and the Caprivi for the first time in 1945 or 1946 (Child, 1968). The calculated population in Hwange was then around 4900 head (Cumming, 1981), giving a crude density of one animal per three square kilometers in Hwange and the adjacent Deka Safari Area, when the dispersal commenced. Interestingly, this density is of the same order as the one animal per four square kilometers calculated as the density at which elephant and woodland co-evolved in the nearby Sebungwe region of Zimbabwe (Martin, 1989; Craig 1989). It implies an original sustainable carrying capacity for Hwange and Deka of 3 800 to 5 000 elephant, before habitats were modified.

Within 20 years, by 1964, the population augmented by the in migration of Hwange elephant into northern Botswana showed clear indications of intense local over population. This despite the dispersal area being around 57 000 square kilometers and having had very few elephant before 1945. Clearly the popular notion of providing overpopulated elephant with additional land can be only a short term palliative.

In 1959, Thane Riney a visiting American Fulbright scholar, first drew attention to the highly synchronised nature of the upsurge in elephant in far flung parts of Zimbabwe and beyond. He attributed its extent and timing over such a large geographical area, to factors associated with *Pax Britannica*. He believed it and major fluctuations in the numbers of other large mammals were attributable to induced habitat changes, particularly the wide spread bush encroachment evident in much of the country. Others have ascribed the increase to the cessation of the slave trade and improved control over elephant hunting, but this does not explain the simultaneous fluctuations in other populations. We may never know the full answer.

The habitat changes to which Riney attributed the increase in elephant are certainly favoured by high elephant densities, while suspending intensive hunting, that suppresses numbers, can trigger a population eruption (Riney, 1963). What is certain is that elephant populations have erupted in the past 60 years to become a serious threat to the habitats available to them.

Using the elephant population censuses available from about 1960 and population dynamics, Dave Cumming (*op. cit.*) assigned numerical values to these trends. He estimated only about 4000 elephant in the whole of Zimbabwe in 1900. By 1930 these had increased to around 10 000, when the national herd was entering a phase of exponential growth. By 1940 there were about 17 000 elephant and by 1950 about 25 000. In spite of removing 46 775 between 1960 and 1991 the national population grew to 76 000 head (Child 1995). It exceeded 100 000 animals in 2003.

The increase in elephant is attributable mainly to population growth which has been measured at between 5 and 7% p.a. in Zimbabwe and South Africa.

THE HISTORY OF ELEPHANT MANAGEMENT IN ZIMBABWE

Apart from the control of elephant hunting by Lobengula and early Governors there was no overt management of elephant in Zimbabwe before the creation of the Hwange Game reserve in 1938.

Conversely, with the increasing elephant numbers there were growing demands to control them when they became a problem in peasant farming areas.

The burning policy to provide an early green bite, to attract animals for visitors, and to inhibit late wildfires in Hwange was highly detrimental to the habitats and counter productive to its own aims. It simplified ecosystems by suppressing the perennial grasses and encouraged widespread bush encroachment, including the development of fire resistant ground level coppices. While early burns did inhibit hot wildfires later in the season that damaged woody vegetation, on balance, later sporadic unplanned burns would have been less damaging to ecosystems than the systematic early burns. Furthermore, as we have seen, simplification of the habitats and bush encroachment favours high elephant number with their cascading impact on the local ecology and the first measures were not taken to cushion these impacts until the mid 1960s.

Before people became alert to the damage caused by over abundant elephant, the number shot annually throughout the country did not exceed 400 head, taken mostly on tsetse control, by recreational hunters, or for problem animal control. Even from 1964, the measures taken were tentative until 1971 when a Wildlife Ecologist directed management. This arose when public dissatisfaction with Government's performance culminated in a Parliamentary Commission of Enquiry (Petrides, *et al*, 1970). It was charged "To investigate and report on all aspects of wild life policy and management in Rhodesia (now Zimbabwe) and to make recommendations thereon". It recommended scientific leadership and the proper ecological management and use of the nation's wild resources by a responsible agency, inside and outside the Parks Estate.

Unsurprisingly, protracted castigation of the Minister and the Ministry for their mishandling the elephant issue made them highly sensitive and even more intransigent. This and lack of confidence in themselves polarised political opinion against them and their reluctance to cull elephant. The technical agency could not avoid becoming embroiled and this undermined morale among its staff, who had good scientific evidence of the urgent need to cull. Friction between the Ministry and the Department was inevitable.

My appointment as Director of National Parks and Wild Life Management, following the recommendations of the Petrides Commission, landed me in the middle of this unproductive "we-they" impasse. The situation in the Gonarezhou was at flash point and I determined to take the bull by the horns. I estimated, from the air, that elephant had knocked down over 60% of the large mopane trees within half a mile of the river and there was extensive raw gully erosion due to elephant paths. I decided to cull about 600 elephant immediately and the Ministry had no option, but to endorsed the decision.

The cull was successfully concluded, the political pressure on the Minister was eased and, as should have been the case all along, the Department assumed responsibility for all technical actions like culling. It respected protocol by keeping the Ministry informed of its decisions and planned action.

Vernon Booth (1989) records the elephant killed in Zimbabwe between 1960 and 1988, when some 44 500 elephant were shot throughout the country, most on culling operations. Despite this population estimates grew from 32 700 to 51 097 head. While I was Director 30 529 animals were killed, mostly on culls, and the countrywide population grew from an estimated 44 109 to 52 583 animals. Clearly, we were taking too little action too late to curb population growth and habitat destruction.

There were several reasons for this before 1983. The Department was sensitive to the political repercussions of over culling a charismatic species like elephant and had no measure of what constituted a safe density for the species. The figure being touted about in Africa was one animal

per square mile, but one became suspicious of its arbitrary nature when it suddenly became one elephant per square kilometre as countries metricated. We were also lulled into a false sense of security by the firm prognostication that elephant recruitment could not exceed about 3,1% per year (Hanks, 1972). This coincided with intensification of the bush war, between 1975 and 1979, when the Department became increasingly embroiled in its own defence. It could not act freely in the field and both the culling and counting of elephant from the air had to be seriously curtailed. Culling was limited largely to Hwange, in an effort to keep the population's calculated growth rate to zero, using Hanks' theoretical recruitment figure. Unfortunately, as we later found, this rate was highly conservative.

The cessation of the bush war and independence saw considerable restructuring of the Department, but it was determined to resume elephant culling as soon as possible so as to limit the widespread habitat destruction in parks. It commenced by building up the considerable field equipment and working experience needed to kill large numbers of elephant and recover the carcasses. In many cases staff made the equipment from obsolete military equipment abandoned by the army. In 1980 to 1982 we culled between 1 254 and 1 426 elephant each year and intensified our aerial censuses.

In spite of removing 4 000 elephant in three years, the population index increased by 2 650 head. We therefore had to increase the rate of off take to reduce elephant pressures on habitats and conserve biological diversity. All but three major habitat types (Wild and Grandvaux Barbosa, 1968) were present in ecological reserves, but elephant threatened many of them. This included 40% of the 137 types samples in the Parks and Wild Life Estate (Child and Heath, 1992). Clearly, controlling elephant was a major priority and had greater importance to conserving biological diversity than trying to obtain better protection of the country's ecotypes. To be true to its mandate the Department had to intensify elephant culling.

Off-takes were increased to between 3 019 and 5 339 in 1983 through 1986, my last year as Director. Removal of 17 845 elephant reduced the countrywide population index to 51097. By then it was obvious that Zimbabwe could not support more than 50 000 elephant and a more modest population was safer. I therefore believed we had to reduce the countrywide population by a further 5 000 to bring it down to 50 000 head. Thereafter, we would have had to cull around 2500 elephant each year, while monitoring elephant/habitat relationships and watching for in-migration.

After my retirement at the end of 1986, culling is reported by Martin and his co-workers in the Department's Terrestrial Ecology Branch (Martin *et al*, 1989; Martin and Conybeare 1992). The data suggests that annual culls after 1986 were never adequate to curb population growth. Some 1 525 and 2 861 animals were removed in 1987 and 1988. Thereafter, the countrywide off-take of elephant for all purposes, including recreational hunting and problem animal control was between 403 and 624 head. The national herd rebounded and grew to 75 000 animals in 1992, and 100 000 a decade later, but no further culling took place. The Department was giving a clear signal that it had abandoned its mandate to conserve biological diversity.

Until 1986 biological considerations alone determined the need to cull. Political pressures or selling ivory and the other products to earn revenue were entirely subservient. It was, however, usually necessary to reduce the kill to our logistical capacity to recover carcasses as it would have been morally repugnant to waste the meat in a protein hungry country. After 1986, and especially from 1992, the Department's conduct indicates it gave up this principal and began using high elephant numbers as a political pawn and for generating income, mainly from sport hunting. Concern for the habitats on which future elephant numbers and many other species depended appeared to have been forsaken.

REVENUE GENERATION

As Child (1995) emphasised, elephant culling in the Parks and Wild Life Estate was a management action to correct the imbalance between a super abundance of elephants and the habitats available to them. It was not aimed at productive efficiency or profit, as may have been the aim on an “elephant farm”. Removing whole breeding herds from rapidly expanding populations meant that there was a high proportion of young animals in the kill and the average yield of products per carcass was low. For example there were only 1.2 to 1.7 tusks per animal, weighing 1.86 to 2,25 kg per tusk, from culls in Hwange, Chizarira and the Lower Zambezi Valley in 1979 to 1982.

During the 1981 to 1983 period elephant carcasses earned about US\$500 (Child 1995). Ivory at \$50 and hide at \$3.20 per kg, each yielded \$210, meat \$86 and tails \$7 per animal. Recovery and field processing the products cost US\$43 per carcass, made up of \$17.3 for labour, \$4.5 for transport, \$10.2 for salt and \$10.9 for expendable equipment. This gave a “farm gate” profit of around \$450 per elephant killed.

SELLING ELEPHANT PRODUCTS

There was no incentive for the Department or its staff to increase prices and maximise profits from elephant products, except personal satisfaction and a conviction that doing so was helping to justify wildlife and better conservation. The revenue we earned accrued to the Consolidated Revenue Fund and it made no difference to the size of the annual Treasury grant we received whether we earned one or a hundred dollars for a kilogram of ivory. Never the less, Departmental staff took unpleasant and unpopular decisions, endured hardship and danger, and worked incredibly hard for long hours to produce quality products and enhance the realisable value of elephant. This was because its corporate culture led staff to believe that, by doing so, they were contributing to the survival and extension of sustainable wild ecosystems supporting elephant and other wildlife. Some called this high professional motivation “dedication to our job”.

While I was in office we did not suffer from the CITES ban against trade in ivory, although we had to argue long and hard to retain our ability to trade freely in elephant products while some parties to the convention like India and Israel sought to ban it. We were able to develop a strong unified caucus among African producer nations which favoured selling ivory to the extent that I was asked to speak on behalf of 10 African Countries in favour of trade regulated to suit producer countries, at the 5th COP in Buenos Aires.

CONCLUSION

Zimbabwe and other States in southern Africa that are now home to 85% of the known African Elephant population, the challenge facing them is how to maintain sustainable populations. Besides endogenous limitations relating to monitoring the biology of the species and local economics, there are artificial exogenous forces acting against a satisfactory outcome. These arise through CITES and the ban on trade in African elephant products. CITES epitomises highly flawed, archaic, top-down legislation that has a record of failure. Benefits and accountability are distanced from each other so that they cannot interact to promote good conservation. As a result, such legislation is counter-productive to its own goals.

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