

ZEBRA FUNDED PROJECTS

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ASSESSING THE ETHICAL AND WELFARE IMPLICATIONS OF GAME CAPTURE IN NAMIBIA 2009

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The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) provides the basis for international cooperation in preventing the unsustainable exploitation of wildlife through international trade. Namibia became a party to CITES in 1991. The Ministry of Environment and Tourism (MET) is the agency responsible for the implementation of CITES in Namibia. In the summer of 2008 I spent 6 weeks working in Namibia for the MET game capture team as part of my extra-mural studies.

Wildlife is an important renewable and exploitable natural resource in Namibia (Nuding 2002). Commercial farmers in Namibia have the right to use and benefit from the wildlife on their farms, so long as they comply with conditions imposed by the state (such as the maintenance of game fencing and provision of a permanent water source). Farmers realised that they could benefit from improving conservation of wildlife on their land, and this led to the development of thriving game-farming, tourism and hunting industries. Game-farming contributes to the national economy and the financial viability of individual farms, but requires little financial support from the state. MET also supports wildlife utilisation on communal land through the conservancy system. A conservancy consists of a contiguous group of commercial farms or communal land, managed by a committee with the shared aim of conservation and wildlife utilisation in a sustainable manner. Participating landowners practise both normal farming activities and utilisation of wildlife resources. People living on communal land benefit from the conservancy system because it grants them the right to profit from the wildlife on their land in the same way as commercial farmers. This provides them with an economic incentive to conserve wildlife, and supports sustainable development in rural areas.

Wildlife management may be approached from the point of view of people, or from that of the animal. A people-centred approach focuses on maximising profits, which can result in over-utilisation of wildlife resources. On the other hand, the animal-centred approach demands rights for each individual animal, which clearly is not practicable in the context of species and ecosystem conservation. This apparently dichotomous view is well illustrated with the example of trophy-hunting. Trophy-hunting makes efficient use of the few individuals in the population that are of trophy quality, and generates many times more income for the landowner than other wildlife tourism activities; however, the unlucky animals that are of trophy quality must be sacrificed. It should also be taken into consideration that trophy animals (generally those with the largest horns) are often elderly males, which may be too old to breed and unlikely to survive through the next winter; the removal of such individuals is unlikely to make any significant impact on the viability of the source population, and therefore on conservation. I will not attempt to cover the complex ethical issues surrounding trophy hunting in this report; it is sufficient to say that hunting is ubiquitous in many southern African countries and this situation is unlikely to change in the foreseeable future.

Utilitarian principles suggest that, while the welfare of the individual animal is important, it is less important than the overall conservation of species, populations and ecosystems, and the self-interest of the human participants in conservation. Some degree of animal suffering and even loss of life during a game capture operation may therefore be justified if the overall gain to the human and animal participants from game capture is judged to be great enough. Any reasonable measures which can be taken to reduce the animal welfare costs of game capture should be taken if they can be justified in a cost-benefit analysis. For example, mortality can be markedly reduced during capture of black and white rhino if a dedicated team member (such as a veterinary student) constantly monitors the animal's respiration (Morkel and Kennedy-Benson 2007).

THE OLIVE BABOON (*Papio anubis*) AS A RESERVOIR OF *Schistosoma sp* AND OTHER PARASITIC DISEASES, AND THEIR SIGNIFICANCE TO PUBLIC HEALTH IN KWALE DISTRICT, KENYA

Lorna Bell, 2010

Schistosomiasis is considered a neglected tropical disease (WHO), and is second only to malaria in public health and socio-economic importance. One area of particularly sparse knowledge is the potential for non-human primates, in particular baboons to act as reservoirs of the disease. The presence therefore mitigates efforts to control the disease in humans. Whilst reviewing schistosomiasis, other parasitic infections with potential health significance should be considered. Many studies have shown significant infection of baboons with other, potentially zoonotic parasitic diseases. Baboons are widely thought of a pest species, living close to human populations in order to raid crops and rubbish dumps. Their close contact with human populations means the potential for zoonotic infection is high, justifying further investigation of their parasite burden and its risk to humans.

All faecal samples examined were negative for *S. mansoni*. This finding backs up the recent unpublished findings of several local hospitals which do not report *S. mansoni* in the human population in this district. This does however not mean that the zoonotic risk baboons may pose to humans via contaminated water sources can be ignored. *S. haematobium* is known to be present in the human population in Kwale District and has the potential to be present in baboon populations. The results of my interviews into human-baboon contact at water supplies suggests that should *S. haematobium* be present in baboons in this region, the potential for transmission to humans would be high. This warrants further study into baboons as a reservoir for *S. haematobium* in this district, as well as continued monitoring of prevalence of *S. mansoni* and its vector should it appear if conditions continue to change.

**THE USE OF SONOGRAPHIC AND MORPHOMETRIC DATA TO PREDICT STILLBIRTH IN A
POPULATION OF BOTTLENOSE DOLPHINS
(*Tursiops truncatus*)**

Tom Cardy, 2010

Abstract

Despite dramatic advances in marine mammal husbandry in the last 40 years stillbirth remains a problem in breeding populations of bottlenose dolphins (*Tursiops truncatus*) with an estimated incidence of 8.0%-44.0%. Contributing factors to stillbirth may include: foetomaternal disproportion, nutritional changes, maternal pelvis size, uterine inertia, infectious agents, stress and altered placental development. This study compared sonographic and morphometric data collected from dams and fetuses to investigate if sonographic measurements could be used to predict stillbirth in a population of dolphins.

Data from 13 livebirths and 5 stillbirths showed that prior to parturition thorax diameter (TD) was significantly larger ($p:0.046$) in stillborn fetuses ($163.0 \pm 16.5\text{mm}$, $n=5$) than in liveborn ($146.0 \pm 9.8\text{mm}$, $n=13$). In contrast, biparietal skull diameter (BPD) was similar for liveborn ($127.6 \pm 7.6\text{mm}$, $n=13$) and stillborn ($122.0 \pm 8.4\text{mm}$, $n=5$). This suggests that a population of calves may be disproportionately large resulting in foetomaternal disproportion, dystocia and stillbirth. Nutrition may play a role in this variance since stillbirth dams consumed an average of 1,210kcal more per day than livebirth dams. Although stillbirth dams were the same weight as livebirth dams the mothers of stillborn calves gained weight earlier in pregnancy, possibly driving calf growth. A second subpopulation of calves may also exist with a TD of $<130\text{mm}$ that are not viable at parturition due to their small size and weight.

Statistical modeling showed that calves with TD $>160\text{mm}$ were 46.0 times more likely to be stillborn ($p:0.016$). The odds ratio increased to 74.9 ($p:0.004$) when the model included TD $>160\text{mm}$ or $<130\text{mm}$. A combination of proactive management, awareness of contributory factors to stillbirth and monitoring of sonographic metrics identified in this study may enable an 'index of suspicion' for stillbirth to be generated. This heightened awareness of potential problems at parturition should enable staff to effectively manage animals and veterinary teams as parturition approaches.