by Gerhard Damm

Abstracts Of Recently Published Wildlife Papers

Compiled by Gerhard R Damm

Bushmeat Hunting And Extinction Risk To The World's Mammals. William J. Ripple, Katharine Abernethy, Matthew G. Betts, Guillaume Chapron, Rodolfo Dirzo, Mauro Galetti, Taal Levi, Peter A. Lindsey, David W. Macdonald, Brian Machovina et al. 2016. R. Soc. open sci. 3: 160498. http://dx.doi.org/10.1098/rsos.160498
Abstract: Terrestrial mammals are experiencing a massive collapse in their population sizes and geographical ranges around the world, but many of the drivers, patterns and consequences of this decline remain poorly understood. Here we provide an analysis showing that bushmeat hunting for mostly food and medicinal products is driving a global crisis whereby 301 terrestrial mammal species are threatened with extinction. Nearly all of these threatened species occur in developing countries where major coexisting threats include deforestation, agricultural expansion, human encroachment and competition with livestock. The unrelenting decline of mammals suggests many vital ecological and socio-economic services that these species provide will be lost, potentially changing ecosystems irrevocably. We discuss options and current obstacles to achieving effective conservation, alongside consequences of failure to stem such anthropogenic mammalian extirpation. We propose a multipronged conservation strategy to help save threatened mammals from immediate extinction and avoid a collapse of food security for hundreds of millions of people.

A Continent-Wide Assessment Of The Form And Intensity Of Large Mammal Herbivory In Africa. G. P. Hempson, S. Archibald, W P Bond. Science. 2015-11;350(6264):1056-61 doi: 10.1126/science.aac7978.
Abstract: Megafaunal extinctions and a lack of suitable remote sensing technology impede our understanding of both the ecological legacy and current impacts of large mammal herbivores in the Earth system. To address this, we reconstructed the form and intensity of herbivory pressure across sub-Saharan Africa ~1000 years ago. Specifically, we modeled and mapped species-level biomass for 92 large mammal herbivores using census data, species distributions, and environmental covariates. Trait-based classifications of these species into herbivore functional types, and analyses of their biomass surfaces, reveal four ecologically distinct continental-scale herbivory regimes, characterized by internally similar forms and intensities of herbivory pressure. Associations between herbivory regimes, fire prevalence, soil nutrient status, and rainfall provide important insights into African ecology and pave the way for integrating herbivores into global-scale studies.

Trophy Hunting, Conservation, and Rural Development in Zimbabwe: Issues, Options, and Implications. V K Muposhi, E Gandiwa, P Bartels & S M Makuza. 2016. International Journal of Biodiversity Volume 2016, Article ID 8763980, 16 pages http://dx.doi.org/10.1155/2016/8763980
Abstract: Trophy hunting has potential to support conservation financing and contribute towards rural development. We conducted a systematic review of the Zimbabwean trophy hunting perspective spanning from pre-1890 to 2015, by examining the following: (1) evolution of legal instruments,

administration, and governance of trophy hunting, (2) significance of trophy hunting in conservation financing and rural development, and (3) key challenges, emerging issues in trophy hunting industry, and future interventions. Our review shows that (i) there has been a constant evolution in the policies related to trophy hunting and conservation in Zimbabwe as driven by local and international needs; (ii) trophy hunting providing incentives for wildlife conservation (e.g., law enforcement and habitat protection) and rural communities' development. Emerging issues that may affect trophy hunting include illegal hunting, inadequate monitoring systems, and hunting bans. We conclude that trophy hunting is still relevant in wildlife conservation and rural communities' development especially in developing economies where conservation financing is inadequate due to fiscal constraints. We recommend the promotion of net conservation benefits for positive conservation efforts and use of wildlife conservation credits for the opportunity costs associated with reducing trophy hunting off-take levels and promoting non-consumptive wildlife use options.

Trophy Hunting And Sustainability: Temporal Dynamics In Trophy Quality And Harvesting Patterns Of Wild Herbivores In A Tropical Semi-Arid Savanna Ecosystem. V K Muposhi, E Gandiwa, P Bartels, S M Makuza & T H Madiri. 2016. PLoS ONE 11(10): e0164429. doi:10.1371/journal. pone.0164429
Abstract: The selective nature of trophy hunting may cause changes in desirable phenotypic traits in harvested species. A decline in trophy size [may] reduce hunting destination competitiveness thus compromising the sustainability of trophy hunting as a conservation tool. We explored the trophy quality and trends in harvesting patterns of Cape buffalo, African elephant, greater kudu and sable in Matetsi Safari Area, Zimbabwe. We used long-term data on horn and tusk size, age, quota size allocation and offtake levels of selected species. To analyze the effect of year, area and age on trophy size, quota size and offtake levels, we used linear mixed models. One sample ttest was used to compare observed trophy size with SCI minimum score. Trophy sizes for Cape buffalo and African elephant were below the SCI minimums. Greater kudu trophy sizes were within the minimum score threshold whereas sable trophy sizes were above the SCI minimums between 2004 and 2015. Age at harvest for buffalo, kudu and sable increased whilst that of elephant remained constant between 2004 and 2015. Quota size allocated for buffalo and the corresponding offtake levels declined over time. Offtake levels of elephant and kudu declined whilst the quota size did not change between 2004 and 2015. The quota size for sable increased whilst the offtake levels fluctuated without changing for the period 2004±2015. The trophy size and harvesting patterns in these species pose a conservation and management dilemma on the sustainability of trophy hunting in this area. We recommend: (1) temporal and spatial rotational resting of hunting areas to create refuge to improve trophy quality and maintenance of genetic diversity, and (2) introduction of variable trophy fee pricing system based on trophy size.

The African Swine Fever Control Zone In South Africa And Its Current Relevance. N R Magadla, W Vosloo, L Heath & B Gummow. 2016 Onderstepoort J. of Veterinary Research 83(1), a1034. http://dx.doi.org/10.4102/ ojvr.v83i1.1034
Abstract: African swine fever (ASF) has been reported in South Africa since the early 20th century. The disease has been controlled and confined to northern South Africa over the past 80 years by means of a well-defined boundary line, with strict control measures and movement restrictions north of this line. In 2012, the first outbreak of ASF outside the ASF control zone since 1996 occurred. The objective of this study was to evaluate the current relevance of the ASF control line as a demarcation line between

endemic ASF (north) areas and ASF-free (south) area and to determine whether there was a need to realign its trajectory, given the recent outbreaks of ASF, global climate changes and urban development since the line's inception. A study of ASF determinants was conducted in an area 20 km north and 20 km south of the ASF control line, in Limpopo, Mpumalanga, North West and Gauteng provinces between May 2008 and September 2012. The study confirmed that warthogs, warthog burrows and the soft tick reservoir, Ornithodoros moubata, are present south of the ASF control line, but no virus or viral DNA was detected in these ticks. There appears to be an increasing trend in the diurnal maximum temperature and a decrease in humidity along the line, but the impact of these changes is uncertain. No discernible changes in minimum temperatures and average rainfall along the disease control line were observed between 1992 and 2014. Even though the reservoirs were found south of the ASF boundary line, the study concluded that there was no need to realign the trajectory of the ASF disease control line, with the exception of Limpopo Province. However, the provincial surveillance programs for the reservoir, vector and ASF virus south of this line needs to be maintained and intensified as changing farming practices may favor the spread of ASF virus beyond the control line.

Hunters' Contributions To U.S. Wildlife Conservation – The Definitive Paper Compiling American Hunters' Contributions To Wildlife Conservation. M D Duda, M Jones & T Beppler. 2016. Responsive Management

Abstract: Responsive Management has produced a new article detailing hunters' contributions to wildlife conservation in the United States. The article provides an in-depth look at the sources of funding from hunters and how these funds are spent, from wildlife management and species recovery to the work of federal and state fish and wildlife agencies and nonprofit organizations. The article discusses various sources of funding, including the Federal Aid in Wildlife Restoration Act of 1937 (commonly known as the Pittman-Robertson Act); the Federal Duck Stamp (a required purchase for any duck hunter in the U.S.); licenses, tags, and permits purchased by hunters in each state; and membership dues and donations from nonprofit organizations like Ducks Unlimited and the Rocky Mountain Elk Foundation, which are largely supported by hunters. The article then breaks down how the funding from hunters is spent, including Pittman-Robertson revenue apportionment, the many ways in which nonprofit organizations contribute to conservation in the U.S., and how hunters' contributions manifest in the work of fish and wildlife agencies. A summary of fish and wildlife agency resources and assets compiled by senior staff at the Arizona Game and Fish Department makes clear the importance of hunter dollars on the state agency level alone. Also covered are examples of various wildlife species that have rebounded thanks to management efforts supported through funding from hunters.

Market-Based Incentives and Private Ownership of Wildlife to Remedy Shortfalls in Government Funding for Conservation. G R Wilson, M W Hayward & C Wilson. 2016. Conservation Letters, DOI: 10.1111/conl.12313
Abstract: In some parts of the world, proprietorship, price incentives, and devolved responsibility for management, accompanied by effective regulation, have increased wildlife and protected habitats, particularly for iconic and valuable species. Elsewhere, market incentives are constrained by policies and laws, and in some places virtually prohibited. In Australia and New Zealand, micro economic reform has enhanced innovation and improved outcomes in many areas of the economy, but economic liberalism and competition are rarely applied to the management of wildlife. This policy perspective

examines if commercial value and markets could attract private sector investment to compensate for Government under spend on biodiversity conservation. It proposes trials in which landholders, community groups, and investors would have a form of wildlife ownership by leasing animals on land outside protected areas. They would be able to acquire threatened species from locally overabundant populations, breed them, innovate, and assist further colonization/range expansion while making a profit from the increase. The role of government would be to regulate, as is appropriate in a mixed economy, rather than be the (sole) owner and manager of wildlife. Wide application of the trials would not answer all biodiversity-loss problems, but it could assist in the restoration of degraded habitat and connectivity.

Extreme Wildlife Declines and Concurrent Increase in Livestock Numbers in Kenya: What Are the Causes? J O Ogutu, H-P Piepho, M Y Said, G O Ojwang et al. 2016. PLoS ONE 11(9): e0163249. doi:10.1371/ journal.pone.0163249
Abstract: There is growing evidence of escalating wildlife losses worldwide. Extreme wildlife losses have recently been documented for large parts of Africa, including western, Central and Eastern Africa. Here, we report extreme declines in wildlife and contemporaneous increase in livestock numbers in Kenya rangelands between 1977 and 2016. Our analysis uses systematic aerial monitoring survey data collected in rangelands that collectively cover 88% of Kenya's land surface. Our results show that wildlife numbers declined on average by 68% between 1977 and 2016. The magnitude of decline varied among species but was most extreme (72–88%) and now severely threatens the population viability and persistence of warthog, lesser kudu, Thomson's gazelle, eland, oryx, topi, hartebeest, impala, Grevy's zebra and waterbuck in Kenya's rangelands. The declines were widespread and occurred in most of the 21 rangeland counties. Likewise to wildlife, cattle numbers decreased (25.2%) but numbers of sheep and goats (76.3%), camels (13.1%) and donkeys (6.7%) evidently increased in the same period. As a result, livestock biomass was 8.1 times greater than that of wildlife in 2011–2013 compared to 3.5 times in 1977–1980. Most of Kenya's wildlife (ca. 30%) occurred in Narok County alone. The proportion of the total "national" wildlife population found in each county increased between 1977 and 2016 substantially only in Taita Taveta and Laikipia but marginally in Garissa and Wajir counties, largely reflecting greater wildlife losses elsewhere. The declines raise very grave concerns about the future of wildlife, the effectiveness of wildlife conservation policies, strategies and practices in Kenya. Causes of the wildlife declines include exponential human population growth, increasing livestock numbers, declining rainfall and a striking rise in temperatures but the fundamental cause seems to be policy, institutional and market failures. Accordingly, we thoroughly evaluate wildlife conservation policy in Kenya. We suggest policy, institutional and management interventions likely to succeed in reducing the declines and restoring rangeland health, most notably through strengthening and investing in community and private wildlife conservancies in the rangelands.

Conservation of large predator populations: Demographic and spatial responses of African lions to the intensity of trophy hunting. A J Loveridge, M Valeix, G Chaprond, Z Davidson, G Mtare & D W Macdonald. 2016. Biological Conservation (2016), http://dx.doi.org/10.1016/j.biocon.2016.10.024
Abstract: Large predators are in decline globally with growing concerns over the impacts of human activity on conservation status and range of many populations. The role of trophy hunting in the conservation or decline of predators is hotly debated, though opposing views are often poorly supported

by empirical evidence. Nevertheless an understanding of effects of trophy hunting on populations and behaviour is critical to the conservation of large carnivore populations. The impacts of trophy hunting on African lion population demographics, social structure and spatial behavior were investigated in Hwange National Park, Zimbabwe, from 1999 to 2012, a period characterized by different trophy hunting intensities. Adult males were primarily targeted by trophy hunters, but survival of all age and sex classes were lowest when male lion off-takes were highest. Reduction in hunting quotas over the study period resulted in a 62% increase in the total population and a 200% increase in adult male density. Adult sex ratios were highly skewed towards females when hunting was intense. Intensity of hunting affected male and female home-range size, which declined in periods of low hunting corresponding to increases in adult males and male coalitions. Trophy hunting on the park boundary exerted a measurable edge effect with lower survival for animals of all age and sex classes living on the park boundary compared to those distant from it. This study provides evidence for negative impacts of uncontrolled trophy hunting on lion population and behavior. However, limited, well regulated quotas may be compatible with large carnivore conservation.