

THE GOMPOU

The Kori Bustard SSP Newsletter

December 2015, Volume 13



Thanks to kori SSP Education Advisor, Melissa Casteel King, kori bustards are on Birdorable
[http://www.birdorable.com/
meet/kori-bustard/](http://www.birdorable.com/meet/kori-bustard/) <http://koribustardssp.blogspot.com/2015/09/birdorable.html>



The Gompou is an annual newsletter of the AZA Kori Bustard Species Survival Plan

It is edited by Kori Bustard SSP Representative Lisa Murphy

<http://www.koribustardssp.org/>



Science News

Zoo and wild animal medicine current therapy volume 6. Edited by Murray Fowler and R Eric Miller

“It is important to remember that during the breeding season, the vascularized saccus oralis of kori bustards may occlude the glottis, leading to anoxia and death. Using an endotracheal tube is essential.”

Ethotrak update

The data from the kori bustard ethotrak study [done several years ago] is now being analyzed and we hope to publish the information within the year.

New ideas about evolutionary history from a new DNA Sequencing study

<http://www.nature.com/nature/journal/vaop/ncurrent/full/nature15697.html> A comprehensive phylogeny of birds (Aves) using targeted next-generation DNA sequencing. Although reconstruction of the phylogeny of living birds has progressed tremendously in the last decade, the evolutionary history of Neoaves—a clade that encompasses nearly all living bird species—remains the greatest unresolved challenge in dinosaur systematics. Here we investigate avian phylogeny with an unprecedented scale of data: >390,000 bases of genomic sequence data from each of 198 species of living birds, representing all major avian lineages, and two crocodilian outgroups. Sequence data were collected using anchored hybrid enrichment, yielding 259 nuclear loci with an average length of 1,523 bases for a total data set of over 7.8×10^7 bases. Bayesian and maximum likelihood analyses yielded highly supported and nearly identical phylogenetic trees for all major avian lineages. Five major clades form successive sister groups to the rest of Neoaves: (1) a clade including nightjars, other caprimulgiforms, swifts, and hummingbirds; (2) **a clade uniting cuckoos, bustards, and turacos with pigeons, mesites, and sandgrouse**; (3) cranes and their relatives; (4) a comprehensive waterbird clade, including all diving, wading, and shorebirds; and (5) a comprehensive landbird clade with the enigmatic hoatzin (*Opisthocomus hoazin*) as the sister group to the rest. Neither of the two main, recently proposed Neoavian clades—Columbea and Passerea¹—were supported as monophyletic. The results of our divergence time analyses are congruent with the palaeontological record, supporting a major radiation of crown birds in the wake of the Cretaceous–Palaeogene (K–Pg) mass extinction.

<http://www.birdwatchingdaily.com/blog/2015/10/07/new-avian-family-tree-puts-most-species-into-five-major-groups/>



Collisions with high voltage power lines are a major threat to kori bustards in the Karoo of South Africa and in Namibia, and presumably elsewhere where there are power lines within the range (J. Shaw and R. Coetzee *in litt.* 2013). Declines in Tanzania can probably be attributed to trade in the species during the 1990s and 2000s (N. Cordeiro *in litt.* 2013). There is also anecdotal information from South Africa indicating that the species is used in the muti (traditional medicine) trade, hunted for bush meat, and illegally kept as pets (R. Coetzee *in litt.* 2013). The causes of population declines and range losses in many parts of the distribution are unknown, but have been hypothesised to include persecution, rangeland degradation and shrub encroachment (Senyatoso *et al.* 2012). In Botswana, unregulated hunting appears to be a genuine threat while cattle-induced bush encroachment is not (Senyatoso 2011). Kori bustards are listed as Near Threatened by IUCN.

McCollum, Kathryn R. 2015. Occupancy Analysis and Density Estimation of Kori Bustards (*Ardeotis kori*) and Helmeted Guineafowl (*Numida meleagris*) for Use in Landscape Conservation Planning in the Northern Tuli Game Reserve, Botswana. Thesis, University of Nebraska-Lincoln, Lincoln, USA. <http://digitalcommons.unl.edu/natresdiss/126/>

A THESIS Presented to the Faculty of The Graduate College at the University of Nebraska In Partial Fulfillment of Requirements For the Degree of Master of Science, Major: Natural Resource Sciences, Under the Supervision of John P. Carroll and Larkin A. Powell. Lincoln, Nebraska: December, 2015

Abstract [partial]

For understudied species, more informed conservation planning and decision-making on both the local and landscape levels may be attained through the use of occupancy and abundance estimations. Here, we focus on two iconic bird species in eastern Botswana, kori bustards (*Ardeotis kori*) and helmeted guinea fowl (*Numida meleagris*). The overall goal of this project was to better understand the hierarchy of factors that influence occupancy (ψ) and density of kori bustard and helmeted guinea fowl populations within the Northern Tuli Game Reserve and how these factors may interact to affect landscape conservation and usage. We performed distance sampling for both species over two field seasons throughout the Northern Tuli Game Reserve, Botswana during June 2014–July 2014 and May 2015–July 2015. We found that kori bustard probability of occupancy was influenced by open canopies ($\psi_{2014open}=0.373$, $SE\pm0.086$; $\psi_{2015open}=0.392$, $SE\pm0.061$) when compared to closed canopies ($\psi_{2014closed}=0.000$, $SE\pm0.000$; $\psi_{2015closed}=0.000$, $SE\pm0.000$). Kori bustard densities were highest in 2014 in areas of sparse vegetation at higher elevations with 5.02 individuals/km² (95% confidence interval: 1.04 – 24.2 individuals) and lowest in areas of dense vegetation at upper elevation with 0.02 individuals/km² (95% confidence interval: 0.005 – 0.140 individuals). In 2015 highest densities were found in areas of sparse vegetation at lower elevations with 2.20 individuals/km² (95% confidence interval: 1.73 – 2.80 individuals) and lowest in areas of sparse vegetation at upper elevations with 0.130 individuals/km² (95% confidence interval: 0.071 – 0.239 individuals). By determining which habitat and landscape factors influence kori bustard and helmeted guinea fowl density and occupancy we will be able to make more informed decisions to aid in the conservation of both species and species that utilize the same types of habitats and resources. We discuss how using these data for landscape conservation planning could have a positive impact on the future of the study site and surrounding area. Habitat-specific information may identify risks during landscape conservation planning within the range of the kori bustard.



Kori bustard breeding and abundance in the short grass plain of the Serengeti National Park

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Birds usually breed at the time when there is an optimum chance for their chicks to survive and which coincides with the period when food for the young birds is most abundant (Williams 1966). However breeding season varies from region to region, species to species and the prevailing climatic conditions (Ali and Ripley 1971). The two known African kori bustard sub species have different breeding seasons. Records show that *A. k. struthiunculus* breeds from December to August while *A. kori kori* breeds from September to February (Harrison *et al*, 1997). Breeding success is heavily dependent upon rainfall and during drought periods breeding is reduced significantly.

In the Serengeti ecosystem, altitudinal and rainfall heterogeneity may have an effect on the breeding season of the Kori bustard *A. struthiunculus*. Breeding is seasonal dependent; however, it normally starts from the short dry period towards the end of long rain season where a high number of nests and chicks can be found (in this study). Like other bustards, females lay their eggs on the ground without making a real nest which is partially hidden by tall grasses (Figure 1).

Breeding data were collected in the Serengeti National Park, through transect counts over the entire study area from Maasai-Barafu-Golkopjes (north, east and north west) and Naabi-Ngorongoro-Ndutu (south, west and south east) from 2014 to 2015. The aim of the study was to obtain breeding information and abundance of kori bustards in the Serengeti National Park.



Figure 1: Nest of Kori bustard in the Serengeti plains. Photo by Emmanuel Clamsen Mmassy (TAWIRI).

Most of the observed kori bustard nests ($n = 14$), eight nests (57.1%) contained of a single egg, which, however, differed in width and height. Of the observed nests ($n = 14$), almost 50% ($n = 6$) were predated before hatching, probably by jackals as small teeth marks where seen on the broken egg shells. This indicates the sign of a high nest predation pressure in the study area. Breeding habitat characteristics such as grass height, grass colour and area within the Serengeti Plains, free from water, were also observed to be important variables to explain nesting places during the breeding period (Fig. 2 & 3).



Figure 2: A typical habitat preferred for nesting by female kori bustards. Photo by Emmanuel Clamsen Mmassy (TAWIRI).



Figure 3: An observer taking biometric measurements of a kori bustard's egg in the breeding habitat. Photo by Emmanuel Clamsen Mmassy (TAWIRI).

For a period of two years (2014-2015) of observations, 1,017 individual kori bustards were counted through our transect study and opportunistic sampling. We observed 64.4% females ($n = 655$) and 35.6% males ($n = 362$). Among observed male kori bustards, only 26% ($n = 94$) individuals were seen performing courtship displays, particularly in the same areas as we found the nests, i.e. in the short grasses plain (Figure 4).



Figure 4: A male kori bustard performing courtship display in the Serengeti National Park short grass plains.

Photo by Emmanuel Clamsen Mmassy (TAWIRI).

ACKNOWLEDGEMENT

This study work was partly supported by the NTNU/TAWIRI IPBES grant as well as the Kori bustard Species Survival Plan and Jacksonville Zoo in USA. We thank TAWIRI and TANAPA for permitting us to conduct this research in the Serengeti National Park. We particularly thank Sara Hallager, Smithsonian National Zoological Park and Chair of the kori bustard SSP and Katie Bagley, Denver Zoo and Vice Chair of the SSP for facilitating partial funding for this study through the SSP.

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Metronomic Chemotherapy for Myxosarcoma Treatment in a Kori Bustard (*Ardeotis kori*)

Author(s): Samantha J. Sander, DVM, Katharine L. Hope, DVM, Conor J. McNeill, DVM, Dipl ACVIM (Oncology), John F. Roberts, DVM, Dipl ACVP, Nancy C. Boedeker, DVM, and Suzan Z. Murray, DVM, Dipl ACZM

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DOI: <http://dx.doi.org/10.1647/2014-032>

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Abstract: A 22-year-old, wild-caught male kori bustard (*Ardeotis kori*) developed a large, slowgrowing subcutaneous mass over the keel. The mass was surgically debulked and histopathologically described as a myxosarcoma. Surgical dehiscence and concurrent local tumor regrowth, with no evidence of metastasis, occurred over the subsequent 3 months, necessitating 2 additional surgical procedures to close the wound. At 19 weeks after the initial procedure, a second debulking surgical procedure was performed, at which time carboplatinimpregnated matrix beads were placed in the lesion. Moderate local tumor regrowth was clinically appreciable 4 weeks after surgery, at which time an oral metronomic chemotherapeutic protocol consisting of daily cyclophosphamide (10 mg/m²) and meloxicam (0.1 mg/kg) was initiated. Four months later, the tumor was no longer palpable. While oral therapy was discontinued during the breeding season, mass regrowth was observed, and the mass was surgically debulked before reinitiating oral chemotherapy. Treatment was extended for over 1 year with no hematologic evaluation or serum biochemical abnormalities, and the bird otherwise remained clinically healthy. To our knowledge, this is the first report of a myxosarcoma in a bustard species and the first report of successful clinical application of metronomic chemotherapy in an avian species.



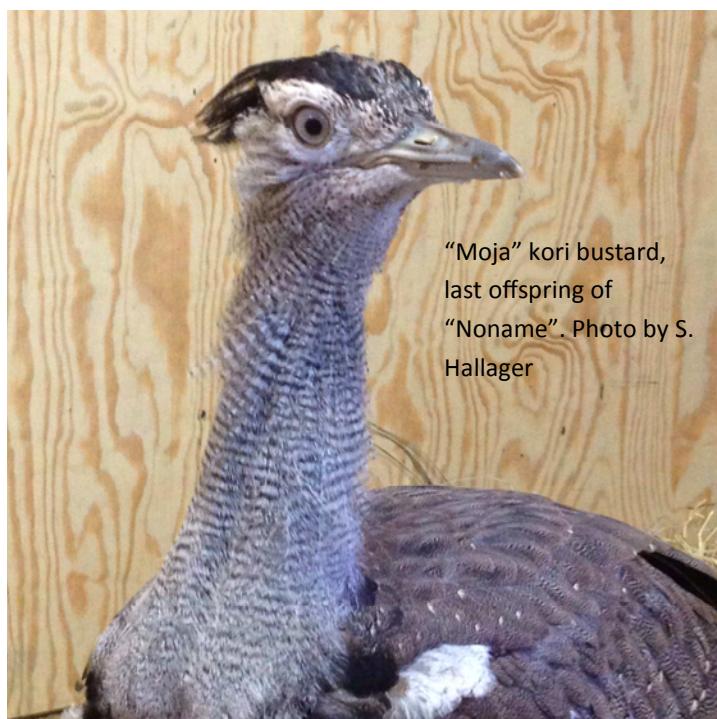
Husbandry Note on Metronomic Chemotherapy for Myxosarcoma Treatment in a Kori Bustard (*Ardeotis kori*):

Sara Hallager, Smithsonian National Zoological Park

The therapy described in the previous article resulted in extending the life of the bird by several years. However, the treatment rendered the bird sterile. A lack of sperm was confirmed in four eggs using a test that examines the presence of perivitelline membrane-bound sperm [Croyle, K. et. al 2015]. Although the bird was observed booming, displaying and copulating with a female who he had previously sired numerous chicks with, the last fertile egg was produced in 2013 during the 4 months the bird was not receiving oral chemotherapy. The bird died August 1st 2015 following a rapid onset of inappetence and lethargy.

During his lifetime, "Noname" sired over 40 offspring and was the most prolific male kori bustard ever recorded in the studbook. He is missed every day.

Croyle, K., Durrant, B. and Jensen, T. 2015. Detection of oocyte perivitelline membrane-bound sperm: a tool for avian collection management



Chronological log of Noname

~1988 wild caught Tanzania

1990: transferred to St Catherine's Island

2000: transferred to National Zoo; sired 20.21.2 offspring, 10.11 living



News of Other Bustard Species

Arabian bustard at National Avian Research Center, Abu Dhabi

Congratulations to the National Avian Research Center, Abu Dhabi UAE who have successfully reared over 15 Arabian bustard *Ardeotis arabs* chicks. NARC is the only facility in the world to breed *A. arabs*.

Photo by Marco Valentini



Little Bustard

The little bustard *Tetrax tetrax* is now classified by the Junta de Extremadura as Endangered, due to a population decline in Extremadura that is estimated to be of 60% over the last 10 years. In key conservation areas such as Llanos de Cáceres the decline can be higher of 70-80% for the same time period.

<http://www.hoy.es/extremadura/201510/17/extremadura-declara-sison-comun-20151017120713.html>

Great Indian Bustard

Congratulations to Dr. Pramod Patil, winner of the Whitley Award donated by The William Brake Charitable Trust in memory of William Brake,

Pramod Patil, India – Community conservation of the great Indian bustard in the Thar Desert, India: a landscape-level approach

<http://whitleyaward.org/winners/community-conservation-of-the-great-indian-bustard-in-india/>

There are fewer than 250 great Indian bustards left in the wild.

The great Indian bustard relies on a mosaic habitat of agro-pastoral land, making landscape-scale conservation essential to its protection. By working with communities and the State Forest Department, Pramod and his team are helping to change opinions, develop positive relationships between authorities and local people, and enable better management of grasslands on which both communities and bustards depend.

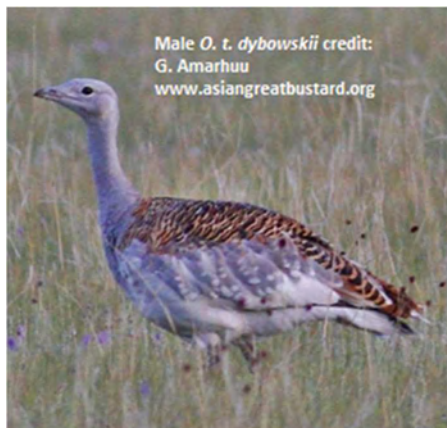


Great Bustard Conservation in China: An Overview

Dara Girsch, former kori bustard SSP Keeper Representative

In May of this year, I visited China to attend the International Conference on Environmental Enrichment. A presentation about a new zoo set to open in Northeastern China (Xing'an League, Inner Mongolia) included some information about Great Bustards, which occur naturally in the area (Du 2015). Inspired, I set out to find the current status of Great Bustards in China and conservation efforts.

Two Great Bustard subspecies occur in China, *Otis tarda tarda* and *Otis tarda dybowskii*, which is only found in eastern Asia. In China, *O. t. dybowskii* specifically occurs in the northeast. Physically, *O. t. dybowskii* has grey wing coverts rather than red (Kessler, personal conversation, December 28, 2015) and a "paler head and neck, broader, [better] defined black markings on the back and a greater number of white tail feathers" ("More About the Great Bustard").



Otis tarda is listed as vulnerable by the International Union for the Conservation of Nature (IUCN) with a global population that is declining ("*Otis tarda* [Great Bustard]). The Chinese government lists the Great Bustard as a key species under Class I national protection (Du 2015). According to the Law of the People's Republic of China on the Protection of Wildlife, it is prohibited to hunt, catch, sell or purchase a Class I nationally protected animal. However, through proper bureaucratic channels, the hunting, catching, sale or purchase may be permitted for scientific research, domestication and breeding, or exhibition/"other special purposes" ("Law of the People's Republic of China on the Protection of Wildlife"). Though China offers two classes of national protection, the distinction between the two is noted as "arbitrary and unimportant... The only operational difference between a first and second class key species comes into play if a permit is desired to kill one" (Harris 2008). Animals under first class protection require permits from the State (National) Forestry Agency, while those under second class are permitted

through the provincial bureaucracies. The most important part of national protection is being named a key species.

Great Bustards suffer many of the same conservation issues that many species throughout the world do; habitat loss or degradation and hunting. Threats to *Otis tarda* populations include collisions with power lines ("expected to increase in Asia as infrastructure and industry develop"), "indiscriminate poisoning... for supply of meat to 'wild foods' restaurants," particularly those wintering in or migrating in China (Kessler and Batbayar 2014) and poisoning from agricultural chemicals (Kessler et al. 2013). The bustards' own biology works against it in that it is a slowly maturing species with a low reproductive rate (Morales et al. 2002). Also due to bustard behavior, the mortality rate is high in the first year of life because the placement of nests and "reluctance to fly" allows for easy predation ("More About the Great Bustard"). Populations of both *O. t. tarda* and *O. t. dybowskii* experience a lack of genetic diversity, but *O. t. dybowskii* is more unstable because of lower global numbers and urgent action is needed for improvement (Kessler and Batbayar 2014).

O. tarda tarda breeds in western China. Within its historical breeding grounds, leks have become fragmented as well as the breeding population in central Asia (Kessler and Batbayar 2014). Within Tumuji National Nature Reserve, the breeding population has dropped by nearly fifty percent for *O. t. dybowskii*, from 200 individuals in 1988 to approximately 100 in 2009 (Yi et al. 2009). *O. t. dybowskii* populations breeding in northern Mongolia overwinter in northern central China (Kessler et al. 2013). In northern Mongolia, *O. t. dybowskii* uses forest edges and clearings for breeding, while *O. tarda tarda* mainly use open grasslands and sometimes exclusively agricultural fields, as they may be the only available environment (Kessler and Batbayar 2014). *O. tarda tarda* feed on cereals and alfalfa during winter (Kessler and Batbayar 2014), allowing them to feed on the farmlands. This may suggest that Great Bustards show the ability to adapt to habitat loss to agriculture, but the chemicals used limit food supply necessary for the growth of chicks (Kessler and Batbayar 2014). For roosting Great Bustards, a "comfortable vegetation height" is needed (Liu et al. 2014). Delegates of Xing'an have worked to convert farmland back to grasslands and forests for the advantage of many species, implementing "policies on grassland ecological award and compensation, grazing is prohibited on [these] grasslands" (Du 2015).

The Asian subspecies of Great Bustards performs a major migration every year, coming into China from Russia and Mongolia (Kessler and Batbayar 2014). Migratory species pose their own conservation issues; crossing over international borders with different governments and wildlife regulations and exhaustive physical challenges. Climate change has caused the Gobi Desert (a major obstacle on the migratory route for *O. t. dybowskii*) to extend its range (Kessler et al. 2013). In one study, an observed population

of female *O. t. dybowskii* suffered its only mortalities on the migratory route and the wintering grounds (Kessler and Batbayar 2014). Great Bustard males of both *O. tarda tarda* and *O. t. dybowskii* gather in leks for courtship. This style of mating involves a greater energetic investment of the male. Great Bustards of both sexes must cross the extended range of the Gobi Desert in order to reach leks in historical breeding grounds, which have become more isolated, further fragmenting available breeding habitats. High temperatures and little rainfall were “the main reasons which caused” significant population decline in China (Zhao et al. 2008). Statistical predictions theorize that “suitable wintering habitats in the current bustards’ (*O. t. dybowskii*) distribution would increase” during this century, extending in all directions, mostly eastward. However, “some current suitable habitats will experience a reduction.” Overall, the quality and quantity of habitats are predicted to increase (Mi et al. 2015).



Mortality along migratory route credit: B. Dashnyam
www.asiangreatbustard.org

There is “a lack of accurate data on trends in several countries with important populations (e.g.... China)” (*Otis tarda* [Great Bustard]). Population estimates of *O. t. dybowskii* have ranged from less than 1000 (Li et al. 2005) to under 2000 in 2010 (Kessler and Batbayar 2014) to a maximum of 2200 in 2013 (Kessler et al. 2013). Despite the seeming increase, population estimates out of China are “usually based on extrapolations of numbers counted in smaller regions to the whole areas guessed to include habitat suitable for the species. Because such estimates are subject to high potential errors, they are...considered of lower quality” (Alonso and Palacin 2010). Research problems occur in China because of an overall lack of researchers, “depth-research deficiency and lesser attention” (Wu et al. 2013). Especially because the Great Bustard is a migratory species, there is a greater concern for an appropriate and universal census protocol (Alonso 2015). It is also imperative that countries along the migratory route work together and embrace a comprehensive plan for cooperation and communication (Kessler and Batbayar 2014). A Great Bustard Memorandum of Understanding exists for European populations of *O. tarda tarda*, but Asian populations of *O. tarda tarda* and *O. t. dybowskii* are not included. The Memorandum was established in order to preserve Middle European populations of *O. tarda tarda* and restore important habitat, to identify and protect habitat that is currently utilized and potential unused habitat and to protect migration routes and wintering grounds (“Great Bustard Memorandum of Understanding”). Xing’an League (home of the future Arshan Zoo, N.E. China) borders Mongolia. Delegates from Xing’an are working with China Biodiversity Conservation and Green Development Foundation and IUCN to “promote construction of cross-border ecological reserve, which will channel the animal migration [not specific to Great Bustard] across borders and protect wild animals from human interference.” Individuals representing the Arshan Zoo also participate in wild animal rescue and rehabilitation of native birds (Du 2015).

In 1998, an East Asian Action Plan was established for Great Bustard Conservation. IUCN proposed action to “upgrade and establish new protected areas in East Asia (*Otis tarda* [Great Bustard]). Tumuji National Nature Reserve in Inner Mongolia is the “only nature reserve established to protect Great Bustard in China” (Du 2015). It has also been named as the most important breeding ground of *O. t. dybowskii* in China (Li et al. 2005). However, several sources disparage the efficacy of conservation in nature reserves. There have been successes in artificial reproduction in captive settings, while “nature reserves did not play an effective role in *in situ* conservation” (Tian and Zhang 2006). Due to issues with staff and enforcement of laws within reserves, “experience in China clearly illustrates that merely establishing a protected area does not ensure that the area will be effectively protected” (Harris 2008). One tagged bustard was suspected of being “poached in a National Park” in Mongolia (“Great Bustard in Central Asia”). The majority of the Chinese National Nature Reserves are found in remote rural areas. Because of the isolation in these areas, it would be extraordinarily difficult for authorities to even know when infractions occur.

The Great Bustard is under Class I national protection in China, in which breeding and exhibition are permitted through the governmental bureaucratic channels. The Great Bustard is exhibited in several zoos in China, including Harbin and Beijing. “The state not only permits, but encourages, captive breeding... raising wildlife in captive settings is asserted as beneficial in its own right, without necessarily being linked to scientific research or educational outreach, much less restoration of wild populations” (Harris 2008). Similarly, the mission statement for the future Arshan Zoo advocates animals in captivity, stating that “nature conservation can be realized across vast areas with less investment and higher flexibility” (Du 2015).



Husbandry exam at Beijing Zoo, credit: www.greatbustard.org

Because of the long-distance migratory patterns and population decline trend, it is was proposed that the global population of *O. t. tarda* and *O. t. dybowskii* be added to Appendix I of CITES. The Great Bustard was listed on Appendix 2, indicating that international trade is closely controlled so that the species does not become endangered. The Great Bustard was added to Appendix I in November 2014 (“Great Bustard in Central Asia”), and as such, trade would “only be permitted in exceptional circumstances” (“How CITES Works”). Upgrading the status of the Great Bustard to Appendix I “coordinate(s) knowledge-sharing and international efforts to reduce [conservation] threats,” reiterates and strengthens the missions of the European Great Bustard Memorandum of Understanding and “raise(s)

the international conservation profile of the species [which would have] the potential to affect conservation actions in Range States which are non-signatories" of the Memorandum, of which China is one. A separate Memorandum between Russia, Mongolia and China as been suggested (Kessler and Batbayar 2014).

Organizations have come together in order to work for Great Bustard conservation. The East Asian – Australasian Flyway Partnership (EAAFP) has stated that "conservation of the eastern subspecies of Great Bustard *O. t. dybowskii* sharing the habitat with crane species will be included" in initiatives ("Cranes Working Group – EAAFP"). The Central Asian Great Bustard Project, based in Mongolia, engages in Great Bustards research, including tagging and monitoring, and outreach with local peoples in the field and in schools ("Great Bustard in Central Asia").

Intra-species consideration and preservation will always be a matter of compromise and conservation requires the emotional investment of humans. Several environmental actions are needed to ensure conservation of Great Bustards, all of which are under human control: burying or rerouting cables away from migratory pathways, anti-poaching enforcement, time agricultural practices appropriately around breeding times and maintaining low-key practices to sustain suitable condition of habitat and general protection over migratory pathways, wintering grounds and leks involving international cooperation (Kessler and Batbayar 2014). Many people think solely of Giant Pandas when they think of Chinese wildlife. It is difficult to find information on Great Bustards in China outside of Chinese scientific journals. With more global information and education, it is possible to illuminate Great Bustard conservation where they may need it most.



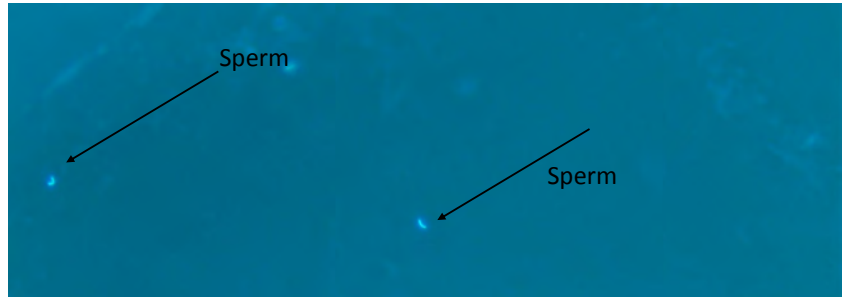
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SSP Population News

Examining kori bustard eggs for the presence of perivitelline membrane-bound [pvm] sperm

Sara Hallager, Smithsonian National Zoological Park

In 2015, a technique that examines the presence of oocyte perivitelline membrane bound sperm [Croyle, K. et. al 2015] was applied to a kori bustard egg that was incubated for 23 days but which was believed infertile. Over 400 sperm were found. The presence of a large number of sperm suggests the egg was fertile but for unknown reasons, did not develop.



Croyle, K., Durrant, B. and Jensen, T. 2015. Detection of oocyte perivitelline membrane-bound sperm: a tool for avian collection management. *Conservation Biology* 3: 1-12.

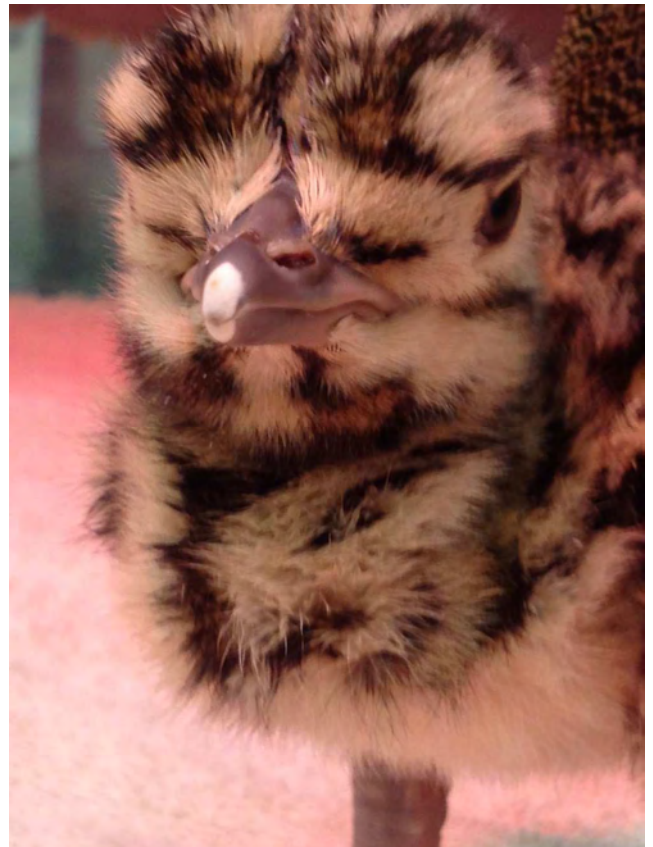


Sperm Retention in a female kori bustard

Sara Hallager, Smithsonian National Zoological Park

Previous observations [S. Hallager, personal communication] have determined that kori bustard eggs at National Zoo are laid approximately 7-10 days following observed copulation.

In 2015, a chick hatched from an egg laid 2 weeks following the death of a male. This suggests that female kori bustards are capable of retaining sperm for at least two weeks.





Remembering “Mawasi”

‘Mawasi’ arrived at the Dallas Zoo on October 22, 1979. Her estimated age at that time was one year, but as we all know, it is impossible to age a wild caught bird. She was a small female, dwarfed by her mate, ‘Dallas’. At one point she sustained a wing fracture which did not set properly, causing her to have a droopy wing the rest of her life. ‘Mawasi’ and her mate, ‘Dallas’, were on exhibit for many years but did not reproduce. In 1991, they were relocated to an off-exhibit breeding yard in the Wilds of Africa area. **In 1992 her chick, ‘Niamke’, became the first kori bustard hatched in the Western Hemisphere.**

‘Mawasi’ was a character and a favorite amongst staff. She always seemed to know if her eggs were fertile. One time, she rolled her infertile egg uphill to the enclosure gate, as if asking the keeper to get rid of it. The next egg she laid, she sat so tight, her keeper had to reach under her to retrieve it for candling. That egg became ‘Niamke’. ‘Mawasi’ continued to lay eggs until April 2014. She produced 6 offspring resulting in three F2 generation offspring; sadly, her lineage ended there as none of those individuals produced any chicks. Over the past 8 years she had been plagued with lameness, but she continued to be a good bird to work with, even taking mice from your hand on occasion. She was euthanized due to heart problems on 9 Nov 2015 at 37 years 19 days old, the oldest captive kori bustard recorded in the studbook. She will be sorely missed.

Submitted by Sherry Sherry Mossbarger, Senior Bird Keeper, Dallas Zoo

Kori Bustard Egg Transfer

Jeff Pribble, Birmingham Zoo

The Birmingham Zoo hatched and raised three kori bustard chicks this year. These chicks all began as eggs received from the Jacksonville Zoo. This is the third year we have received eggs from the Jacksonville Zoo breeding pair. We received a total of five eggs, but two eggs had full term deaths. The three chicks hatched on July 12th, August 26th, and September 11th. Once successfully eating on their own, the three chicks were housed in an outdoor pen separated from the main Kori yard but with no visual barrier. On December 9th, the chicks were introduced to our established flock of seven kori bustards. All of the chicks are male, which brings our total up to seven males and three females. Although there has been some minor aggression between the chicks and the adults, there haven't been any serious aggressive behaviors or injuries. At this time we have reached our holding capacity with 10 koris. Our goal was to raise the chicks in a flock setting – there was minimal human contact and the chicks were housed together as soon as possible.

Now that they are introduced to the flock, the young chicks should be learning natural behaviors from our mature birds. We will be using data from our Kori Bustard ethogram to better understand how this year's chicks and last year's juveniles are interacting with the flock at large. Moving forward, we will be focusing on breeding our own birds.



Egg transfer between Jacksonville and Birmingham zoos



Photo by Anna Turkett

Kori bustard Keeper of the Year!

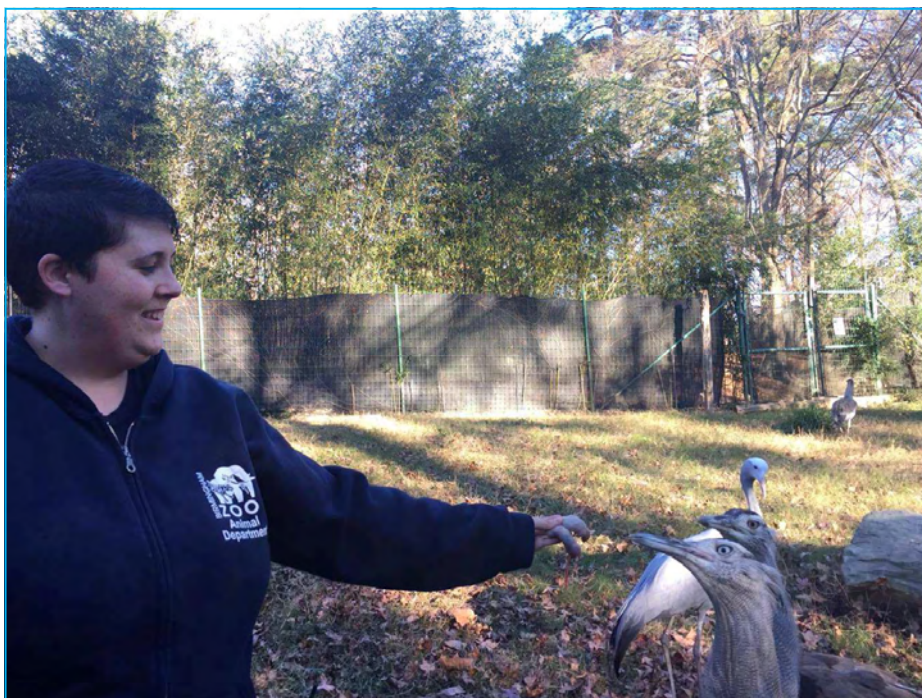
Anna Turkett is the Lorikeet Keeper and Interpreter at the Birmingham Zoo. This position is the first of its kind at the zoo – a full-time interpreter for the bird collection who is also responsible for keeper duties. She joined the zoo in November of 2014 and has worked since then to create many new interpretive events for the Bird Department.

Anna was inspired to pursue a zoo career after volunteering at the Birmingham Zoo in high school. She attended the University of Alabama where she received an Interdisciplinary Studies degree with a depth study in Zoo Education and Interpretation. For two summers she worked as an Education Intern with the Zoological Society of Milwaukee where she led camp tours and classes. Although this position is her first time working in animal care, she has fallen in love with birds and especially loves working with her Kori Bustard flock.

With her specialized background, Anna was ready to take on the challenge of building an interpretation plan from scratch. One of her focuses was the zoo's impressive collection of Kori Bustards. She started a new interpretive event – a Kori Bustard feeding and keeper chat every afternoon. She would stand inside of the exhibit and toss mice to the Koris while giving a talk about the bustards and the zoo's conservation projects with them. Anywhere from four to thirty people would attend the chat each day. She designed and added new graphics to the front of the Kori area, known as "Kori Kountry" that labeled the space and advertised her daily chat. The Kori Bustards are also included in most of her keeper chats for the Education Department as well as any of her tours.

In 2016 she hopes to start a new tradition with Kori Bustard Day, which will occur on March 26th. This day is still in the planning stages but will certainly be a celebration of all things Kori. The day will include foraging activities, biofacts stations, fly fishing displays, and a husbandry demonstration of wing-clipping and weighing a Kori. She is currently working with Zoo Atlanta to have a companion day at their zoo.

Thanks to Anna for inspiring guests to care for koris! Keep up the good work Anna!



Attempts at Artificial Insemination in Kori Bustards

By: Sara Hallager, Lisa Murphy, Linda Penfold, Sarah Schoenberg, John Sills, Mike Taylor

In the summer of 2015, staff at the Jacksonville and Phoenix Zoo's attempted something that had never been done before: obtain semen from a male kori bustard and ship it over 2000 miles for insemination into a female kori bustard.

Key Players:

12 year old male kori housed at Jacksonville Zoo, captive born at Zoo Miami; proven breeder. Overseen by Curator Mike Taylor and keeper Sarah Schoenberg

7 year old female kori housed at Phoenix Zoo, captive born at Phoenix Zoo; proven egg layer. Overseen by Collection manager John Sills and Senior keeper Lisa Murphy

Advisors: Dr. Linda Penfold, Director SEZARC and SSP Coordinator, Sara Hallager

Artificial insemination (AI) has not been attempted in kori bustards. Within the Otididae, AI has only been reported in houbara bustard *Chlamydotis undulata* and great bustard *Otis tarda*. This is likely due to few bustard species being kept in collections along with challenges associated with bustard handling such as the tendency of the taxa to succumb to morbidity and mortality during handling (e.g. capture myopathy). Given the difficulties associated with transport of kori bustards, artificial insemination could improve the genetic makeup of the AZA SSP population as the shipment of sperm is much easier than the shipment of birds.

At the Phoenix Zoo, female kori bustard "Skwrl" has been cared for since hatching by her primary keeper, Lisa Murphy. Upon reaching adulthood, she displayed behaviors that suggested she might be receptive to AI such as running up while in a crouched position, often spinning in a circle in front of Lisa, then laying down in front of her while making short, whiny noises. If ignored, she would walk in circles on her hocks.

Likewise, the male "Umat" at Jacksonville Zoo displayed preference for his primary keeper but not to other keepers. "Umat" puffs up feathers and displays as Sarah approaches and while she is servicing the exhibit, "Umat" will try and grab a hold of her for mounting purposes. If Sarah will not hold still, "Umat" will grab his own neck feathers and skin and ram against her or the fencing while holding onto these feathers and skin.

Based on these behaviors, and the success of staff at Centro de Cría de Aves Esteparias, Spain with collecting semen in great bustard using a dummy, it was decided to attempt AI in kori bustards in the summer of 2015.

Jacksonville Zoo began conditioning "Umat" for semen collection. A dummy was also constructed to aide in the procedure. The goal was for the male to mount the dummy and for Sarah to collect semen in a small cup. Although "Umat" did grab the dummy, he also tried to aggressively mount Sarah resulting in the use of a face shield and thick gloves for protection. Although semen collection did not occur in 2015, staff is hopeful that they will be successful in 2016.



Across the country, Lisa began working with "Skwrl" to get her to raise her tail for insemination. After trying different techniques for stimulating "Skwrl" that left her nervous and unmoved, a method was worked out that resulted in successful insertion of an empty AI syringe. With one hand on her head and the other scratching her sides "Skwrl" started raising her tail. Once that point was reached, she preferred her head pushed down towards the ground quite firmly with one hand, and the other just behind her wings, scratching either side as far down as possible with almost equal firmness.

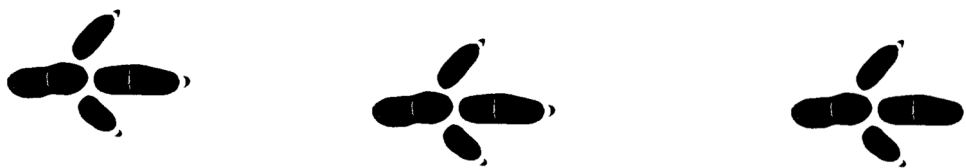
Once the male at Jacksonville was producing semen, the plan was to overnight it to Phoenix twice a week and inseminate

Once the male at Jacksonville was producing semen, the plan was to overnight it to Phoenix twice a week and inseminate "Skwrl" 2x/week. Dr. Linda Penfold provided instructions on storing, shipping semen as well as insemination protocol.

Results: female kori bustard "Skwrl" was successfully conditioned to raise her tail and present her cloaca for insemination. Male kori bustard "Umat" was not so cooperative and semen was not obtainable. Early indications are positive that artificial insemination could be possible in kori bustards. Cooperative AI is preferred in kori bustards given their susceptibility to capture myopathy. Blanco et al. (2009) maintains that the best candidates for AI in birds are imprinted individuals. Since all kori bustards reared in North American zoos are handreared, they are potentially ideal targets for artificial insemination techniques.

End note: "Skwrl" was very nervous and uncooperative with the male she was housed and approved to breed with. She was observed lying down for him, but refused to go further, and preferred the attention of Lisa. She was laying infertile eggs regularly at this time. After Lisa got her to complete the process to syringe insertion, she instantly appeared more confident and understanding of the breeding process. A few days later, "Skwrl" fully cooperated with the male, and laid her first fertile egg. Two other females have been similar receptive to their primary caretakers at Toledo Zoo and Smithsonian National Zoological Park.

Blanco, J., Wildt, D., Hofle, U., Voelker, W. and Donoghue, A. 2009. Implementing artificial insemination as an effective tool for ex sit conservation of endangered avian species. *Theriogenology* 71: 200-213.



The Kori Bustard SSP continues to urge holders to send naturally molted feathers in for distribution to fly tiers.

Contact Sara Hallager for more information



KORI BUSTARD
SPECIES SURVIVAL PLAN

<http://www.koribustardssp.org/>

2015 Hatchings



Jacksonville Zoo



National Zoo



Phoenix Zoo



Birmingham Zoo



Kori Bustard SSP

This year, the San Diego Zoo Safari Park created two new Kori Bustard pairings. We have had male SB 585 in the collection for ~16 years. He was wild caught with an estimated hatch of 1995. He has lived in many different conspecific combinations over those years. He spent most of his time as the sub-dominant male to a breeder male. He has had breeding access to 4 different females in multiple combinations at various times over those years. After the dominant male passed away he showed aggressive behavior to multiple females in the collection and no female ever seemed receptive to his presentations for breeding. He did display normally, although not as elaborate as the former breeder male or other males that have been in the collection over the years. In fact, he seems to be a very secretive bird. It is rare that we catch him displaying and when he sees us he tends to wrap it up quickly. His booming call is not as loud as other males we have had in the collection. While interacting with him in the enclosure his intentions seem very difficult to read, for the keepers and the female birds.

When we acquired breeder male SB 367 from Cleveland Zoo and paired him with our breeding female SB 99 in 2010, SB 585 was used as a stimulant for the new male and was placed on the other side of an adjoining enclosure. He was great in this respect and the breeding pair was successful. After a couple of years of successful reproduction from female SB 99, we lost her mate SB 367 in April 2011, and then we lost her in February 2013. We were left with SB 585 and a recently acquired young male SB 610 who was raised in a male dominated group at his former institution. He was skittish, unconfident, and at times, uncoordinated.

We acquired female SB 588 in 2014. She hatched 14 Jun 2003. When we got to know her, we discovered she was bold, bossy, confident and strong. We tried her initially in the same arrangement we had used before. The young male SB 610 with SB 588 and SB 585 next door as a stimulant. Female 588 displaced him around as if she owned that exhibit. He was much too submissive and would almost hurt himself trying to get away from her. Watching her confidence over a few weeks gave us confidence that we might



actually have found a bird that could hold her own with SB 585. In finding a bird that would not submit, SB 585 might actually be able to breed with a receptive female. They were introduced in mid January and we observed some very positive interactions, including an attempted copulation within hours of being together. The introduction was initially concerning to us as he had been a combination of aggressive and/or overly stimulated with

other females but she held her own. In fact, she still remains very bossy, knows how dominant she can be with him and walks that line well.

We found her first egg laid February 22nd, but unfortunately it was laid on a slope and rolled into the pool and cracked. The egg was not salvageable. Our next egg was laid in a much better spot on April 4th and was pulled to incubation. The egg was incubated for the entire incubation term, 25 days and was identified as fertile on day 4 but we believe the egg died very early. This is the only fertile egg male SB 585 has ever produced in his 20 years of life. The birds were only together 4 months before producing a fertile egg. Finding a workable mate for SB 585 is a huge success for us, for him, and for the program. Male SB 585 has already been seen in partial display this year and we are so excited to see what this year brings. We decided to pair our younger, less confident male SB 610 with a young female that wouldn't boss him around and that intro also went well. They were placed side by side with view of each other for 11 months before being introduced.

Submitted by Jenny Tibbot, San Diego Zoo Safari Park



The Centro de Cría de Aves Esteparias, Spain <http://www.avutardas.com/Inicio.html> has been breeding kori bustards since 2014 from wild caught stock [3.4]. The 2014 edition of The Gompou described their breeding success with koris. In 2015, staff once again were successful breeding koris and hatched two birds from four eggs [two eggs were infertile]. Staff remove the egg and place it under a broody hen for incubation. Chicks are reared using the same method as great bustards. The Centro de Cría de Aves Esteparias is the only facility in Europe breeding kori bustards. Article submitted by Ricardo Sobrino. In addition to breeding kori bustards, The Centro de Cría de Aves Esteparias has also bred great bustard, little bustard and white bellied bustard.



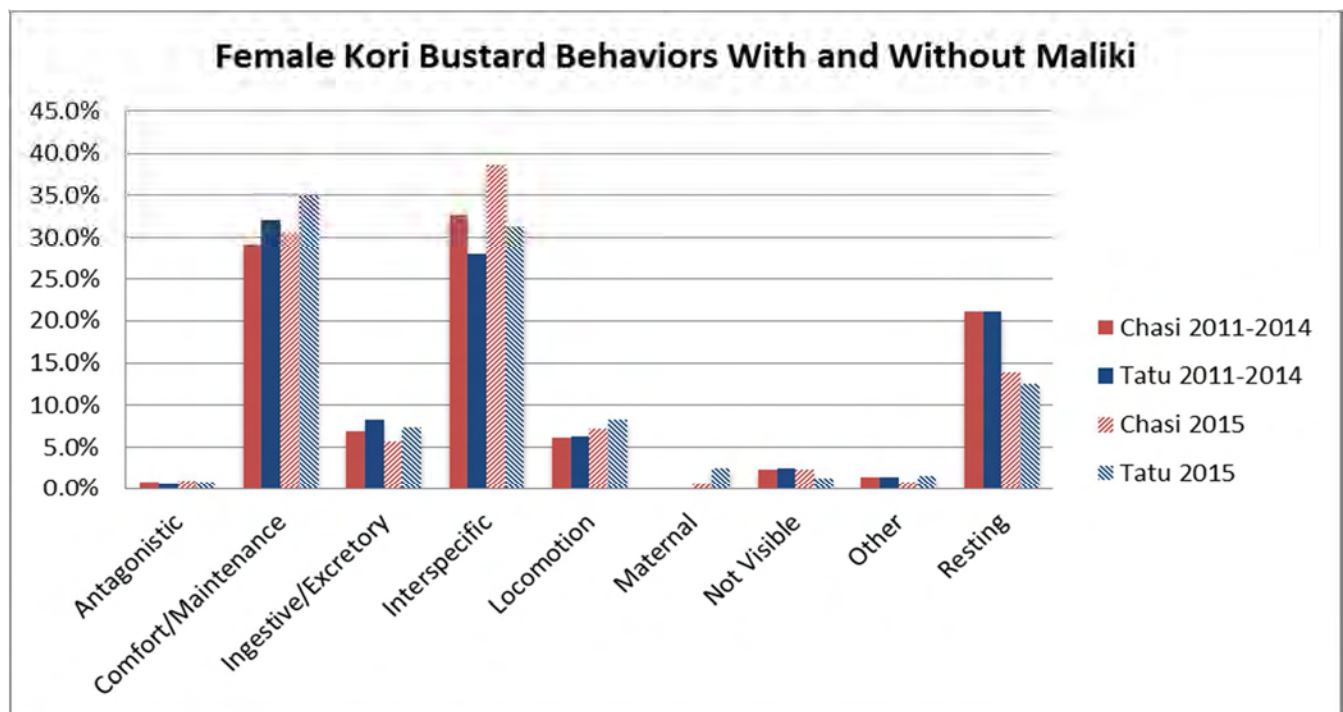
Notes on Female Behavior Changes Following a Death in the Flock

Jenna Curtis

The unexpected and too-soon death of our male, “Maliki”, was difficult for all of us associated with the Smithsonian National Zoological Park’s volunteer “kori watch”. It was a pleasure to watch “Maliki” mature into a sweet, alert, and curious adult. I am grateful to have known “Maliki” for the few years he was with us. He will be sorely missed.

Even in “Maliki’s” absence, the research must go on. One purpose of our “kori watches” at NZP was to better understand how koris develop social behaviors in captivity. “Maliki’s” sudden loss provides us with an opportunity to examine how the two remaining 7-year-old females, “Chasi” and “Tatu,” respond to the removal of a flock mate. This information may be useful to kori keepers, who – in the unfortunate event of a death or necessary removal of an individual from a flock – may gain some idea of the behavioral consequences in the remaining birds.

To perform an early evaluation of the effect of “Maliki’s” death on “Chasi” and “Tatu”, I compared behaviors and locations within the yard before and after his passing. Behaviors were evaluated as percentages of different activity types out of total activities recorded. These data come from our volunteer “kori watchers”, who observed the birds’ for 1-hour periods throughout each month, recording notable behaviors in 5-minute segments. Because day length, temperature, and season may affect Kori behaviors, I only compared the months after “Maliki” had passed (July-October) to behaviors from July-October in years 2011-2014, when “Maliki” was present.

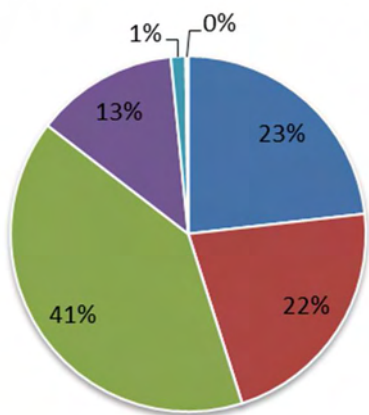


In terms of behaviors, most activities changed little between July-October of previous years, and July-October 2015. The most notable difference was a decrease in resting activities and an increase in interspecific and maintenance (e.g. preening) behaviors. Both females spent less time resting, and more time being alert or watchful after Maliki’s death. Chasi in particular was recorded “skyward looking” (an interspecific alert behavior), much more frequently. A possible explanation is that the females felt it less necessary to stay alert when an adult male was

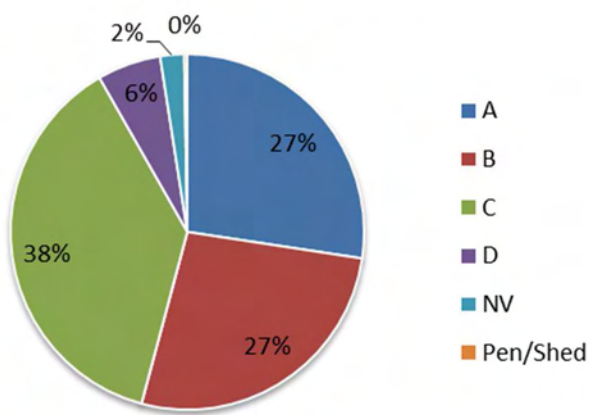
present in the flock.

A more notable difference was observed in terms of location within the yard. “Chasi” and “Tatu” have always spent the majority of their time in the same zones (equal-sized quadrants) within the enclosure. Volunteer watcher Lisa Barker describes the girls as “hip to hip”. While this is still true following “Maliki’s” death, both girls spent distinctly less time in zone D, and to some degree zone C, after his passing.

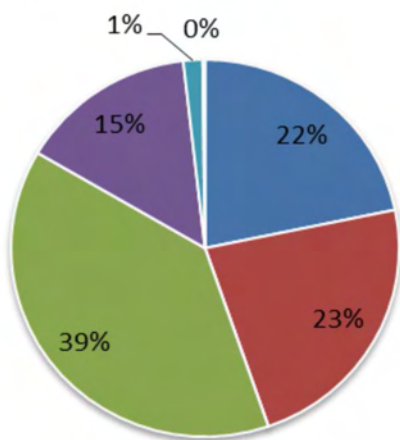
Chasi 2011-2014 Locations



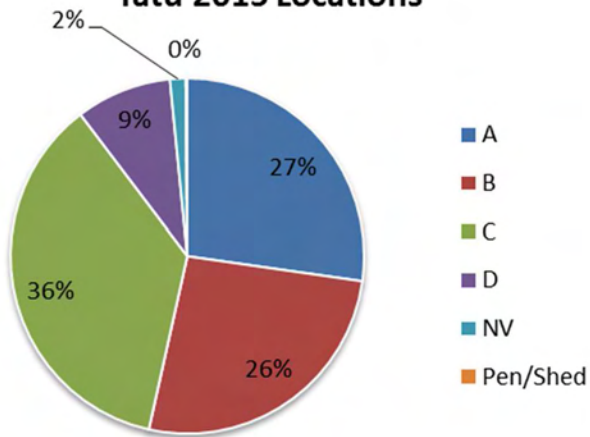
Chasi 2015 Locations



Tatu 2011-2014 Locations



Tatu 2015 Locations



There could be two explanations for this. Zones C and D are near the front of the enclosure, closest to the public walkway. Zone D has the fewest shrub cover and may be considered the most exposed. If it is true that the females are more alert following “Maliki’s” death, they may be less inclined to forage or rest in the more exposed areas of zone D. On the other hand, the females may be moving into the “desirable” areas in the back of the enclosure - closer to water, feeders, and shade in zone A - that “Maliki” formerly occupied.

Prior to his death, “Maliki” had completed several successful copulations with “Tatu” , but had not attempted to mate with “Chasi” . In a previous article, we postulated “Tatu” was the “dominant” female in the flock, and her behaviors suppressed breeding activity in “Chasi” . With “Maliki gone, we did not see an immediate change in the “social order” of the flock. “Tatu continued to lay eggs and participated in “nest building” behaviors with over twice the frequency of “Chasi” . However, it may be worth noting “Chasi” did exhibit some late-season nest building activities in October, while “Tatu’s” behaviors stopped in November.

This spring, “Chasi” and “Tatu” will be moved into the “adult” kori yard with their mother “Tanzy” , a 3-year-old subadult, and a new adult male. Our volunteer watches will continue. I will be interested to see if the social structure and behaviors of “Chasi” and “Tatu” change with their introduction to a larger flock. Maliki’s” death put an end to our original monitoring objectives, but it does provide us with new discoveries. I like to think “Maliki” lives on in a legacy of data we collected from his charming and always entertaining behaviors.

Maliki sired two chicks before his death. They will become part of a new watch at the National Zoo in the spring.



Education

Melissa King

Zoo Atlanta Interpretive Programs Supervisor
Kori Bustard SSP Education Advisor

Zoo Atlanta Program and Impact Numbers

In 2015, we continued our “Forage Like a Kori” program that I wrote about in last year’s *Gompou*. **As of the end of November, we had impacted 9,895 guests during the advertised, scheduled time for this program. Outside of this program we impacted 1,776 guests. Total impact at the kori exhibit by Education staff and interns was 11,671.** Why is keeping track of impact numbers important? At Zoo Atlanta, we use these numbers to measure our success in providing a quality guest experience. We can also look at these numbers to help us determine how to best allocate resources – time, money, staff, space on the map to advertise, etc.

Forage Like a Kori



Trends in numbers over time can also give us clues about which programs may need revision, a new location or time, to be replaced with something different, or maybe even just a more exciting title. For those of you who aren’t familiar with the program we’ve been doing in 2014 - 2015, Forage Like a Kori takes place on Thursday and Saturday mornings at 10:45 AM at the kori bustard exhibit. A keeper feeds the birds mealworms on the public side of the exhibit and then continues with routine, placing mice in the exhibit and cleaning. While this is happening, an Education staff member or intern interprets with biofacts. There is also a follow-up activity in which kids can “forage” in a box of artificial grass for insects using tongs as a beak. Our impact numbers for this year reflect a huge increase. The program did run for a longer amount of time, twelve months versus five. We also ran the program on two days per week instead of one. Our seasonal staff and interns showed much interest in the koris and were excited about the program. They also helped create additional program materials and I believe, as a team, they felt a sense of pride and ownership in representing a species that they didn’t know much about at the beginning of the season. The outline for our current program is printed in this year’s *Gompou* for those of you that are interested. If you have questions about impact number recording or our program, feel free to contact me!



Education continued....

Current Project/Future Goals!

- A resource packet for creating kori programs has been in the works for awhile and is still being developed. It will include a vocabulary sheet, examples of themes, how to acquire kori biofacts, conservation information, a reading list for students by age, work sheets, coloring sheets, etc. These would be individually on the website as well as available in a packet geared toward Zoos and another geared toward classrooms.
- Encouraging other Zoos to start structured programs or talks that have a theme/are written down. Keeper chats are also great. Some Zoos are already doing this and I'd like to try getting impact numbers from these talks and programs.
- International Education outreach or partnership.
- We are finishing up a Kori Kampaign video to encourage other Zoos to house koris since that is a need for the SSP right now.
- Adding to the website.
- Outreach to the fly fishing community to make them aware of the FeathersMc Kori Bustard Feather Program: <https://feathersmc.com/kori-bustard-program/>
- Continuing to fundraise

Kori Bustard Awareness Day – March 26, 2016; Melissa King

On a visit to the Birmingham Zoo earlier this year, I was lucky to meet a bird keeper and interpreter named Anna Turkett who is not only passionate about koris, but also taking action to find creative ways to educate the public about them. We chatted about the birds and interpretation, and I got to meet their impressive collection of koris. During my visit, I found out that Anna is planning a kori bustard event for March 26, 2016! Zoo Atlanta will now be hosting Kori Bustard Awareness Day on that same date. She and I have begun to create a list of potential activity ideas to share and we would LOVE to see all of your zoos hosting an event as well. It can be as big or small as you would like and we are here to provide information and activity ideas and resources. In early 2016, we will be sending out a packet that has materials you are free to use. **If you are interested in hosting a Kori Bustard Awareness Day on March 26, 2016 with us, please contact KoriBustardSSP@gmail.com**

Special thanks to Anna for collaborating with me and for your promotion of kori interpretation at Birmingham!



A staff member educates guests about kori bustards at Zoo Atlanta

ZooAtlanta Education Program



Program Title: Forage like a Kori! and Kori Feeding

Facilitated By: Public Programs Staff & Bird Keeper Staff

Program Times:

Target Audience: Families with children 8+, teens, and adults

Event Location: Kori bustard exhibit

Outline Created: 02.03.14

Outline Updated: 10.12.14

Theme: Kori bustards are large, omnivorous birds with adaptations for foraging in tall grasses for their food. Zoo Atlanta contributes to this birds' conservation through education, research, and breeding.

Goal(s): Enhance visitor experience by providing an engaging activity about a species that is not well-known

Increase visitor knowledge about general characteristics of kori bustards

Increase visitor knowledge about enrichment and its role in Zoos

Raise awareness about kori bustard conservation

Objective(s): 70% will be able to name at least one characteristic of kori bustards

50% will be able to define enrichment

10% will know one thing they can do to help kori bustards

Supplies: Forage Like a Kori supplies: artificial grass, tongs, wings, plastic insects to hide in the grass

Speaker/microphone (during busy season)

Kori bustard skull ZA# 780

Kori bustard feather ZA# 24

Kori bustard laminated feathers ZA# 22

Kori bustard feather fishing lure photos

Poster

Hand sanitizer (for yourself after feeding bugs)



Introduction:

Welcome/Greet guests. Introduce yourself & the birds.

- Introduce yourself, keeper, and birds by name.
- Let guests know that there will be a feeding and that they will get to observe some interesting behaviors and characteristics of kori bustards.
- State theme.
- Invite them to play the Forage Like a Kori game.

Body:

Kori bustards are a species of bird that are native to eastern Africa.

- Share some general information about kori bustards. Get guests involved by asking them questions.
- Give some background information about our kori bustards, Snake and Tuza.

Koris are omnivorous and have adaptations for foraging for their diet.

- They are opportunistic omnivores and will eat a variety of insects, small animals, and plant material (Wild diet: Grasshoppers, dung beetles, lizards, snakes, rodents, carrion, flowers, seeds, roots, and acacia gum).
- In the Zoo, their diet is made up of mice, meat, insects, and fruit.
- They have a strong, pointed bill for eating meat and insects.
- The wideness of the bill also allows them to swallow larger prey.
- Having large eyes means they have excellent vision.
-

Body: Zoo Atlanta contributes to kori conservation through research and education.

- Education is an important aspect of Zoo Atlanta's mission.
- Briefly describe some of the kori other conservation projects that Zoo Atlanta supports.
- There are ways that you can help wild kori bustards!:
- Support institutions that house kori bustards.
- Share what you have learned with others.
- Visit the kori bustard SSP website to find out more.

Conclusion:

Restate your theme. Thank guests for coming to Zoo Atlanta.

- Thank guests for coming to the Zoo.
- Be aware of other programs coming up and let guests know of their time and location.
- Invite guests to participate in the Forage Like a Kori activity or look at biofacts.
- Answer questions, Q&A.
- Invite guests to play Forage Like a Kori game.



For the Love of Koris

Zoo Atlanta Fundraising events for the kori SSP



Star Wars movie night at Zoo Atlanta—raising \$\$ for koris!



Above photos from Zoo Atlanta Halloween Movie Night Fundraiser. One of the raffle items was to hit one of five zoo staff in the face with a pie—all in the name of the kori SSP!

Top left – Bird Keeper Kyle Loomis and Melissa King at the raffle table.

Top middle – James Ballance, Curator of Birds with the volunteer that won the raffle.

Far right – snack table and volunteer,

Middle row left – Melissa King

Middle row middle – raffle winner preparing to hit James.

Second down on the right is Derek Lane, Volunteer Supervisor and below that is the Bird Keeper that won the raffle actually hitting him with the pie.

Bottom left corner is that SAME bird keeper that won AGAIN hitting Melissa. Bottom middle is a volunteer hitting Christina Lavallee – Lead Keeper of Birds and Program Animals, and the bottom right is the aftermath of that.

From Melissa: “It was a blast! Attendance was great. We also raffled movie tickets, a restaurant gift card, and a gift card for the coffee shop near the zoo. We had a snack table with Halloween-themed treats and sodas. Overall, it was a success.”



Kori Bustard SSP



Above, SSP Education Advisor Melissa King shows how much she loves koris by dressing up as one on Halloween!

A long time ago in a galaxy far,
far away....

The Kori Bustard Species Survival Plan presents



STAR WARS MARATHON



Episodes I – III (Prequels): Sunday, December 6

Episodes IV – VI (Originals): Sunday, December 13

Movies start at 4:30 PM, Zoo Atlanta World Studio

RSVP to Melissa King, mking@zooatlanta.org



Koris Around the World

THE MUSTARD CHRONICLES

By: Alan Root [all photos by A. Root]

I am privileged to live on the Lewa Wildlife Conservancy, a 62,000 acre chunk of wild savannah in northern Kenya where, in early March I disturbed a baboon with a yolk-stained chin, delicately eating a large egg, with another lying at his feet. I chased him off and from the egg's size realised it could only belong to a Kori Bustard. I waited an hour but the bird did not return. The baboon troop was still hanging around, and I knew that even if the bird came back, as soon as I left they would plunder the nest, so I collected the egg. For the next three days I kept it in my shirt/bed until I drove to Nairobi, put it into a friend's incubator, crossed my fingers and two weeks later got a call to say the egg was chipping. I spent the next 24 hours in mama mode, and watched Mustard hatch successfully. The incubator was designed for chickens, so was not deep enough for Mustard to stand upright and in scrabbling to do so his legs became splayed. My wife was away in Scotland, but she got online, discovered AZA and Sara Hallager, and with her advice the chick soon had tape shackles keeping his legs properly positioned. A few days later the tape came off and in the absence of anything else the chick had imprinted on me. I had raised a White Bellied Bustard from an egg before, but the iconic Kori demanded the best of care, so the AZA manual became my bible and bedtime reading.

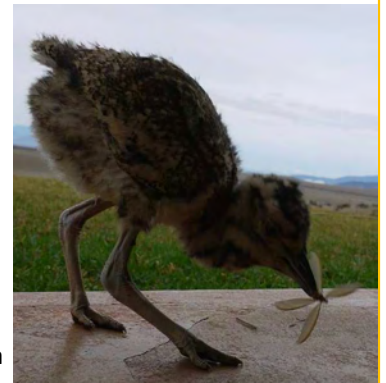
I gave the chick as much out-door time as possible, where it spent a lot of time in the company of our two Labradors whose urge to take it – albeit gently – in their mouth and 'retrieve' it back to me had to be firmly discouraged. Soon they settled into a protective role and enjoyed the chick's endless attention to their toenails. They were always together on the lawn, and at one stage I took some fun pictures purporting to be one of the dogs demonstrating how to make the vertical take-offs. A skill that Mustard would need to master before walking through the long grass where leopard and caracal lurked. He also had the company of a pair of Red billed Hornbills who nest close to our house and took a great interest in him and especially his daily rations. At around a couple of weeks Sarah warned me to watch out for 'angel-wing' which I had experienced in my White bellied Bustard, but Mustard got through that growth stage with no problems.



We always called the chick 'he' as we hoped it would be, and had visions of him one day strutting our lawn in full display, answering a male who, as soon as the rains start, is easily visible as he displays on top of a hill over a mile in front of the house. Was there a way to determine the sex? I asked Sara, who replied that "female koris often have a crazy look in their eye." She was of course spot on with that diagnosis and our calm-eyed and heavier than average bird turned into a fine young male.

He spent his nights in a large walk-in box and was always free by day, when he stayed close to the front of the house. Then on his 30th of days he was missing from his usual sun-bathing place on the lawn. I thought he had followed one of the dogs and got lost. Couldn't find him or hear his piping call and in panic checked the pool and pond – and there he was face down among the lily leaves.

I held him upside down to drain any water, but he was very floppy, weak and terribly cold, couldn't stand, eyes closed most of time - bad. I gently towed him while my son Rory ran to find Fran's hair-dryer, set to warm only for awhile then onto a hot water bottle with a blanket over him and an hour's worried wait until he started making his normal 'lemme-outahere' call. Don't have to tell you how huge the relief, and half an hour later he joined a

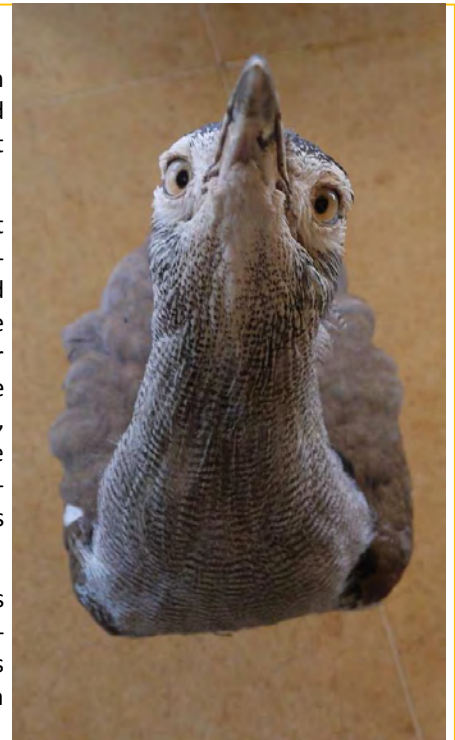


very happy Rory for a picnic and a sunbathe.

A month later we got another fright when my sons were doing some target shooting with their .22 rifle. Mustard was safely behind them and suddenly started picking up and eating the empty cartridge cases – swallowing at least four. Nothing we could do, but after a couple of worrying days he was obviously suffering no ill effects.

Mustard has always tolerated the two hornbills sharing his food, pinching his mincemeat or grapes and picking up mealworms ten times faster than he can. So when we introduced him to a day old Helmeted Guinea fowl chick that a neighbor had found, we hoped they would be good company for each other. At that first meeting he tried to eat the tiny chick so I rescued it and kept it in a cage on the lawn. Mustard sat next to it for hours on end, talking quietly, and after a couple of weeks I let the chick out. It was the beginning of a great friendship, and now they are inseparable, except for the afternoons, when Mustard runs across the lawn and takes off to fly half a mile or more down into the valley. He then walks slowly back, arriving around 5.30 when he and Ginny walk themselves into the big aviary where they spend the night, safe from the leopard who drinks at our waterhole.

The AZA Kori Care Manual has been a reassuring guide through the whole, happy process of raising Mustard and it is wonderful to see the work you are doing. I was a bit concerned, however, to read that it will be as much as eight years before he blows up his neck, raises his tail and booms his message out across the plains. I have every intention of being there when he does.



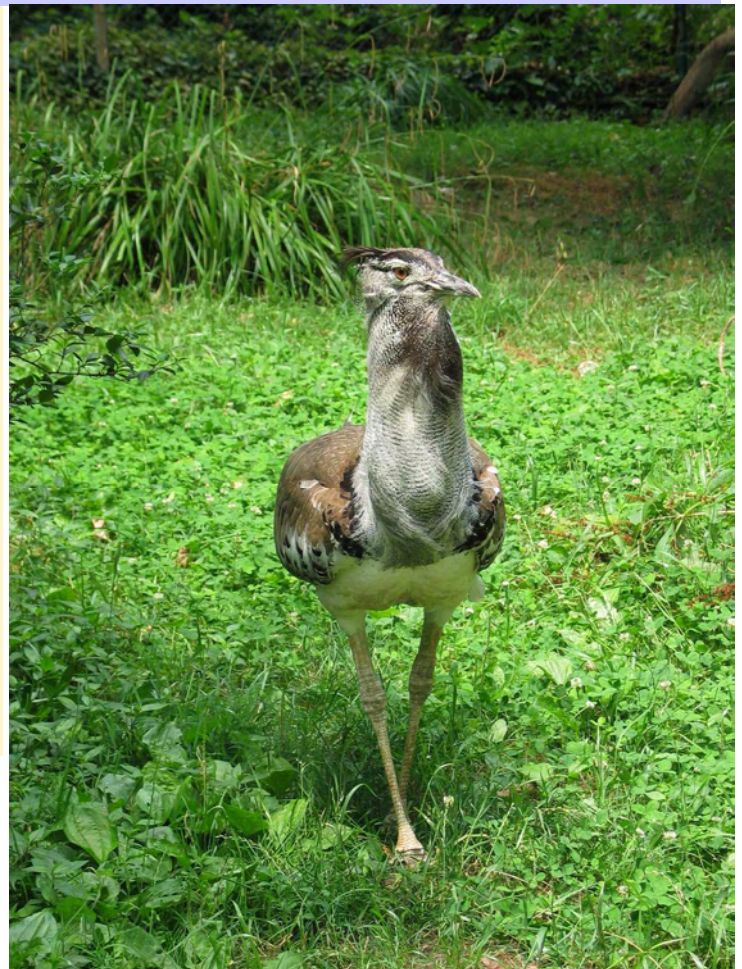
VOLUNTEER CORNER



"Noname" was my first male kori and I have so many wonderful memories. When I began learning the kori watch in 2010, I soon learned that everything that happened in the kori yard revolved around "Noname". "Neema" was in the shed because of "Noname", "Maid" paced the front fence line because of "Noname", and "Tanzy" was his breeding female and seemed to know how to handle him, most of the time. When I first heard him boom and was able to enjoy his magnificent breeding display, I was amazed. And, then, "Noname" became the standard of expectation for "Maliki" as he matured. "Maliki" never quite reached "Noname's" heights, but he was gradually getting there. I feel as though we have lost both the past and the future and it is very sad. The young koris are some consolation and I look forward to seeing them shortly in the shed area and receiving bulletins re their progress. And ... the new male kori arriving in the spring. He has big shoes to fill. Thank you, for my kori experience. I never knew such wonderful birds existed until I crossed paths. Wendy

I'm glad "Noname" was with us for as long as he was. I feel like he was given an extra six years of life due to the extensive TLC both the keeper and veterinary staff gave him, especially since his cancer diagnosis. I have remained extremely grateful for every additional watch season we have had with him. And while I wanted him to live forever, I realize it was just his time and these last few weeks have helped me to let him go...You already have my favorite "Noname" story in the one I submitted to "The Gompou" several years back, "The Feathered Subwoofer". Another favorite memory, not a story really but something I overheard was when a little boy, upon seeing and hearing "Noname" booming exclaimed "I feel like I'm inside a giant heart!" Ah yes, "Noname" was indeed the "heart and soul" of the watch. Lisa

NZPs kori bustard watch just concluded its 15th year of data collection. Since 2000, volunteer kori bustard watchers have collected over 5500 hours of behavioral data. For those who have followed "Noname" over the years, he was truly an incredible male kori bustard with a grand presence. His passing in 2015 at nearly 30 years old was very difficult for all who have loved and admired him these past 15 years. Sara Hallager



Cokes for Koris

Cokes for Koris Fundraiser 2015 Update

Kyle Loomis, Keeper II, Bird Department

Zoo Atlanta

Cokes for Koris continues to be a thriving fundraiser for the Kori Bustard SSP. For those unfamiliar with how this works, sodas are sold for 50 cents to the zoo's staff at a couple locations throughout the Zoo Atlanta. All proceeds are used to benefit the SSP, as well as restock our "shelves". Since 2011, we have seen this effort increase in popularity, allowing us to increase our sales locations, as well as broaden the range of sodas we are able to offer. Our education offices, which produces most of the sales, is now offering snacks to go along with the drinks. This past year we also offered several special events in connection with our fundraiser. Movie nights with Halloween and Star Wars themes proved to be very popular amongst zoo staff and volunteers. **Our proceeds have increased annually and this year was no exception with a total of \$7988. That brings our grand total to approximately \$2088 since beginning Cokes for Koris.** A big thank you goes out to Melissa King, our Interpretative Programs Supervisor, for spearheading this year's efforts to increase our profits. As always, we are hopeful for an even more profitable 2016 and continue to look for new ways to expand.



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Kori Bustard SSP

= \$

If you are interested in Cokes for Koris at your facility, please contact Kyle Loomis for more information

KORI BUSTARD

SPECIES SURVIVAL PLAN

STATUES = \$20

KEY CHAINS = \$10

MADE IN ZIMBABWE



Contact Melissa King
MKing@zoatlanta.org or
Kyle Loomis
KLoomis@zoatlanta.org to
purchase items

KoribustardSSP.org



Kori Bustard photobombs Kudu picture



got kori bustards?

Kori Bustard SSP

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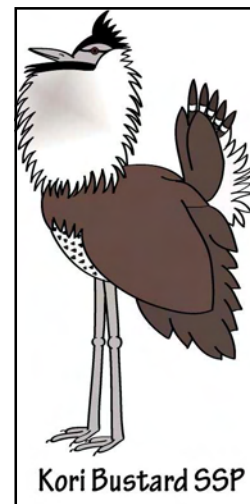
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