

THE GOMPOU

ASSOCIATION
OF ZOOS &
AQUARIUMS

The Annual Kori Bustard SSP Newsletter Volume 17

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The Gompou is an annual newsletter that encompasses all things related to bustards!

It is co-edited by Kori Bustard SSP Representatives Kyle Waites and Kayla St. George as well as Buff-crested Bustard SSP Coordinator Taylor Rubin.

We are already collecting material for the next edition. If you have anything you would like to contribute please contact any one of the following:

Kyle Waites: kwaites@phoenixzoo.org

Kayla St. George: kstgeorge@zoonewengland.org

Sara Hallager: hallagers@si.edu

We'd love to hear all of your Kori stories!!!!

<http://www.koribustardssp.org>



Kori Bustard flying, [Samara Game Reserve](#), South Africa

Current Bustard Research

There has been a lot of exciting research conducted in the past few years about bustards and their conservation! The following is a compilation of some recently published scientific research on members of the family Otididae. Each abstract is hyperlinked to the full article access so if you would like to read more about the research just hold the 'Ctrl' tab and click on the title.

Kori Bustards (*Ardeotis kori*) respond to vegetation density and elevation in the Northern Tuli Game Reserve, Botswana

Kathryn R. McCollum¹, Larkin A. Powell¹, Andrei Snyman², Mary Bomberger Brown¹ and John P. Carroll¹

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Conservation planning and decision making for species of concern requires precise information on abundance and habitat associations. We conducted transect surveys throughout the Northern Tuli Game Reserve, Botswana during June–July 2014 and May– July 2015 to estimate the occupancy and abundance of Kori Bustards (*Ardeotis kori*). The probability of occupancy of Kori Bustards was greater in areas with tree canopy cover \leq 50% ($\psi_{2014} = 0.37$, $SE \pm 0.09$; $\psi_{2015} = 0.39$, $SE \pm 0.06$) when compared with areas with tree canopy cover $>$ 50% ($\psi_{2014} = 0.00$, $SE \pm 0.00$; $\psi_{2015} = 0.00$, $SE \pm 0.00$). Densities of Kori Bustards ranged from 0.03–5.02 individuals/km² at our study sites. They showed annual variation, and densities were highest in areas where vegetation was classified as sparse or bare soil. Areas at low (\leq 540 m above sea level) and high (\geq 540 m above sea level) elevations at our study sites also exhibited differences in density of Kori Bustards but elevational differences varied among years.

Areas categorized as both sparse vegetation and higher elevation had the highest estimated densities in 2014 with 5.02 individuals/km². Areas categorized as sparse vegetation and lower elevation had the highest densities in 2015 with 2.20 individuals/km². Our study demonstrates that areas of sparse vegetation and open canopy areas are important to Kori Bustards. However, open canopy areas outside of reserves may be at risk of conversion to row crop and other forms of agriculture as human populations and demands for food increase. Habitat-specific information will be useful for future studies to identify risks during landscape conservation planning within the range of the Kori Bustard.



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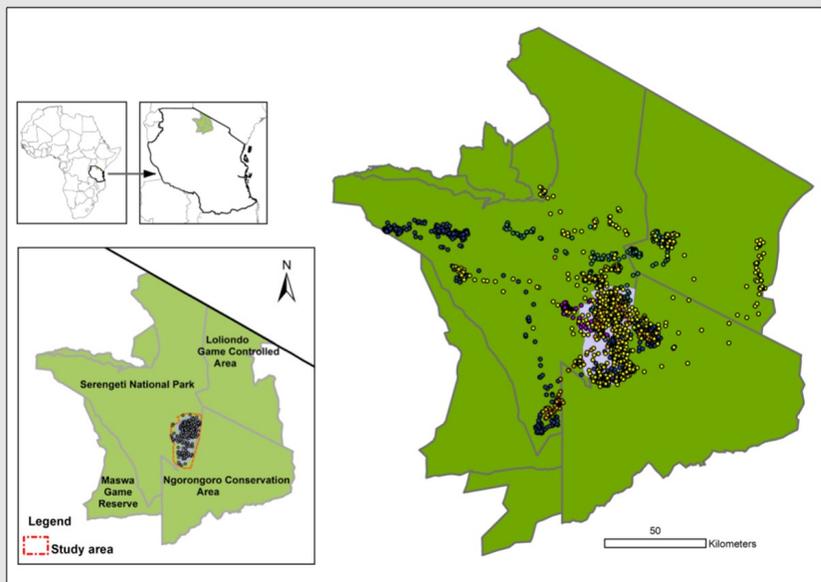
**Kori Bustard at Tuli Northern Game Reserve, Botswana
Photo by Michael Haworth**

Resource utilization by the kori bustard in the Serengeti ecosystem

Emmanuel Clamsen Mmassy^{1,2}, Roel May³, Craig Jackson³, Oddmund Kleven³, Torgeir Nygård³, Kjetil Bevanger³, Eivin Røskaft¹

1=Department of Biology, Norwegian University of Science and Technology, Trondheim, Norway 2=Tanzania Wildlife Research Institute, Arusha, Tanzania 3=Norwegian Institute for Nature Research, Trondheim, Norway

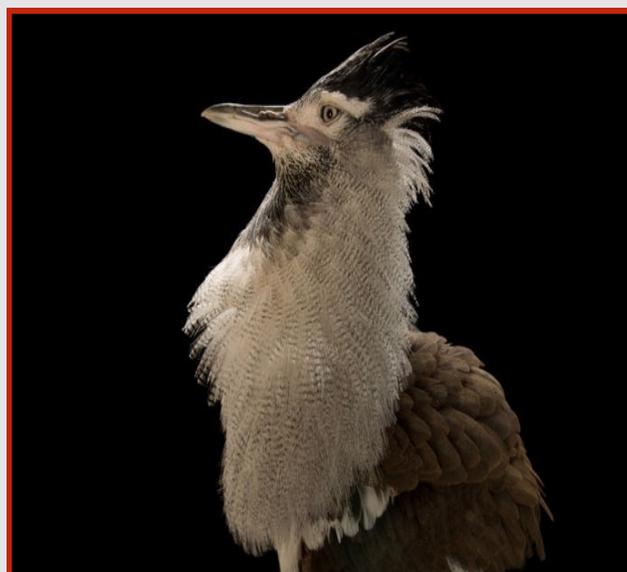
This study aimed to understand the movement behaviour and utilization distributions of Kori bustards in space and time in the Serengeti ecosystem. A total of 14 individuals were tracked with the aid of GPS (Geographical positioning system) satellite transmitters, and their sexes were identified using DNA analysis. A species utilization distribution was estimated using the Brownian bridge movement model (hereafter dBMM) in which the probability of being in an area is conditioned by starting and ending (GPS) relocations. Resource selections were analysed by comparing the GPS relocations with locations randomly placed within each individual's region of utilization in a spatio-temporal approach. Vegetation information was derived from a Serengeti GIS vegetation map and Data Centre and was reclassified as Open grassland, Dense grassland, Shrubbled grassland, Treed grassland, Shrubland, and Woodland. The Shannon diversity index for vegetation was calculated based on the original vegetation classification. Used versus non-used habitats were contrasted using a generalized linear mixed-effects model with a binomial distribution. The results indicated that males were 21.5% more mobile than females, and movements were 6.3% more diffuse during the nonbreeding period compared to the breeding period (7.59 versus 7.14, respectively). Contrasting models indicated that males preferred more open grasslands during the non-breeding period and also preferred closed and shrubbled grassland during the breeding period. Females preferred more woody vegetation during the non-breeding season compared to the breeding season. The most parsimonious model indicated that females preferred to stay closer to rivers and diverse areas during the non-breeding period whereas males preferred areas that were farther from rivers and homogenous. Homogeneous areas were preferred during the breeding period, and heterogeneous areas were preferred during the non-breeding period. We conclude that the movement behaviours of Kori bustards changes with the season and habitat. Further research is needed to understand the factors driving the seasonal movement of Kori bustards in the Serengeti ecosystem.



Map of the Serengeti-Mara ecosystem indicating the study area and movements of satellite GPS-collared Kori bustards.

Photo Highlight

A kori bustard named 'Snake' (*Ardeotis kori*) at Zoo Atlanta. Photo taken by National Geographic Photographer and Speaker Joel Sartore for the Photo



If you are unfamiliar with Joel Sartore, he is the founder of the Photo Ark, a groundbreaking effort to document species before they disappear. The goal is to show the world what biodiversity actually looks like and get everyone to care about saving species while there's still time. Learn more here:

[Joel Sartore-Photo Ark](#)

NATIONAL
GEOGRAPHIC

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JOEL SARTORE

Are farming and birds irreconcilable? A 21-year study of bustard nesting ecology in intensive agroecosystems

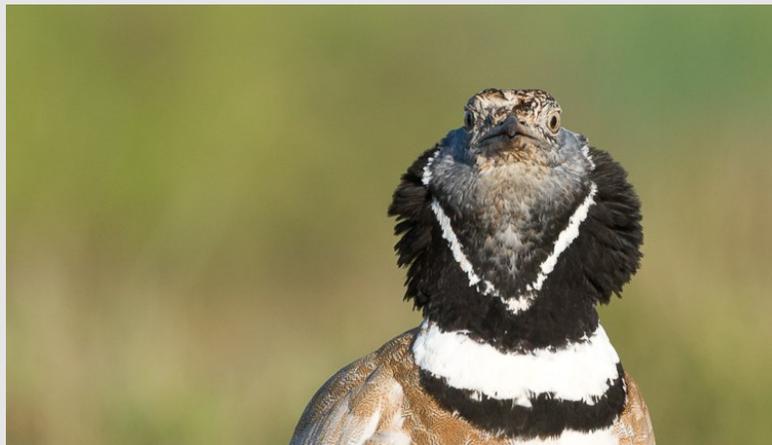
Vincent Bretagnolle^{1,2}, Leopold Denonfoux¹, Alexandre Villers¹

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Farmland landscapes in developed countries have undergone major habitat changes over the past 60 years leading to the decline of many species. Of these, the little bustard, a medium-sized, long-lived, ground nesting bird, has declined by 95% in France over the last 35 years. Here we present the results of a 21 year survey of the nesting ecology of this elusive species, analyzing 157 breeding attempts, the largest dataset ever collated for this species. Females had a strong preference for meadows for breeding, yet this habitat only represented 14% overall habitat. Alfalfa alone accounted for 50% of nest locations. However, apart from vegetation type, females did not show any other pattern of habitat selection (vegetation height, nest position within field, field under agri-environmental contract-AES-). In addition, the laying period was extremely extended, spanning almost 3 months. We did not detect any strong effect of crop, date or whether the nesting field was in AES or not, on clutch size, egg size and egg-laying date. However, there were long-term changes in breeding phenology (females breed earlier than 20 years ago), and selection of vegetation between years and within years. Hatching success was very low (about half of the broods were destroyed by farm work), and both fecundity and productivity per female were found to be approximately one third of the values expected for a stable population. Overall, nesting females of Little Bustards select meadows in regard to their availability, but do not show any particular preference within meadows' vegetation structure or height. We show that in such system, meadows act as ecological traps, and furthermore, because females do not appear selective, it is impossible to manage meadows in order to limit this trap. We finally analyze whether the land-sharing AESs can conserve this species in intensive arable systems and conclude that the land sharing may not be sustainable. We discuss our results in light of the alternative of land sparing, and suggest that this is probably a better fit for the conservation of large-bodied bird species given their ecological constraints (large home ranges, presence of semi-natural landscape components and freedom from human interference).



**Little Bustard males displaying at lek, Montagi, Catalonia, Spain
Photos by PhotoLogistics**



Long lasting breeding performance differences between wild-born and released females in a reinforced North African Houbara bustard (*Chlamydotis undulata undulata*) population: a matter of release strategy

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The success of translocation programmes is reflected by the ability of translocated individuals to survive and reproduce in their new environment. However, it has previously been reported that translocated individuals have lower demographic performance than their wild-born conspecifics, due to management and individual factors (such as release conditions or age). Here, we study six breeding parameters in free-ranging females of the North African Houbara bustard (*Chlamydotis undulata undulata*) and compare these parameters between captive-bred released ($n = 204$) and wild-born ($n = 101$) birds, considering the age of individuals and the period of release (autumn versus spring). Our results indicate that (1) captive-bred released females successfully breed in the wild; (2) for three out of the six breeding parameters studied, released females show lower performances than wild-born females; but, (3) Although we observed consistently reduced breeding performances in 1 year old females relative to older females, we did not uncover any interaction between age and the origin of females, suggesting that the impairment of breeding parameters in released females is long lasting; and, (4) interestingly, this impairment of breeding parameters depends on the period of release, with lower breeding performances for spring releases compared to autumn releases. Overall, our study highlights the capacity of captive-bred females to reproduce in the wild, contributing to the dynamics of the population beyond their individual history. Our results also uncover complex variations of breeding parameters in translocated birds, but suggest that these differences can be minimized through an appropriate translocation strategy.



Female North-African Houbara bustard with two chicks



Little Bustard lithograph with hand coloring by John and Elizabeth Gould

Male post-breeding movements and stopover habitat selection of an endangered short-distance migrant, the Little Bustard *Tetrax tetrax*

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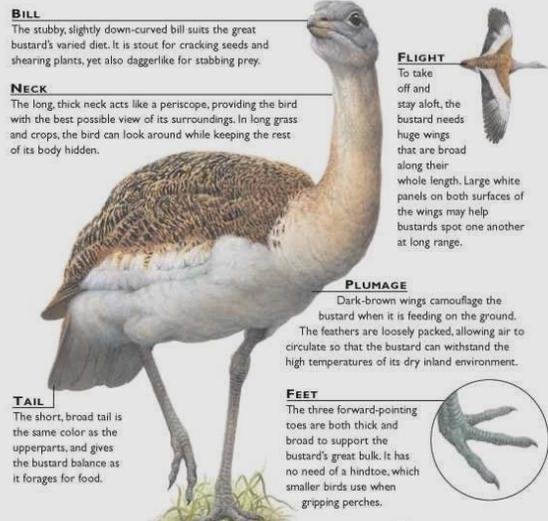
Migratory decisions, such as the selection of stopover sites, are critical for the success of post-breeding migratory movements and subsequent survival. Recent advances in bio-logging have revealed the stopover strategies of many long-distance migrants, but far less attention has been given to short-distance migrants. We investigated the stopover ecology of an endangered grassland bird, the Little Bustard *Tetrax tetrax*, a short-distance migrant in Iberia. Using high-resolution spatial GPS/GSM data, 27 male Little Bustards breeding in southern Portugal were tracked between 2009 and 2011. We studied post-breeding movements using Dynamic Brownian Bridge models to identify the main stopover sites, and generalized linear mixed models to examine habitat selection in stopovers. During their post-breeding movements, males were essentially nocturnal migrants, making frequent stopovers while maintaining a relatively fast pace to reach more productive agricultural post-breeding areas. Stopovers occurred in most post-breeding movements (83%) regardless of the total distance covered (average 64.3 km), and most stopovers (84%) lasted less than 24 h. Birds used mostly agricultural non-irrigated and irrigated croplands as stopover sites and avoided other land uses and rugged terrain. There was a negative relationship between stopovers and the proximity to roads, but not to power lines. The high frequency of stopovers during post-breeding movements, despite the short distances travelled, together with the nocturnal migratory behaviour of bustards, may impose additional risks to a bird mainly threatened by collision with power lines in non-breeding areas. We also conclude that even for short-distance migrants, habitat connectivity between breeding and post-breeding areas is likely to be a key conservation concern.

Spectrum of plant and animal diet of European Great Bustard (*Otis tarda tarda*) – an overview

Sándor Faragó

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We have pointed out 272 plant and 217 animal, altogether 489 taxa in the diet of Great Bustard on the basis of data received from 9 (10) countries for *Otis tarda tarda* (Portugal, Spain, United Kingdom, Germany, Austria, Slovakia, Hungary, Ukraine, Kazakhstan, former Soviet Union). Out of 272 plant taxa, 40 were classified as cultivated plants, 232 wild plants and weeds. From the latter, 43 taxa were monocotyledons and 189 were dicotyledons. Animal food is shared among Annelida (n = 3), Arthropoda (189) Mollusca (2) and Vertebrata (23) phyla. Arthropods are mostly represented with Insecta (181), Arachnoidea (3), Chilopoda (2), Diplopoda (2) and Crustacea (mostly Isopoda) (1) classes. The component of the diet is possibly not related to selection but to the change of the abundance and availability of food and the ever present demand for animal food needed for the organism. Owing to the high number of taxa known as food, Great Bustard is definitely a generalist species. Due to the wide spectrum of animal taxa and because of the ability to subsidize the inefficient quality of food with quantity, Great Bustards can be regarded as a species with positive adaptation ability. It can be explained with a wide plant and animal food spectrum that Great Bustards even in intensive agricultural habitats can find food with indispensable quantity and quality.

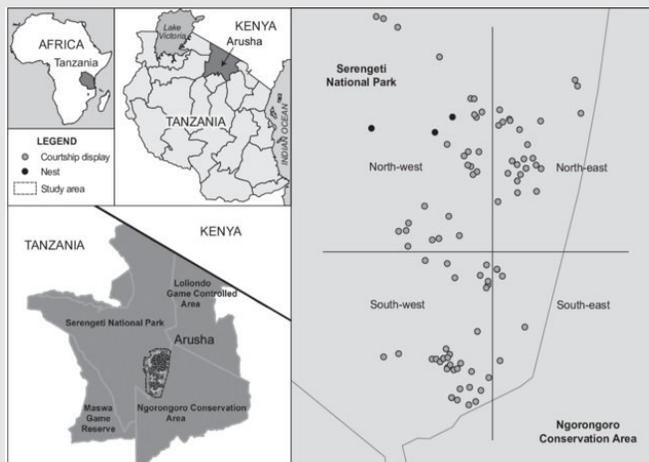


Breeding ecology of Kori Bustard *Ardeotis kori strunthiunculus* in the Serengeti National Park

Emmanuel C Mmassy^{1,2}, Robert D Fyumagwa¹, Kjetil Bevanger³ and Eivin Røskaff²

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The breeding ecology of the Kori Bustard *Ardeotis kori strunthiunculus* was studied in the plains of the Serengeti National Park, Tanzania in 2014 and 2015. Random transects were used to search for male courtship displays, nests, chicks and subadults. GPS satellite collars were used to locate nesting females. Linear regression analyses and post hoc tests were used to determine the predictors that contributed most to the variation of the dependent variables (courtship display, nest, chicks and subadults). The results indicate that courtship behaviour peaks during the short dry and short rainy season before the peaks in nests and chicks. The highest nest frequency was found in short grass habitats. Female Kori Bustard may undergo repeated nestings within a single breeding season. The adult sex ratio was female skewed during the breeding season. The Kori Bustard breeding season in the Serengeti plains is relatively long, lasting for almost nine months, and taking place during all seasons except for the long dry season. We recommend that management authorities conduct assessments of Kori Bustard recruitment as well as habitat suitability in the Serengeti ecosystem to develop future conservation strategies.



Map of the Serengeti National Park showing the Kori Bustard study area. Grey dots indicate male Kori Bustard courtship displays, and black dots indicate different nests of one GPS satellite collared female in 2014 and 2015

Characterization of wild birds communities as part of biosecurity management in breeding sites: example of Houbara bustard conservation breeding in the United Arab Emirates

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This study aimed to combine different methods to describe and quantify the risk represented by wild birds for captive populations, by using the example of conservation breeding of Asian Houbara bustard (*Chlamydotis macqueenii*) in the United Arab Emirates. Three approaches were used: (i) inventory of bird species occurring on breeding sites and their surroundings, (ii) description of movements of main resident species in and out the breeding sites and potential exchanges with surrounding sites, (iii) assessment of nature and frequency of contacts between wild birds and captive bustards. These data are key for better understanding of the potential for pathogens transmission between wild and captive populations and formulate recommendations for sanitary control strategies.



**MacQueen's Bustard (Asian Houbara Bustard)
Photo by Martina Nicolls**



Kori Bustard SSP Updates

Zoo Atlanta

By Amanda Johnson



Tuza at Zoo Atlanta

Zoo Atlanta's twelve-year-old Kori Bustard, Tuza, has been living the single life while the zoo has been undergoing a large expansion of their African Savannah exhibit. Though not getting a new habitat herself, Tuza has had to coexist with the noisy construction directly behind her habitat. The bird team installed a visual block of the construction, however, that didn't always help decrease disturbance in general when there was large equipment and vehicles in use directly adjacent to her habitat. Throughout the duration of heightened noise and activity levels, the bird team checked in on Tuza regularly specifically to monitor her behavior and diet consumption. Over time, we found that Tuza seemed to be growing much more tolerant of loud noise and construction activity all together. Since it is just Tuza right now, the

bird team has also been providing more enrichment and training opportunities. One of the bird keepers is training her to "station". Thus far, she has held her foot on the station for several minutes, so we are on track! Our hope is that the station behavior can be a good starting point to train her other helpful husbandry related behaviors such as weighing voluntarily. Due to Tuza's love of giant meal worms, I think the outlook on this is promising!



Tuza in her habitat at Zoo Atlanta



Buff-crested Bustard SSP Update

Hi all! For those who don't know me, my name is Taylor Rubin and I'm the (relatively) new buff-crested bustard SSP coordinator. Exciting news: I will be planning this fall/winter! In preparation for this, I will soon send out a wants/needs survey, so please keep an eye out. For those of you who do not currently have these dynamic birds in your collection: let me convince you why you should!

Top 5 reasons to add buff-crested bustards to your collection:

- 1. Work well in mixed-species aviaries!**
- 2. Medium-sized terrestrial birds; only SMALL bustard in AZA!**
- 3. Vocally charismatic!**
- 4. Cool breeding displays!**
- 5. I mean, come on. Look at that face!**

Please feel free to reach out with any questions: trubin@zooatlanta.org



Photo credit: Jo Ellen Toler, St. Louis Zoo photographer

Relating Kori Bustards to our North American Backyard Birds

By Melissa King, Manager of Public Programs, Zoo Atlanta

What do kori bustards and ruby-throated hummingbirds have in common? Death by collisions.

For kori bustards, we have long shared the threats of habitat loss and degradation, hunting for bushmeat, and collisions with power lines with our guests. For actions that the guests can take to help this species, we have talked about being a responsible consumer and traveler, supporting the Kori Bustard Feather Project, and supporting policies that help protect wild-life.

In the past year, we've added messaging related to climate change, its effects on the animals of the African savanna, and the small everyday behavior changes to reduce your carbon footprint. We identify ways for people to conserve energy and fuel, like unplugging electronics when not in use, buying locally produced food, carpooling or biking and many more.

Many Zoo guests tell us that they've never seen or have even heard of kori bustards before their visit, and many are fascinated, drawn in by this dinosaur-like animal picking through the leaf litter. That's an exciting moment for me, as an Interpreter, to see their interest piqued. I have sought ways to make koris more relevant to our audience, and the "simple conservation messages" above are helpful in making a connection between our everyday lives and the effect we have on animals across the globe.



Ruby-throated hummingbird, Photo by Ian Davies



Kori Bustard at Fort Worth Zoo
Photo by Kyle Waites

I had been thinking about this concept of relevance for so long that I almost missed a fantastic tie to local wildlife, pointed out by a colleague. The lightbulb went on. We've recently begun focusing on native Georgia birds and their threats through signs, a native plant garden and education programming after receiving a grant that provided funding for these efforts. Habitat loss is a big issue for migratory birds, who need places to stop along their route that have the food and shelter that they critically need. Another major threat for birds is collisions with glass. In fact, around 1 billion birds die from these collisions in the U.S. every year. The ruby-throated hummingbird mentioned at the beginning, by the way, is the most commonly collected bird by the Atlanta Audubon Society that has died from crashing into a window. The birds see the reflections of trees or other sky and perceive a clear flight path, rather than a barrier, so they collide with them at full speed. The solution is adding window treatments that the birds can see so that they do see it as a barrier.

As previously mentioned, collision with power lines are a significant threat to kori bustards when they do take flight. The resulting deaths can be related to what our North American birds are facing, since power lines are also a man-made object that cannot be perceived by the kori bustards based on their biology and natural behavior. Research shows that while many birds navigate around power lines with ease, others, including bustards, storks and cranes, have blind spots preventing them from being able to see power lines. They fly with their heads angled slightly downwards so they can look below them, but making them unable to see the powerlines in front of them.

For our birds here at home, we tell guests that they can create a bird-friendly habitat in their yard by propagating native plants that provide some of the food and shelter that wildlife so desperately needs in order to thrive, and we give them seeds. We have window treatments ("bird tape"/stickers) on some of our windows at the Zoo. Through the grant, we are also working to add more along with signage that explains its purpose and how guests can do the same thing at home and offices, and that this does make a significant positive impact for our bird populations.

While sharing our passion about kori bustards and the actions to take to aid in their conservation is important in itself, and I am not diminishing emphasis of that value, it also lends itself to an opportunity to connect the guests to an animal they may see on a more regular basis and may have not thought much about – our very own backyard birds. This is just one example of an evolving process of helping people to see that, yes, nature and "the wild" may be on the other side of the world, but it's also right here at home, and it also needs our help.

Atlanta Audubon Society. (n.d.). Retrieved November 1, 2019, from <https://www.atlantaaudubon.org/>.
Martin, Graham & Shaw, Jessica. (2010). Bird collisions with power lines: Failing to see the way ahead?. *Biological Conservation*. 143. 2695-2702. 10.1016/j.biocon.2010.07.014.

Celebrating Kori Bustard Day 2019 at Zoo Atlanta!

By Melissa King, Manager of Public Programs, Zoo Atlanta



Zoo Atlanta celebrated Kori Bustard Day 2019 on March 23 this year. We invited guests to participate in activities at the kori bustard habitat from 10 a.m. to 2 p.m. through social media, newsletters, and our website ahead of the date.



The Animal Care Team presented two Keeper Talks and feedings, one in the morning one in the afternoon. Volunteers and Interpreters led our "Forage Like A Kori" activity, in which kids can forage with their very own "beak" (a pair of tongs) in a large box of faux grass for plastic insects and small vertebrates, to learn about kori bustard habitat and feeding adaptations. Using a pipette or syringe, we demonstrate how kori bustards suck up water, an adaptation for living in an arid climate where water may not always be plentiful, and compare to how most other birds drink by scooping up the water, demonstrated by using a spoon. The pipette or syringe is a much easier way to pick up the water when there is only a small amount. During our

storybook reading, "Fine Feathered Friends: All About Birds" by Tish Rabe, our younger guests learned about the defining features of birds and got to see a diverse array of biofacts, representing birds large and small!



We wanted to highlight the role of research and conservation and encourage guests to spend some time observing the kori bustard at Zoo Atlanta, Tuza, so we had a simple ethogram activity and provided binoculars for them to borrow. We also had a table with buttons for sale for \$3, with 100% of proceeds going to the Kori Bustard Species Survival Plan. We create buttons in-house for all of our Animal Awareness Days that are designed by our Multimedia Team and team members or volunteers assemble them with a button machine. We have even had guests visit the Zoo on a specific day to ensure they got a button! The button table is also where we have our biofacts displayed to add another tactile and visual component, which includes a skull replica, molted feathers, footprint, and fishing lure photos.



For our conservation messaging, we focused on the effects that human populations and habitat encroachment have on wildlife. Kori bustards are still common in areas where they can live undisturbed by humans, but those areas are becoming fewer and further between over time.

We related one of the main threats to kori bustards, collisions with power lines, to the collisions with windows that many of our native birds in Georgia suffer. We want guests to consider how man-made situations can change to be beneficial to humans without harming wildlife, with the example of Zoo Atlanta using bird tape on our windows to help prevent collisions. We have a piece of acrylic material with bird tape to provide a visual. We also encourage them to help kori bustards by learning and sharing with others and supporting conservation organizations.



I believe that our biggest improvement for Kori Bustard Day 2019 was the relevance of the conservation messaging in connecting guests to wildlife on both a global and local scale!

Special thanks to Kimberly Burke, Amanda Johnson, Kyle Loomis, our Exhibit Interpreter Team, and volunteers for making this day a success!



Want to host your own Kori Bustard Day? Here are some tips and tricks:

- Use social media post(s) if you can so that people that are not visiting that day know that it took place and can learn about koris. It can just be a text and photo post. If you have time to do a video or facebook live, even better.
- Plan your message. What is the theme for the day - What is the main thing you want them to know when they walk away?
- Our conservation message formula is:
 1. What is the problem
 2. What is your Zoo doing to help?
 3. What can guests do to help?
 We have started relating kori collisions with powerlines to migratory bird collisions with glass here in North America. Other relevant messages are climate change and reducing your carbon footprint and using the kori feather project as an example of how zoos are making a difference in the fight against illegal hunting.



Mark your calendars for the next Kori Bustard Day on March 21, 2020!!!!!!!!!!

Kori bustards at the National Zoo

By Sara Hallager, Curator of Birds, National Zoo



The kori bustard flock at the National Zoo (NZP) has been fairly quiet for a few years following the death of the breeding male "Noname" in August of 2015. In May 2016, a new male (Noname's grandson) arrived from Dallas Zoo. "Jengo" is very handsome as you can see in this photo by Heather Anderson (NZP)! He is joined by 6 females ranging in age from 4 years to 23+ years. Overall, the flock gets along quite nicely with "Jengo" as the king!

There is a major construction project that began in 2018 and will conclude in spring of 2021. The flock can hear the noise but fortunately, they cannot see most of the construction. Overall, they seem pretty calm with all the noise. Eggs were laid this year and similar to previous years, "Jengo" showed great interest in incubating females, often choosing to roost near them. You may recall from the 2018 newsletter, that "Jengo" exhibited incubation behavior during the period when a female was incubating. This is not typical of male kori bustards, but "Jengo" is a very special bird :).

Because we are in a period of heavy construction for a new Bird House, our breeding facilities for large birds are minimal. So, we're taking a break from breeding kori bustards for a little while but hope to resume in 2021/22.

Our kori bustard behavior watch is concluding its 20 year! We're curious to see the impact no visitors has had on the flock but from the outward, it appears minimal.



Smithsonian
National Zoological Park

Bustard Conservation & News

Captive-breeding will not save wild Asian Houbara without regulation of hunting

By Surfbirds Blog

The survival of the heavily exploited Asian Houbara depends on the regulation of trapping and hunting, according to research led by the University of East Anglia (UEA). New findings published recently reveal that trying to stabilise populations solely through captive breeding will require the release of such large numbers it will inevitably compromise wild populations.

The Asian Houbara, a large, spectacular bird that breeds from the Middle East through Asia, is of major cultural and political significance because of Arab falconry, with hunting influencing international diplomacy. The species is threatened by uncontrolled hunting and poaching, which has caused its decline in the Middle East and Central Asia since the 1960s.

Attempts to conserve the species while also supporting the ancient tradition of Arabian falconry have focused on releasing captive-bred birds in increasing numbers. But research published today in the journal *Biological Conservation* shows that the species in Uzbekistan is declining by more than 9 per cent each year, and that the number of captive-bred birds needed to be released annually just to stabilise this population would be 1.5 times larger than the wild population itself.

Although captive-breeding can help rescue species from extinction, it bears many risks, and such mass-scale releases may compromise the fitness of wild populations. Sustainable hunting and conservation instead needs an integrated approach that also includes controls on hunting, according to Prof Paul Dolman, professor of conservation ecology in UEA's School of Environmental Sciences.

Prof Dolman said: "While captive-breeding can be a valuable conservation tool, over-reliance on it without tackling the unsustainable scale of hunting and trapping cannot save the houbara and may in itself become an additional threat. Developing a truly sustainable model of hunting requires international cooperation between falconers and the countries with houbara, to regulate hunting and trapping using sound biological evidence."

The study comes from a long-term collaboration between the Emirates Bird Breeding Centre for Conservation (EBBCC), BirdLife International and UEA. The research aims to develop a sustainable future for the wild Asian Houbara populations that also preserves traditional Arab falconry, with sustainable hunting strategies based on robust transparent scientific evidence. The work was conducted with permission from the State Committee for Nature Conservation of the Republic of Uzbekistan.

The study used data collected over seven years of desert fieldwork in Uzbekistan and satellite-tracking wild and released birds, to understand the houbara's breeding productivity, survival and population trend. The researchers predict numbers to be declining at 9.4 per cent each year, driven by unsustainable levels of hunting and trapping on the wintering grounds in Iran, Afghanistan and Pakistan.



Captive-bred birds survive worse than young wild birds, and to stabilise the population in the 14,300 km² study area and compensate for a modest hunting quota within Uzbekistan, would require releasing one-and-a half times the wild population number each year. To put this in context, 7200 captive-bred birds would have to be released into a population of 4700 birds every spring just to keep the population from decreasing. Apart from the huge expense this would risk domestication of the wild breeding stock, making it less fit than its wild ancestors. However, the UEA team also showed that regulating hunting and trapping can substantially reduce the numbers of captive-bred birds that need to be released. This integrated approach will be vital if hunting is to become sustainable. Prof Nigel Collar, Leventis Fellow at BirdLife International, honorary professor at UEA, and chair of the IUCN Bustard Specialist Group, was a close collaborator in the study.

Prof Collar said: "Bustards in Asia are disproportionately in trouble. The current reliance on captive-breeding diverts resources and attention away from other key conservation needs for the Asian Houbara, such as tackling illicit trade for falcon training, establishing safe havens along the flyways and reducing threats from power lines. A holistic, multi-faceted approach to houbara conservation is now absolutely essential."

Dr Robert Burnside, a senior researcher on the project from UEA's School of Environmental Sciences, said: "The Asian Houbara is a fascinating bird that has evolved to live and be successful in one of the toughest terrestrial environments on the planet. The vast desert environment and the cryptic colour and behaviour of the houbara make it extremely difficult to study. We could not have done this research without the advanced satellite-tracking technology we used to follow more than 100 houbara during their breeding and migration. We were able to determine whether birds that died succumbed to hunting, trapping, collisions with power lines or natural causes. On several occasions, local hunters took the transmitter of a hunted bird back to their homes, as the satellite imagery showed."

<http://www.surfbirds.com/community-blogs/blog/2019/01/07/captive-breeding-will-not-save-wild-asian-houbara-without-regulation-of-hunting/>

India

The battle to save the Great Indian Bustard

Backed by the Centre and wildlife experts, Rajasthan is attempting to breed the bird in captivity in Jaisalmer

By Rohit Parihar for India Today Insight

The cheep of five freshly hatched Great Indian Bustard (GIB) chicks at a hatchery in Rajasthan sounds like hope for the state's conservationists trying hard to save the near-extinct bird species. The five chicks were born in Sum, a village in Jaisalmer known for its camel safaris and sand dunes. The GIB is locally known as Godavan. Fewer than 150 are thought to survive in the wild across the country.

The chicks are the first GIB births in captivity, through artificial hatching over the past month. The chicks were born from seven eggs that wildlife officials collected from the expansive Desert National Park in Jaisalmer. More births may follow as a total of 10 eggs are to be collected as part of the breeding programme. Conservationists hope the GIB chicks will eventually become fully grown adults and survive in the wild.



The species recovery programme is part of the Rajasthan government's plan to steadily build up a population of 25 bustards in captivity and release them in the wild. The GIB project is a joint effort of the Rajasthan wildlife department, Dehradun's Wildlife Institute of India (WII), the Union ministry of environment, forest and climate change and the Abu Dhabi-based International Fund for Houbara Conservation (IFHC). IFHC has successfully bred and released the Houbara, a close cousin of the GIB, in the wild in Pakistan.



The story of the bustard, a bird that can grow to around a metre high, is a tragic one. In Pakistan, the Houbara Bustard has been hunted to near-extinction. In India, the GIB was once abundant across the Deccan plateau. It's now staring at extinction primarily because of loss of habitat. Gujarat and Andhra Pradesh are left with only seven and two female birds, laying infertile eggs. Rajasthan is perhaps where the last of the battles to save the GIB is being fought.

M.K. Ranjitsinh, former forest and wildlife secretary of Madhya Pradesh, lists power lines, solar parks, and wind energy mills criss-crossing the GIB's natural habitats as reasons for the bird's depleting population. The birds have poor frontal vision and are unable to see power lines stretched across their flight paths, thus crashing into them. The males, who fly in search of females to mate, are especially vulnerable. The last male GIB in Gujarat died after hitting a power line, as did two

other tagged birds. The growing fields of solar panels have eaten into the habitat where the bustards forage and lay eggs. Birds that fly into neighboring Pakistan are often killed by hunters there. Back home, feral dogs and pigs gorge on GIB eggs and chicks. Compounding this is the fact that the solitary bird has a very poor reproduction rate-it lays one egg in a year of good monsoon (rains breed enough insects for parents to feed the chick).

Experts involved in the GIB captive-breeding project in Jaisalmer are delighted by the new births. They hope to rear the birds away from human danger and release them in the wild. This effort involves experts spotting a female GIB, tracking it through the Desert National Park and waiting for the bird to lay eggs, which are quickly collected. The bird starts breeding only at the age of three. Trackers in Jaisalmer shift eggs to the temporary hatchery near Sum. Arindam Tomar, Rajasthan additional Principal Chief Conservator and Chief Wildlife Warden of Rajasthan, says a population will be maintained in captivity as an insurance against extinction in the wild and the GIB chicks would be subsequently released in the wild after the threats to their survival are mitigated.

It was only in 2013 that the WII published the first document that comprehensively outlined the strategy to conserve GIBs-titled 'Resident Bustards Recovery Programme'. In 2016, the Union environment ministry mandated WII to start a breeding programme as insurance against extinction of the bustard. WII got IFHC directors Mohammed Ahmed Al Bowardi and Majid Ali Al Mansouri to depute their scientists managing the Houbara and Arabian Bustard breeding programmes to assist Indian scientists in setting up an incubation and rearing centre for GIB. The IFHC experts trained the Indian counterparts on the techniques of bustard breeding and husbandry, besides stationing two scientists at the Sum hatchery.

THE GIB DEBATE AT A GLANCE

Several organizations have launched projects to save the Great Indian Bustard, endemic to the Indian subcontinent, from extinction.

For the first time, as a result of these efforts, five chicks were born under captivity and from eggs that were hatched artificially.

They were found in abundance across the Deccan plateau fifty years ago. There are just 150 birds left today.

This is both good and bad news because experts fear they may not be able to survive in the wild if powerlines are not undergrounded.



There is, however, apprehension about the success rate of the breeding programme as bustards born in captivity and released in the wild often die quickly. Ranjitsinh calls the captive-breeding effort sort of a 'last resort'. "It saves the species from becoming extinct and gives a chance to reintroduce it in nature," he says. It is expected that a permanent hatchery will be ready at Sorsan in Kota in two years, a place considered idle. The first choice to have such a hatchery was in Kutch in Gujarat, but Rajasthan wasn't agreeable to letting the GIB eggs move to another state. Now, Gujarat is offering its seven GIB females to Rajasthan to have the area free of endangered species-related restrictions, the way Madhya Pradesh does not want Karera, once a GIB sanctuary, to be rehabilitated with the birds born in captivity.

For bustards to survive into the next generation, it is important that measures are taken in the 1,000-3,000 sq km of agro-pastoral landscape in their habitats in Rajasthan, Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Madhya Pradesh to shift power lines to under the ground and fit the remaining overhead lines with bird-diverting devices. These devices help reduce collisions substantially by making power lines more visible to flying birds from a distance. Experts say the authorities must also control feral dog populations in these areas and stop poaching. It's a tough battle and the odds are heavily loaded against the Bustard.

<https://www.indiatoday.in/india-today-insight/story/the-battle-to-save-the-great-indian-bustard-1573259-2019-07-25>

Save the Great Indian Bustard from wind power projects

By Mayank Aggarwal for Monagaby

In a bid to save the Great Indian Bustard (GIB), currently on the brink of extinction, Indian government's Ministry of New and Renewable Energy (MNRE) has asked wind power developers to identify the bird's critical habitats in Rajasthan and Gujarat and take risk mitigation measures against bird hits, one of the causes of the reducing population of the bird.

Listed as Critically Endangered under the International Union for Conservation of Nature's (IUCN) Red List, the GIB also has the highest protection under the Wildlife (Protection) Act 1972. States such as Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Karnataka and Andhra Pradesh are considered to be GIB's habitat. But right now, the majority of its population is in Rajasthan followed by Gujarat.

Over the years, its population in India has taken a severe beating from an estimated 1,260 GIBs in 1969 to less than 150 at present – a decline of nearly 90 percent. Indian government's Minister of State in the Ministry of Environment, Forest and Climate Change (MoEFCC) Mahesh Sharma recently said that as per estimates of the Wildlife Institute of India (WII) the total number of GIB in India is less than 150 individuals.

The main factors that are considered responsible for its decreasing population are the loss of habitat and industrial project. However, in recent times, death due to collision with wind turbines and power transmission lines has emerged as another major factor.

Take risk mitigation measures to save the GIB

The latest directive of MNRE to power companies is looking at addressing this concern. "It is requested that power transmission line agencies and wind energy farm developers may identify critical power transmission lines and wind energy firms passing through the Great Indian Bustard (GIB) habitats in Rajasthan and Gujarat in consultation with the Wildlife Institute of India (WII) and concerned states governments and accordingly take up risk mitigation measures against bird hits like putting up bird diverters on the conductors, painting of vane tips of the wind turbines," said a circular (February 22, 2019) by the MNRE to wind farm operators and developers.

In February 2019, the MNRE also unveiled the draft offshore wind energy lease rules, 2019 which states that an offshore wind energy project can get cancelled, if found causing environmental damage to marine ecology. But wildlife experts want the authorities to go an extra mile.

"The Great Indian Bustard is staring at extinction, and in Gujarat, the situation is especially perilous. We have been complicit in it. If we are to save the GIB, the need of the hour is to underground existing transmission lines, urgently and immediately, and no new transmission line in critical GIB areas which have been identified should be permitted. It is shameful for a nation so rooted in nature, to allow the extinct of a bird that is endemic to India," said wildlife conservationist Prerna Bindra, who is also a former member of the NBWL.

The new and renewable energy ministry's directive is significant as wind power is one of the main pillars of India's renewable sector. As of January 31, 2019, India's total installed renewable power was 75,055.92 megawatt and of that 35,288.10 MW was from wind power. India also has an ambitious plan to install 175,000 MW of renewable power including 60,000 MW of wind power by 2022.

Environment ministry pursuing several measures to protect the GIB

Large in size, the GIBs take low flights that lead to collision with electricity transmission lines often resulting in their death. Thus, the directive is important for states like Rajasthan and Gujarat, where the majority of GIBs are found and also a significant number of wind power projects. The MNRE's order to wind farm operators and developers has come after a series of directives and actions by the environment ministry and its expert panels on the issue.



Great Indian Bustard in Nannaj, India.
Photo by Ashok Chaudhary

cont.

For instance, the standing committee of the National Board of Wildlife (NBWL) in its meeting in January 2018 has "made the submission of the animal passage plan, prepared on the basis of WII guidelines, mandatory for considering approval of any new linear infrastructure project proposal passing through protected areas and other wildlife rich areas." The WII guidelines suggest for putting up the "bird diverters on the conductors of the power transmission lines."

In March 2018, the forest advisory committee of the MoEFCC made it "mandatory for power transmission line agencies to deploy bird diverters on conductors and paint the vane tips of the wind turbine with orange colour to avoid bird hits."

The call for action to save GIB has grown in the past few years. The MoEFCC too has taken several measures to protect and conserve the bird. For instance, the environment ministry has taken an ambitious Great Indian Bustard species recovery programme in collaboration with the WII and GIB range states like Rajasthan and Gujarat, which includes identification of the critical power transmission lines and wind energy farms in GIB habitats and making them GIB-friendly.

The environment ministry is also consulting an inter-ministerial task force including officers of the power ministry, the Central Electricity Authority, environment ministry and the Power Grid Corporation Of India Limited in compliance of the order of the Supreme Court direction in an ongoing case for suggesting various measures for avoiding death of the birds and other animals due to electrocution and collision with the power transmission lines.

The ministry has also taken by conservation breeding measures to check the GIB's dwindling population. Indian government's Minister of State in the MoEFCC Mahesh Sharma while replying to a query in parliament in February 2019 stressed that the environment ministry has taken up the initiative for conservation breeding of the GIB under the endangered species recovery programme scheme in Rajasthan, Gujarat, and Maharashtra.

"In consultation with state government, WII and international experts, a site for the establishment of conservation breeding centre has been identified in Kota district, Rajasthan," Sharma added. He further informed that a conservation breeding program has been formulated by MoEFCC, the government of Rajasthan and WII as part of the tripartite memorandum of agreement under the project 'Habitat Improvement and Conservation Breeding of Great Indian Bustard (GIB)-An Integrated Approach' with financial support from the MoEFCC.

"An important component of this programme is to initiate conservation breeding as insurance against total extinction and possible restocking of wild populations of GIB and Lesser Florican species in the future," Sharma emphasised.

<https://india.mongabay.com/2019/03/save-the-great-indian-bustard-from-wind-power-projects/>

Ardeotis nigriceps

GREAT INDIAN BUSTARD

A VERY LARGE GRASSLAND BUSTARD, DRIVEN TO EXTINCTION, DUE TO MASSIVE HABITAT LOSS AND HUNTING

MOSTLY IN RAJASTHAN WITH SMALL FRAGMENTED POPULATIONS IN ANDHRA PRADESH, GUJARAT, MAHARASHTRA, MADHYA PRADESH AND KARNATAKA

50-249
POPULATION OF MATURE INDIVIDUALS, NUMBERS DECLINING

15.6 years
LIFESPAN

92-122 cm
SIZE FROM HEAD TO TAIL

CRITICALLY ENDANGERED ON THE IUCN RED LIST LISTED ON SCHEDULE I OF WILDLIFE PROTECTION ACT OF 1972

VOICE: A BARK WHEN ALARMED, A DEEP MOAN IN DISPLAY
EATS: PLANTS, CROPS, INSECTS, LIZARDS AND RODENTS

GREGARIOUS, SOCIABLE BIRD. FORM SEGREGATED FLOCKS, WHICH DISPERSE DURING BREEDING TIME.

BROWN AND WHITE BUSTARD
MALES - WHITISH NECK AND UNDERPARTS WITH NARROW BLACK BREAST BAND
FEMALES - SMALLER WITH GREYER NECKS, NO BREAST BAND (NON-BREEDING) AND BROKEN BREAST BAND (BREEDING) BIRD

SPENDS MOST OF ITS TIME ON GROUND BUT IS A GOOD FLIER

FAMILY

- Males exhibit courtship displays by inflating their gular pouches and producing deep resonant calls. They also cock their tails and may get into territorial fights with other males.
- Females lay one egg and incubate it for 25-30 days. Chick fledges in about 75 days and stays with the mother for about a year.
- Breeding season March-September

THREATS

- HABITAT DESTRUCTION AND FRAGMENTATION. CONVERSION OF GRASSLANDS
- POWER LINES AND OTHER DEVELOPMENT DISTURBANCE
- OVERGRAZING
- HUNTING

CONSERVATION MEASURES

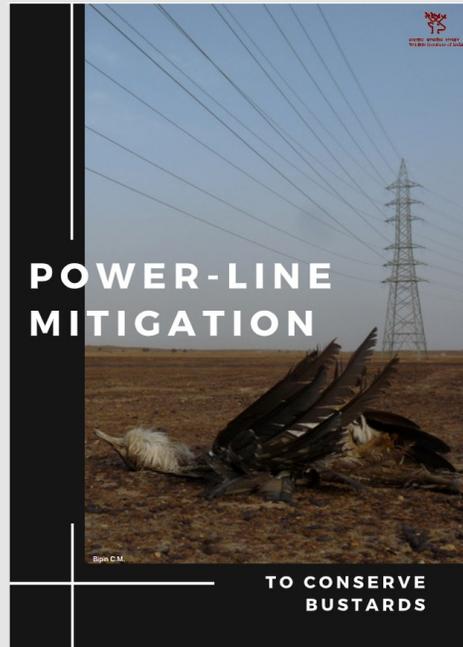
- Project Bustard
- Conservation breeding programmes
- Intense legal protection and severe penalties on killing the bird
- Research and Monitoring: Conservation sites identified and are being declared as small protected areas.
- Strengthening protection along protected Area boundaries
- Controlled grazing
- Control repeated grass burning
- Eradication of invasive species of flora
- Education and awareness programme

TEXT: ANSHUJEK CULSHIVA. PHOTO: WIKIMEDIA COMMONS/THOMAS HANDEWICK/PUBLIC DOMAIN (BIRD); WIKIMEDIA COMMONS/GENERA GIGNOUX/D. PUBLIC DOMAIN (SMALL BIRD); WIKIMEDIA COMMONS/FRANK FRANK/PUBLIC DOMAIN (EGG); ILLUSTRATION: DIVYA MEHTA

Power-line mitigation to conserve bustards in India

The Great Indian Bustard ranges over large human-dominated landscapes that are facing rapid expansion of power-lines. Curtailing all infrastructural development across these large areas is impracticable and calls for prioritization of areas where these infrastructure should be avoided or mitigated. Advanced telemetry approach can aid in this process, by generating fine-scale information on the birds' movement patterns that can be overlaid on existing power-line maps to identify segments for mitigation measures. Thus, telemetry supplemented with bird surveys provide a powerful tool to prioritize habitats for infrastructure mitigation in particular, and conservation management in general.

Follow the link below for the full pamphlet:



South Africa



Angry birds ruffle feathers in rare sighting in Kruger Park

Rare footage captured in the Kruger National Park shows two very large birds getting themselves into a flap

Ashlea Dennison, a 25-year-old dentistry student at the University of the Witwatersrand, filmed this amazing sighting near Crocodile Bridge on April 6 2019. In the video, the secretary bird seems to be taunting a kori bustard. The secretary bird then gets chased by the annoyed bustard before turning its attention on other smaller birds in the area.

"We were very excited when we saw this sighting because these birds are both amazing sightings on their own and we have never seen either of them behave in this manner before," Dennison told Latest Sightings.

Although it's unclear what caused the birds' aggression, Dennison said there might have been a kill nearby. Secretary birds are carnivorous while kori bustards are omnivorous.

"This sighting was incredibly rare for us ... we have never seen either of these birds act in an aggressive manner towards any other bird before."

"I would've loved to have seen what the cause of the fight was but due to the length of the grass, we couldn't see what was on the ground," said Dennison.

**Watch this entertaining video here:
[Secretary Bird Shows Off to World's Heaviest Flying Bird](#)**

BirdLife South Africa: Fence Mitigation Project



The use of fences for managing movements of livestock (and increasingly game and humans) is well-established and widespread in South Africa. While the adage “good fences makes good neighbours” may be true for humans, the unintended and largely unnoticed impact of fences on birds and other wildlife may be severe. Mitigation is essential.

What can be done?

Mitigation 1: Remove all non-essential fences
While the practical value of fences to land managers is acknowledged, many fences become obsolete (e.g. due to change in farming practices) and can safely be removed, thereby eliminating the risk to birds and other animals.



Every second wire of this fence is smooth, making the fence safer for birds as well as reducing cost as barbed wire is more expensive than smooth wire.

Mitigation 2:

Replace at least the top two barbed strands with smooth wire
This intervention focuses on the most problematic strands and could greatly reduce the risk of snagging. Covering barbs (e.g. with PVC piping) is a potential alternative for short spans in high risk areas such as wetlands.

Mitigation 3:

Routinely re-tension loose wires
Birds can only get entangled between wires if they are slack enough to overlap. Maintaining fences and re-tensioning strands, especially after fires, will greatly reduce the snaring risk.

Mitigation 4:

Increase spacing between strands
Increasing the spacing between at least the top two wires (to a minimum of 30cm) and ensuring they are correctly tensioned will further reduce the snaring risk.

Mitigation 5:

Make fences more visible
Marking of fences has proven highly effective for reducing collisions in some species and research into affordable, durable and easily installed markers that are effective for local species under local conditions is encouraged.

Mitigation 6:

Reduce the barrier-effect
Manage livestock rotation so that gates can be left open when and where necessary to allow movement of flightless birds between camps (e.g. breeding season for cranes and moulting period for certain waterfowl). Use of single electric strands rather than fixed, multi-strand fences to control livestock movement should also be investigated.

Priority areas

Routine fence maintenance should already be standard practise for all land managers, but fence removal and design modifications have cost implications and may require longer-term planning. Priority areas nevertheless need to be identified for immediate action. These should include fences:

- in areas where vulnerable species (e.g. owls, cranes and Secretarybirds) routinely occur;
- over water and adjacent to rivers, wetlands and other waterbodies;
- in areas where bird collisions have previously been reported;
- in formally protected areas such as national parks and nature reserves.

Legislation/ Policy

BirdLife South Africa recommends that all existing laws, regulations and policies relating to fences be reviewed and where necessary revised to ensure that the impact on birds is minimised.

Acknowledgements

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Visit www.birdlife.org.za/conservation/important-bird-areas/iba-projects-other/fence-mitigation-project

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FENCES & BIRDS

Minimising unintended impacts



Marsh Owl snagged by a barbed wire fence.

Fences – the other side

The use of fences for managing movements of livestock (and increasingly game and humans) is well-established and widespread in South Africa with 3-6 million kilometres of new fencing wire consumed annually. While the saying “good fences makes good neighbours” may be true from a human perspective, the unintended and largely unnoticed impact of fences on birds and other wildlife may be severe. Mitigation is essential.

Which birds are affected?

In 2013 BirdLife South Africa launched an appeal for information on fence-related bird mortality and injuries. Members of the public were requested to provide information about birds killed or injured by fences including the identity and age of the specimen (adult or immature), the location and date of the observation, as well as details of the type of fence, the problem strand(s) and the habitat around the fence. The study revealed some concerning statistics.

Of the 36 species reported killed, 11 (i.e. African Grass Owl, Secretarybird, Blue Crane, White-backed Vulture, Cape Vulture, Martial Eagle, Lanner Falcon, Black Stork, Southern Ground Hornbill, Greater Flamingo and Black Stork) are threatened due to other human impacts. Other raptors (particularly owls), waterbirds and grassland birds were also found to be vulnerable.

How are birds impacted by fences?

SNAGGING

Snagging was the most commonly reported cause of bird mortality. Small and medium sized nocturnal species (e.g. owls) that hunt in flight were the worst affected. Snagging occurs when a body part (usually a wing) gets impaled on one or more wire barbs or razor points on a fence. It is virtually impossible for a bird to free itself and it succumbs to exhaustion and thirst. The top wire of the fence presents the biggest threat.

SNARING

Snaring occurs when a bird's leg or foot becomes trapped between two overlapping wires while it is attempting to pass through or jump over a fence. It is usually larger birds that forage on foot (e.g. large terrestrial birds such as Secretarybirds and cranes) which are caught in this way.

The birds are unlikely to free themselves and even in instances where birds were released and taken to a veterinarian, they could not be saved due to the severity of their injuries. Birds are usually caught between the top two wires of a fence and for this to happen the strands must be slack enough to overlap under the levering action of the birds limb.



A Secretarybird snared in a fence. This usually happens when the fence is not well maintained and strands are slack enough to overlap.

IMPACT INJURIES

A bird flying into a fence may be killed or injured by the force of the impact alone, even if not permanently transfixed by a barb. Such incidents are probably under-reported as individuals with minor injuries may recover without assistance while others with more severe injuries may move away from the fence before dying.

SNARLING

Snarling appears to be uncommon, but may occur when a bird attempts to push through wire strands or woven wire mesh and becomes trapped by the fence material. In some instances birds might be able to free themselves with minimal injuries, but others will die if not assisted.



Fences across wetlands are a hazard for waterbirds.

ELECTROCUTION

A bird flying into an electrified fence is likely to either be killed or severely injured. Impact injuries are exacerbated by electrical burns and may be fatal.

BARRIER EFFECT

Fences may limit the movements of flightless birds (e.g. young cranes or moulting waterfowl), potentially creating an impassable barrier between essential resources such as safe roost sites and feeding areas and/or reducing chances of escaping predators.



Fences are barriers to Secretarybirds which walk long distances every day in search for food. Each fence, especially if it is not well maintained, poses a risk to a bird.

Other Bustard News

New Kori Bustard Signage at Zoo Atlanta

"We have three new signs at our kori bustard habitat. Our Zoo just completed expansion of our African Savanna section, and the project included new signs for all of the animals in that area. We wanted guests to think from a different perspective and understand how life is not only connected within an ecosystem on the African savanna, but also how the Zoo and all of us are also connected to the animals and communities on the other side of the world. This is how we came up with sub-sections for interpretive content of "Be the Animals," "Be the Animal Care Professional," "Be the Conservationist" and "Be the Change."

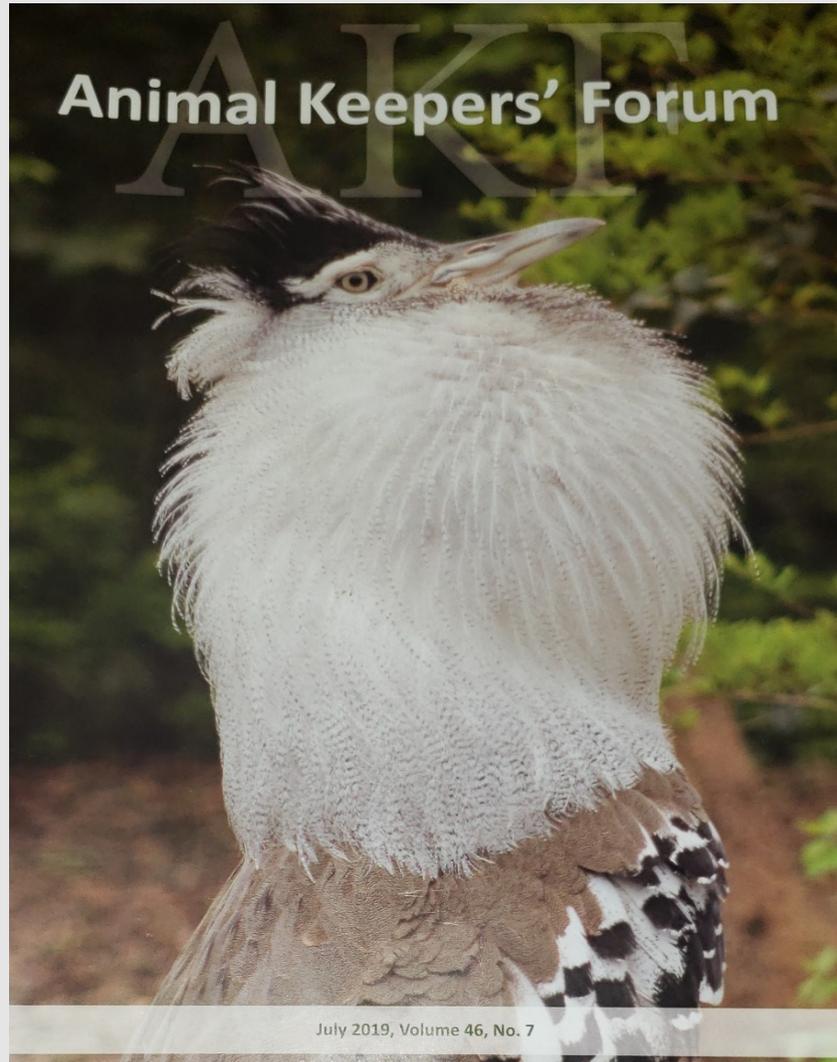
Melissa King



Photos of signs courtesy of Melissa King

AAZK Kori Highlight

A wonderful photo by Stephanie Earhart of Zoo Atlanta was highlighted on the cover of the July 2019 issue of Animal Keepers' Forum:



ABOUT THE COVER

This month's cover photo comes to us from Stephanie Earhart of Zoo Atlanta and features a Kori Bustard (*Ardeotis kori*). Kori bustards are very large, ground-dwelling birds that eat a variety of insects, small animals and some plants. The males are among the heaviest of all flying birds. Rarely flying, and never migrating, these birds stalk the savannas looking for any large insect or small animal to eat and will also consume fruits, flowers, as well as dig up roots of specific nutritive plants. The males attract the females with their deep booming calls, and they show off their plumage to full effect during elaborate courtship displays. Chicks take five years to mature, and adults may live more than 30 years. The species exists in two separate areas of Africa, and those populations in eastern Africa and southern Africa are somewhat physically distinct, indicating that they rarely, if ever, interbreed. Recent threats from large-scale agriculture and the bushmeat trade have resulted in sudden declines in this species.



Did you know?

Fun!!!

- Some local names for the Kori are "Kgori" (Tswana) and, of course, "Gompou" or gum-eating bird (Afrikaans)
- During the breeding season, which lasts from the middle of March to August, males gather into special group called "lek", performing displays in mornings and evenings, in order to attract receptive females
- Kori Bustards and Arabian Bustards can occasionally be seen with insectivorous birds, such as Northern and Southern Carmine Bee-eaters, perched on their backs. When foraging, the bustards stir up insects, which are immediately caught by the hawking bee-eaters. The latter, in turn, helps the Kori bustard escape predators. This mutualistic interaction has mainly been reported in Botswana and Ethiopia
- Why is my bustard pink? Have you ever noticed pink tinges at the base of kori or other bustard feathers? Especially prominent in bustards who have quickly lost feathers under stress, the pink tinge is a pigment called porphyrin. Porphyrins are easily destroyed by exposure to sunlight, and are most abundant in new or quickly shed feathers. Although the exact chemical structure of each porphyrin differs, they all fluoresce a bright red when exposed to ultraviolet light. Porphyrins produce a range of colors, including pink, browns, reds, and greens. Thirteen orders of birds, including bustards, use porphyrins as a plumage pigment. Porphyrins were first isolated from bird feathers in the early 20th century, but their role in feather structure and function, and their synthesis with regards to plumage formation, remain unknown (Mechanics of uncommon colors: Pterins, porphyrins, and psittacofulvins. McGraw 2006)



<https://www.deviantart.com/nvillustration/art/Kori-Bustard-and-Carmine-Bee-eater-Paper-Cut-Birds-806487737>



Pink bases on the belly feathers of a Great Bustard

Limerick about the remarkable bustard:

The bustard's an exquisite fowl

With minimal reason to howl:

He escapes what would be

Illegitimacy

By the grace of a fortunate vowel.

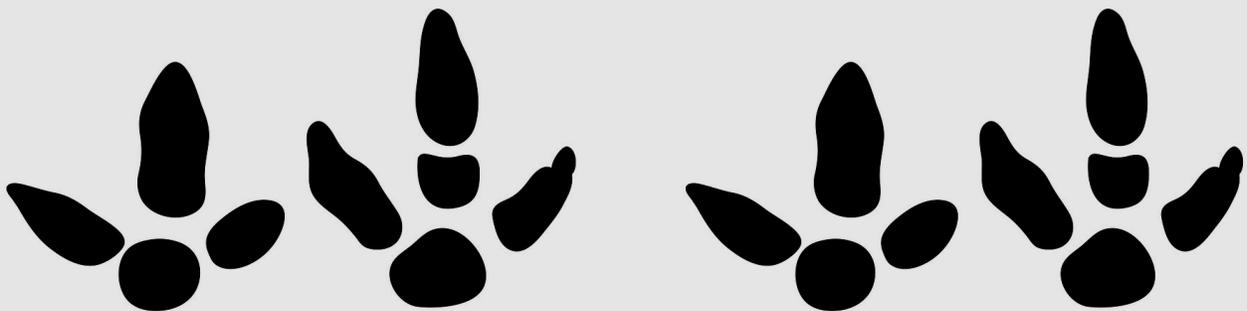
-George S. Vaill

In Memory...

Jazzy Kori



Jazzy was born on June 23rd, 2009 at the Smithsonian National Zoological Park. After a small stint at Phoenix Zoo, he came to Franklin Park Zoo in April of 2012 to be paired with our female M'guu. The couple eventually got along beautifully, and even produced a few fertilized eggs together. As Jazzy became older, he started to trust a few select people. When he started eating off tongs and stepping on a scale voluntarily, it was a great victory for the Hooves and Horns department. Unfortunately in early 2018, Jazzy developed an unknown condition that primarily affected his gait. Vets and staff made valiant efforts to treat Jazzy, but sadly nothing seemed to help and his condition continued to worsen. The difficult decision was made to help ease his pain with euthanasia on July 25th, 2019. Jazzy is remembered as always enjoying his mice, but there were times where he was be so picky that he would only consume the white ones! And only when he was standing up, even if you tossed it in the perfect spot for him to grab while he was laying down, he would just stand up anyways. He also liked grapes, but would only eat them if you threw them to him as a forage on exhibit, never inside. His favorite spot to be in the barn was anywhere there was a nice big fluffy straw bed. All of the keepers at Hooves and Horns miss this sassy bird, and hope we made his time with us enriching and fulfilling.



In Memory...



Kojo...

A note from the Chair of the Kori Bustard SSP: I hope you have enjoyed this years edition of the Gompou. Kyle, Kayla and Taylor have done an outstanding job!

Please consider adding this charismatic taxa to your collection. The US holds the largest known captive population of kori bustards and buff-crested bustards in the world but we are losing both species. Breeding has just about stopped because we can't place chicks. It will be a sad day if we lose this unique taxa from AZA collections. Much of what we have learned about kori bustards in the US has been applied to the husbandry of the great Indian bustard. With bustard populations declining worldwide, we need to continue to care for bustards in our collections so that we can continue to understand the needs of this unique group of birds should the need arise to bring new species into human care.

Having worked with koris for nearly 30 years, I can say they are truly a joy to work with. They are smart, curious, engaging and the highlight of my day. I hear all the time from other zoos how much they love their bustards.

Please consider adding bustards to your collection and help us better understand these wonderful birds. I can guarantee you will love them too!

Sara Hallager, Kori Bustard SSP Coordinator