

# THE GOMPOU

## BRINGING YOU THE NEWS OF THE KORI BUSTARD SPECIES SURVIVAL PLAN

December 2008



Edited by Katie Bagley  
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Please feel free to email questions, comments, pics, and  
information at any time.



## Kori Bustard Hatchings!



40th kori chick hatches at National Zoological Park



*Chasi (Swahili for “plenty”). Born June 29<sup>th</sup>*



*Photos by Cathy Burkey*

**Dallas Zoo**  
July 5<sup>th</sup> (2)



*Photos by John Sills*

**Phoenix Zoo**  
August 22nd



### Additional hatchings:

**Sedgwick Co. Zoo:** April 18<sup>th</sup>

**Audubon Zoo:** May 25<sup>th</sup>

**National Zoo:** June 28<sup>th</sup>, 29<sup>th</sup> and July 18<sup>th</sup> (2)



## **Kori Bustard SSP Website Makes its Debut**

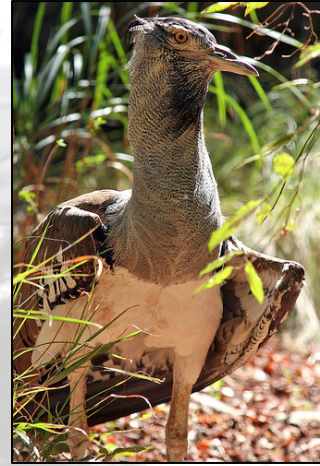
The Kori Bustard SSP incorporates education goals in its overall plan and one of those goals is a website dedicated to the SSP. The Kori Bustard SSP website was launched in July of 2008! The purpose of a dedicated website is to provide current and comprehensive information on this African bird and to highlight conservation and research efforts. Ultimately, the website will be a one-stop-shop of kori information. Other education goals include creation of a Kori Kit and exploring in-situ education opportunities. In order to continue these efforts, we are also planning to submit a request for a 2009 CEF grant. These funds will allow the creation of the kits and an opportunity for in-situ education by creating a "Land/Water/Air" workshop. The workshop will be a collaboration between two other SSPs (currently exploring the idea with the cheetah SSP and the Crocodilian TAG) to create a bigger draw and highlight connections between the species and humans. –Jamie Ford

Hats off to Jamie for her hard work on developing this website! Jamie Ford, Education Liaison for the Kori Bustard SSP, received her undergraduate degree in Animal Science from Tarleton State University in Stephenville, Texas. Shortly after in 1998, she served as a Student Conservation Association intern with the Florida Marine Research Institute conducting population surveys of the spiny lobster and queen conch. Jamie brings ten years of experience in informal education from the Fort Worth Zoo, Smithsonian's National Zoo, and Houston Zoo, Inc. She has also worked as a zookeeper at the Smithsonian's National Zoo and, most recently, the Houston Zoo, Inc. She currently serves as the Texas Program Manager for the Student Conservation Association and a part-time teacher with the Houston Zoo, Inc.

[www.koribustardssp.org](http://www.koribustardssp.org)

# Koris on the Move

Rafiki is a handsome, 7 year old male that has been residing at Zoo Atlanta for the past 6 years. While he gets lots of attention from zoo guests by standing on his scale and eating whole mice he will be meeting a brand new group of people at Miami Metro Zoo. No more heating pads and hay during cold nights for Rafiki! This SSP recommended move means he will be enjoying Florida's warm sunshine year round with his new mate.



*Rafiki*

Photo by Amanda Pippen



*Snake*

Photo by Stephanie Scanlin



*Tuza*

Photo by Stephanie Scanlin

While Rafiki is settling in Miami, two beautiful koris are settling in at Zoo Atlanta: Snake (1.0 from Audubon Zoo) and Tuza (0.1 from National Zoo). They are currently adjusting quite well to their new exhibit.

## **Did you know????**

Before coming to Zoo Atlanta, Tuza helped researchers prep for field work in Kenya by wearing a satellite tag while at National Zoo. Check out the link below for more info!

<http://nationalzoo.si.edu/Animals/Birds/NewsEvents/kobu.cfm>



# Koris on the Move

If you have a kori bustard that is soon to be on the move, check out the crate design below. This design was provided by Sara Hallager, kori bustard SSP chair.



*The roof and sides should be well padded to avoid head and wing trauma*

Height: 35 inches, it is sitting on a couple of 2x4's to keep the whole bottom off the ground

Length: 36.5 inches with handles (only 1.5 inches for handles on front and back)

*Smaller mesh on the ventilation holes and mesh on the sliding peeking door is suggested*



Width: 26 inches with the handles (about 2.5 inches each side for handles)



# Kori Bustards Raise Conservation Awareness Through Bird Show

By Andie Armbrust- Animal Keeper at the Cheyenne Mountain Zoo

Who would have ever thought that cautious birds like Kori Bustards could be utilized in a bird show? This was the challenge given to the keepers at the Cheyenne Mountain Zoo in Colorado Springs, CO this past spring. Not only would our 1.1 Kori Bustards have to “perform” daily, but they also had to share the stage (their bird yard) with 4 other bird species. The show, “Wings of Africa” would focus on the birds’ natural behaviors and tie in a conservation message.

The 8 year-old pair “Dafino” and “Bella” have been at CMZ since 2002, so keepers had a good idea about which natural trained behaviors would succeed. Knowing the Koris’ love for peanut butter, they knew they wanted to incorporate that into the show. Keepers tell guests how the birds like to eat gum from Acacia trees in Africa, but since they don’t sell Acacia gum in the stores, keepers use low-fat peanut butter instead. The challenge is to get them to do this behavior on cue with the other bird species present.



*Photo by Andie Armbrust*

When keepers first began training for the show, they would put a few spoonfuls of peanut butter on a tree in the center of their yard. This seemed to work at first, but once the vultures began to station in that same tree for the show, Bella and Dafino did not feel as comfortable going up to the limbs anymore. A stump near the tree became the new station spot. Bella no sooner saw keepers approaching with the peanut butter spoon and she would quickly walk over to it. But if they ever get too close to her, she put her feathers up in defense, which gives the keepers an opportunity to teach guests about different Kori postures.

Dafino receives a daily dose of a joint health supplement and over the years, the keepers have trained him to take the medicated meatball from them by hand. This became an opportunity to see him up close in the show. Most of the time, he cautiously takes the meatball. He also has become an expert in catching them when tossed into the air!

The main focus during the Kori Bustard portion of the show is their connection to fly-fishing and the fly ties. Keepers explain their plight in the wild and the proactive approach that places like Cheyenne Mountain Zoo are taking by collecting their naturally molted feathers. By working together with the captive populations and the fly tiers, this symbiotic relationship benefits the Kori conservation efforts in the wild. It is a great way to get information out about what’s taking place with them and about how the little things we do can make such a big difference.



# Nashville Zoo welcomes kori bustards!!!



*“Rasi;” Photo submitted by  
Lauren Baber*

Rasi arrived February 25, 2008 that evening bright, alert, and responsive. He was ready and willing to eat 10 mice from his previous keepers and from his new keepers shortly after his arrival. Within a few months of taking care of him, he had 1 major injury to his right shoulder of his wing. It of course needed some repair and stiches. Thankfully he healed very nicely! This has been a learning process on Kori Bustard behavior for all of us bird keepers of the Nashville Zoo. But it has been an awesome learning experience and he always manages to make us laugh every day. He is being scale trained but have not been successful yet. He gets closer and closer each time though. Rasi's favorite treat is peanut butter, but he also loves crickets, super mealworms, night crawlers, browse, and many other things. Rasi is now and has been taking grain mixed with his meatballs everyday, probably about 4-7 a day. He certainly is a joy to take care of and hope one day to have him paired up with a female.

Lauren Baber  
Nashville Zoo Avian Keeper



# Reminders from the kori bustard SSP

## Keep collecting those kori feathers!

Continue to support the SSP by mailing naturally molted kori bustard feathers to John McLain ([John@FeathersMc.com](mailto:John@FeathersMc.com).) of Feathers MC. You can contact him for feather mailing information and instructions. The kori bustard feathers are cleaned and distributed free of charge to fly tiers. Donations received by fly tiers have supported a hormone study in captive kori bustards and the purchase of a satellite transmitter for field work in Botswana

. <http://www.feathersmc.com/kori>



## Kori bustard necropsy protocol

**In the event of a kori bustard death please refer to the kori bustard necropsy protocol. You can contact Sara Hallager, SSP chair ([hallagers@si.edu](mailto:hallagers@si.edu)) to obtain a copy of the protocol if needed. It is very important to contact Sara and Dr. Tim Walsh, SSP pathology advisor ([walsht@si.edu](mailto:walsht@si.edu)) prior to performing the necropsy for special tissue and histopathology requests.**



## **Toledo Zoo joins Ethotrak Study**

Staff at the Toledo Zoo will be starting to take Ethotrak data in spring 2009 on their one male and two females. Training was held at the Toledo Zoo in fall 2008.

Toledo joins several zoos already participating in Ethotrak including Zoo Atlanta, Birmingham Zoo, Cheyenne Mountain Zoo, Living Desert, National Zoo, Dallas Zoo and Miami Metrozoo.

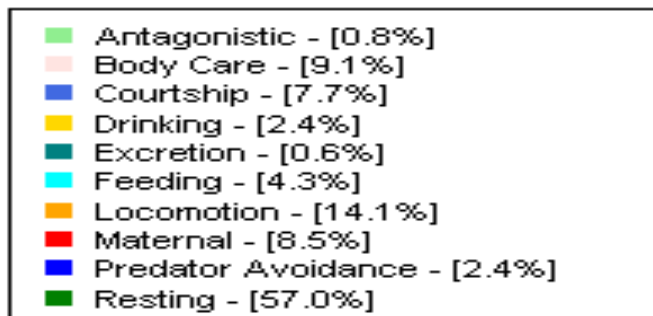
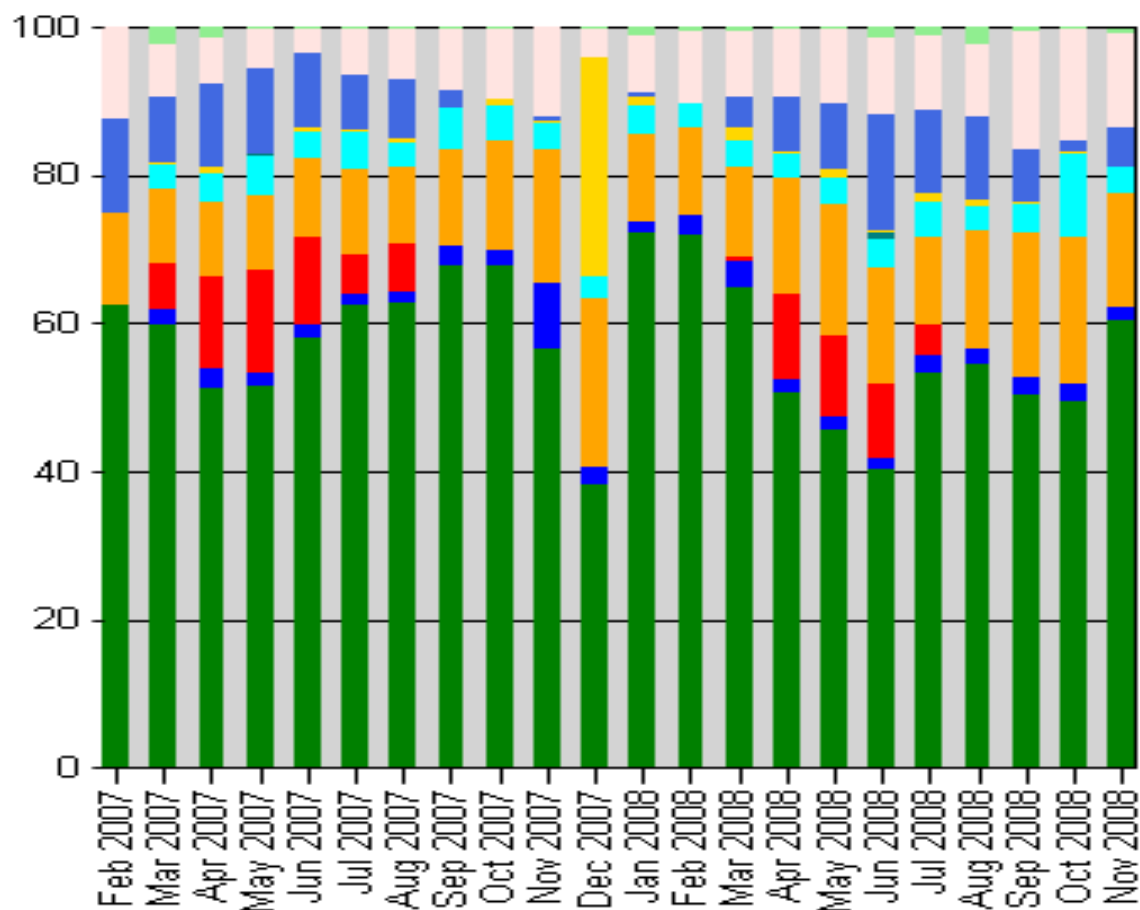
Since data collection began in February 2007, nearly 24,000 observations have been recorded. A summary of the total observations is below (more detailed reports are available if interested). As you can see, resting is the primary behavior observed (note that resting includes both alert and not alert behavior).

Ethotrak is a great way for zoos and keeper staff to get involved in data collection. It is a relatively simple system to use. The time commitment from keepers is minimal and can easily be incorporated into their daily routines. The data produced are robust and can be used to look at several aspects of behavior such as institutional differences, seasonal patterns, and behavioral ontogeny. The strengths of this project will be looking at the data over several years at multiple institutions. With repeated events at different institutions over time, a general pattern of kori bustard behavior will emerge.

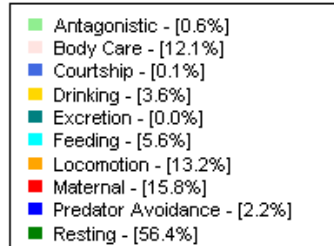
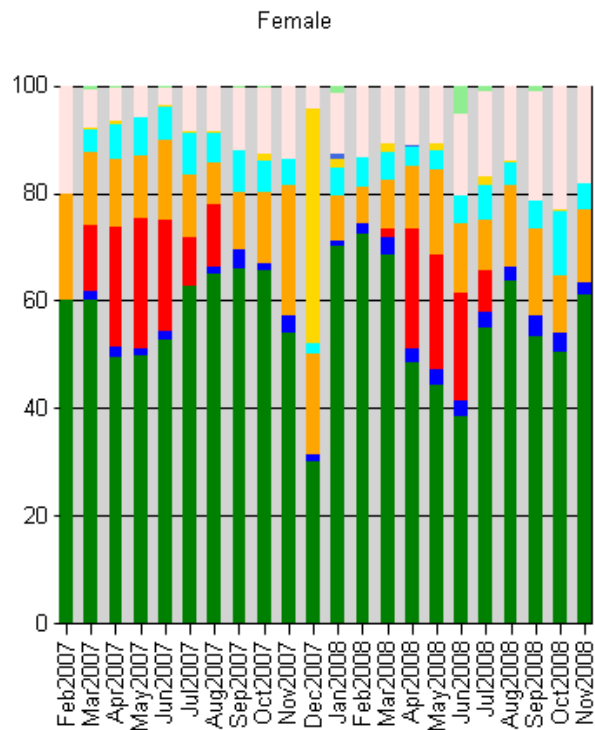
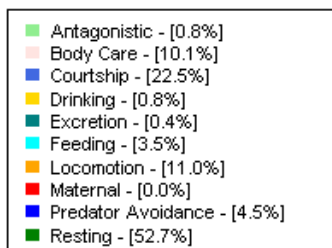
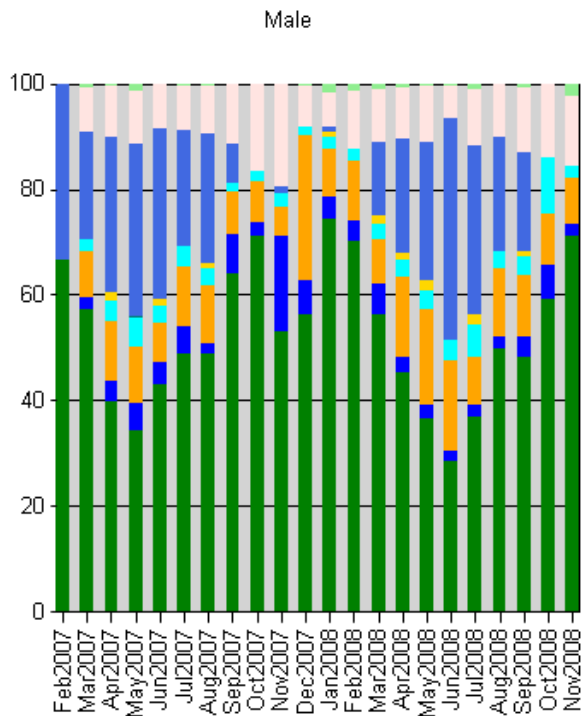
If you would like more information on Ethotrak please contact Sara Hallager at [hallagers@si.edu](mailto:hallagers@si.edu)



**Ethotrak summary:**  
**February 2007 – November**  
**2008**  
**Total (male and female)**  
**observations)**







## AZA Animal Care Manual for kori bustards



Formally known as the Standardized Guidelines, the Animal Care Manuals are comprehensive documents detailing all aspects of animal care for a particular species or taxa and present best practices for animal care and welfare. The kori bustard ACM is completed and awaiting review by AZA. Watch for the final version sometime in 2009!



# Kori bustard hand-rearing efforts at NZP

Karen Lisi and Mike Maslanka  
Department of Nutrition  
Smithsonian National Zoological Park

Prior to our first hatches in 2007, kori bustard hand-rearing diets were reevaluated. Several publications in recent years have emphasized the omnivorous nature of wild kori bustards, with diets consisting primarily of insects and plant material. Bill structure and gastrointestinal tract anatomy, most notably elongated paired ceca allowing for fermentation of fibrous material, are strong indications of the insectivorous / herbivorous feeding ecology of this species. Please see the following publication for a thorough review, complete with illustrations: Maloiy et al. (1987) Zoo Biology 6:243-251.

Although diet intake was not quantified in 2007, the National Zoo (NZP) kori bustard hand-rearing diet emphasized pellet, insects, and produce (primarily greens and vegetables), with restricted amounts of mammalian prey in the form of pinkies and fuzzies through day 30 of age. The pellet portion of the diet consisted of a 50:50 mix of Mazuri Gamebird and Mazuri Ratite. Mazuri Ratite was added primarily to increase dietary fiber. It has been suggested that high protein hand-rearing diets, consisting predominantly of mammalian products, may contribute to development of angel wing. This condition is evident in the majority of kori chicks, usually manifesting at day 7-9 of age and is fortunately easily corrected. In 2007, two of four chicks developed angel wing on days 12-13 of age, and two chicks did not develop the condition. Growth rates were within expected ranges.

This year, with four pending hatches, we took the next step and eliminated mammalian meat products from the chick rearing diets. Bird House staff offered proportional amounts of pellet, insects, egg, and produce in prescribed quantities and remaining food was weighed to obtain an estimation of intake. We use the term estimation since intake was recorded as a group feedings and it was assumed that each bird consumed the same quantity of each item. Please note that insects offered through day 30 of age consisted of adult crickets and waxmoth larvae. Waxmoth larvae were restricted to two per day per bird throughout this period. Crickets must be maintained on a high calcium insect diet to ensure an adequate Ca:P ratio for this food item. Table 1 lists the prescribed proportions of diet items offered, with overall intake based on 35% of body weight. Table 2 provides proportions of diet items consumed by 2008 NZP kori bustard chicks, days 0-30 of age.

Table 1. Proportions of diet items offered to National Zoo 2008 kori bustard chicks days 0-30 of age, absolute quantities based on 35% of estimated daily body weight.

| day 0 - 2 | day 3-10 | day 11-21 | day 22-30 |
|-----------|----------|-----------|-----------|
| P = 20%   | P = 25%  | P = 33%   | P = 43%   |
| I = 10%   | I = 10%  | I = 7%    | I = 7%    |
| E = 0%    | E = 5%   | E = 5%    | E = 5%    |
| G = 5%    | G = 10%  | G = 10%   | G = 15%   |
| V = 25%   | V = 25%  | V = 30%   | V = 20%   |
| F = 40%   | F = 25%  | F = 15%   | F = 10%   |

P = pellet (50:50 Mazuri Gamebird:Ratite); I = insects (crickets and waxworms); E = egg; G = greens; V = vegetables, F = fruit

Table 2. Proportions of diet items consumed by National Zoo 2008 kori bustard chicks days 0-30 of age, absolute quantities based on 35% of estimated daily body weight.

| day 0 - 2 | day 3-10 | day 11-21 | day 22-30 |
|-----------|----------|-----------|-----------|
| P = 13%   | P = 22%  | P = 27%   | P = 27%   |
| I = 19%   | I = 10%  | I = 7%    | I = 8%    |
| E = 0%    | E = 5%   | E = 5%    | E = 6%    |
| G = 4%    | G = 13%  | G = 12%   | G = 23%   |
| V = 21%   | V = 23%  | V = 29%   | V = 24%   |
| F = 43%   | F = 27%  | F = 20%   | F = 12%   |

P = pellet (50:50 Mazuri Gamebird:Ratite); I = insects (crickets and waxworms); E = egg; G = greens; V = vegetables, F = fruit

We set the goals for pellet consumption as high as we thought achievable, and it appears that a pellet intake of 30% of total diet consumed (fresh weight basis) may be a more realistic goal. Encouraging pellet intake requires time, patience, and technique. We recommend that staff involved in the hand-rearing of kori bustard chicks share information about various techniques used to accomplish hand-feeding of pellets and progression to self-feeding of pellet rations.

The AZA Kori Bustard SSP Husbandry Manual recommends that diets offered to hand-reared kori bustard chicks fall within the range of 18-22% protein, dry matter basis. Table 3 includes the nutrient analyses of the average diets consumed by NZP kori bustard chicks in 2008, days 0-30 of age. Despite the decreased protein level, three of four 2008 kori bustard chicks developed angel wing between days 13-17 of age.

Table 3. Selected nutrient analysis of diets consumed by hand-reared National Zoo kori bustard chicks days 0-30 of age, 2008 (dry matter basis, expect for water).

| Nutrient         | day 0 - 2 | day 3-10 | day 11-21 | day 22-30 |
|------------------|-----------|----------|-----------|-----------|
| Moisture, %      | 73.6      | 66.3     | 63.6      | 63.3      |
| Crude protein, % | 21.5      | 18.7     | 18.0      | 19.2      |
| Crude fat, %     | 7.8       | 5.8      | 5.4       | 5.9       |
| Ca, %            | 0.77      | 0.93     | 0.98      | 1.03      |
| P, %             | 0.60      | 0.67     | 0.69      | 0.72      |
| Ca:P             | 1.3       | 1.4      | 1.4       | 1.4       |

The four 2008 chicks are now over three months old, and have been successfully maintained on a diet consisting of pellet, insects, a small amount of egg, and produce. Since egg is a favored item, it has been useful as a vehicle for medications. When compared to previous kori bustard chick body weight (BW) records at NZP (1999 – 2007), the 2008 chicks continue to fall within normal BW ranges. Reduced growth rates are evident with the new hand-rearing diet, but still well above the general recommendation of less than 5% of BW per day. We are interpreting the reduced growth rates with the new hand-rearing protocol as a favorable outcome. Table 4 summarizes a comparison of growth rates for days 0-30 using two parameters, average daily percent change in BW and average daily gain. Average BWs at days 15 and 30 are also provided



|  | 2008<br>Male<br>(n=2) | 2008<br>Female<br>(n=2) | 1999 – 2007<br>Male<br>(n=17) | 1999 – 2007<br>Female<br>(n=11) |
|--|-----------------------|-------------------------|-------------------------------|---------------------------------|
| Average change in<br>BW, d 0-30<br>(%) | 7.1                   | 6.7                     | 7.9                           | 7.2                             |
| Average daily<br>gain, d 0-30<br>(g/d) | 23                    | 19                      | 27                            | 22                              |
| Average BW<br>d 15<br>(g)              | 306                   | 256                     | 336                           | 308                             |
| Average BW<br>d 30<br>(g)              | 800                   | 675                     | 920                           | 768                             |

Table 4. Comparative body weights and growth rates for hand-reared kori bustard chicks.

Additionally, blood samples were obtained from the four 2008 NZP kori bustard chicks at approximately three months of age. We plan to introduce mice and commercial carnivore diet into the diets of 1.1 of this year's chicks and continue to raise 1.1 chicks without the addition mammalian meat products. Subsequent blood samples will be collected from the 2.2 chicks at six and nine months of age. We realize that the small sample size will not allow statistical analysis of kori chicks on two different diet regimes, but the data may reveal trends that will be useful in the ongoing medical and dietary management of captive kori bustards.

#### Conclusions

1. Kori bustards can be successfully reared on lower protein, higher fiber, pellet-based diets.
2. Development of angel wing appears to be multi-factorial and solely reducing protein intake did not eliminate this condition in this year's hand-reared chicks.



*Photo by Jessie Cohen*



# Design elements for a kori exhibit at Zoo Atlanta

James Ballance, Curator of Birds

*(photos below by James Balance)*

At Zoo Atlanta in 2002 we had an opportunity to design a kori exhibit from scratch. Koris are notorious for injuring themselves in exhibits and holding areas so we aimed to build an exhibit that was as kori friendly as possible.

## Containment:

Traditional kori exhibits are often constructed from chainlink or weldmesh, neither of which are very forgiving to panicking birds but in many cases they remain the most practical containment materials. At Zoo Atlanta we are very fortunate to have an excellent perimeter fence around our facility and do not have issues with large predators on grounds. As a result we were able to get away from traditional barriers such as chainlink and weldmesh. Instead we chose to use a 2" x 2" gamebird netting made by Pacific Netting Products. This netting is made from polyethylene, is highly UV resistant and rated to 115 pounds breaking strength.



The netting is 8' tall and attached to 10' wooden posts buried in concrete. We chose an 8' barrier because the exhibit is located on a slight slope facing the prevailing winds and we didn't want the birds to be able to loft over the mesh. Between the uprights there is a wooden base of 4" x 4" timbers set into the dirt. The netting is stretched between the uprights and the base and secured in place. A 12" high strip of 1/2" x 1/2" weldmesh is also attached to the same posts at ground level. This provides slightly more rigidity at the bottom and prevents rabbits from chewing through the netting. The netting is also secured to this weldmesh.

The exhibit has been in place now for six years and with the exception of some minor upkeep, the perimeter fencing has retained its integrity very well. We have seen an 18 kg male kori hit the fence line at a run and just bounce back unharmed. The use of this netting will be impractical in many cases, especially if your institution has predator issues.



We have just completed a new kori holding building and wanted to design in some “kori-proofing”. The building is timber-framed with concrete plank siding. There are two 6’ x 8’ stalls which each lead to a 6’ x 6’ vestibule that then leads into the exhibit. The holding areas are small but in Atlanta the koris only have to be locked in for about a dozen nights in winter and almost never have to stay in for the whole day so we can get away with smaller holding spaces. We have lined the bottom 4’ of the walls of the two stalls and vestibules with a corrugated plastic board (Coroplast). This is a product normally used for creating temporary signs. If a bird panics or needs to be caught the Coroplast is a softer surface to catch against than plywood or especially concrete. It is also less abrasive to metacarpal joints, pinion sites, toes, beaks etc. The hard edges of timber on doorways and doorsills were sanded to create a rounded edge to reduce chances of abrasion. The floor is hard dirt with a 2” covering of sand. This is adequate for the amount of time the birds actually have to be locked in but might be less good for long term housing.



1”x1” weldmesh has also been incorporated into the building between the 2 stalls and on shift doors to allow the birds to see each other if separated and to see out to the exhibit. All sections of mesh that are at bird level are covered with plexiglass so that the birds can’t get their beaks caught but it still allows them to view each other. We have also incorporated four plexiglass windows to make the building lighter. Our previous building was very dark and the birds were not keen to enter it.



Training is a significant part of our kori management and birds shift in on command, are scale trained, and are desensitized to physical touch. We wanted to design in elements to the new building that would make our current training easier and more effective. All shift doors can be opened by hand or remotely. There are also small training panels set into keeper doors to make training easier. Additionally there is a space for the training/transport crate to permanently set up in a vestibule.

The exhibit is not perfect but has worked very well. We feel that the extra precautions to “idiot-proof” it have been worthwhile and five years on we’ve had no real exhibit-caused injuries.

A great way to share information about kori bustard husbandry, management, training and enrichment is by using the kori bustard listserv. Email Sara Hallager ([hallagers@si.edu](mailto:hallagers@si.edu)) to join the listserv.



NZP's breeding male.  
Photo by Jessie Cohen

The Bustard is an exquisite fowl  
With minimal reason to growl  
It escapes what would be  
Illegitimacy  
By the grace of a fortunate vowel

Elizabeth Livingston