

The Kori Bustard

(*Ardeotis kori*)

observations, description, status, care, behavior and captive environment

by Kevin Schneider
Lakeside, California

Kori Bustards were in Africa when primitive man finally decided that it might be a good idea to stand up for the first time. They were also there long before the Super Continent split into Africa, Australia, Saudia Arabia and India.

This fact is readily apparent with the four species of *Ardeotis* being represented by *Ardeotis kori* in Africa, *Ardeotis australis* in Australia, *Ardeotis arabis* in Saudia Arabia and *Ardeotis nigriceps* in India.

Excerpts taken from "Birds of the World" by Oliver L. Austin, Jr., state "The Bustards (Spp.) are a well marked family of large cursorial upland ground birds that live on open, grassy plains and brushy savannas. . . . The Bustards are great wanderers and some of the northern species perform extensive migrations. They fly in typical crane fashion with the head and neck straight out in front. Their wings beat strongly and steadily. In flight they strongly resemble geese; the noticeable difference being their long legs trailing behind the tail and curious aerial posture of the rear of the body sagging low. Unlike cranes and geese, they are not high fliers, and even on long migrations Bustards seldom rise more than 200 or 300 feet above the ground.

As a rule, Bustards travel in small flocks of a dozen or so birds. Highly popular as game birds, they run so rapidly they are difficult for a hunter to approach on foot. However, they often crouch and hide, depending on camouflage to protect them. Unfortunately, they show so little fear of a man on horseback or camelback or in a car that they have little chance against modern weapons. Like all birds of savory flesh, they have now

become quite rare near centers of human population. They survive in parts of their former range only because of strict protection."

Kori Bustards as well as all other bustards on this planet are extremely endangered, living in depleted populations in their various countries of origin. They are being pushed to the edge of extinction in our time.

The captive gene pool of Kori Bustards in the U.S. consists of approximately 58 birds represented by approximately 1/3 male to 1/3 female birds.

All *Ardeotis* share similar characteristics of body type; display behavior; opportunistic feeding habits; behavior during egg laying and incubation; behavior in response to life threatening situations; their acute awareness of their captive environment at every moment of the day and night and their total dislike of man during the first year or two of captivity.

There is very little known about the Kori Bustard. The best way to describe these birds to anyone who has never seen them before is to say

that they look like giant Road Runners from Africa. Along with the others in the genus *Ardeotis*, they are a long lived bird and are among the largest of the Bustard family. The adult female Kori stands a little over three feet tall with a wing span of about five feet and average weight of 12 pounds. The adult males stand a little over four feet with a larger wing span and an approximate weight of 18 to 20 pounds.

Kori Bustards have a strong head and straight beak with a cap of short blackish feathers on their head mixed with a very nice flowing crest which can be raised if excited. Feathers around their facial area are a mix of light grey and white.

The neck feathers are of heron-like quality and are a white feather with thin black stripes. The neck feathers can also be raised when excited. They have a blackish "collar" of feathers at the base of the neck, where it joins the body. This "collar" is almost a full circle. Coloration is broken, to a degree, at front center by the extension of neck feathers meeting the white of the chest area

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and on a small space on the back of the neck, at its base, where the color is white. The outer wing coverts are a mixture of black, white and a fine brownish and black vermiculated pattern.

When the birds have their wings folded, feather coloration on the upper body of the bird consists of a fine vermiculated pattern of various shades of brown and black. With wings extended, primary flight feathers and some secondary wing feathers are a banded black/gray and white changing to the vermiculated pattern as the feathers near the body of the bird, on the wing.

The underparts of the birds and their chest area are a cream white color.

The elongated tail coverts have a very fine vermiculated pattern and a finer texture than the wing feathers.

The tail consists of about 18 tail feathers and is banded similar to the primary wing feathers, with one exception, the upper one fourth is a vermiculated pattern of gray and black.

They have fairly long, strong legs, a rather long neck, short tail and broad wings. They have extremely good eyesight and an enhanced sense of smell. "They have only three front toes, the hallux is missing, which are short and broad and well adapted for running." The first joint on their legs folds their legs backwards, underneath them, when they lower themselves to the ground. This adaption allows them to spring off the ground from a sitting position with wings outstretched, vocalizing, hopping and flapping out of harm's way.

Kori Bustards are one of the heaviest, flapping, flying birds on this planet. Normally these birds are very quiet, except for the breeding season when the male displays and calls. However, there is an exception.

These birds are extremely vocal when worked with. Their basic ground rules are; don't get within 20 feet of me, don't touch me and don't look directly at me or I'll throw a fit like you've never seen. It's real interesting trying to weigh these birds. If they must be moved I think it would be much easier to "walk" these birds instead of picking them up.

When these birds are caught up by hand and held off the ground, they roar and scream like a lion. When startled in their enclosure they will "cough" repeatedly similar to a lion and move away, putting as much dis-

tance between themselves and the keeper as possible.

These vocalizations must be a very effective defense in themselves, in the birds' respective countries of origin. I'm fairly certain that if someone happened to trip over a Kori Bustard, or a group of them, during the middle of the night, in Africa, the attending physician would probably find it necessary to recommend complete bed rest for at least a couple of days due to the trauma experienced.

At the other extreme these birds also have a very soft sound that seems to be used as an indicator of reassurance during the times they display a curiosity or interest in a situation taking place in or around their enclosure. This sound can also be modulated to harsher tones if an imagined threat develops due to their curious behaviour and the vocalizations can be escalated to their "coughs" and again moving away to another part of their enclosure. This soft sound is sometimes used and modulated when food is taken from the hand.

The two females that live with us now, arrived in an animal transport trailer at about 11 p.m. on a November night in 1988. The handler and his wife went into the trailer to physically carry the birds out while I braced myself against the outer door. I was totally unprepared for what occurred next. My knees actually became weak and started to buckle as the roars and screams of what seemed to be lions exploded from the interior of the trailer. In a short time the handler emerged from the trailer holding this gigantic, magnificent bird in his arms, his wife walking by his side holding the bird's head. By this time bird was really angry and although the screams stopped when they came out of the trailer there continued to be a good amount of threatening growls.

If a chase develops into a fight or flight situation during a capture procedure between keeper and bird in an enclosure, things get worse very fast. Capture techniques must be specifically tailored to the bustards as they will throw themselves against walls attempting to escape a rush to capture and they break bones causing eventual death. In addition, shipping containers and captive environments must also be specific to their needs.

Kori Bustards have very specific care requirements that are necessary

to insure their well being and safety in captivity. If they are placed in the proper captive environment their lives can be extended, their quality of life improved and their dislike for man can even be reduced to tolerance over a long period of time. These are extremely intelligent birds of the open grasslands, desert and brushlands and they do not take kindly to captivity by what may seem to them as a well known predator species.

Genetic memory of more or less constant contact with our species in the past may be one of the reasons for their anxious behavior, constant pacing and reaction to keepers in the captive environment during the first few years of captivity. Another reason is that these are still wild birds with opportunistic feeding habits including a foraging behavior that would take them over great distances during any one day.

Specific requirements for these birds cannot be overstressed. Approximately 18 percent of the captive gene pool in this country was lost during the past two and one half years. The majority of deaths that occurred were due to improper handling, shipping and captive environment.

Information gathered to date shows that Kori Bustards cannot be placed in the same enclosure with hoofed stock. In addition, female Koris without mates must not be allowed to be harrassed by peacocks. In their attempts to escape any type of aggression they try to flee beyond their enclosure even if there is a solid wall there. They are not compatible, in captivity, on exhibit or off, with any other bird or animal except maybe their natural association with African Beaters. Eventually, like an accident waiting to happen, they die, as a result of being part of a mixed exhibit.

Specific information received details how birds with broken wings and other injuries have been found the next day, upon the keeper's arrival. The majority of these birds were kept with hoofed stock or they jumped a fence into a hoofed stock area and were damaged as a result.

Kori Bustards will bed down in the same spot every night, when in captivity, with the dominant bird commanding the best view of their "territory". They normally do not move at night. On occasion, hoofed stock does move at night and the birds are

injured as a result. I have known none to survive the complications of a broken wing. Keeping Kori Bustards with hoofed stock is a deadly, man made trap, which can easily be avoided.

It seems that proper climate and seasonal changes to match those in the country of origin would have great effect on reproductive behavior. These birds, being from a warm, dry weather environment with rainy seasons instead of "winters" would have a great deal of difficulty enduring freezing temperatures and standing on cold, damp, frozen, snow covered ground. The birds would also be aware of the lack of proper natural food sources at anticipated times of hatching chicks due to the "abnormal" winter weather they experience in places such as Seattle or Omaha.

In addition, if these birds are placed in areas where they are subjected to exposure to freezing weather for long periods of time, their make up of long, bare, legs does not allow them any protection, therefore it seems to me they would be susceptible to developing circulation problems including rheumatism and arthritis. If they have foot pumps in their feet as humans do to facilitate the blood's return to the heart, then standing in snow or on frozen ground would definitely complicate their health and survival in captivity. Due to the large enclosures these birds require, the best places to attempt keeping these birds in captivity would be in the southern, drier areas, of the U.S., that experience a climate similar to their country of origin.

It has been shown that Kori Bustards use four basic behaviors to respond to life threatening situations in the wild; they run, fly, "freeze" or hide under cover. Two of these options and sometimes three are removed from them in captivity. Due to the Kori's nature, this causes complications that need not occur. In addition, these birds are not genetically programmed or equipped to stand and fight it out. It's just not the way they do things. Even under normal circumstances, when two males are having a disagreement one of them proves dominance and the other gives way, providing there is room enough available for the other bird to actually remove himself from the area. When two males are placed in a sealed and secure, confined area the dominant male can and will kill

the other bird.

The most common defensive behavior used by these birds in captivity, when not threatened with capture, is to move away by walking, bouncing, running or by hiding under cover of brush or trees. They will also make use of man made sight barriers and move to a strategic place within the enclosure and become motionless, attempting to blend in with anything that will hide their outline. Sight barriers are a very important part of any enclosure for these birds if success is to be gained at reducing daily stresses and increasing chances of reproductive behavior.

The more sight barriers used and the larger the enclosure the more they stop pacing the fence line exhibiting stressful behavior. In a smaller area of confinement the increased use of sight barriers ensure the birds a safe place to retreat to and reduce a major portion of the stress they suffer in a captive environment. In confined areas, 50' x 50', initial sight barriers can be as simple as two or three, solid, eight foot walls making up their enclosure with potted shrubbery within about four to eight feet of the walls. This arrangement will also provide them with the shade they need during the hottest part of the summer months. In addition to sight barriers at their eye level, barriers to life threatening attacks from above are also needed.

The two Koris at our location are extremely sensitive to flights of eagles over their enclosure. When eagles are in the air, everybody's looking for a bush or small tree to hide under until the danger passes.

When they become familiar with their keeper they will feint an attack defense display. They seem to enjoy this sometimes. No eye contact is done without a reaction.

On occasion, they also seem to really enjoy standing very tall and flapping a couple of times, while standing in one place.

The following diet for Kori Bustards in captivity was provided by Wayne Schulenburg of the San Diego Zoo.

1/2 cup moistened Hi Pro dog food
1/2 cup soaked Hi Pro Kibble
1/2 diced apple, no seeds or core
1/2 cup chopped spinach leaf
1 hard boiled egg, without shell
1 grated carrot
1/2 cup dry Game Bird All Purpose Diet

1/4 cup dried shrimp meal to balance calcium phosphorus levels

1/3 loaf Bird of Prey Diet from Animal Spectrum in Nebraska

All ingredients, except Bird of Prey Diet, are blended in a blender to a fine, granular consistency. The object is to end up with a mixture that has a moisture content, consistency and color similar to the Bird of Prey Diet before mixing with same.

Moisture content is controlled by mixing dry Game Bird All Purpose Diet and dried shrimp meal at the end of the blending operation. Control color by adding carrot. If the mixture is too dry after all ingredients are mixed, add more apple or water to desired consistency.

Final blended mixture should be approximately two thirds the volume of 1/3 loaf Bird of Prey Diet. Combine blended mixture thoroughly with Bird of Prey Diet and make into a meat loaf. Pull off pieces of this mixture and form into small meatballs with a minimum size of a quarter to a maximum size of a half dollar. Make new mixture daily.

Feed twice daily, morning and afternoon, placing the food dish in a shaded area of the enclosure. Exposure to direct sunlight will harden meatballs in a very short period of time. Can be left overnight if fed approximately two hours before sundown and if the weather is cool allowing birds to have food at dawn or during the night as they may be partially nocturnal, especially on nights during the full moon. Leaving food out at night is not recommended during hot weather as mixture would probably spoil overnight.

When they are on a regular feeding schedule, they normally will take one or two of these meatballs at a time. If enough food is placed in the dish they will return repeatedly to eat what is left.

Kori Bustards must be able to pick up a food object as a whole unit thus enabling them to flick it back into their mouths with a short jerk of their head. If they are forced to scrape a prepared mixture from a bowl, a portion of the food could end up stuck to their bills causing dangerous bacterial growth. Meatballs of proper size are easily swallowed and are a very good vehicle for administering medication, vitamins, alfalfa tablets, shelled and unshelled peanuts or pelleted foods.

On days of rain and inclement weather, the birds do not eat the pre-

pared diet. Live food is accepted during breaks in the weather. At these times mealworms, mice and crickets are essential in maintaining health and body weight. Birds will usually skip one feeding when attempts are made to return them to the prepared diet.

Kori Bustards drink water daily. Water is provided in a four to five foot diameter children's wading pool that is about 10" deep.

If light bodyweight becomes a problem, shelled and unshelled peanuts can be hidden in the meatballs prior to feeding. This combination can also be fed prior to the approach of mild winters to allow the birds to produce the necessary reserves they need to withstand the cold, wet weather.

At our location, I try to clean out the birds' systems about once a month by putting them on live food only for at least two days in a row. Any longer than that and they do not return to the prepared diet easily.

Other methods of feeding include hiding about four pieces of Eukanuba Dog Kibble, 1/2" x 1/4" size, in the middle of Bird of Prey Diet meatballs. Kibble can also be coated with vitamins before hiding it in the meatballs by placing it in a zip lock bag with Super Preen powdered vitamins.

Another method provides a basic diet of dry Hi Pro dog food by Universal. Dry food is soaked in water until it is saturated and then fed to the birds. This diet is supplemented with foraged material, cut up beef kidney and hamburger. Oyster shell is also given to the birds.

Another group feeds a basic frozen mice diet. Mice are thawed before feeding and in addition to this the birds are allowed to forage on a couple of acres to supplement their dietary needs.

The following list shows some of the foods the Kori Bustards will eat in addition to a prepared diet:

Giant grasshoppers or locusts
Hamburger or ground steak meatballs
Pieces of beef kidney
Feeder goldfish
Lizards and probably snakes
Small cherry tomatoes
Red and green grapes
Milo and possibly other grains
Shelled peanuts
Sunflower seeds in the shell?
Flowers of the Cape Honeysuckle
50 lb. sack of oyster shell dumped on the ground in their enclosure at least



Photo by Linda Weitzman

The Kori Bustard is one of the largest flying birds. The males stand over four feet tall and the females, three feet. All bustards are extremely endangered.

once a year
Grasses

It is imperative that these birds have a variety of grasses, clover and/or fresh green alfalfa plants available to them at all times as they seem to have an interest in eating some types of hardware. Kori Bustards use a combination of grass and other green material to form pellets around foreign objects in their crops. These pellets are then coughed up. Without the fresh grasses to clean out the crop and form the pellets, the objects most likely stay there and cause varying degrees of problems. The hardware problem is something to seriously consider if these birds are in an exhibit with close proximity to the public. One of our birds here swallowed metal "pig clips" used to hold the nylon aviary netting together over the top of their enclosure. She coughed them up a week or two later in a grass pellet.

CITES Status of Each Ardeotis

Kori Bustards are currently listed on Appendix II of CITES. As with all other Bustards, they live in depleted populations and are still under a great deal of pressure from many directions. Human encroachment, loss of habitat and hunting for food and feathers are all primary factors for depletion of the species in the wild beyond their ability to reproduce and compensate for their losses.

Additional contributing factors have also become apparent due to the political and economic instability of many of the birds' respective countries of origin.

The Great Indian Bustard is currently listed on Appendix I of CITES.

Successful steps were taken, probably in 1978, in Jaipur, India to secure the survival of the Great Indian Bustard when the citizens of that city "took out a silent procession protesting against the killing of the rare

desert birds by Saudi Arabian hunters" ("Bustards in Decline" by Paul D. Goriup and Harsh Vardhan).

This action developed into a nation wide movement in defense of these birds. As a result, a successful, in country program, was established to protect the birds and to encourage their survival. The Bishnoi people live in the Indian desert and share the habitat with the Bustards. They have become responsible for the Great Indian Bustards' safety and survival as a species. "Significantly its Bishnoi people share the credit of saving both flora and fauna at the cost of personal life" ("Bustards in Decline"; by Paul D. Goriup and Harsh Vardhan).

The Australian bustard is currently listed on Appendix II.

A very successful government breeding program in Australia has been working with the Australian Bustard for 20 to 25 years.

The Arabian Bustard is currently listed on Appendix II.

Closing Statement:

These birds must not be lost to our sight. They have been our companions for a very long time. The basic "animal contract" that man has with all flora and fauna in this biosphere demands that all Bustards be totally protected from any further destruction and their present status be recognized. In addition to recognition it is imperative that correct and necessary precautions be enacted and enforced at this time to ensure their future, along with ours. After all is said and done, the truth of the matter is that we are all in this together.

In 1980 the first International Symposium on Bustards was held November 1st to November 3rd in Jaipur, India. There is a World Bustard Movement in existence at this time and there is a proposal to organize another symposium on bustards in India later next year. The International Council for Bird Preservation headquartered in the United Kingdom maintains a Bustard Study Group. Paul D. Goriup leads that group. His address is: The Nature Conservation Bureau, 122 Derwent Road, Thatcham, Newbury, Berkshire, United Kingdom RG13 4UP.

If these birds are lost due to our neglect it will be a very sad comment on our time. A tragedy. If you have any interest in these birds, please write to Mr. Paul D. Goriup and join the effort to save these birds. ●