Breeding the Pinknecked Fruit Dove

Ptilinopus porphyrea

at Disney's Animal Kingdom (DAK)

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Description

he Pink-necked Fruit Dove, also commonly referred to as the Temminck's Fruit Dove, is found in forest habitats on the islands of Sumatra, Java, and Bali (Delacour 1979). As with many island animal species the Pink-necked Fruit Dove's status relies on preserving its natural habitat. At present it is not listed as globally threatened but as forest regions are reduced so is its natural range. In captivity it is one of the more well represented species of fruit dove, yet their numbers are small requiring a studbook to preserve genetic diversity. At present there are 12 male and 10 female Pink-necked Fruit Doves registered with the AZA sponsored studbook (Morris 1998). The low ratio of females hatched in comparison to males and the overall low numbers of birds in captivity have created problems in pairing.

The head, neck, and upper back of the male is a pinkish lavender extending into crimson lavender on the lower chest, throat, and nape; the mid chest is bordered by a band of white and then a narrow blackish green band. From the chest bands to the abdomen the male is powder grey. The upper parts are a rich grey/green tinged with yellow; the tail is also grey/green with a grey band on the tip. The feathers of the abdomen, vent and legs are a mixture of white, blue/green, yellow and apricot in the male.

The female is a slightly smaller bird with less clearly defined coloration; the head and neck being a muted lavender and the white and black bands of the chest being less pronounced. Underwing coverts are blue/grey in both sexes. Females lack the apricot color of the leg, vent and abdominal



area. Mature birds are easily sexed visually. Young are overall shades of grey/green extending into iridescent green of the upper back, wing coverts and flight feathers. The feet of both sexes are coral pink with grey toe nails. The bill and nares are grey.

History at DAK

Disney's Animal Kingdom acquired a male in early 1998 followed by a female in 1999. The pair appeared to bond quite quickly and after the required quarantine period was "howdied" and then released into a large mixed species Asian aviary. The aviary measures 100 feet by 55 feet and is 40 feet tall. Thirty-eight bird species inhabit the Asian aviary from Tri-colored Flycatchers *Ficedula zanthopygia* and Dhyal Thrushes *Copsychus saularis* to Azure-winged Magpies *Cyanopica cyana* and Amboina King Parrots *Alisterus amboinensis*.

Nine other species from the family Columbidae also share this enclosure including Sulawesi Quail Doves *Gallicolumba tristigmata*, Wompoo Fruit Doves *Ptilinopus magnificus*, Green-winged Doves *Chalcophaps indica*, Pheasant Pigeons *Otidiphaps nobilis*, Jambu Fruit Doves *Ptilinopus jambu*, Barlett's Bleeding-heart Doves *Gallicolumba criniger*, Nicobar Pigeons *Caloenas nicobarica*, Papuan Mountain Pigeons *Gymnophaps albertisii*, and Pink-necked Green Pigeons *Treron vernans*.

Diet

The diets fed to the DAK aviary birds are complete and varied but relatively simple to prepare. The majority of the diet bowls included Mazuri brand parrot pellets and Mazuri small bird breeder pellets (both soaked until moistened through), 50/50 mix of finch seed and dry small bird breeder pellets, freshly chopped fruit mix containing grapes, cooked sweet potato, apple, raisins, pear, and pineapple. Shredded carrots and dark leafy greens, along with a commercially prepared insectivore mixture are also sprinkled in the mix. Soaked parrot pellets seem to be the Pink-necked's favorite food item. Several of these diet dishes are placed throughout the aviary in an attempt to dissuade displacement and aggression between species. The diets are prepared and offered to the birds in the morning and again fresh diets are prepared and fed





The male Pink-necked Dove has the color. The female (below) is more drab.



at midday. Diets are pulled overnight unless chicks are being reared. Large ficus trees *Ficus microcarpa* also offer the birds fresh figs, buds, and flowers which they relish.

Pair Behavior and Breeding

The male Pink-necked had been an aviary resident for six months prior to the release of the female. The male took an immediate interest in the female when she was placed in the aviary "howdy" or introduction cage and was observed strutting across the top of the cage vocalizing. After a brief introduction she was released and the male commenced to courting her. The pair formed a strong bond within two weeks.

Three weeks later the male was seen bringing short twigs and dried laurel oak leaves *Querus virginiana*, which have small rounded leaves 1-2. 5 inches in length, to a site 28 feet overhead in a large ficus tree. Precopulatory behavior was observed to consist of brief bouts of allopreening preceded by, or during which the male inflates his chest and vocalizes while bowing. The female was then observed to stoop forward and spread her tail at which time the male mounted. Actual copulation lasts for 1.5-3 seconds.

By the end of their first month together the birds were incubating an egg. From the time of the female's introduction into the Asian aviary the pair was constantly harassed and displaced by a pair of Wompoo Fruit Doves. The male Wompoo and the male Temminck's pursued each other relentlessly whenever either came into view of the other. Scuffles and displacement between these two species sometimes occurred for several hours throughout the day and frequently occurred near feeding stations and in the ficus tree near to where the Temminck's nesting site was located. On one occasion the two males were observed to lock feet and tumble to the ground. The male Wompoo even invaded the Temminck's nest site causing them to desert the site, always rebuilding nearby. The Wompoo Fruit Doves were determined to be the more aggressive of the two species

and after six months, and five nesting attempts, the Temminck's pair was moved to an off-exhibit bird research and holding facility in January.

Bird Holding

The pairs new accommodation in bird holding is a 5 foot wide x 9.5 foot high and 12 foot deep aviary made of $\frac{1}{2}$ X 3 inch welded wire. The aviary floor is soil covered to a depth of 4 inches with 1/8 inch pebbles which allows for good drainage, raking, and sifting to remove debris. This new aviary stands in the middle of a row of five flights, the pairs only neighbor being a single male Brimstone Canary Serinus sulphuratus housed to one side. Neither canary nor the fruit dove enclosures were planted as this was a newly constructed facility. The planting of trees and shrubs was not completed.

The pair quickly settled in and the male began courting the female. Copulation was observed the next day. Nest platforms measuring $6 \ge 8$ inches and $6 \ge 6$ inches made from $1 \ge 3$ inch boards were placed in their enclosure the following day. On the fourth day in their new home the pair was observed to fly to the floor of the enclosure and investigate the far corner. They spent several minutes allopreening on the ground in this corner, the female was observed walking in tight circles in the area.

On the same day she began to pull small leaves toward her while sitting near the corner. A Macho fern Nephrolepis bifurcata was immediately planted in this corner in an attempt to give the birds something to nest on or to dissuade them from nesting on the ground all together. The pair investigated the fern and began to nest build on the ground in front of it. The male was soon breaking small twigs and leaves from the dead oak tree branches and bringing them to the female. Dense, dry, and fibrous rootlets from a nearby orange tree were added directly to the nest site by a keeper providing a thicker barrier between the bird and the pebble floor. Two days later the pair laid its single white egg atop five small twigs, the size of wooden matches, and the rootlets. The average measurements for the two eggs laid to date are 31.20 mm x 22.90 mm.

The pair did not begin to incubate the egg continually until the 3rd day. Prior to this both the male and female took long breaks from incubation, lasting from 15 minutes to three hours. The Pink-necked studbook (Morris 1998) describes the average length of incubation, an average of three nesting instances, as being 18.5 days. In our case incubation lasted 20.5 days. This may be due to our unusual case in which the egg was laid in a nest on the ground. (The ground temperature being cooler than the 80-85 degree daytime air temperature may have caused the embryo to develop more slowly. Although a second egg laid by the pair in a tree nest site hatched after 20 days of incubation.)

The pair shared incubation with the female performing majority of the duty. The female was observed to incubate from late afternoon, beginning between 2:30 P.M. and 4:15 P.M. until early morning, ending between 7:00 A.M. and 9:00 A.M., with the male replacing the female as soon as she was off. The pair appeared to become anxious whenever the incubating member left the nest. At these times the birds would pace in the branches above the nest while peering down at the egg, within 60 seconds the next bird would fly to the ground and take its turn incubating. On three occasions both the male and the female were observed to incubate, or tend to the egg, by resting to its side (not incubating by sitting directly over the egg.) Incubation was carried out without any significant incidents.

Chick Rearing and Development

Once the chick hatched it was dry within 24 hours and was covered in a dense white down. It was brooded by both parents in nearly the same turns as they had taken as when incubating. The chick grew very quickly and seemed to always have a very full crop although on only one occasion were the parent birds actually observed feeding the chick. The chick's crop was often filled to the point where it did not appear that a single drop more could be swallowed.

At three days of age the chick was

alert and could shuffle in the nest to turn itself around. The parent birds occasionally brooded to the side of the chick rather than sitting directly over it (they were also observed to do this on two occasions while incubating the egg. The outdoor mean temperature at this time was in the low 80s.) The chick was soon covered in dark, white tipped pinfeathers with the secondary and primary flight feathers beginning to appear at five and six days of age. At this time the chick's down had grown to be long and wispy. The parent birds began to brood the chick less during the day from the time it was 8 days old.

A routine technique is employed by the aviary team at DAK whenever inspecting dove, pigeon, and many other bird species nests. In these instances two people are necessary. Both people approach the nest, one removes the chick or the egg to record data while the other remains in close proximity to the nest so that the parent birds do not immediately return. The theory being that a parent bird returning to an empty nest might desert the site, not returning even after the chick or egg is replaced. So far we have not had any parents desert a nest as a result of this practice.

While chick developmental observations were recorded, and weights taken, the parent birds remained quite calm. Any handling of the chick was done while both parent birds were off the nest, most were timed to occur during the brief periods when the parent birds switched at brooding. At three days of age the chick had very good motor skills and was able to clench onto nesting material, pulling it with him when removed from the nest. It also began performing threat displays, puffing-up and raising its wings when approached to be handled from 10 days old.

At 12 days of age the chick's contour and flight feather shafts were nearly half open. Weighing less than 50 grams and smaller than $\frac{1}{3}$ the size of his parents, the chick became more active. In a proper tree nest site it is likely that the chick would be perching on the edge of the nest, but since its nest was built on the ground the chick had no choice but to take short walks.

Unbeknownst to the keepers, the

chick's very first walking adventure took him behind a shrub. After the initial shock to the keeper, the missing chick was placed on a branching tree limb placed on the floor next to the nest. Again the parent birds did not appear disturbed by additional perching and continued to brood and care for the chick.

The chicks feathering, at 13 days, was largely a muddy dark green. Each contour feather of the body, wing covert, and flight feathers are tipped in bright creamy yellow. Giving a scalloped effect to the plumage pattern. The wing coverts, secondaries, and primaries are an iridescent grass green in comparison to the dull grey/green hues of both parent birds. The contour feathers of the head, neck, and chest were the last visible feathers to open, but it was the axillary feathers of the underwing to open last.

At 16 days of age the chick would fly, frightened at our entrance, into his aviary and hang on the wire at the far side. After being weighed he was returned to the aviary floor, as he was often too panicked to be placed on a perch, but eventually joined his parents on the higher perches. On occasions when the chick was frightened and hung on the wire, his strength was soon exhausted as he was observed to hang head-down from his outstretched toes. As this appeared to be very unnatural, occurring for an extended period of time, a keeper entered the flight and disengaged his feet from the wire at which point he seemed happy to perch normally on a branch. Much of the chick's and the parent's time is spent perched nearly motionless.

The chick began picking lichens growing on perching at 26 days of age and was observed eating from the food bowl when he was 29 days old. Up until this time he was occasionally observed following and soliciting for food from the male.

The male was observed to begin courting the female when the chick was 26 days old. The adult pair began preparing their second nest, located 2m from the ground, in a 6 x 8 inch nest platform when the chick was 30 days old and laid an egg two days later.

The Temminck's pair was not

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observed to consistently incubate their second egg for the first two days. It was felt that the presence of the chick from the first clutch, now 34 days old, may have been distracting the adults from their new nest. Fortunately the design of the new bird facility at DAK allows us to open mesh doorways into larger planted flights. At this time the chick was given access to a large adjacent aviary, separating him from his parents.

Although in full view of his parents, it became obvious that the chick was not completely independent as it was not observed to eat for the first 24 hours. The parent birds were then given access to the adjacent aviary and to the breeding aviary. The female soon fed the chick and the pair settled into the larger aviary abandoning their second nest and egg. This new residence is moderately planted and measures 30 feet x 21 feet x 9.5 feet high. The pair has begun to build a nest four feet from the ground in the branches of a crepe myrtle tree. The chick has not been observed to interfere with this new nest site.

Table 1. Weight Chart March 1- April 30

Day 2 - 11.3 grams
Day 4 - 18.8 grams
Day 7 - 33.7 grams
Day 9 - 40.3 grams
Day 11- 47.5 grams
Day 14-50.8 grams
Day 31-113.3 grams
Day 52-136.2 grams

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