## Breeding the Cinnamon-headed Green Pigeon

by Ted Fox Marcellus, N.Y.

ittle information has been recorded on this beautiful species of green pigeon that inhabits Malaysia, Sumatra, Borneo and surrounding islands. As many fruit pigeons and doves, Cinnamon-headeds Treron *fulvicolis* are obviously sexually dimorphic with males having the cinnamon colored head and neck changing to greenish gold on the breast with reddish purple on the mantle and lesser wing coverts. The abdomen is yellowish green becoming gray green on the flanks. Outer wing coverts, secondaries and primaries are dark green edged in the bright yellow which is typical for this genus. Under tail coverts are light chestnut. Feet are dark pink with white nails. The female differs markedly and is completely lacking the cinnamon and chestnut colors. Head and crown are gray. Under tail coverts are white or yellowish white. Shades of olive and yellow green predominate on the rest of the body. Juvenile coloration is similar to the female.

Three males and two females were acquired in the early summer of 1993 from an importer in Florida. A few birds - and as far as I know the only others of this species that are in the country from the same shipment were also sent to a zoo in Tennessee. After clearing quarantine, the newly acquired group was held in a large flight cage (6 ft. x 10 ft. x 8 ft.) with natural plantings. The birds were all housed together to encourage the successful formation of a strong pair bond between at least one pair of birds. There was full spectrum lighting above the flight as well as some natural light. The birds were kept on a 14L:10D lighting regime. Daily diet includes a variety of fresh fruit and vegetables (papaya, grapes, apples, plantains, kiwi, melon, cooked yam, corn, peas and carrots) and Purina 'Nutri-blend'

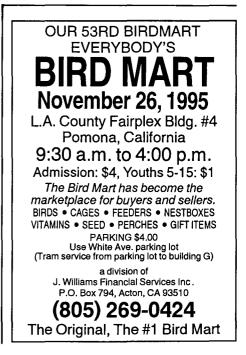
Gold Pigeon pellets. Each bird receives approximately one half cup of the fruit/vegetable mix and Pigeon pellets ad lib. A calcium supplement is also added to the fruit/vegetable mix.

By early August all three of the males were vocalizing frequently and two of them were observed courting the females. In September one pair of birds was observed roosting together at night and spending much of the daylight hours in close proximity to each other. This pair was then introduced to a flight (of similar dimensions) where they were housed alone. After several unsuccessful attempts to 'agree' upon the best potential nest site - even when there was only one nest basket remaining in the flight — the male continued to try to build a nest in the furthest corner on a natural branch and the female favored the feeding platform. At this time the pair was moved to a smaller (2 ft. x 3 ft. x)4 ft.) cage suspended from the ceiling (I had had success breeding other fruit pigeon species in these cages). One potted plant was hung from the top of the cage to offer the birds some privacy this seems to make a significant difference in the behavior of the birds. Without the plant the birds tend to be much more flighty. Perches consisted of natural maple or oak of various sizes. The nest basket offered was 6 in. x 8 in. x 2 in. deep and made out of 1/2 in. hardware cloth. It was situated 8 in. from the top of the cage in the back center, behind the potted plant.

The male began courting the female two days after being moved to the smaller cage. He was especially vocal and active in the late morning. Twigs were offered for nest construction and the same day that they were offered the male began actively carrying the twigs to the nest basket. Complete nest construction took two days and was done primarily by the male. When the nest had been completed, the birds both appeared to be more nervous when their cage was being serviced. In an attempt to alleviate this problem tennis-mesh was attached to the front upper half of their cage. The tennis-mesh seemed to help greatly and the birds seemed to be on track once again.

Two eggs were laid with a 48 hour interval between them. Even though the female remained in the nest with the first egg, she did not appear to be incubating it until the second day (the male did not incubate for the first 24 hours). Incubation was shared by both of the parent birds. The male would come to the nest at daybreak and relieve the female. She would leave the nest basket, fly to the feeding platform, defecate and begin feeding. She alternately feeds and roosts throughout the day, returning to the nest just before dusk. At this point the male eats and then roosts for the night within 10 in. of the nest. It is possible that the male consumes something prior to his daily incubation, but this was not reliably observed. I feel that it is worth mentioning that the male, on two occasions, was not relieved by the female and he incubated through the night. The following morning he was relieved by the female for approximately one hour - in which time he ate - then returned to the nest for the remainder of the day.

The eggs hatched on the 15th and 16th day after the appearance of the first egg lending further credence to the idea that true incubation does not begin until the day after the first egg is laid. The





The male Cinnamon-headed Green Pigeon.

chicks were brooded and fed by both parents on basically the same schedule as incubation, with the exception that the male, for the first four days, was often on the edge of the nest. The adults brooded the chicks very tightly and only occasionally would I catch a glimpse of one of the chicks. Due to the extent of stress that the adults were demonstrating, I had decided not to try to take weights or measurements of the chicks for fear that the parents would abandon or injure them. After nine days the smaller of the chicks was found dead in the nest. Its crop was completely empty and development was far behind the other chick. The surviving chick seemed to be growing normally and appeared healthy. Pin feathers appeared at four days. On the twelfth day the chick fledged. It easily followed the parents and could be heard begging from them. At this point the parents once again began to demonstrate signs of stress when I was in the room; I therefore spent as little time as possible in the area. On the third day post fledging the chick was found dead on the bottom of the cage. Its crop also was completely empty and upon gross neucropsy the chick was thin but otherwise normal. Biopsies and cultures taken from the chick revealed nothing abnormal.

Six days after the death of the second chick the adults had rebuilt their nest and the female had laid the first egg of their second clutch. All nesting and hatching patterns were identical to the

previous clutch except that the male was never observed incubating through the night. This time both chicks survived and fledged together, which again occurred on the twelfth day following the hatching of the first egg. The chicks were both observed perching on the edge of the food dish by the afternoon of the day they fledged. The second day the larger of the chicks was observed consuming small pieces of fruit from the dish. At night the chicks would perch next to their parents. The third day post fledging the smaller chick was found dead and once again the crop contained no food. The surviving chick persistently followed the parents begging and vocalizing to be fed. Occasionally the parents were observed feeding the chick. The male fed the chick more frequently than the female. The chick would also follow the parents to the feeding station and ate on its own while continuing to solicit the adults for food. At age 17 days the chick began perching and roosting for the night away from the parents. By the age of 23 days no further observations of parental feeding were noted.

When the chick was five weeks old the adults produced another clutch of two eggs. After three days one of the eggs was found broken, perhaps by the chick who frequently roosted in the nest. At five days the parents abandoned the nest. The remaining egg was found to be fertile, but dead. The chick was moved to a separate cage one week later. Over the next three months the pair continued to court, construct nests and produce fertile eggs, however the male refused to participate in incubation. The female would incubate continuously - with only brief feeding breaks - and then routinely abandon the eggs after four days when the male displayed no interest in occupying the nest. Attempts are being made to rectify this aberrant behavior with the hope of restoring natural incubation and rearing by the parents.

In the meantime, reliable protocols for artificial incubation and handrearing are being developed. The artificial hatching of the eggs seems to be quite simple, the problems begin with handrearing. As anyone that has attempted to handraise a pigeon or dove from hatching can attest, 'a bird in the hand' means little when you consider the weeks ahead. The original chick that was hatched and raised by the parents is six months old at this writing. It is believed to be a female, which would enable me to form another pair of this interesting species. With perseverance and a little luck, I am hopeful that the pairs will begin to reproduce more successfully. This coming season I will again attempt to set up one of the pairs in a large planted aviary in hopes that the birds will demonstrate more natural breeding behaviors.

In retrospect, I may have been able to save one or more of the first chicks by pulling them for handrearing after they had fledged, however I felt that it was important to give the parents the experience of raising their own chicks in order to ensure future successes.

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A fledged baby Cinnamon-headed Green Pigeon sits near its mother.

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