

Unusual Roosting Partners of Timor Sparrows

Padda fuscata

by Christy Sky, Disney's Animal Kingdom

Have you ever wondered what birds do at night? Do they simply find their favorite roosting spot for the night and sleep peacefully till dawn? Do they roost by themselves or always next to their mate? Well, one keeper's observations at dusk prompted another keeper to find out just who was roosting with whom.

Late one evening in February a very peculiar observation was noted. In the Asian Aviary at Disney's Animal Kingdom two Wompoo Fruit Doves, *Ptilinopus magnificus* were observed to have a Timor Sparrow, *Padda fuscata* tucked under each wing, as if the Wompooes were "brooding" the Timors. This was indeed a very surprising discovery and from that day forward, daily and nightly observations were recorded on who was snuggling with whom.

This behavior has been documented in Java Sparrows, *Lonchura oryzivora* in captivity by Derek Goodwin (Goodwin, 1982). It has also been theorized that the Timor Sparrow is a color mutation of the Java Sparrow, however, conversations with Luis Baptista suggest this is not the case; that, in fact, they are two different species. However, both species exhibit similar roosting habits in captivity.

Timor Sparrows are a rather large finch with similar patterns to the Java Sparrow but with distinctive color differences. The Timor Sparrow has white cheeks and underparts with the rest of the plumage being various shades of blackish brown, with a definite band across the chest to divide the white underparts. They are found in the Indonesian islands of Timor,



Emerald Dove and Emerald chick with three Timors

Semau and Rote (Goodwin, 1982). They are usually found in open grassy areas and around cultivated fields and are often seen in pairs or small groups foraging for various seeds and grasses. Insects do not appear to play a role in their diet (Goodwin, 1982).

New Home

Our imported Timor Sparrows arrived at Disney's Animal Kingdom in December 1998. After a regular 30-day quarantine period, where they underwent routine physical examinations, they were then moved to an acclimation enclosure in the newly opened Asian Aviary. The aviary is approximately 140 X 50 X 40 feet with a shallow pond on the east end and a fountain representing a lotus flower in the center. The aviary is planted with several large *figus* trees, various species of bamboo, queen palms, dombeya trees, grasses, as well as many other varieties of plants. The aviary is also home to over 40 mixed species such as, Wompoo Fruit Doves *Ptilinopus magnificus*, Emerald Doves *Chalcophaps indica*, Goldie's Lori-

keets *Trichoglossus goldiei*, Argus Pheasants *Argusianus argus*, Fairy Bluebirds *Irena puella*, Indian Pygmy Geese *Coromandelianus nettapus*, White-collared Kingfishers *Halcyon chloris*, and White-headed Munias *Lonchura maja*, to name a few.

The Timor Sparrows were acclimated in a small enclosure for three days before they were released into the aviary. Upon their release the Timors stayed together in a flock as they investigated every nook and cranny of their new home. Nothing significant was noted in their first few weeks of acclimation. There was no aggression from or towards other species in the aviary. However, during the later part of the afternoons the Timors would tend to spend more time around the Emerald Doves, following them as they foraged throughout the aviary.

Surprising Discovery

Then on February 11, 1999 much to our surprise, two Wompoo Fruit Doves were observed with one Timor under each wing as they roosted at night. The following morning the same

pair of Wompooos had one Timor Sparrow in between them facing the opposite direction while two other Timors were flying around the wompooos. At this point we decided to start collecting observational data on this surprising discovery.

After a few days of observations, we began to realize that at night it was easier to find the roosting spots of Timors than in the morning. At night the Timors would follow their roosting partner around at dusk until the "chosen dove" would roost for the night. In the morning, if the observations were made after first light, the doves and Timors would have already separated for the day. It became obvious that the roosting position at night sometimes changed and it was not always feasible to search for the new roosting spots in the morning. In the morning before light there were only a few areas of the aviary that provide sufficient light to be able to see the Timors and doves. In collecting the data we did not wish to disturb the roosting birds. Due to these conditions we decided to take observations when we staff could, without causing too much disturbance to the aviary.

Data Collection

The data collected was very basic. A keeper would record what type of bird, how many Timors, which direction they were facing compared to the dove, time, and location of the behavior. These data were collected from February 11 to May 29, 1999. This length of time was chosen to try and get as much temperature variation in the aviary as possible. It rarely freezes in central Florida but it does get down into the lower 30s occasionally, warming up to the 50s and 60s by midafternoon. During the time of data collecting, the temperatures ranged from the upper 30s to lower 90s. No changes of roosting behavior of the Timors were noted. They appeared to roost under doves in cold weather as well as warm weather. There are also heated ledges in the aviary that the Timors could be seen perched on during cooler mornings.

We realize that most aviculturists cannot devote this amount of time to

observations, but you might be surprised what you find. During the next four months of recording data, 141 observations were taken. Six different dove species were observed to have anywhere from one to three Timors roosted around or under them. The four arboreal species were Jambu Fruit Dove, Emerald Dove, Wompoo Fruit Dove, Temminck's Fruit Dove *Ptilinopus porphyrea*, along with two ground dwelling species, Sulawesi Quail-Dove *Gallicolumba tristigmata* and Bartlett's Bleeding-heart Dove *Gallicolumba criniger*.

There were also several other species of doves in the aviary that were never observed to have Timors snuggled up next to them. These included Nicobar Pigeons *Caloenas nicobarica*, Papuan Mountain Pigeons *Gymnophaps albertisii*, Green-naped Pheasant Pigeons *Otidiphaps nobilis nobilis*, and a Green Imperial-Pigeon *Ducula aenea*. These species are large, arboreal doves with the exception of the Green-naped Pheasant Pigeon, which is a large ground dwelling dove.

Who Roosts with Whom

Of the six species of doves that were observed with Timors, there were definitely certain species observed more frequently than others. For instance, almost every time an observation was made of an Emerald Dove there would be at least two Timor Sparrows roosting one under each wing; and upon occasion, one Timor would also be roosted between the doves legs, for a total of three Timors under one dove!

The Wompoo Fruit Doves were another apparent favorite species for the Timors, and they always seemed to have Timors around them at night. The Jambu Fruit Doves were observed many times with Timors but not nearly as often as were the Emerald Doves or Wompoo Fruit Doves. The Sulawesi Quail-Dove, Bartlett's Bleeding-heart Dove and the Temminck's Fruit Dove were a lot harder to find due to their roosting locations. They were observed on fewer occasions than the other species and when they were seen they

did not always have Timor Sparrows roosting with them.

Roosting Tolerance

Some differences between the tolerance levels of the doves toward the Timors became apparent about a month into the study. Keepers began to notice at dusk the Timors started following Emerald Doves around. They ate out of the same seed dish, hopped on their backs to get around them, constantly pecked at their feet and breast feathers and tried to snuggle up as close to them as possible. At some points it almost looked as Timor Sparrows were mobbing a single Emerald Dove. Everywhere the Emerald Dove flew the Timors were inches behind it. As soon as the dove landed the Timors would try to snuggle in between its legs and under its wings. The Timors would constantly peck at the doves feet and wing feathers until the dove raised its wings and let the Timor roost under the wing or between its legs.

In April a pair of Emerald Doves nested in a small holding area, which is connected to the aviary and raised a single chick. It was odd enough that these doves chose to nest in a small cage instead of the aviary, but the Timors never came into the holding area to roost or be near the incubating doves. However as soon as the chick fledged and came out of holding into the aviary, the little fledgling was introduced into the world of Timor snuggling. The very same night the chick fledged, the Timors were observed flying around, landing on top of and trying to roost underneath the young Emerald chick. On several occasions we observed the adults feeding the chick. Amazingly, while the adults were feeding the chick three Timor Sparrows were flying and landing on the parents and the chick as the feeding took place. When the chick finally settled down to roost next to its parents a Timor flew down and jumped on the chick's back and slid down in between the parents and the chick to roost for the night. The Emerald Doves never once tried to displace or chase away the Timors.

The Wompooos were also very

tolerant of the Timors. The Timors followed the Wompooos at dusk just as they did the Emeralds. The Wompooos even built a nest in the aviary and upon occasion Timors could be seen roosting underneath the doves as they incubated their egg. No chick interaction could be observed as the egg was destroyed during a severe thunderstorm. As with the Emerald Doves, the Wompoo Fruit Doves were not observed to be aggressive toward the Timors. They simply roosted for the night while the Timors would roost underneath and all around them.

The other dove species did not appear to be as tolerant as the Emerald Doves and Wompoo Fruit Doves. The Jambu Fruit Doves would continually fly away from the Timors and never settle down for the night if the Timors were near. The Timors had to wait until it was almost completely dark before the Jambus would allow them to roost underneath their wings. It was usually only one Timor per Jambu. The Jambu were rarely observed with more than two Timors per bird. The Sulawesi Quail Dove and Bartlett's Bleeding-heart Dove were not observed to have Timors flying after them. They only had a single Timor underneath their wing at any given time. The quail dove at one point was observed pecking at the top of a Timor's head while the Timor was trying to get under the dove's wing. The Timor, however, would not go away and finally the quail dove flew off and the Timor did not pursue.

At the time of these observations we had only one male Temminck's Fruit Dove and it was always very hard to find his roosting place. He was rarely observed with any Timors around him, except on five or six different occasions at night, but never early in the morning.

Interesting, not a single Timor Sparrow or group of Timor Sparrows was ever observed roosting alone or with other Timors exclusively. They were always roosted with some species of dove. If we take a look at the geographic distribution of the Timors we find only three species of doves which share the same range; the

Spotted Dove *Streptopelia chinensis*, which is arboreal, Green Imperial Pigeon *Ducula aenea*, another large arboreal dove, and the Emerald Dove. There are 30 species of doves found throughout Southeast Asia, but only these are found in the Lesser Sundas with the Timors.

Java Sparrow's Roosting Partners

While researching this peculiar roosting behavior, I was unable to find anything related to it on Timor Sparrows. On the other hand, this behavior has been well documented by Desmond Morris and Derek Goodwin. Goodwin has documented observations of Java Sparrows in captivity roosting with Turtle Doves, *Streptopelia turtur*, Spotted Doves, *Streptopelia chinensis*, and with ground doves, Bleeding-heart, *Gallicolumba luzonica* (Goodwin, 1982). Again this behavior does not appear to have any correlation with temperature and birds looking for warmth. Oddly enough Goodwin reports that the Java Sparrows did not appear to show a preference to roosting under Emerald Doves as did the Timor Sparrows (Goodwin, 1982).

According to Morris this behavior can be explained by the feather posturing of the doves which creates clumping feather-signals to the Java Sparrows (Morris, 1970). In other words, the estrilidids are a family that roosts together at night with birds clumped together. When they roost they position their feathers in a way that creates a fluffed or "spheroid posture," which in turn signals the other finches they are ready to snuggle for the night. The doves even in an active state appear to have this "spheroid posture" and hence are giving the signal to the Sparrows that they are ready to roost even though they are a different species (Morris, 1970).

Snuggling Thoughts

One must keep in mind that all of these observations have been done with captive populations, whether they were wild-caught or captive-raised. We do not know if this behavior even

occurs in the wild with either species. Common sense dictates that this behavior is not related to warmth, because data were taken over a wide range of temperatures and it did not appear to change the Timors roosting behavior. Other theories besides Morris's documented work, are the possibility of parasites transferred from doves to finches in exchange for protection, or possibly protection itself. There is a Timor Monitor, *Varanus timorensis timorensis*, [a large lizard] and a Python, *Python timoriensis*, that inhabit the island of Timor. However, I could find no references of these reptiles preying on birds, much less Timor Sparrows. Nevertheless, it is obvious more research needs to be done to understand this mystery. It would be fascinating to discover this behavior in the wild and understand its purpose; however, with all the political unrest in Timor it is unlikely this will happen in the near future.

Final Thought

To everyone who did wonder what happens in their aviaries at night, isn't it nice to know there are still new and exciting things for us to discover about our feathered friends? All of you who happen to wander into your aviaries at night and see similar roosting behaviors, please let us know.

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References

- Goodwin, Derek. 1983. PIGEONS AND DOVES OF THE WORLD. Cornell University Press.
- Goodwin, Derek. 1982. ESTRILID FINCHES OF THE WORLD. Cornell University Press.
- King, Ben., Woodcock, Marin., Dickinson, E.C.. 1975. BIRDS OF SOUTH-EAST ASIA. Harper Collins.
- Morris, Desmond. 1970. PATTERNS OF REPRODUCTIVE BEHAVIOR. London. 