

Oriental Turtle Dove Kijibato (Jpn) *Streptopelia orientalis*

Morphology and classification

Classification: Columbiformes Columbidae

| | | |
|----------------|--------------|--------------|
| Total length: | 33-35cm | |
| Wing length: | ♂192-201mm | ♀188-196mm |
| Tail length: | ♂126-142mm | ♀124-138mm |
| Culmen length: | ♂16.3-18.2mm | ♀15.3-18.3mm |
| Tarsus length: | ♂25.5-29.1mm | ♀24.7-29.3mm |
| Weight: | 165-274g | |

The total length and weight after del Hoyo et al. (1997), and the other measurements after Cramp (1985).

Appearance:

Oriental Turtle Doves are similar in plumage coloration in males and females. They are purplish ashy brown from the head to the chest and belly. They have a patch of black and blueish gray stripes on both sides of the throat. The feathers of a wing covert are dark brown with reddish brown edges, which forms a scaly pattern in the wing. The tail is black with light gray tip and edges. The bill is charcoal gray and the legs are purplish red. The iris is orange.



Photo 1. Oriental Turtle Dove. [Hideo Tani]

Vocalization:

Oriental Turtle Doves continuously make low cooing "Dedep, poh-poh". They utter "Coo" bowing with a swollen throat in a mating display. They may give out "Punn!" in threat.

Distribution and Habitat

Distribution:

Oriental Turtle Doves are distributed in the central to eastern part of the Eurasian Continent, western Siberia, India, China, Vietnam, Korea and Japan. Though they are year-round residents in middle to low latitudes, birds breeding in high latitudes migrate south in the wintering period. In Japan nominotypical subspecies *Streptopelia orientalis orientalis* is distributed in and north of Kyushu (the southernmost main island) and *S. o. stimpsoni* occurs in Yakushima Island, the Amami Islands and the Ryukyu Islands (one of the southernmost island groups). They are year-round residents except in Hokkaido (the northernmost main island) and northernmost Honshu (the largest main island), where they are summer visitors.

Habitat:

Oriental Turtle Doves are frequently observed in farmland and coppices around it, but they occur in a wide variety of habitats, ranging from a subalpine zone to urban areas. They were once called "Yamabato (mountain or wood dove)", which suggests that they lived primarily in lowland woods. In recent years, however, they are also common in urban and suburban residential areas.

Life history

Breeding system:

Oriental Turtle Doves are monogamous breeder, and both males and females work together to breed. A breeding pair usually moves together, except when a male or female partner is incubating eggs or nestlings.

Nest:

They build a plate-shaped nest, putting twigs together. Since the nest is shoddy and simple, it is completed in around

four days. The nest is built at a height of 3m on average with a range of 0-10m. They usually build a nest in a tree, but sometimes in a bush about half a meter from the ground.

From egg-laying to fledging:

The clutch size is usually two eggs, which are small (33 by 26 mm) and white (Kakizawa & Kogaito 1999). Males incubate in the daytime and females from the evening till the next morning. The incubation period is 14-16 days, and either parent bird continue to brood nestlings for about four days after hatching. Hatchlings are charcoal gray and sparsely covered with yellow down (Photo 2).



Photo 2. Five-day-old nestlings

Oriental Turtle Doves also feed to their nestlings pigeon milk secreted from the crop as other pigeons. Pigeon milk is a cottage cheese-like substance rich in nutrients, such as protein and lipids. Both males and females secrete it. Parent birds feed only pigeon milk to nestlings at first, but gradually feed them grass seeds and grains (staple food of the species) as well. The nestling period is 14-17 days. Nestlings leave the nest when they are about 60% of their parent birds in weight. Fledglings are provided with food by their parents.

Breeding period:

The breeding period of Oriental Turtle Doves is very long, and they breed all the year round in some areas (Fig. 1), which is probably related to the feeding of pigeon milk to nestlings. In many bird species, the breeding period is synchronized with the time when food for nestlings is abundant. But pigeons can breed without being affected by the fluctuation of food supplies because they feed nutritious pigeon milk to nestlings. There is a research report that the peak breeding period of Oriental Turtle Doves corresponds to the time when food for parent birds is in plentiful supply (Nakao 1984). The peak period varies between regions. For instance, it is from late May to June in Hokkaido and Iwate Prefecture, and from August to September in Kyoto. In contrast to these areas with a single peak in a breeding season, there are two peaks in Ibaraki and Aichi Prefs., but the period and frequency of the breeding peak may vary depending on the year.

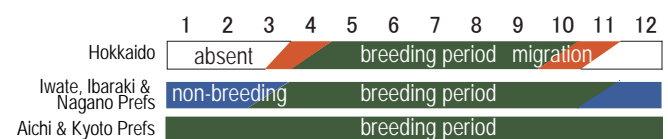


Fig. 1. Breeding period of Oriental Turtle Doves varies between regions.

Topics of ecology, behavior and conservation

● Reproductive success and past nesting record

Oriental Turtle Doves may breed several times in a long breeding period. There is a record of the pair that attempted to breed eight times a year. Another pair bred successfully four times a year. On the other hand, some pairs breed only once a year. Wada (1991) showed that Oriental Turtle Doves nested at a similar height and at a similar distance from a tree trunk again when their previous breeding was successful. He also revealed that they tended to fail in breeding when they reused the old nest where they had failed within 60 days of the previous breeding attempt (Wada 1992). The study suggests that the previous breeding performance has an effect on the nest site selection and performance of the following breeding.

● Predator and anti-predator behavior

The breeding success of Oriental Turtle Doves varies depending on the season and year, but it is 20-40% (Abe 1979, Murakami & Fujimaki 1983) which is lower than other bird species. Predation is primarily responsible for their breeding failure. Reported nest predators are Large-billed Crows (*Corvus macrorhynchos*), Carrion Crows (*C. corone*), Azure-winged Magpies (*Cyanopica cyanus*), cats (*Felis catus*) and Japanese rat snakes (*Elaphe climacophora*). When predators approach the nest, parent birds may hit them with the wings or jump down from the nest to feign injury. These behaviors can be conducted to save eggs or nestlings from predation. However, whether these behaviors were conducted to the author or not is not significantly related to nest site features, habitat conditions, seasons, nestling's age in day and breeding success rates (Kameda 1994). Although Oriental Turtle Doves attempt to avoid nest predation through nest site selection and anti-predator behavior, there is still no evidence that these behaviors contribute to breeding success.

● Breeding strategy: Advantage of clutch size and annually multiple breeding

As mentioned above, the clutch and egg sizes of pigeons are relatively small. Small egg and clutch sizes play an important role in the breeding strategy of pigeons. In short, it is assumed to be more strategically advantageous for Oriental Turtle Doves to reduce a clutch size and increase the annual frequency of breeding than to increase a clutch size and breed once a year because they are at the high risk of nest predation.



Photo 3. Nest where chicks are experimentally increased to three birds. Ten days after hatching.

I checked whether there was any difference in breeding performance and the growth rate of nestlings between a normal two-bird brood, an experimentally decreased one-bird brood and an increased three-bird brood to verify this assumption (Photo. 3; Kameda 1996). The mean number of fledglings was larger in a three-bird brood than in a two-bird brood, but the mean weight of nestlings at fledging was lighter in a three-bird brood and the nestling period was longer because the smallest nestling remained for a longer time in a nest than the other two (Fig. 2). In addition, it is assumed that the survival rate of the smallest nestlings is lower after leaving the natal site and the fledgling period (from fledging to independence) is longer because they are lighter in weight at fledging. Prolonged fledgling period reduces the total annual frequency of breeding attempts. Therefore, it is assumed that Oriental Turtle Doves have adopted a strategy to increase annual breeding frequency by decreasing investment in one breeding attempt as countermeasures against nest predation instead of increasing the number of fledglings in one breeding attempt. This strategy is advantageous in this species with high predation pressure.

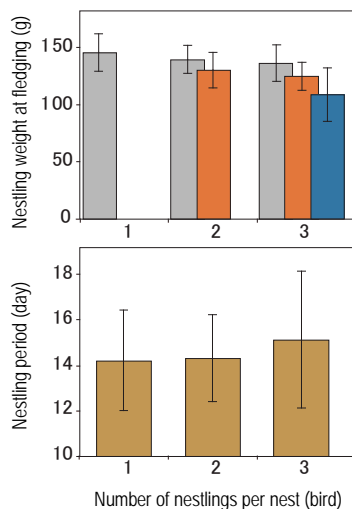


Fig. 2. Nestling weight at fledging (above) and nestling period (below) in nests with 1, 2 and 3 nestlings. Drawn after Kameda (1996).

● Damage of Oriental Turtle Doves to crops

Oriental Turtle Doves have been studied in terms of their agricultural damage as well. The staple food of this species is plant seeds and grains. In the vicinity of farmland, therefore, there is a large proportion of crops in the stomach contents of Oriental Turtle Doves. The crops consist primarily of soybeans from the sowing to germinating period and wheat at the harvesttime (Nakao 1984, Matsuoka & Nakamura 1987). It is reported that the crop damage of Oriental Turtle Doves is closely related to crop seasonality and the breeding period of Oriental Turtle Doves corresponds to the time with an abundant supply of the crops which are food for them.

Literature

Abe T. 1979. Foraging behaviour of *Streptopelia orientalis* and the control methods of its injury. *Shokubutsu-Boeki* 33: 508-512. [J]
 Cramp S. 1985. Handbook of the Birds of Europe, the Middle East and North Africa. Vol. 4. Terns to Woodpeckers. Oxford University Press, Oxford.
 del Hoyo J., Elliott A. & Sargatal J. (eds). 1997. Handbook of the Birds of the World. Vol.4. Sandgrouse to Cuckoos. Lynx Edicions, Barcelona.
 Kakizawa R. & Kogaito G. 1999. Nests and Eggs of Birds of Japan. Sekai Bunka Publishing Inc, Tokyo. [J]
 Kameda K. 1994. Effectiveness of antipredator behavior of the Rufous Turtle Dove *Streptopelia orientalis*. *Jpn. J. Ornithol.* 43:79-89.
 Kameda K. 1996. Optimal brood size and its limiting factors in the Rufous Turtle Dove *Streptopelia orientalis*. *Ecol. Res.* 11:51-60.
 Matsuoka S. & Nakamura K. 1987. Seasonal Fluctuation of Soybean Damage Intensity by Rufous Turtle Dove *Streptopelia orientalis* and the Factors Affecting It. *Jpn. J. Ornithol.* 36:55-64. [J+E]
 Murakami J. & Fujimaki Y. 1983. Breeding biology of Rufous Turtle Dove *Streptopelia orientalis* in the Tokachi District, Hokkaido. *Tori* 31: 95-106. [J+E]
 Nakao H. 1984. Fluctuations in Population Density and Breeding Performance of the Rufous Turtle Dove, *Streptopelia orientalis*, in Hokkaido. *Jap. J. Appl. Ent. Zool.* 28:193-200. [J+E]
 Wada T. 1991. A dynamic aspect of nest site choice in the Rufous Turtle Dove, *Streptopelia orientalis*. *Physiol. Ecol. Jpn.* 28:1-12.
 Wada T. 1992. An implicit cost of nest re-use in the Rufous Turtle Dove, *Streptopelia orientalis*. *Jpn. J. Ornithol.* 40:43-50.
 Wada T. 1994. Effects of height of neighboring nests on nest predation in the Rufous Turtle-Dove (*Streptopelia orientalis*). *Condor* 96:812-816.

Languages of literature cited other than English: [J] in Japanese, [J+E] in Japanese with English summary.

Author

Kayoko KAMEDA Lake Biwa Museum

My mentor's suggestion was that it is easy to study a common species which tends to have unknown aspects. Therefore, I followed the advice and I chose to study Oriental Turtle Doves. During the five years of my graduate school, I ran around the campus of University of Tsukuba by bicycle searching for their nests. When I found one, I climbed the nest tree to measure nestlings. It was my only achievement in the school days that I carried out fieldwork almost every day for nine months of a year. In 1996 when I joined the staff of the museum, I switched my focus from doves to Great Cormorants to study the impact of birds on the ecosystem. For some reason, I have studied only the birds that have little "sense of season" (no distinct non-breeding season) and nestlings with "monster faces". But I admire them, wondering if their opportunistic and happy-go-lucky characters are the toughness and broad-mindedness that they have acquired to live in the close vicinity of humans.



kameda@lbm.go.jp