

Japanese Green Pigeon Aobato (Jpn) *Treron sieboldii*

Morphology and classification

Classification: Columbiformes Columbidae

Total length: 315-348mm
 Wing length: ♂ 183-196mm ♀ 177-187mm ♂ Juv. 172-186mm
 Tail length: ♂ 109-133mm ♀ 103-123mm ♂ Juv. 100-105mm
 Culmen length: Ad. 18-21mm ♂ Juv. 20mm
 Tarsus length: Ad. 24-28mm ♂ Juv. 20-27mm
 Weight: Ad. 217-300g

Total length after Enomoto (1941), other measurements of adults after Kiyosu (1978), and those of juveniles (age approximately 1.5-2 months) after Komatan (2004b).

Appearance:

The Japanese Green Pigeons are roughly green all over with some sexual dimorphism in plumage coloration. They have pink feet and soft light blue bills. The iris is two-toned with the outer red ring and blue inner ring (Photo 1). Males have reddish purple patch on the small and middle wing coverts, greenish brown patch on the greater wing coverts and grayish green long and broad shaft-stripes on the undertail covert. They are dark green from the crown to the back and pale yellowish white on the abdomen. They are generally yellowish green or yellow on the forehead and from the throat to the chest, but these parts are sometimes tinged with orange. The females have no reddish purple patch on the wing coverts. Also the green color of the forehead and throat to the chest is deeper in females than in males. A dead male had 4,715 feathers including 14 rectrices (Komatan 2004a).



Photo 1. Adult male (left) and female (right).

Juveniles have buff-colored tips of the greater wing coverts and secondary flight feathers, which stand out and look like 2-3 white bands (Photo. 2). Since juvenile birds are smaller, with narrower secondary remiges and shorter rectrices than adults, they are distinguishable while flying at Terugasaki Point, Kanagawa Prefecture where they come to drink seawater. About a month after fledging, male juveniles develop reddish purple patches on the wing coverts, which look like 2-3 partial bands or flecks. At this time, they become almost the same size in bill and body as adults, but the bill color is mostly pink.



Photo 2. Juvenile male.

Vocalization:

Japanese Green Pigeons frequently sing in the breeding period like "Oh-, aoh-, Ah-oah-, Oh-aoah-" with stress laying on "a" part, which sounds like a bamboo flute or the yodelling in falsetto. The song consists of a high and a low tones. They also mutter rapidly "Popopopo", "Poh-poppoppoppo" or "Kokokokokoko" (Komatan 2003a). The song goes "Oh-oh-go-Att-oh-, oh-, oh-, oah-o, oah-o, ah-oah-o, AoAh-, ah-oao, oao-, oh- " in the study site of Kanawa Pref.. Hearing it in the distance, however, you can hardly catch the prelude of "Oh-oh-go-Att-oh-".

Distribution and Habitat

Distribution:

Japanese Green Pigeons are distributed in the Far East such as the southern Sakhalin, Kunashirito in the Kuril Islands, Japan, south-eastern China, Taiwan and northern Vietnam. They are also recorded in the subtropical islands such as the Ryukyu Islands, the Izu islands and the oceanic Ogasawara Islands (27°4' N,

142°13'E). This species ranges to the northernmost region among the genus *Treron* (Nakamura 1980). The subspecies *T. s. sieboldii* is assumed to be endemic to Japan (Kiyosu 1978, Gibbs 2001, Komatan 2004a).

Habitat:

Japanese Green Pigeons are forest-dwellers from hills to mountains. They rarely come out to an open place, but they have a habit of visiting a coastal area in a flock to drink seawater from early summer to autumn. They spend most of the breeding period in broad-leaved deciduous forests south of Honshu, but they are less abundant in Hokkaido, northern Japan (Fujimaki 1999).

Life history



Breeding system:

Japanese Green Pigeons breed from mid-May to mid-September in the Tanzawa mountains, Kanagawa Pref., central Japan. They can breed twice in one breeding season. They arrive at the breeding grounds in mid-April and move about in flocks until early May. They call like "Popopopo", bobbing their tails and shaking their heads, which is assumed to be their courtship behavior. This "Popopopo" call is heard in May and in late June, which suggests their two breeding attempts (Komatan 2003a).

Nest:

A nest of Japanese Green Pigeons was found in the fork of the branch of a dog hornbeam at a height of 12m in the Tanzawa Mountains. The nest tree was 18m in height and 28cm in diameter at breast height. The nest was built on a branch with hardy kiwi (*Actinidia arguta*) vine twined around it (Photo. 3). The nest was plate-shaped and about 25cm in diameter with fine twigs piled on the bottom (Komatan 2003a). Only a few nests have been discovered in Japan due to the difficulty in finding them.

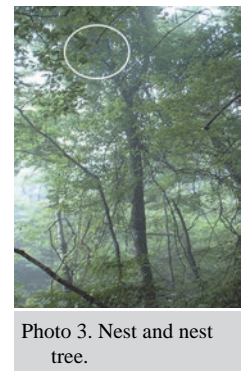


Photo 3. Nest and nest tree.

Egg:

The clutch size is two eggs. The egg is milky white with no flecks. The size is 29.0-34.5mm by 21.0-27.4mm (Kiyosu 1978).

Incubation and nestling periods:

The records from the Tanzawa Mountains showed that the incubation and nestling periods were about 15 days each. Both males and females were engaged in the incubation and chick-rearing. Males usually incubated during the day, while females probably at night because they were frequently in the nest in the early morning. The male and female exchange the incubation duty without a break, but on the day just before fledging both parents had left the nest up to 30 min.

The nestlings and juveniles receive the unique pigeon milk by poking their heads into the parents' mouth. Both male and female parents produce and feed pigeon milk to their young. The observation records from Terugasaki Point suggest that it is not until 25 days or more after fledging that the juveniles come to the coast to drink seawater.

Migration:

Japanese Green Pigeons breed throughout Japan up to Kunashirito of southern Kuril Islands, but the population of northern areas mostly moves south in winter and the wintering record is rare in Hokkaido (Komatan 2004a).

Diet and foraging behavior

Japanese Green Pigeons are frugivorous and feed primarily in the tree canopy, but in winter, may frequently forage for acorns on the ground as well as on trees (Photo. 4). In the breeding season they chiefly eat berries, but also feed off the sprouts, buds and flowers from trees before they bear fruit. They are a seed disperser for berry-bearing plants because the pigeons do not digest their seeds, but are a consumer for oaks because they digest acorns (Sasaki 1986, Komatan 1996, 2004a, and 2005).



Photo 4. A Japanese Green Pigeon eating acorns on the ground in the non-breeding period (Kyoto Imperial Palace Park).

Topics of ecology, behavior and conservation

● Behavior of drinking seawater

In the breeding season, Japanese Green Pigeons are wellknown for drinking seawater in the coasts of Hariusu, Hokkaido, Terugasaki Point, Kanagawa Pref. and Lake Hamana, Shizuoka Pref.. They are also observed to drink mineral spring water and hot spring water in Biei Town, Hokkaido, Tamagawa, Akita Pref., Ueno Village, Gumma Pref. and Ono City, Fukui Pref.. They can drink water keeping the nostrils under the water as in other pigeons and flamingoes. There is no record of drinking seawater during the non-breeding season.

Since they are very cautious during the breeding period, it is very hard to observe them in a forest. In the coast, especially Terugasaki Point, however, they sometimes land close to the people who are indifferent to them. Nevertheless they do not relax their vigilance because some of the birds of a flock are always on the alert. Therefore, we should exercise great moderation when we observe and photograph them.

It is convincing to assume that Japanese Green Pigeons drink salty water to maintain the osmotic pressure of the body fluid through keeping a balance between sodium and potassium in the body (Yamada et. al. 1991). It is explained that Japanese Green Pigeons ingest sodium by drinking seawater because their diet consists primarily of fruits containing a large quantity of potassium. However, this theory has not been physiologically demonstrated yet (Komatan & Kato 2007). Every year at Terugasaki Point, some of the pigeons fall victim to high waves, which suggests that seawater drinking is a physiologically indispensable behavior for the pigeons at the risk of their life.

● Relation with people and history as a game bird

Japanese Green Pigeons had been historically hunted indiscriminately for food. They were on a game bird list in Japan until 1947, when the law was revised. This was because they were delicious and easy to shoot as well as they were considerably abundant then. "Japanese Green Pigeons are not easily shot because they are cautious when perched in a tree alone and never return when you miss them. But they tend to relax their vigilance when they move around in a flock (Kawaguchi 1937)." "Since (Japanese Green Pigeons) are delicious, they are sold in many shops in autumn in the Chugoku and Kansai regions, western Japan (Wada 1926)." These records show that they were hunted and sold on the market as food. It should be noted that Japanese Green Pigeons were hunted in large number in the past and that they were concerned to go extinct as in the case of Passenger Pigeons of North America (Sasaki 1986, Komatan 2004a). Japanese Green Pigeons are currently designated as "LC"(Least Concern) in the red list of IUCN. Since it is assumed that they have drastically declined due to indiscriminate hunting and

habitat destruction, we must prevent them from further declines. The conservation of such pigeons would only be achieved by protecting not only their breeding sites, but also foraging and roosting sites as well as the seawater drinking spots, preferably to conserve one large area including these three habitats. In Kanagawa Pref., the conservation of the three major habitats should include such areas as the breeding forest of the Tanzawa Mountains, the seawater drinking spot at Terugasaki Point, and the foraging and roosting sites in the western hilly region of Oiso and Hiratsuka located between the sea and the forests. In addition, it is known that they move to western Japan and winter in shrines and parks of urban areas, but no studies have been conducted about the wintering sites of Japanese Green Pigeons in Japan except for Miyazaki Pref., Kyoto Pref. and Oiso, Kanagawa Pref.. There is a need, therefore, for more research to accelerate efforts to conserve the wintering grounds of this species (Komatan 2003b, 2005, 2007).

Literature

- Enomoto Y. 1941. Body size of Japanese birds. Osaka Chapter of Wild-Bird Society of Japan. Osaka. [J]
- Fujimaki Y. 1999. The distribution status of Turtledove and Japanese Green Pigeon in central and southeastern Hokkaido. *Strix* 17:15-23. [J+E]
- Gibbs D. Barnes E. & Cox J. 2001. Pigeons and Doves. A Guide to the Pigeons and Doves of the World. 454-455. Pica Press, UK.
- Kawaguchi M. 1937. Ecological note on Japanese birds. pp.230-247. Sorin-shobo, Tokyo. [J]
- Kiyosu Y. 1978. Comprehensive Guide to Japanese Birds. New edition with supplements. Kodansha. Tokyo. [J]
- Komatan. 1996. Seeds found in feces of Japanese Green Pigeon *Treron sieboldii* BINOS 3:1-8. [J+E]
- Komatan. 2003a. Breeding behavior of the Japanese Green Pigeon *Treron sieboldii* at Doudaira in the Tanzawa Mountains, Kanagawa Prefecture, Japan. BINOS 10:1-17. [J+E]
- Komatan. 2003b. Observation records of the Japanese Green Pigeon *Treron sieboldii* wintering at Mushikubo area of Ohiso town, Kanagawa Prefecture, Japan. BINOS 10:99-108. [J+E]
- Komatan. 2004a. Mystery of the Japanese Green Pigeon. HSK, Saitama. [J]
- Komatan. 2004b. Observation of juvenile Japanese Green Pigeon at Terugasaki Beach, Oiso. BINOS 11:1-6. [J+E]
- Komatan. 2005. Observation records of Japanese Green Pigeon *Treron sieboldii* wintering at National Garden 'Kyoto Gyoen' of Kamigyō-Ku, Kyoto, Japan. BINOS 12:7-35. [J+E]
- Komatan. 2007. Japanese Green Pigeon Roosting in Woods Near Terugasaki Beach. BINOS 14:1-13. [J+E]
- Komatan & Kato C. 2007. Comparison of Digestive System and Observation Records 2 Japanese Green Pigeon Cared for at the Natural Environment Conservation Center of Kanagawa which were Provided with Fruit and Salt Water. BINOS 14:15-30. [J+E]
- Sasaki I. 1986. Japanese Green Pigeons. Self-publication, Sapporo. [J]
- Nakamura K. 1980. Avifauna of Kanagawa. Kanagawa Chapter of Wild Bird Society of Japan (ed.). Yurindo, Yokohama. [J]
- Yamada T. Maekawa F. Egami F. Yasugi R. Koseki H. Furutani M. and Hidaka T. eds. 1991. Iwanami Biology Dictionary the third edition. Iwanami-shoten, Tokyo. [J]
- Wada, K. 1926. Aomori Prefecture Library Complete Volume Notes on Japanese Animals. Kodansha, Tokyo. [J]

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Komatan

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Komatan is "an amateur bird-watching group which admires flowers and insects as well as birds in Hiratsuka and Oiso, Kanagawa Prefecture". We are nice to beginners and engaged in the observation, study and conservation of nature, enjoying anything related to nature with due moderation. Our group has no regulation, fee, or representative. The monthly bird-watching walk started in the name of "Heights bird watching" in August 1983. The walk got a nickname of "Koma tanchokai" at the 6th time, which was abbreviated to the current name of "Komatan" at the 7th walk. We celebrated the 336th walk in August 2011. We have published ten scientific papers and two books in these years.

