Japanese Sparrowhawk Tsumi (Jpn) *Accipiter gularis*

Morphology and classification

Classification: Accipitriformes Accipitridae

Total length:	♂ 265mm	♀ 304mm
Wing length:	♂ 168.51 ± 8.35mm	♀ 192.21 ± 7.13mm
Tail length:	♂ 123.5 ± 4.33mm	♀ 143.22 ± 6.61mm
Culmen length:	♂ 11.1 ± 0.34mm	♀ 13.5 ± 1.13mm
Tarsus length:	♂ 43-48mm	♀ 52-57mm
Weight:	♂ 90g	♀ 135.8g

Lengths of natural wing, tail and beak (mean ± SD) are based on Hirano & Endo (unpublished data). Total length and weight are from Enomoto (1941).

Appearance:

Male upperparts are dark gray tinged with blue and underparts are pale reddish brown from the chest to flank. The reddish brown vary between individuals from almost white to red brown. Eyes are black with red tint. Legs are yellow. In the female, on the other hand, upperparts are dark gray and underparts are off-white with dark brown lateral bars. Eyes are yellow. Both sexes of juveniles have dark brown upperparts with thick brown bars on the chest and belly. There are superciliary ridges on the head.

Male (left) and female (right) Japanese Sparrowhawks

Vocalization:

Four major calls are distinguished (Hirano 1994). A call that sounds like "Pyoh-Pyo- Pyo-Pyo" with falling intonation are used by both sexes to threaten predators. In addition, males use this call as communication with their mates, and females as territory declaration. A shrill and continuous call that sounds like "Kek-kek-kek" is used mainly by female as food begging and territory declaration. A "Coo, coo " call is used by both sexes as communication between the mates and a sharp "kit" call is used in a battle.

Display:

Aerial displays include soaring, diving and pursuit. Wing shivering and tail-up displays are observed between the male and female in the pre-laying period (Figure 1, Hirano 1999).

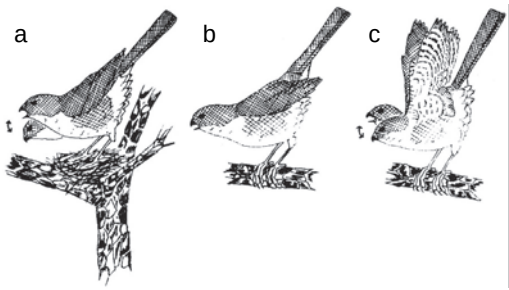


Fig. 1. Pre-laying display of Japanese Sparrowhawks. a) Tail-up display b) and c) Wing shivering displays.

Distribution and Habitat

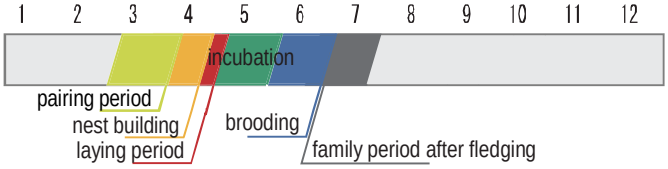
Distribution:

Japanese Sparrowhawks breed in southern Siberia, Amur and Ussuri regions, Sakhalin, southern parts of the Kuril Islands, northern Mongolia, eastern China, the Korean Peninsula and Japan. They migrate to Southeast Asia and southern China to winter. In Japan, however, they are residents from Hokkaido to Okinawa but the many individuals of the northern areas are observed to move south in the autumn. The population that breeds in the Yaeyama Islands, southern Japan is classified as a distinct subspecies, Ryukyu Tsumi *A. g. iwasakii*.

Habitat:

In Japan they occur in the woodlands in plains and mountains and even in cities. Since they nest in an isolated tree in a logged-over

Life history



Breeding system:

Monogamous. Extra-pair copulation is observed on rare occasions (Ueta & Hirano 1999).

Nest tree:

They nest in coniferous trees, such as red pines Pinus densiflora and cryptomeria and deciduous trees, such as oaks, cherries and evergreen oaks. Among them, the most preferred nesting tree is the red pine. The mean dbh and height of nest trees are 38.3 cm and 18.6 m, respectively. Nest-building period is from early to mid-April. Both male and female carry nest materials, but the work sharing between the pair varies significantly from one pair to the other.

Clutch size, incubation period, fledging rate and post-fledging period:

Laying period is mid-April to early May. The clutch size is estimated to be 2-5 eggs. Incubation period is 26 to 29 days. Chicks fledge about four weeks after hatching. The number of fledglings per nest is 2.35 ± 1.76 birds (mean ± SD, N = 78). The young remain in the vicinity of the nest site for about three weeks after fledging. Some fledglings were recorded to be fed by their parents as late as late August and mid-September . A pair of Japanese Sparrowhawks attempted to breed twice a year. (Hirano 1998) .

Diet and hunting:

Japanese Sparrowhawks generally use the ambush type of hunting. They are perched in trees at the forest edge, dashing fiercely out of the hide to capture the prey that happens to be passing. During the breeding season, the species sometimes capture large birds, such as Bamboo Partridges and pigeons in the residential area of Tokyo and Utsunomiya. However, small song birds such as tree sparrows account for more than 90% of the total prey. It also catches insects and small mammals, such as rodents and pipistrelles (Hirano & Kimishima 1992, Ueta 1992). It caches leftovers on tree branches and crotches by pressing them with its feet (Hirano & Ueta 1994). It is estimated that a pair of Japanese Sparrowhawks needs a total of 354 small birds to breed successfully (Ueta 1992).

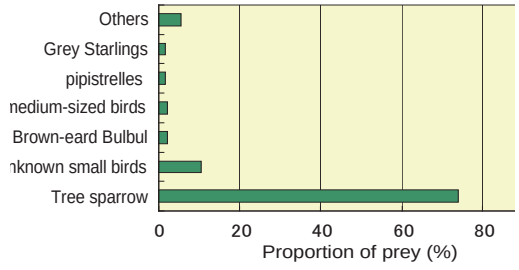


Fig. 2. Proportion of prey species of Japanese Sparrowhawks in residential areas of Utsunomiya (N = 200 from Kimishima Hirano (1992).

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Mutsuyuki Ueta

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Topics of ecology, behavior and conservation

Expansion into residential areas

Japanese Sparrowhawks were not common birds until the 1970s. In the 1980s, however, they began to breed in parks and roadside trees in residential areas especially in the Kanto region, central Japan (Endo, et. al. 1991) . After 1981when the breeding was confirmed in a residential area of Ageo City, Saitama Pref., the breeding range gradually expanded into the surrounding areas, such as Tokyo, Kanagawa, Yamanashi, Shizuoka and Tochigi Prefectures through the late 1980s. The breeding population also increased with the range expansion. In Utsunomiya, Tochigi Pref., for example, there were seven breeding pairs in 1990, nine in 1991 and 12 in 1992 in an area of 43.5km^2.

It is not known exactly what induced the species to breed in residential areas, but the contributory factors are assumed to be the availability of red pines suitable for nesting and the abundance of small prey birds such as sparrows in residential areas. In addition, the relaxed wariness of people as well as the lack of other birds of prey specialized in small birds in residential areas probably facilitated the expansion of Japanese Sparrowhawks into the human landscape. And they have become one of the most common hawks at least in the Kanto region.

The interaction between Japanese Sparrowhawks and Large-billed Crows

In the 1990s, however, dark signs began to be seen in the breeding of Japanese Sparrowhawks in the residential areas of Utsunomiya and Tokyo. By comparing the breeding statuses of Utsunomiya in the early, middle and late 1990s, no difference in the reproductive performance was detected (Kruskal-Wallis, H = 1.458, P = 0.483, Fig. 3), while the number of the breeding pairs declined from 8-9 pairs in 1991-1993 to 6 pairs in 1994-1996 and 5 pairs in 1998 and 2001 (Hirano 2002). The decline did not stop and there were only three pairs in 2002 and four pairs in 2003-2004.

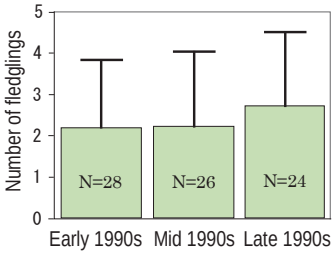

Fig. 3. Changes in the reproductive performance of Japanese Sparrowhawks in Utsunomiya (Hirano 2002).

The increase of Large-billed Crows is considered a major cause for the decline of Japanese Sparrowhawk breeding pairs. The Large-billed Crow population in Utsunomiya has increased significantly since the mid-1990s (Hirano 2000). And Large-billed Crows have started to breed in the woodlots where they did not breed formerly. There are not many trees suitable for Japanese Sparrowhawks or Large-billed Crows to nest in the woodlots of residential areas. The two species have begun to compete for suitable nest trees. In addition, Large-billed Crows can prey on the adults as well as the chicks and eggs of Japanese Sparrowhawks. Although the adults and the nests are seldom attacked by the crows, the sparrowhawks desert the nest sites only if the crows fly around noisily there. The sparrowhawk pairs easily abandon the breeding at the beginning of the nest building period, though they hang on once the chicks have hatched (Hirano unpublished data).

Interestingly, even in the woodlot where the crows breed, if there is a suitable nest tree in the part of the woodlot that is not used by the crows, the sparrowhawks nest in the tree (Hirano 2001). For example, a pair of Japanese Sparrowhawks bred in a 2-ha woodlot with a pair of Large-billed Crows and a pair of Carrion Crows for several years. When the Large-billed Crow nest tree died, however, the crow pair started to breed in the area formerly used by the sparrowhawks. The sparrowhawks stopped breeding there. Thus, the number of red pine stands where Japanese Sparrowhawks have ceased to breed, even if they are suitable for them to nest, has been increasing.

In this way, the success or failure of the breeding of this hawk in the residential area of Utsunomiya has been left to the behavior and the range of Large-billed Crows. It is assumed that the growing amount of food scraps has resulted in the increase of Large-billed Crows. According to the proverb that says “Coopers make a profit if the wind blows”, it might be said that an increase in food scraps has reduced Japanese Sparrowhawks breeding in Utsunomiya.

What will become of Japanese Sparrowhawks breeding in the residential areas in the future? Would they survive in marginal spaces of the urban landscape?

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Author

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In the past few years Large-billed Crows have increased in number, flying around noisily on days of food scrap collection in my hometown as well. With glances at Large-billed Crows, I remember the days that I was excited to see Japanese Sparrowhawks in the neighborhood. Thinking that the hawks would nest here and there if it were not for these crows, I feel an impulse to cry out “I hate Large-bills!” The season will come around soon which brings fun and worries to me. I am looking forward to seeing Japanese Sparrowhawks in the neighboring parks, cursing Large-bill Crows this spring again.

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