Japanese Marsh Warbler Oh-Sekka (Jpn) *Locustella pryeri*

Morphology and classification

Classification: Passeriformes Locustellidae

Total length:	♂ 126 ± 4mm	♀ 119 ± 4mm
Wing length:	♂ 53.3 ± 1.0mm	♀ 48.8 ± 1.4mm
(*)	♂ 57.6 ± 1.6mm (n = 30)	♀ 52.2 ± 1.2mm (24)
Tail length:	♂ 51.3 ± 2.8mm	♀ 48.1 ± 3.8mm
Tarsus length:	♂ 20.1 ± 0.5mm	♀ 18.9 ± 0.4mm
Culment length:	♂ 10.6 ± 0.4mm	♀ 10.1 ± 0.5mm
Weight:	♂ 14.5 ± 0.8g	♀ 12.6 ± 1.5g

Measurements in the Tone River from the Yamashina Institute for Ornithology (1988). * is measured by the author in Hotokenuma area. Males are larger than females. Male and female sizes vary between breeding grounds. Males and females of Hotokenuma area, northern Japan are larger (especially longer in wing length) than those of the Tone River, central Japan.

Appearance:

Males and females are similar in plumage coloration. They are dark brown on the upperpart and white on the underpart. They have a light superciliary and black flecks on the back and the tertiary flight feathers. There is no difference in plumage coloration between the breeding birds of Hotokenuma and Tone River (Takahashi et al. 2010).

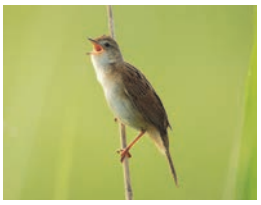


Photo 1. Japanese Marsh Warbler (Above) and song flight of a Japanese Marsh Warbler (Below) [Akio Miya]

Vocalization:

In the breeding period, males sing in a thick voice like "bijo-bijo-bijo-bijo" or "Chori-chori-chori", often with "Je-je-je" as a prelude. Males frequently fly up singing several meters from the grass for a few seconds, which is called a song flight (Photo. 2). They call like "Gi-gi" or "Gi-ch-ch. "

Distribution and Habitat

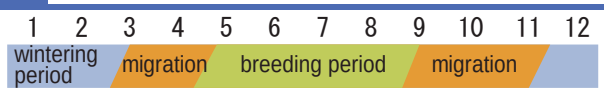
Distribution:

Japanese Marsh Warblers are classified into two subspecies. Nominotypical subspecies *Locustella pryeri pryeri* is locally distributed in Japan alone, while subspecies *L. p. sinensis* is distributed in China, the Korean Peninsula and Far East Russia (Shigeta 1991, Morioka & Shigeta 1993). In Japan, *L. p. pryeri* breeds in the Hachirogata reclaimed land, Akita Pref., Watarase Marsh, Tochigi Pref., Lake Kasumigaura, Ibaraki Pref., but most of them concentrate in Hotokenuma area and the Iwaki River, Aomori Pref., and the Tone River, Ibaraki and Chiba Prefs. (Ueda 2003). They winter on the Pacific seaboard of the Tohoku, Kanto and Tokai regions, and as of 2013 the northernmost wintering ground is the southern coast of Iwate Pref. (Chiba & Sakuyama 2011).

Habitat:

Japanese Marsh Warblers occur in wet grassland and reedbeds, such as riverbeds, lakefront and abandoned rice fields. In the breeding period, males are known to prefer low moor with abundant sedges in the lower layer, thinly vegetated with low reed in the upper layer. (Fujita & Nagata 1997, Nakamichi & Ueda 2003, Mikami 2012).

Life history



Breeding system:

Japanese Marsh Warblers are polygamous. The study on the mating system in Hotokenuma revealed that 40% of the pairs was monogamous, 30% of the males was unpaired and 30% of the males was polygynous, where a male paired with up to five females (Takahashi 2013). Some females breed twice in the same season. Only females are responsible for nest-building and incubation. It is not confirmed that males feed their partner during the incubation period. Females alone incubate their nestlings, but both the male and female feed the nestlings. Males that has two or more breeding nests simultaneously feed only their young of a nest at the most advanced breeding stage.

Nest:

Females usually build a nest at the base of a reed and Japanese pampas grass (*Miscanthus sinensis*), using dry reed leaves and grass. The nest includes three different types. A nest of type I is cup-shaped (11.7cm in depth on average). Type II is dome-shaped without decorations (11.4cm in depth). Type III is also dome-shaped but decorated with live grass (17.4cm in depth) (Nishide 1975, Takahashi et al. 2013; Fig. 1). The type of a nest is closely related to the nesting habitat. Type II is built in a damp site with a large amount of dry grass, while type III is seen in a dry site with abundant live grass. Type I is found in the intermediate habitat or a site lacking undergrowth.

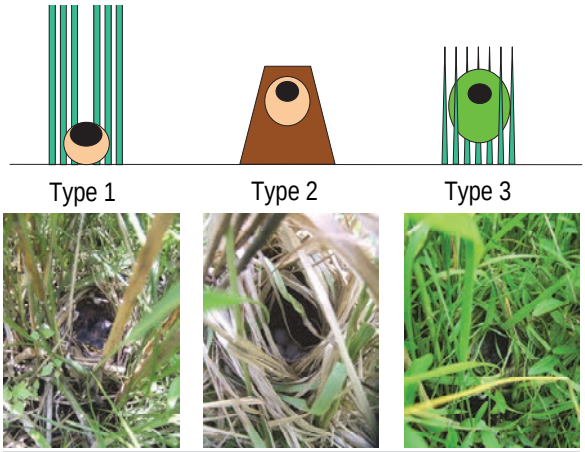


Fig. 1. Schematic diagrams and photographs of three types of nests. Created based on Takahashi et. al. (2013).

Egg:

Females usually lay an egg per day in the early morning. The clutch size is 4.5 ± 0.8 eggs on average with a range of 2-6 eggs (Takahashi 2013). The egg is white and without flecks.

Incubation and nestling periods and breeding success rate:

Both incubation and nestling periods are approximately 12 days. Parent birds feed their young up to 18 days after fledging (Takahashi 2013). Nesting success rate (successful nest number/ observed nest number) is comparatively high for a small songbird. For instance, it was 78.6% in Hachirogata (Nishide 1975) and 82.0% in Hotokenuma (Takahashi 2013). Breeding success rate (fledgling number/egg number) is also high and was 75.8% in Hotokenuma (Takahashi 2013).

Migration:

Japanese Marsh Warblers are a nomadic bird that moves only within Japan. Birds breeding in the northern part of the Tohoku region (the northernmost Honshu) winter in the southern part of the Tohoku and the Kanto regions. Birds breeding in northern Kanto either stay in the breeding grounds as a year-round resident or go south to the Tokai region (central Japan) to overwinter (Nagata 1997).

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Toshiaki Hirano

♪ http://www.bird-research.jp/1_shiryo/koe/oosekka_081216_watarase_hirano.mp3
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Diet and foraging behavior

Japanese Marsh Warblers are insectivorous. Parent birds feed the nestlings spiders as well as insects, such as lepidoptera, orthoptera, odonata and diptera (Japanese Marsh Warblers' Habitat Research Group 1995).

Topics of ecology, behavior and conservation

Infanticide of a neighboring male

In the study site of Hotokenuma, the male of a neighboring territory intruded into the territory that lost its owner and picked the nestlings left behind out of the nest (infanticide behavior), when a male parent disappeared during the breeding attempt (Takahashi 2013). This is assumed to be adaptive behavior for the male that committed infanticide because (1) he can conserve food resources in a territory to be his own and (2) he can gain an opportunity to breed with the female left behind.

History from description as a new species to the recent population increase

Japanese Marsh Warblers are designated as an endangered species and one of the National Endangered Species of Wild Fauna and Flora (protected by so-called the Endangered Species Preservation Act) in Japan, and as a Near Threatened Species by the International Union for Conservation of Nature (IUCN). They were described as a new species based on the individual collected in Tokyo (Seebohm 1884), but they were called a "phantom bird" because their breeding area was not discovered for lack of subsequent observation. The first breeding of this species was confirmed in 1936 in Gamo, Miyagi Pref., northern Japan (Takeya 1938). But the birds ceased to breed there within several years, disappearing again. Many of the present breeding grounds were discovered from the 1970s to the 1980s (Nagata 1997). Japanese population of this species was estimated to be about 1,000 and 2,500 birds in 1993 (Kanai & Ueta 1994) and in 2001 (Ueda 2003), respectively. It is consistently on the increase. Especially, in Hotokenuma, with the largest breeding population of Japanese Marsh Warblers in Japan, they have been rapidly increasing in recent years. In 2009, for instance, there were estimated to be approximately 1,130 birds (based on the counted male number and the assumption that a sex ratio is 1:1). The population increased by a factor of about seven between 1982 and 2009 (Takahashi et al. 2010; Fig. 2). This population increase can be attributed to (1) the expansion of a vegetation area suitable for breeding Japanese Marsh Warblers in the reclaimed land at the center of Hotokenuma area (Mikami & Takahashi 2013) and (2) increase of wet grassland suitable for their breeding due to the abandonment of rice cultivation in the surroundings of the reclaimed land (Narita et al. 2007). It was concerned that the breeding population might decrease in the northern part of the Tohoku region including Hotokenuma because many of the wintering and stopover sites were lost or degraded on the Pacific seaboard of the Tohoku and Kanto regions in the wake of the Great Tohoku Earthquake and Tsunami in March 11, 2011. However, the impact on the Japanese Marsh Warbler population breeding in the Tohoku region has not been confirmed, and it is on the increase as before. (As of Nov. 2013)

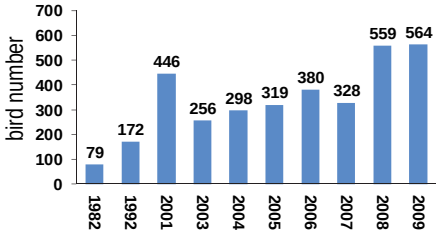

Fig. 2. Change of the abundance of male Japanese Marsh Warblers breeding in Hotokenuma area. Based on Takahashi et al. (2010).

Literature

Chiba K. & Sakuyama M. 2011. The first record of the Japanese Marsh Warbler *Locustella pryeri* wintering in Iwate Prefecture, northern Japan. Strix 27: 89-96. [J+E]

Fujita G. & Nagata H. 1997. Preferable habitat characteristics of male Japanese marsh warblers *Megalurus pryeri* in breeding season at Hotoke-numa reclaimed area, northern Honshu, Japan. J. Yamashina Inst. Ornithol. 29: 43-49.

Japanese Marsh Warblers' Habitat Research Group. 1995. Breeding status and habitat of Japanese marsh warblers at Hotoke-numa reclaimed area. Toyota Foundation citizens research contest promotion research No.6. No.6C-031. [J]

Kanai Y. & Ueta M. 1994. The present distribution and habitat of Japanese Marsh Warblers. *Survey of the Status and Habitat Conditions of Threatened Species*, 1994. Environment Agency, Tokyo. [J]

Mikami O.K. 2012. Habitat selection of the Japanese Marsh Warbler *Locustella pryeri* in a breeding season at Hotokenuma wetland. J. Yamashina Inst. Ornithol. 43: 153-167. [J+E]

Mikami O.K. & Takahashi M. 2013. The Change in the Distribution of Five Grassland Birds Depends on the Change in the Vegetation: a Comparison between 1998 and 2010 at Hotokenuma, Aomori Prefecture, Japan. J. Yamashina Inst. Ornithol. 44: 67-78. [J+E]

Morioka H. & Shigeta Y. 1993. Generic allocation of the Japanese Marsh Warbler *Megalurus pryeri* (Aves: Sylviidae). Bull. Nat. Sci. Mus. Ser. A (Zoology) 19: 37-43.

Nagata H. 1997. Present status of the Japanese Marsh Warbler (*Megalurus pryeri*) and its conservation. J. Yamashina Inst. Ornithol. 29: 27-42. [J+E]

Nakamichi R. & Ueda K. 2003. Recent status and habitat preference of the Japanese marsh warbler at Hotoke-numa marsh, northern Honshu, Japan. Strix 21: 5-14. [J+E]

Narita A., Sekishita H & Miya A. 2007. Status and habitat of the Japanese Marsh Warbler at Hotoke-numa wetland. Annual report of Oosekka-land 1: 21-27. [J]

Nishide T. 1975. Survey of Japanese Marsh Warbler *Megalurus pryeri* in Hachirogata reclaimed land, Akita Pref. 1. Habitat distribution and breeding. J. Yamashina Inst. Ornithol. 7: 681-696. [J+E]

Seebohm H. 1884. Further contributions to the ornithology of Japan. Ibis 2:30-43.

Shigeta Y. 1991. Identification guide 2. The Japanese Marsh Warbler: Birds with a vestigial claw on the wing Animals of Japan. 5: 48-51. [J]

Takahashi M. 2013. Population dynamics and breeding habitat selection in the Japanese Marsh Warbler *Locustella pryeri*: Identification of selection factors at multiple spatial scales. Doctoral thesis. Rikkyo University. [J]

Takahashi M., Morimoto G., Ebina J. & Miya A. 2010. A preliminary note on plumage coloration in the Japanese Marsh Warbler *Locustella pryeri*: A comparison between two local populations. J. Yamashina Inst. Ornithol. 42: 102-106.

Takahashi M., Aoki S., Kamioki M., Sugiura T. & Ueda K. 2013. Nest types and microhabitat characteristics of the Japanese Marsh Warbler *Locustella pryeri*. Ornithological Science 12: 3-13.

Takahashi M., Miya A., Tsumagari T. & Furukawa H. 2010. Status and habitat of the Japanese marsh warbler at Hotoke-numa wetland in 2007-2009. Annual Report of Oosekka-land 2: 10-16. [J]

Takeya H. 1938. Japanese Marsh Warblers breeding in Gamo. Yacho. 5 (8): 832-840; 5(9): 910-917. [J]

Ueda K. 2003. Recent status of the Japanese Marsh Warbler in Japan. Strix 21: 1-3. [J+E]

Yamashina Institute for Ornithology. 1988. Bird Banding Manual (Identification No.5). Yamashina Institute for Ornithology, Abiko. [J]

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