

A Sexual Difference in Plumage of Brown Shrike Subspecies, *Lanius cristatus superciliosus*

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The Brown Shrike (*Lanius cristatus* Linnaeus.) breeds in the Temperate and sub Frigid-Zones of Asia (Yamashina 1934). Four subspecies have been described (Howard & Moore 1980). In Japan, one subspecies, *L. c. superciliosus*, breeds from central Honshu to Hokkaido, while another, *L. c. lucionensis*, breeds in Kyushu (Takano 1982). Previously, the Brown Shrike has been thought as sexually indistinguishable using differences in plumage between sexes (see, Yamashina 1934, Kiyosu 1965). Furthermore, sexual size dimorphism of morphological characters has not been investigated sufficiently (Imanishi *et al.* 1992, but Takagi in preparation). In this short paper, I report on a sexual difference in plumage of the Brown Shrike subspecies, *Lanius cristatus superciliosus*, from a quantitative view point.

The study was carried out during the breeding months of June and July, from 1992 to 1995, at Oyafuru, Ishikari about 15 km north of Sapporo (43°13' N, 141°20' E), Hokkaido, Japan.

Brown Shrikes were captured using mist-nets, and their sexes were identified according to the presence of incubation patch. With Brown Shrikes, only the females incubate the eggs whereas the males never do (Haneda and Takahashi 1966). Consequently, the individuals possessing a developed incubation patch were regarded as females, those without as males. I measured the width of the white band on forehead with calipers to the nearest 0.01 mm. I defined the width as the length from the base of upper mandible to a boundary point between white and brown feathers. The boundary point is the tip of the brown part of the feather along the median plane. The Brown shrikes were released after banding and measuring.

The width of the white band on forehead of males was clearly longer than that of females (Fig. 1). In order to compare the width between sexes, a statistical analysis was performed. As a result, there was moderately substantial overlap of the width between sexes. This difference, however, was highly significant (Table 1).

When considering the plumage characteristics of a bird species, attention should be paid to the molting cycle of the examined species. Because the cycle among age classes would generally differ from one class to another, the degree of wearing of feathers would also be different. However, since both adult and young Brown Shrikes molt completely

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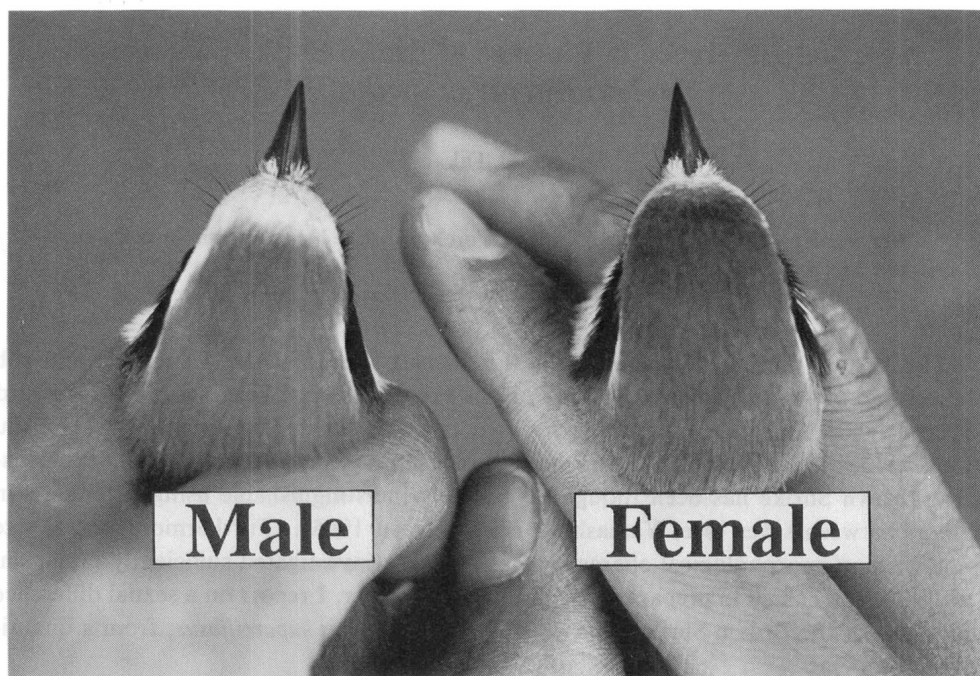


Fig. 1. The white band on forehead in *Lanius cristatus superciliosus*.

Table 1. The width (mm) of the white band on forehead of *Lanius cristatus superciliosus*.

	Male	Female
Mean length \pm SD (n) [range]	6.46 ± 1.79 (12) [3.5–10.45]	3.47 ± 0.88 (8) [2.59–5.24]

The difference between sexes was significant (t -test, $t=4.28$, $df=18$, $P=0.0005$, 2-tailed)

during the pre-breeding season (Medway 1970, Stresemann & Stresemann 1971), individuals of different ages must have already gotten fresh plumage in the breeding season. Therefore, I could discount any differences in plumage among age classes. So, the difference in width of white band on forehead is an effective characteristic of distinguishing the sex of the Brown Shrike subspecies, *L. c. superciliosus*.

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アカモズの羽色の 1 形質における性差

性的二型が不明瞭なアカモズの羽色の 1 形質に性的な差異を認めたので報告する。著者はアカモズの額の白色帯を計測し、雌雄で比較を行った。その結果、雄（平均 6.5 mm）は雌（3.5 mm）に比較して有意に広い結果が得られ、額の白色帯は雌雄の識別に有効な指標の 1 つとなることを示唆した。

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