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## Measurements of 21 *Falco peregrinus furuitii* specimens

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The Peregrine Falcon *Falco peregrinus* is distributed worldwide, and at least 19 subspecies are recognized (White and Boyce 1988). Historically, two breeding subspecies are known from Japan, the widely distributed *F.p. japonensis*, and the little known *F.p. furuitii* from the Iwo Islands (Kobayashi 1976, Kuroda 1980). The population size of Peregrines on the Iwo Islands is completely unknown, and there is a possibility that the subspecies no longer breeds there (Brazil and Hanawa 1991, King 1981).

White and Boyce (1988) suggest that *F.p. furuitii* is most closely related to *F.p. japonensis* or *F.p. pealei*, which occur in the Aleutian and possibly Kurile Islands. However, other published reports on the morphology of Japan's Peregrines are few (Weick 1980, Kuroda 1980). Specimens of Peregrines collected in Japan could provide data which would clarify the relationship and ranges of the two subspecies in Japan.

In this paper, I present the lengths of some morphometric measurements of *F.p. furuitii* specimens.

### Methods and Materials

Measurements were taken from 21 specimens of *Falco peregrinus furuitii* collected from the Iwo Islands (25°N, 141°E) between 1925 and 1937. These specimens are now housed at the Yamashina Institute for Ornithology (Abiko, Chiba Pref., Japan). I determined the sex of each specimen by its appearance, and by considering the sex which was determined at the time of collection. From 8 juvenile females, 7 juvenile males, 4 adult females and 2 adult males I measured 5 characteristics: the lengths of the culmen from cere to tip, tarsus from proximal articulation to second toe articulation, second toe to the last distal scale, natural wing from carpal joint to wingtip, and tail from point of attachment to tip (following Weick (1980) for all except the toe). Some parts, particularly culmens, were damaged due to age and were not measured.

Measurements were made with a digital caliper or straight ruler for all characteristics except tarsus length, for which a standard caliper was used. The range and mean of each characteristic were calculated using STATISTICA 3.0a (Statsoft, Inc.) for the Macintosh computer, and standard deviation (SD) was calculated when  $N \geq 4$ .

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Key words: *Falco peregrinus furuitii*, morphology, specimen.

## Results and Discussion

Each characteristic is described in Table 1. My measurements of adult and juvenile Peregrines from the Iwo Islands have a lower minimum range values for wing length than that reported in Weick (1980) (other values were not reported for *F.p. furuitii*). Males are reported as ranging from 307 – 319 mm, and females from 356 – 368 mm. The 21 Yamashina specimens range from 275 – 320 mm (males) and 325 – 375 mm (females). Some variation may be from the difference in researcher's measurement techniques, which are natural wing lengths, and from variations in age and moult condition.

Differences in body size between *F.p. furuitii* and *F.p. japonensis* have not been well documented in the literature. These studies, necessarily from specimens, should be done. Because, although the range of *F.p. furuitii* is generally not questioned, there are some specimens reported as *F.p. furuitii* which were collected north of the Iwo Islands (eg. Hachijo Island (33°N, 140°E) in the Izu Island chain) which should be re-identified to determine the full extent of the sub-species' range.

Being an extremely localized endemic sub-species of Peregrine Falcon, museum research to describe the morphology of *F.p. furuitii*, and more importantly, field research to

Table 1. Measurements from 21 Iwo Peregrin Falcons *Falco peregrinus furuitii* specimens.

Character	N	Mean±SD (mm)	Range (mm)
<b>Culmen</b>			
juv. fem.	7	22.4±1.6	19.8 – 24.1
juv. male	7	18.6±1.8	15.0 – 19.9
adult fem.	3	23.8	22.7 – 24.6
adult male	1	20.3	20.3
<b>Tarsus</b>			
juv. fem.	8	51.3±1.2	49.5 – 53.0
juv. male	7	46.3±1.3	44.0 – 48.0
adult fem.	4	50.3±1.2	49.5 – 52.0
adult male	2	46.5	46.0 – 47.0
<b>Toe</b>			
juv. fem.	8	54.3±1.9	52.0 – 57.1
juv. male	7	48.0±0.7	47.1 – 48.9
adult fem.	3	55.2	54.8 – 55.8
adult male	2	47.5	47.5 – 47.6
<b>Tail</b>			
juv. fem.	8	200±14	185 – 223
juv. male	7	174±6	160 – 180
adult fem.	4	196±6	190 – 204
adult male	2	173	163 – 183
<b>Wing</b>			
juv. fem.	8	355±16	325 – 375
juv. male	7	308±16	275 – 320
adult fem.	4	351±6	343 – 357
adult male	2	304	298 – 310

determine their population status is required.

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### シマハヤブサ *Falco peregrinus furuitii* の形態の測定

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ハヤブサ *Falco peregrinus* は世界中に分布し、日本ではそのうちハヤブサ *F.p. japonensis* とシマハヤブサ *F.p. furuitii* の2亜種の繁殖が確認されている。しかし、後者の報告は硫黄列島だけであり、詳細は不明で、すでに消滅している可能性もある。

シマハヤブサはハヤブサ、またはアリューシャン列島や千島列島に生息するオオハヤブサに近縁と考えられているが、日本のハヤブサに関する文献は少ない。そこで、この2亜種との関係を明らかにするために、著者は山階鳥類研究所所蔵の硫黄島列島で1925年から1937年にかけて収集されたシマハヤブサの標本を測定した。

今回測定したシマハヤブサの標本の翼長の値は、従来の測定値よりも最低範囲値が小さかった。しかし、測定方法の違いや、換羽の状況、また標本の古さなども影響している可能性がある。

八丈島で収集された個体がシマハヤブサと記載されており、この亜種の分布範囲を確定するためにも、博物館などにある標本の計測をし、現地調査によって個体群の現状を知る必要があると思われる。

キーワード：形態、シマハヤブサ、ハヤブサ、標本