



**On some new knowledges of the individual variation in Chinese windmill,
Atrophaneura alcinous alcinaus (Klug 1836)**

Katsuhiko NAKAJIMA

416-50 Shinko Iruma City Saitama, 358-0055 Japan

Abstracts

The author captured 93 individuals at the downstream left bank of Sasai Dam, Iruma River, Sayama City Saitama prefecture in April to July 2024.

And the author observed these individuals and the following new knowledges were gained.

1 Regarding to forewing length variation and dispersion between spring and summer types

The spring type had a large variation, while the summer type had a small variation and stable size.

2 Regarding to the darkening of the female forewing

A mating pair was captured. Female forewing color was darkish similar to male's wing color tone.

Individuals with darkened forewings accounted for 11% of all females.

3 Regarding to abnormal wing shape of spring type male.

An abnormal spring type male individual with a deformed wing shape was captured.

This was an abnormal individual, aberration, caused by some stress during emergence.

July 29, 2024



PAINTER and BIRDER

Katsuhiko NAKAJIMA

**Individual variation of Chinese windmill,
Byasa alcinous alcinous (Klug 1836)
 On forewing length of Spring type and Summer type**

Katsuhiko NAKAJIMA

416-50 Shinko Iruma City Saitama, 358-0055 Japan

Abstracts

The author captured 93 individuals of Chinese windmill at the downstream left bank of Sasai Dam, Iruma River,

Sayama City Saitama Prefecture in April to July 2024.

The forewing length of all individuals was measured and they were divided into spring and summer types. And these size variations were analyzed for the dispersion.

Results

	Spring-type		Summer-type	
	12 April to 12 May		19 June to 3 July	
	female	male	female	male
Measured number	14	41	13	25
Average value mm	49.71	46.51	51.38	47.96
Dispersion	23.99	16.51	3.46	7.4
Standard Deviation	$\sqrt{23.99}$	$\sqrt{16.51}$	$\sqrt{3.46}$	$\sqrt{7.4}$
	4.9	4.04	1.86	2.72

Discussions

- 1 The spring-type was smaller than the summer-type.
- 2 The spring-type was large variation in size than the summer-type.
- 3 Spring-type females had large variation. Summer-type female had small variation and were stable size.
- 4 The degree of variation in size was also clear in standard deviation.

**Individual variation of Chinese windmill,
Byasa alcinous alcinous (Klug 1836)
On the female with dark coloring forewing**

Katsuhiko NAKAJIMA

416-50 Shinko Iruma City Saitama, 358-0055 Japan

Reports

The author captured the morphological variation at the downstream left bank of Sasai Dam on the Iruma river April 15 2024.

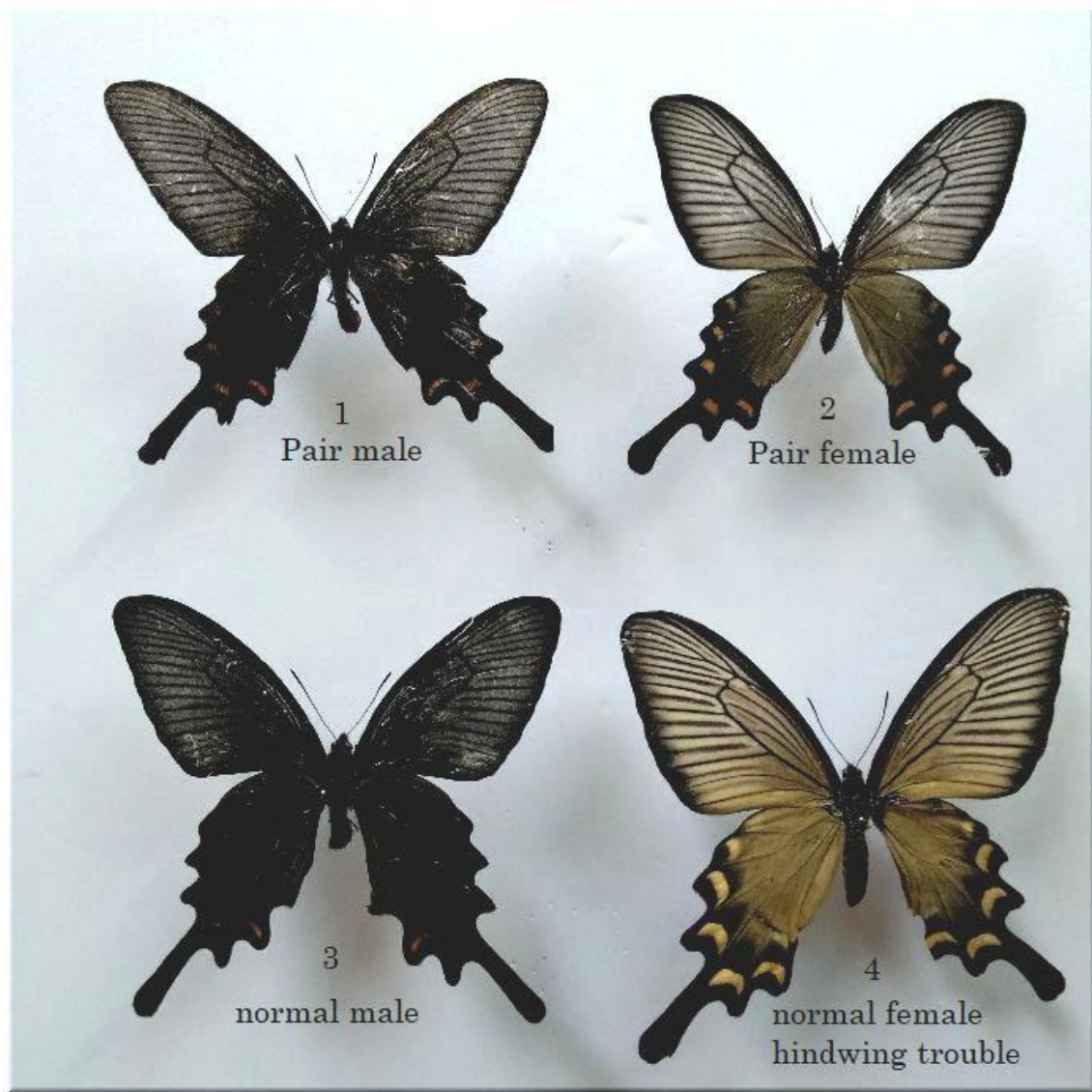
1. Similar coloring pair were captured. (reference Fig. 1-1)
2. The forewing color of female had darkish color. (reference Fig. 1-2)
3. The wing color of some individuals were intermediate between those male and female.

Fig.1-1



In the spread-winged specimen of this pair (no.1 no.2),
the female's forewings were clearly darkened.

Fig.1-2



no.1 mating pair male

no.2 mating pair female

no.3 normal male

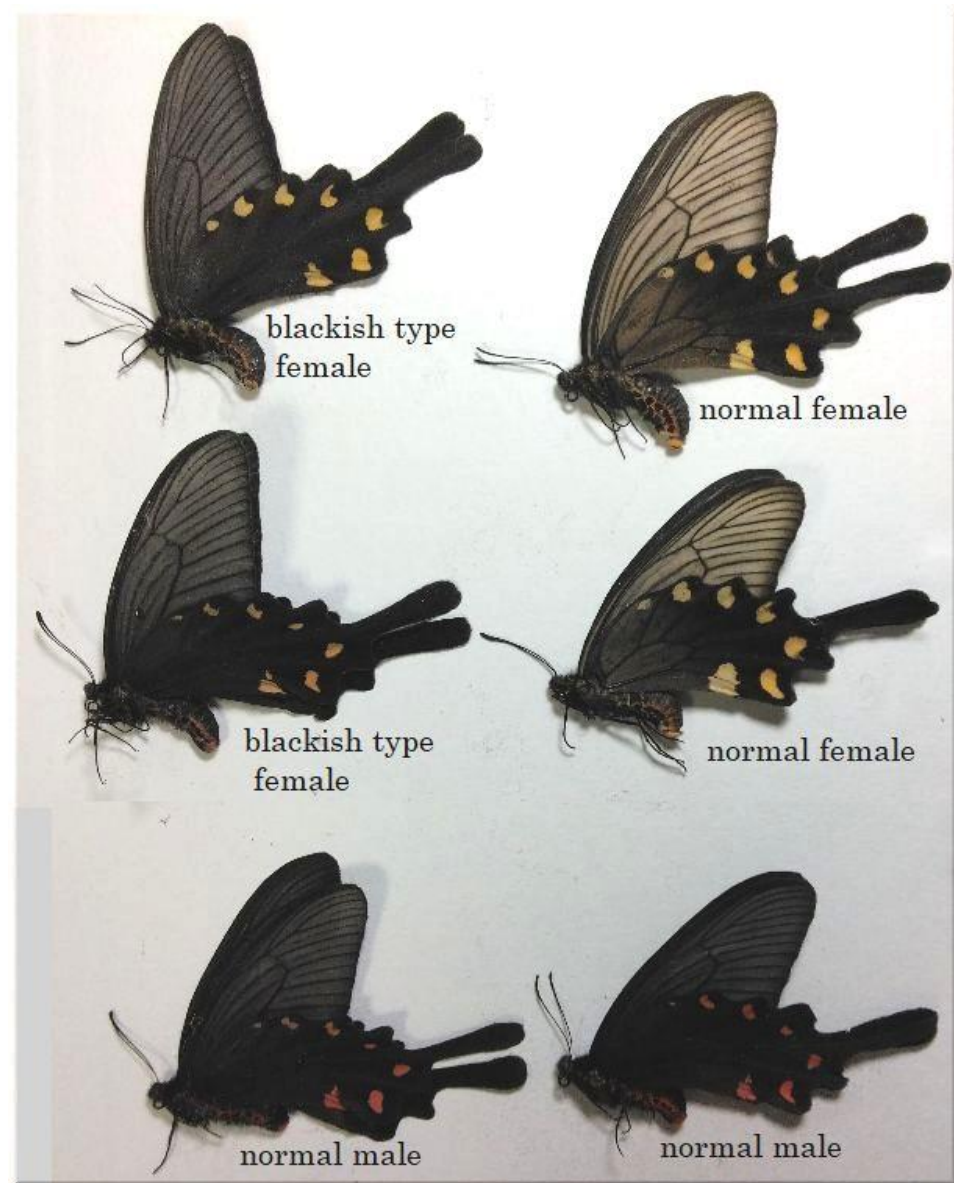
no.4 normal female (hind right-wing trouble)

Three individuals with wing colors intermediate between males and females were obtained.

(Reference Fig 1-4)

These accounted for 11.1% of all females found throughout spring and summer.

Fig.1-4



Discussions

- 1 The occurrence of female with dark forewings for approximately 10% of the population.
- 2 The author propose calling “wing color II type” in female *Byasa alcinous alcinous*, similar the color II type that occurs female *Colias*.

**Individual variation of Chinese windmill,
Byasa alcinous alcinous (Klug 1836)
On abnormal individual of Spring type**

Katsuhiko NAKAJIMA
416-50 Shinko Iruma City Saitama, 358-0055 Japan

Reports

The author captured a male with abnormal wing formation
at the downstream left bank of Sasai-Dam on the Iruma-Riv. 2024 April 26.

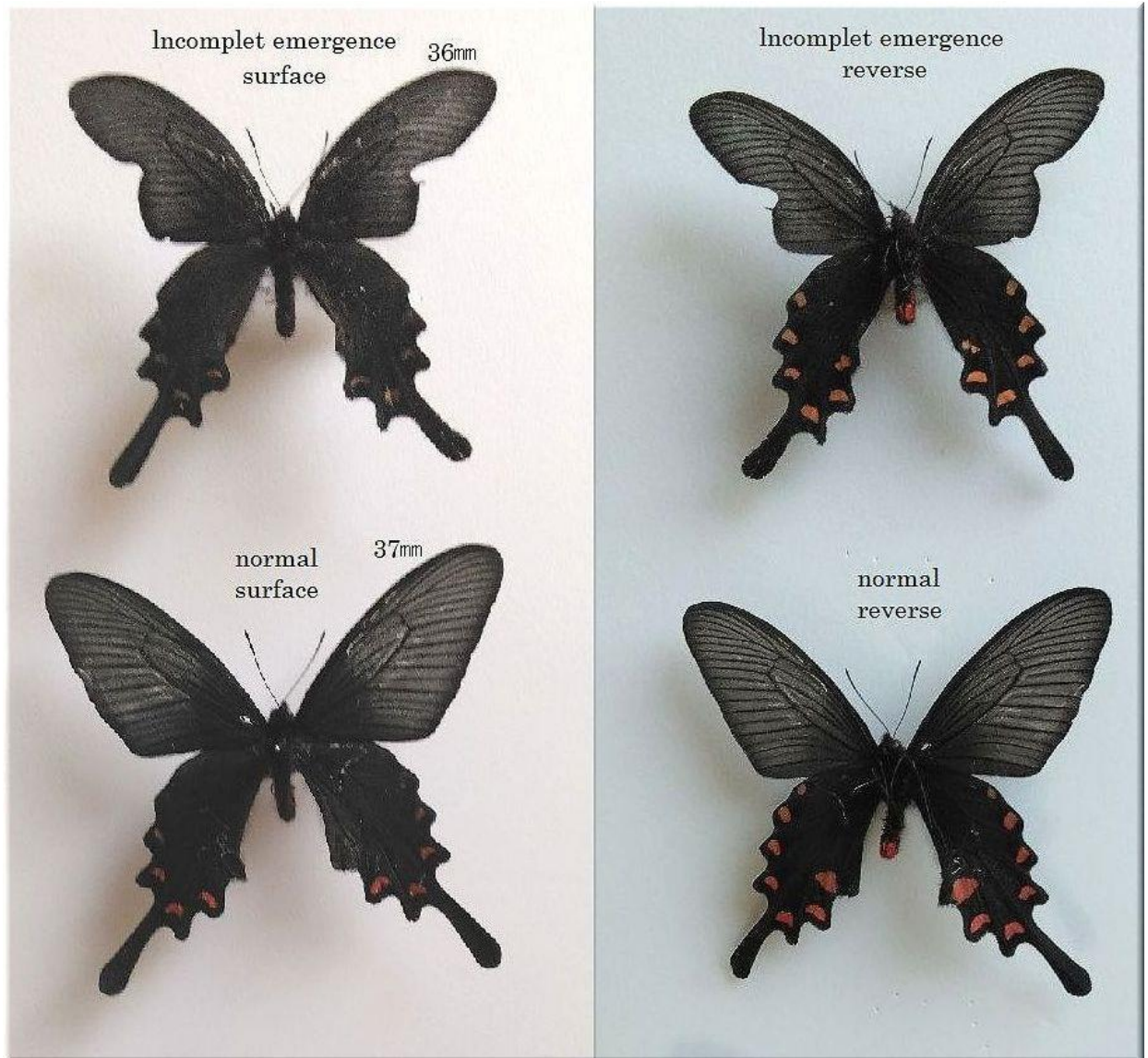
The morphological characteristics of this individual were as follows,

1. The forewing had had a large constriction in the center of outer edge. And it was small, measuring 36 mm in length (the spring type male was 46.5 mm).
2. The hindwings were long and slender, resembling those of the Long Tail Spangl, *Papilio macilentus*.
3. Red spots on the seventh cabin had disappeared. Therefore, the number of spots was 6 (Normal male individual had 7).
4. Furthermore, the red spot in cabin 1b was very small (the red spot in cabin 1b the largest in normal individuals)

reference Fig. 2-1

Fig 2-1

(Number is the length of forewing)



Discussions

1. This individual that had not fully emerged due to some kind of stress during the process of emerging from the pupa (one of aberration).
2. The differences in the number of spot and the shape of its spot due to incomplete emergence

July 29, 2024