

# Digest of Japanese Odonatological Short Communications

edited and translated by

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## How to make specimens of Odonata dried by an air conditioner

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Fig.1 shows specimens of *Anax parthenope julius* and *Crocothemis servilia mariannae* dried by an air conditioner. To make more lively specimens of Odonata, several ways such as vacuum drying or acetic treatment have been developed, however, these take much time and we are often obliged to stamp our feet to see the discolored specimens.

But, I happened to find the way of keeping the color of dragonflies by drying them at the ventilator of an air conditioner for many hours.

### Fig.1 The dried specimens of *Crocothemis servilia*



### *mariannae* and *Anax parthenope julius*

The author made a research of insects in the Ryukyu Islands for a week in the autumn of 1993. In the daytime I collected insects of Hemiptera, dragonflies and butterflies, and at night collected Hemiptera on and on, returning late to my lodgings arranging the collections in order and went to bed.

The trouble is how to treat dragonflies. I was not an enthusiast to make specimens of dragonflies. When I collected them near my house, I only stored them in a refrigerator for a long time, folding them in the triangular papers, after inserting thin bamboo sticks through the abdomens, without extracting internal organs nor acetic treatment. During the trip I could not use a refrigerator, and the arrangement of so many specimens deep in the night forced me to have little time to make specimens of dragonflies in order.

But, as I didn't want to spoil the southern origin dragonflies, which I had for the first time collected, I hanged the specimens in a plastic cage in front of an air conditioner, which was kept running all day for the specimens of Hemiptera. I only aimed at drying them

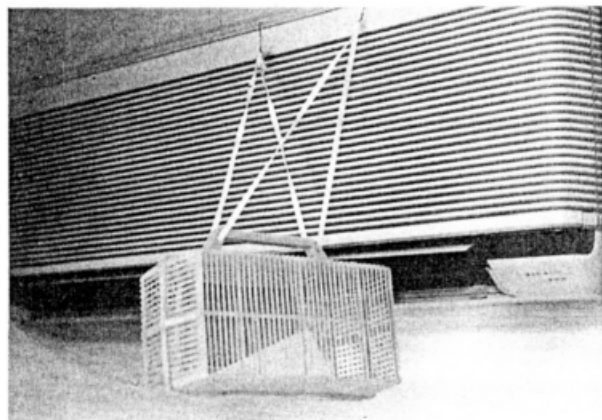
earlier, not to spoil them, and did not expect to keep the colors.

I devised plans how near the specimens to be hanged in front of the air conditioner, and at last I found a plastic insect cage in my rucksack. I had brought this cage, in which stag beetles brought back kept alive. This was very convenient to hang from the air conditioner, and moreover spacious for large triangular papers. Fig.2 shows a hanged cage.

The specimen dried at the cool temperature of 20 ~ 25 for two days on the spot unexpectedly kept the lively colors a little. Of course, the compound eyes had been discolored, and the colors of thorax and abdomen had been changed from those of its living. After return from the trip, the colors were more darkened, however, they were not so inferior to those of long stored specimens in a refrigerator.

This method is a makeshift, when you have no time to treat specimens in order, and can use only an air conditioner. If you have a time, you had better extract internal organs, treating the specimens in acetone or ethanol.

In my experience, short wires are handy for hanging and a net case for washing seems to be portable. Some trader may commercialize a cage for drying specimens by an air conditioner.



**Fig.2 The cage was hanged like this.**

*Aeschna*, (29):15-20, Dec.26,1994.

## Records for the Durations of Egg and Larval Stages on Some Dragonflies

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The author chanced to breed dragonflies from egg stages with the kind help of members of this district. My insufficient care brought some species to fail in occurrence, or some eggs offered by members didn't hatch. Here I show you the data on the egg period and total larval period collected until September, 1994.

On almost all of the species in this report, the data of the egg period and larval period had been reported by the Kansai Research Group of Odonatology, Osaka. However, the data had varied widely even conspecifically, so this report should be regarded as additional data. On the species now being bred, I will report another time.

In the report, the date behind the name of species is the collected day of eggs, not that of adults. The egg period includes from the collected date to the hatched date, and the larval period also includes from the hatched date to the emerged date.

Most of species were bred indoors, but some of the species of *Sympetrum* were bred outdoors at the veranda of my house, the data of which are asterisked (\*) behind the period. The data on the period of eggs and larval stages in "Dragonflies in Kinki" or "Gracile" are parenthesized behind the name of the species like

(Kansai/egg period 97, larval period 70).

References

Kansai Research of Odonatology, Osaka(1984) Dragonflies in Kinki:161-168.  
 OBANA, Shigeru(1985) Gracile,(35):27.  
 OBANA, Shigeru(1987) Ibid.,(37):5-6.  
 TAKAHASHI, Kazuhiro(1987) Report by the Center of Wildlife Conservation Center of Kanagawa Prefecture,(4):69-77.

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Translator's notice:collected places, collectors and the records from the second onward are omitted, except the case of *Sympetrum speciosum speciosum*.

**Tokkuri-bachi**,(62/63):2-4,May,1995.

**Data on insects in the second half of 1993**

**TAKETO, Akira**

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10 miscellaneous data on insects are reported by the author. Translator picked up a few of them only on dragonflies.

Species	Collected date	The first hatched day	Egg period	Emerged day	Larval period
Hybrid of <i>Stylurus annulatus</i> and <i>S. oculatus</i>	(Kansai/ <i>S.annulatus</i> 36, <i>S.oculatus</i> 16)				
	Aug.22,1993	Sep. 24,1993	35		
<i>Gomphus postocularis</i>	May 25,1994	Jun. 19,1994	26		
<i>Davidus moiwanus moiwanus</i>	Jun. 14,1992	Jul. 6,1992	23		
<i>Gynacantha japonica</i> (Kansai/97,70)	Sep.10,1990	Feb.15 1991	159		
<i>Anaciaeschna jaspidea</i> (Kansai/11,41)	Jun. 29,1994	Jul. 11,1994	13	Sep. 1,1994	53
<i>Anax guttatus</i> (Kansai/14,61)	May 11,1992	May 30,1992	20	Oct. 6,1992	129
<i>Anax panybeus</i> (Kansai/20,70)	Jul. 15,1992	Jul. 27,1992	13	May 16,1993	294
<i>Agrionoptera insignis insignis</i> (Kansai/14,54)	Jul. 12,1992	Jul. 23,1992	12	Oct. 19,1992	88
<i>Orthetrum japonicum internum</i> (Kansai/14)	May 14,1993	Jun. 5,1993	23	Jun. 25,1994	325
<i>Orthetrum glaucum</i>	Jul. 5,1994	Jul. 12,1994	8	Sep. 2,1994	53
<i>Orthetrum pruinosum neglectum</i> (Kansai/14)	Jun. 18,1993	Jun. 28,1993	11	Sep. 20,1993	
85					
<i>Brachydiplax chalybea flavovittata</i> (Kansai/8,72)	Jun. 27,1994	July 6,1994	10	Sep. 17,1994	73
<i>Sympetrum pedemontanum elatum</i> (Kansai/193,83)	Nov. 17,1990	Mar. 26,1991	130*	Jul. 23,1991	120*
<i>Sympetrum frequens</i> (Kansai/127,195)	Oct. 21,1990	Dec. 31,1990	72	Jun. 4,1991	156*
<i>Sympetrum striolatum imitoides</i> (Kansai/30,167)	Oct. 20,1990	Nov. 5,1990	15	Jun. 10,1991	185*
<i>Sympetrum eroticum eroticum</i> (Kansai/54,218)	Sep. 12,1993	Nov. 8,1993	58	Apr. 19,1994	163
<i>Sympetrum kunckeri</i> (Kansai/51,55)	Oct. 13,1991	Feb. 29,1992	140*		
<i>Sympetrum cordulegaster</i> (Kansai/28,201)	Oct. 23,1993	Dec. 2,1993	41	Jul. 2,1994	253*
<i>Sympetrum flaveolum flaveolum</i> (Kansai/66)	Aug. 14,1991	Feb. 29,1992	200*		
<i>Sympetrum infuscatum</i> (Kansai/30,208)	Oct. 13,1991	Mar. 8,1992	138*		
<i>Sympetrum baccha matutinum</i> (Kansai/100,156)	Oct. 13,1991	Mar. 1,1992	131*	Jul. 25,1992	147*
<i>Sympetrum gracile</i> (Kansai/35,202)	Oct. 6,1991	Mar. 1,1992	148*		
<i>Sympetrum speciosum speciosum</i> (Kansai/15,306)	Sep. 22,1991	Oct. 7,1991	16	Jul. 2,1992	281*
	Aug.3,1993	Aug.13,1993	11	Mar. 7,1994	206
From Kanagawa Prefecture, a case of two peaks of occurrence of the species was reported by TAKAHASHI(1987); one is from middle May to Middle June , and another, from early August to late September.					
<i>Sympetrum uniforme</i> (Kansai/186,42)	Oct. 20,1990	Mar. 26,1991	158*	Aug. 13,1991	141*
<i>Leucorrhinia dubia orientalis</i> (Kansai/10)	Sep. 6,1992	Sep. 15,1992	10		
<i>Leucorrhinia intermedia ijimai</i> (Kansai/25,266)	Jul. 9,1993	Jul. 25,1993	17		
<i>Macrodiplax cora</i> (Kansai/6,146)	Jul. 11,1992	Jul. 23,1992	13		

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### **5. *Anotogaster sieboldii* occurred from abandoned rice fields**

The author collected four exuviae of *Anotogaster sieboldii* at abandoned rice fields in the Shimbo Hills at Uchikawa, Kanazawa City on August 7. The paddy fields had not been irrigated, and dried up, only puddles left. From there *Nannophya pygmaea* had been extinct. *Anotogaster sieboldii* occurs from the still water like small trenches, and rarely from abandoned paddy fields with a little irrigation. But, this is very rare case of occurrence from such an extreme environment.

### **10. *Sympetrum frequens* still stayed in the hills in autumn**

In the mountain district of Mt.Kigo-san matured *S. frequens* were seen flying, copulating and ovipositing in tandem with many *S. infuscatum* and butterflies on September 12, 1993, and on the foot of the mountain and in the lowlands *S. frequens* were not observed until Sept. 15. From 16th onward, they appeared in the Sakai Plain in Fukui, however, the number was few through late September to October. When I visited the upper area of the Sai-gawa Dam:Kuratani, on October 17, a lot of *S. frequens* were swarming over in the valley (350 ~ 400 m a.s.l.) in spite of the cloudy weather. They were perching on the leaves of trees or flying single, and no tandems were seen. It is very noticeable that they were seen more in the mountains than in the lowlands even in the cool of middle autumn. All of them seemed matured, different from the immature migrating to uplands for summering. It should be studied whether the descent of the adult to the lowlands is the dispersal relying on the density of them or not.

At the paddy fields at Maruoka, Fukui Prefecture, most of the pairs of the species were observed flying from the hills towards the sea coast, unrelated with the solar position nor with the direction of the wind. But, at the reproductive sites, the flight direction was not settled.

Also, at Kanazu, Fukui or near Tonami City, Toyama, individuals were seen flying around low and quickly at 8:30 ~ 8:40 a.m. in early November, when the air temperature did not rise high yet. These were contrary different from those basking motionless in the setting sun in late autumn.

*Tokkuri-bachi*, (62/63):7-8, May, 1995.

### **On the maturity and oviposition of *Sympetrum frequens* TAKETO, Akira**

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#### **1. The beginning period of the reproductive behavior of *Sympetrum frequens* in the lowlands**

In 1994, *S. frequens* began to emerge from middle and late June, and on 25th of June migrating swarms of them were seen in the middle of Kazafuki Pass and the Shishiku Heights. Several *S. frequens* were flying

rather high along a forestry road. While I saw tenorals of them at the Yuhidera Natural Park in Kanazawa through late June to August 4, a reddened male had been observed on August 2. This might have been matured without migration to uplands. In the evening of August 14, matured adults were seen; at Yuhidera 8 males and 4 females, at Hokubu Park 3 males and a female. No reproductive behavior of them, such as tandem flight, copulation and oviposition, was observed. A lot of them were seen flying and perching at Okuwa, upstream of the River Sai-gawa, on September 10; in and around Mt Kigo-san, on 11th; at Yuhidera on 15th, and also the reproductive behavior was not observed. It was first observed on 23th of September at the sanctuary of Yuhidera. This suggests *S. frequens* does not always start reproduction soon after descent to the lowlands.

#### **2. *S. frequens* remaining in the mountains in late autumn**

Many *S. frequens* were seen at Bambajima, a starting point of climbing Mt. Tsurugi-dake, Kamiichi, Toyama Prefecture on October 10, 1994. There were neither puddles suitable for oviposition, nor reproductive behaviors of them were observed. Also, in the valley on the way to Bambajima, not so few of them were seen. As I mentioned above, so many *S. frequens* had been observed at Kuratani, the upstream of the River Sai-gawa on October 17, 1993. Accordingly, It does not seem rare that swarms of *S. frequens* stay in the mountains even in October.

#### **3. Non-tandem oviposition and tandem oviposition of female *S. frequens***

Tandem oviposition of *S. frequens* is well known, and also, the female oviposits in single. But it is not known yet on what factors the difference between both ways depend. At a small pond at the bogs of Yokotani in the autumn of 1993, only non-tandem ovipositions were seen, and at the sanctuary at Yuhidera three single oviposition were only seen on September 23, 1994. There from October 1 to 16 only non-tandem ovipositions were observed. At a bog at Okawa-cho, Hakui City tandem oviposition was seen more than non-tandem oviposition on October 15, at thick growths of reed, however, several females were seen ovipositing in single.

On the other hand, at the paddy fields in the lowlands of Maruoka and Matsuoka in Fukui Prefecture, most of *S. frequens* were ovipositing in tandem from October 3 till early November. From these I perceived that non-tandem oviposition was seen more in remaining female, and tandem oviposition seemed to be made by migrating individuals. At Yokotani Bogs and at Yuhidera Sanctuary ponds are surrounded by grassy fields and forests, and males and females of *S. frequens* were flying slowly or perching, seldom flying away in tandem from there. On the contrary, in the lowlands such as Maruoka and Matsuoka, remaining individuals were seldom seen and most of them passed there migrating a long distance. Paddy fields after harvest

can only be ovipositing sites because of no trees nor grasses. When I were observing individuals of the species perching or flying on or over the grasses in the sunlit grove at Showa Park in Kanazu-cho at about 9:30 a.m. in the middle October, they formed tandem one after another, and fled away toward paddy fields. Tandem pairs seemed to be easy to migrate a long distance. There were few puddles in the dried-up paddies, so the pairs could not find suitable ovipositing sites without flying around, and this seemed to cause their migration. The migration may be one of the adaptive behaviors to environment, not so clear as the difference between the solitary phase and the migratory phase of locusts.

**GEKKAN-MUSHI, No.295:39,1995.**

***Indolestes peregrinus* collected at Iriomote-jima Island**

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*Indolestes peregrinus* (Ris) has been recorded from Honshu to Amami-oshima in Kagoshima Prefecture (ISHIDA et al. 1988). The author collected one female of the species at the Aira River in Iriomote-jima Island, Yaeyama-gun, Okinawa Prefecture on October 23, 1993.

The damselfly perched on a stick on the bank at the middle reaches of the river. After this, I sought the spot for a few days, none of the species was found. Also, I sought it there in March and May of 1994, but I could not find it.

**GEKKAN-MUSHI, No.298:20-21,1995.**

**Male *Lestes sponsa* trying to make tandem position to a dead female**

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The author saw a male of *Lestes sponsa* attempting to make tandem position to a dead female at Ahata at Nagakude-cho, Aichi Prefecture on September 29, 1989. The female had been trapped by spider web, with its head and abdomen wrapped with spider's thread, and its compound eyes blackened.

It is said that the male usually recognizes the female by her external morphology and behaviors in reproductive period. But in this case, the dead body lacked the lively characteristics and the acts of the female, and could not attract the male. By what factor do males recognize females?

**GEKKAN-MUSHI, No.298:32,1995.**

**Non-tandem oviposition of a female  
*Sympetrum parvulum* with frequent rests**

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UEDA (1979) reported that females of *Sympetrum parvulum* usually oviposit alone under the escort of males, and tandem oviposition is adopted by a female coupled with a non-territorial male.

At Yamguchi, Tokorozawa City, at 10:30 a.m. on

October 21, 1989, the author saw a female of the species oviposited alone with frequent rests after separating from a seemingly non-territorial male, which came over to a bog with her. It was fine and the ambient temperature was 17.9. The pair rest perching on a grass, and after a while they separated and perched again at intervals of 6 cm. Then the male changed his post to a place a little high over the female. She often changed her perching post.

10:39 a.m.; she began to oviposit alone in the shade of the bush at the bog, while he rested in the sunspot without escorting her.

10:40; she stopped oviposition and perched in the sun. When the resting spot went into the shade, she changed the resting spot.

10:47; no sooner 30 seconds passed after beginning oviposition than the rustling of wings became inaudible.

10:50; the resting female was found under the bush, and she warmed up for a minute (water temperature was 14).

10:52; she began to oviposit.

10:53; she rest in the sun.

10:58; again began to oviposit. He disappeared.

10:59; she rest in the sun.

11:04; she began to oviposit.

11:05; she finished oviposition and rest on the grass.

It took 26 minutes from beginning to finish of a series of oviposition, and through it, she oviposited five times for one minute every time, totaled about five minutes. She rest always in the sun except rest in the shade under the bush.

Meanwhile, a pair, oviposited in tandem at 12:11 p.m., took two minutes rest two times and oviposited for four minutes during six minutes till 12:17 p.m. The tandem female did not warm up, and the duration of oviposition of a time seemed longer than that of a non-tandem female. That a non-tandem female rest in the sun or warmed up suggests that in the low temperature body temperature may not have risen, but decreased by oviposition, so she may have attempted to raise the body temperature at the rest of intervals.

**Photo CD of "Dragonflies" on sale**

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