

Digest of Japanese Odonatological Short Communications

edited and translated by

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Gekkan-Mushi, 1994. No. 286: 4-5.

Collection of an extremely melanized male of *Copera annulata*

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The author collected a male *Copera annulata* similar to *Copera tokyoensis* Asahina at Amidaseno-ike pond, Washima-mura, Niigata Pref., on August 29, 1994. It has been previously reported that in Niigata Prefecture there are some which cannot be distinguished between *C. annulata* and *C. tokyoensis*. Recently on June 21, 1986, Sato, Yoshitsugu collected a similar female which seemed to be a melanized *C. annulata* at Oaza Terao, Asahi-mura, Niigata Pref.

The collected male was mostly melanized at the episternum like Sato's specimen, except for antehumeral stripes, which is the characteristic of *C. tokyoensis*. Therefore, this specimen seems to be an individual of *C. tokyoensis*, whereas, the black dorsal side of its abdomen was sectioned at the front margin of 3rd to 6th segment, with the conspicuous pale blue of 9th and 10th segment and the appendages of *C. annulata*. These morphology suggest that this specimen is a melanized *C. annulata* like that collected by Mr. Sato.

Gekkan-Mushi, 1994. No. 286: 7-8.

Observation of multiple copulation of *Acisoma panorpoides panorpoides* and its breeding

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The authors observed the copulatory behaviours of *Acisoma panorpoides panorpoides* at a pond in the Ishigaki-jima Island, Okinawa Pref. on May 5, 1993. In the morning

on that day many of this species were seen at the shore, particularly at 10:00 a.m., and three pairs of copulation and oviposition in the shallow water.

The duration of copulation is only 10 to 20 seconds, perching on the lower grasses, and soon the pairs separate and females usually start oviposition. However, at that time, one pair, after copulation, perched on the grass and soon flew up in tandem, and again took copulative form. The pair repeated such behaviour three times. Each copulation duration was the same. The female never refused the male. Soon after the 3rd copulation they separated. The density of males was not so high.

In the case of *Calopteryx cornelia* when they were disturbed pairs often recopulate.

Kano bred at Tokyo the eggs of the species collected on this island on May 31, 1981. The adults began to emerge at night on Aug. 31 and until Sept. 4, 1993 three males and five females emerged.

Gekkan-Mushi, 1994. No. 286: 11.

An abnormal type of *Asiagomphus melaenops* (Selys)

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Asiagomphus melaenops is a common species widely distributed in the Mainland of Japan, Shikoku, and Kyushu. Distinction of this species from *Asiagomphus pryeri* of the same family is difficult. In this species the black stripes of the mesopleural suture reach completely the upper side. Whereas, in the male specimen which was collected at Miyajima-cho, Hiroshima Pref. on July 2, 1994, the stripes were disconnected. The other characteristics were of those of *A. melaenops*.

Gekkan-Mushi, 1994. No. 286: 12.

Origoaeschna pryeri collected at an underground market at Nagoya

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A male *Oligoaeschna pryeri* flying around at the underground market of Sakae, Naka-ku, Nagoya City, was captured by the author with bare hands at 5:00 p.m. on July 4, 1994. This dragonfly seemingly intruded there seeking habitually the cool and dark places coming over from a possible occurrence place about six kilometers apart. The species instinctively sticks to its emergence places. This case is exception.

Gekkan-Mushi, 1994. No. 286: 19-20.

Oviposition substrates of *Sympecma paedisca paedisca* (continued reports)

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Males and females of *Sympecma paedisca paedisca* oviposit in tandem into plants at the watersides, and the two substrates of oviposition have been reported; in the one case they oviposit into the leaves of grasses afloat on the surface of water; in another case they oviposit into the leaves or the stems of the upright grasses from the water. The author reported that the latter case is more frequent (Arai, 1993).

The author shows the result of the selection of oviposition substrates by pairs. Observation was made on 13 pairs at a small pool in Chichibu City, Saitama Pref. in April 1994. The surveys were made about times of selection of substrates and the oviposited places for 5 to 20 minutes for every pairs.

Four pairs oviposited into the plants afloat on the surface, and nine pairs oviposited into the plants upright from the water. Oviposition on the surface of water were made only at the early period of the season, when the grasses had not yet grown up enough.

Gekkan-Mushi, 1994. No. 286: 21.

A male *Sympetrum infuscatum* without dark spots of wingtips was collected in Shizuoka

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Specimens without or with lesser dark spots of wingtips of *Sympetrum infuscatum* are often found in the northern area of the Kanto District (Ishida, et al., 1988).

The author collected a male of this type at Enshuhama, Hamamatsu City, Shizuoka Pref., which is located south of the Kanto District, on October 23, 1992.

Gekkan-Mushi, 1994. No. 286: 28-30.

Reproductive behaviours of male *Rhynocypha perforata perforata* (Percheron)

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Rhynocypha perforata perforata (Percheron) is distributed in Vietnam, Hong Kong, China and Taiwan, and its flying season in Hong Kong lasts from the beginning of May until October. The author made an observation of the reproductive behaviours of this species at Taipo kau Forest in Hong Kong, from 10:00 a.m. to 3:00 p.m. on June 20, 1993.

The observation area was a steep bouldered riverbed of a gorge, several kilometers from the mouth of a river. At that time it sprinkled. As the weather soon improved and the air temperature increased, a male of this species appeared and perched on a stone, occupying its territory. The male of this species occupies its territory at the oviposition site, and expels conspecific males, like the male of *Rhynocypha ogasawarensis* of the same sub-family. The latter reproduces in the shade of trees, however, the former reproduces in the light places.

At 11:30 a.m. a pair was found on a stone with 10 cm apart each other. The male hovered slowly forward for a few seconds in front of the female with its abdomen bent downward, and perched beside the female. It repeated the behaviour again for less than one minute. Then the female flew toward the male, and started oviposition into the dead tree on the water over which the male was hovering. The oviposition continued for three minutes, while the male escorted its partner female.

The behaviour of the male was supposedly the display of indication of the oviposition site for the female and the sign to stimulate oviposition. This has not been observed in *R. ogasawarensis*.

Gekkan-Mushi, 1994. No. 286: 11.

A female *Somatochlora uchidai* oviposited at the spot 2 meters apart from the water edge

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Females of *Somatochlora uchidai* drops eggs in cluster in the air 10 to 30 cm apart from the water, after they filled ovipositors with water.

The author observed the oviposition by a female of this species about two meters apart from the water edge at

Kamaike Pond, Otari-mura, Nagano Pref. on August 2, 1994. The female touched its ovipositor in the water 30 to 50 cm away from the shore, and repeated eight times of touching. Because of abnormal shortage of water, the water edge was retreated about two meters from the usual, and the bog moss was dried up. There were dead leaves between the dried moss and the water edge, though the female never oviposited on them. This dragonfly seems to oviposit habitually on the bog moss.

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Yearly changes of the first record of oviposition for the year in *Sympetrum risi risi* Bartenef

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Sympetrum risi risi Bartenef prefers ponds in the forests, and adults appear from June to November. This dragonfly starts to reproduce earlier than other *Sympetrien* odonates, often ovipositing in midsummer.

The author presents here the first records of the ovipositor for the year by the species at Omiya, Chichibu City, Saitama Pref. from 1983 to 1994. The first record of oviposition for the year changed by the year; the earliest was July 24, 1989, and the latest was August 26, 1989, and the difference reaches about one month. In the years of 1986 and 1989 of the earliest, it rained less than usual and was cool in June and July, whereas, in the years of 1984 and 1994 of the latest, it was very hot and it scarcely rained in summer. Though it was cool and rainy weather in summer of 1993, the oviposition seemed to start later than usual. The starting period of oviposition of the species depends seemingly on factors of air temperature and degrees of drought of bogs.

Table 1 Yearly data of the first record of oviposition

year	first record	Year	First record
1983	2 Aug.	1989	24 July
1984	27 Aug.	1990	17 Aug.
1985	6 Aug.	1991	17 July
1986	29 July	1992	14 Aug.
1987	7 Aug.	1993	20 Aug.
1988	5 Aug.	1994	26 Aug.

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Oviposition of *Sympetrum eroticum eroticum* Selys

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Precise reports on oviposition of *Sympetrum eroticum eroticum* have been made by Sugimura (1979), Naraoka (1980), Arai (1982) and Ishikawa (1983). This species adopts two mode of oviposition; the one is oviposition in tandem mainly in the mud or sometimes in the water, and the other is single oviposition. In the latter males are said to escort females sometimes.

The author made observations on the oviposition of the species at Nagasaka-cho, Yamanashi pref. on September 19, 1992, and at Yokoze-cho, saitama Pref. on 17 and 22 October 1992. At Nagasaka-cho, a female was seen ovipositing under the escort by a male in a paddy field at 3:30 p.m.

In Chichibu, the paddy field had been harvested, and it was cool on 22 October. The oviposition started at 10:08 a.m. at the air temperature 15°C and until 1:00 p.m. 35 pairs of tandem oviposition mainly in the mud and three single oviposition were sighted.

The couples were captured to measure their body temperatures (Tb), measuring Tb of female's prior to male's. The air temperatures (Ta) in the sun at a height of one meter from the ground were also measured soon after Tb were measured. The mean Tb of the males of the pairs was 31.7°C (n=6), higher than that of the females by 5.3°C. The differences between Tb and Ta were 14°C in the male, and 8.7°C in the female, respectively. In relationship of Tb on Ta (Table 1), the determination coefficient was lower in the male (r*r=0.174) than in the female (r*r=0.733), which indicates that males maintain higher Tb than females. May suggested in his private letter (1991) that males of *Sympetrum vicinum* in tandem keep their Tb high independently to Ta.

While the mean Tb of females in single oviposition (n=2) was 32°C, higher than Ta by 13.5°C, the same as that of males in tandem. The rhythm of oviposition in tandem in the analysis by 8 mm video camera was 0.86 sec per tipping (n=5, recorded time: 203 sec.), and that in single was 0.69 sec per tipping (n=1, recorded time: 20 sec.). The rhythm was faster in single oviposition than in tandem. Probably females which are forced to oviposit single warm themselves up before they oviposit. The duration of oviposition in single is seemingly shorter than that in tandem because of the smaller thorax of female than male. Therefore, oviposition in tandem is advantageous not only to males for the sperm competition, but also to females for lessening their burden of oviposition.

Table 1 Relationship of the thoracic temperature on the air temperature of *Sympetrum eroticum eroticum*. (): Number.

	r*r	Intercept of Tb	Slope of Ta
sex	d. f.	s.e.	t-value
Male	0.174 (6)	10.876 3.532	1.180 0.917
Female	0.733 (4)	-6.281 1.533	1.851 3.314

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Easy tour of collecting dragonflies in USA

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The author visited his daughter in Winston-salem, North Carolina with his wife for three weeks from the beginning of September 1994. He collected many dragonflies there. They made a trip to Charleston, South Carolina, where they had a bad weather. In a windy and cloudy, occasionally fair morning, he saw many Green Darners (*Anax junius*) flying southward swiftly against the wind on the beach. At night of the day, when he saw the collections, the body colour of three of 13 males of the *Anax* had been changed. The body colour of the three was dark purple, while that of others was turkish blue. To his surprise, in the next morning the body colour of the two of the three returned to the original vivid turkish blue.

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Heterospecific tandem formation between male *Cercion calamorum* Ris and female *Indolestes peregrinus* Ris

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The author observed a heterospecific tandem formation between a male *Cercion calamorum* Ris and a female *Indolestes peregrinus* Ris at a pond in Matsumoto City at 11:00 a.m. on August 9, 1994. The male tried to fly up in tandem, but after two minutes they separated and flew away.

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Melanized *Lyriothemis pachygastra* Selys

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A melanized female of *Lyriothemis pachygastra* Selys was captured at Nakamura City on July 17, 1994. The dragonfly was immature and assumed to be possibly an andromorphic female.

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Libellula angelina was designated as a protected species

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As reported in the newspapers, on July 28, 1994, *Libellula angelina* Selys was designated as a protected species by the Law for the Conservation of Endangered Species of Wild Fauna and Flora, which was come into force from April 1, 1993. Collecting or transferring and trade of specimens of this dragonfly has been prohibited since March 1, 1994.

Penal provisions

Those who violate the regulations of the Law will be condemned to less than one year's imprisonment or imposed a fine of less than one million yen (about \$10,000).

Application rules

1) Collecting the specimens of the species for the information of new habitat or recovery of the species

In the case that the captured dragonfly is identified and is released, no need of permission by the director-general of the Environment Agency. The permission shall be necessary for collecting or keeping the specimens of the species. The government appoints the surveyors to gather the information about the new habitat of the species.

The surveyors are allowed to keep the minimum number of specimen and shall be required to report the new habitat of the species as soon as possible by rule.

The surveyors can for the survey collect the specimen without permission.

2) Unintentional collecting of the specimen of the species
Those who unintentionally collect the specimen of the species, shall be required it to be identified by specialists, and to inform it to the Government and this deed shall be considered as the survey.

In an access of the information of the predicted designation of the species as a protected species, Dr. Asahin and Mr. Inoue spoke to the Government of their opinion that the enforcement of the Law make it difficult to gather information about new habitat or the recovery of the species and thereafter, the research on the species may not be done. But the Government lastly designated the dragonfly as a protected species and appointed more than 20 surveyors for it.