Research Note

Chironomidae (Diptera) during the winter season at the middle reaches of the Kiso River

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Abstract: The chironomid midges emerged during the winter season were investigated by light and emergence traps at the middle reaches of the Kiso River from November 1988 to March 1989. Fourteen genera and 19 species were identified. The most dominant species, *Hydrobaenus kondoi* Saether 1989, was especially abundant in midwinter.

Introduction

The southern part of the Kiso River, located in central Japan, flows along the borders of Aichi and Gifu Prefectures.

Every winter since 1986, chironomid midge outbreaks have occurred along the left bank at a distance of 27 to 34 km from the mouth of the river. This phenomenon was recently studied and the ensuing results revealed that the midge outbreaks have been caused by the high population density of *Hydrobaenus kondoi* during the winter season (Kondo, 1991). However, except for the nuisance midge, *H. kondoi*, little is known about the species composition and prevalence of the

chironomid midges at the surveyed area during the winter season.

In order to determine the species composition and abundance of the chironomid population during the winter season, investigation by light and emergence traps was carried out during the period from November 1988 to March 1989.

Study area and methods

The chironomid midges were collected at the middle reaches of the Kiso River in Bisai City, Aichi Prefecture. The sampling area looks like a man-made lake because of the construction of a large dam located 27 km upstream from the mouth of the river. The width is 500-700 m, and the mean depth is about 1.0 m. The water of the area is very clear and has a high concentration of dissolved oxygen (9.5-11.4 mg/liter) during the investigation period. The water current is very slow (0.07-0.10 m/sec). The temperature ranged from min. 3.5°C to max. 13.2°C in the water and from min. 4.0°C to max. 15.5°C in the air during the investigation period. The river bed near the left bank consists mostly of medium- and fine-grain sand.

Chironomid midges were collected monthly by one light trap (6 W black fluorescent lamp) during the period from November 1988 to March 1989 and by four emergence traps (50 cm × 50 cm) in December 1988 and February 1989. The light trap was set near the left bank at a point 30 km from the mouth of the river, and lighting was continued overnight. The four emergence traps were set on the shore line located about 30 km from the mouth of the river. The midges were collected 24 hr after the emergence traps were set in December, and after 48 hr in February.

The samples were preserved in 70% alcohol until classification and identification were undertaken. The identification of species was based on male morphological characteristics.

Chironomid species collected

Nineteen species including eight newly

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Table 1 Chironomid midges (male) captured by a light trap at the middle reaches of the Kiso River from November 1988 to March 1989.

Species	No. of individuals				
	Nov.	Dec.	Jan.	Feb.	Mar.
Orthoclaadiinae					
<i>Corynoneura kisogawa</i> Sasa et Kondo	1	0	0	0	0
<i>Epoicocladius kisofulvus</i> Sasa et Kondo	0	1	0	0	0
<i>Hydrobaenus kisoecundus</i> Sasa et Kondo	2	4	0	2	0
<i>Hydrobaenus kondoi</i> Saether	138	293	131	2	2
<i>Orthocladus frigidus</i> (Zetterstedt)	0	6	1	0	0
<i>Orthocladus glabripennis</i> (Goetghebuer)	0	82	1	0	2
<i>Orthocladus kanii</i> (Tokunaga)	0	0	6	0	1
<i>Orthocladus tamarutilus</i> Sasa	0	0	0	0	1
<i>Parakiefferilla bathophila</i> (Kieffer)	6	0	0	0	0
<i>Psectrocladius yunoquartus</i> Sasa	0	0	0	0	1
<i>Smittia aterrima</i> (Meigen)	16	3	0	0	8
<i>Smittia kisonudianalis</i> Sasa et Kondo	0	0	0	0	1
Chironominae					
<i>Chironomus nipponensis</i> Tokunaga	0	0	0	0	1
<i>Paracladopelma kisopediformis</i> Sasa et Kondo	1	0	0	0	0
<i>Polypedilum kisonudum</i> Sasa et Kondo	1	0	0	0	0
<i>Stictochironomus histrio</i> (Fabricius)	0	19	0	0	12
<i>Tanytarsus yunosecundus</i> Sasa	7	0	0	0	0

Table 2 Chironomid midges (male) collected by emergence traps at the middle reaches of the Kiso River in December 1988 and February 1989.

Species	No. of individuals (ind./m ²)	
	December	February
Orthoclaadiinae		
<i>Hydrobaenus kisoecundus</i> Sasa et Kondo	0	5
<i>Hydrobaenus kondoi</i> Saether	10	20
<i>Orthocladus tamarutilus</i> Sasa	2	0
<i>Parakiefferilla bathophila</i> (Kieffer)	0	1
<i>Pseudosmittia kisotriangulata</i> Sasa et Kondo	0	1
Chironominae		
<i>Biwatendipes motoharui</i> Tokunaga	0	39
<i>Stictochironomus histrio</i> (Fabricius)	1	1

described species (Saether, 1989; Sasa and Kondo, 1991, 1993) were identified, and the species composition and number of chironomids during the winter season were determined. Differences in number of the dominant species was found in both light and

emergence traps.

As for chironomid midges collected by the light trap, twelve genera and 17 species were identified.

The species composition and the number of male midges collected during the 5 months

are shown in Table 1. The most dominant species, *Hydrobaenus kondoi*, especially occurred from November to January. The species predominated 50 to 90% over the others during the winter season. The number of other species was very small except for *Orthocladius glabripennis* in December, *Smittia aterrima* in November and March, and *Stictochironomus histrio* in December and March.

Chironomid midges collected by the emergence traps are shown in Table 2. Six genera and seven species including three newly described species were identified. The most dominant species were *H. kondoi* in December and February, and *Biwatendipes motoharui* in February. The latter species have just been recorded from Lake Biwa (Tokunaga, 1965; Sasa and Kawai, 1987) and from the middle reaches of the Kiso River (Sasa and Kondo, 1993).

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摘 要

木曽川中流域における冬期の
ユスリカ類について

木曽川中流域における冬期のユスリカ類について、1988年11月から1989年3月にかけて、ライトトラップとエマージェンストラップで調査した。その結果、14属19種が同定された。最優占種はキノガワフユスリカ *Hydrobaenus kondoi* Saether であった。