

**Note on the tabanid flies investigated at the  
Tohbetsu municipal pasture in Hokkaido  
(Diptera : Tabanidae)**

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**Introduction**

The damage to pasturing cattle by tabanid flies is not only seen in the reduction of daily gain for fattening cattle and milk yield for milking cattle because of blood-loss and irritation<sup>2)</sup>, but also in the transmission of various pathogenic micro-organisms<sup>9)</sup> such as equine infections anemia<sup>4)</sup>, summer mastitis<sup>10)</sup>, piroplasmosis of cattle<sup>8)</sup> and bovine leukemia<sup>11)</sup>. It is impossible to protect pasturing cattle from the parasitism of tabanid flies without the knowledge on their bionomics. In Hokkaido, many investigations on the tabanid flies which occur during the pasturing period at various localities have been made<sup>5,7,11)</sup>, but our knowledge on their bionomics are still incomplete.

In the present paper, the authors reported the results of the investigation on the faunal composition and seasonal prevalence of tabanid flies carried out at the Tohbetsu municipal pasture by means of CO<sub>2</sub>-lured mosquito-net traps during the pasturing period in 1985.

**Methods**

Tabanid flies lured into the mosquito-net traps (Fig. 1) were collected with a collecting tube and killed with potassium cyanide. The mosquito-net trap was modified from a mosquito-net for 4.5 mat room, and both sides of the skirt were turned up and CO<sub>2</sub> gas was emitted 3,000 ml/min in it as an attractant for tabanid flies. The trap was set 10 times from 10:00 to 12:00 at an interval of about 2 weeks from May 23 to September 26, on both fine or somewhat cloudy days, in the shelter wood located at the central part of the study pasture (Tohbetsu municipal pasture). The pasture is

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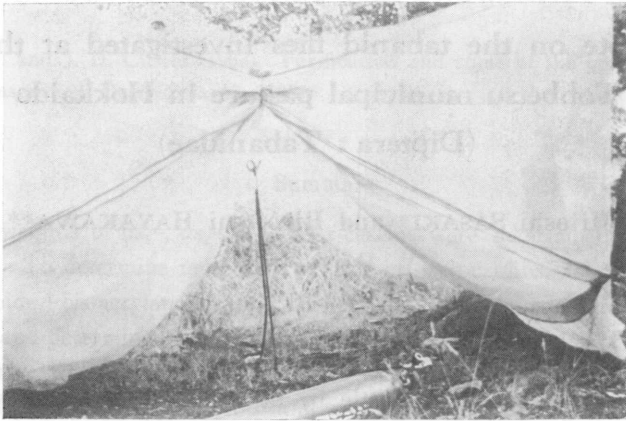


Fig. 1. CO<sub>2</sub>-lured mosquito-net trap.

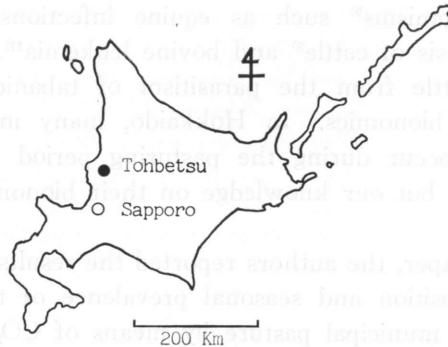


Fig. 2. Map of Hokkaido showing Tohbetu, the site of the study pasture.

located 40 km far from Sapporo in a north-north-east direction (Fig. 2) and covers an area of about 205 ha; the mean level is about 200 m above the sea. In the pasture, about 100 of raising females of Holstein cattle, about 200 of fattening Japanese black cattle together with about 50 of horses are pastured from late May to early October.

The meteorological data shown in Fig. 5 were observed at the Aoyama flood-controlling dam nearby the study pasture, and obtained from the Tohbetu land improvemental office.

## Results and Discussion

### Faunal composition

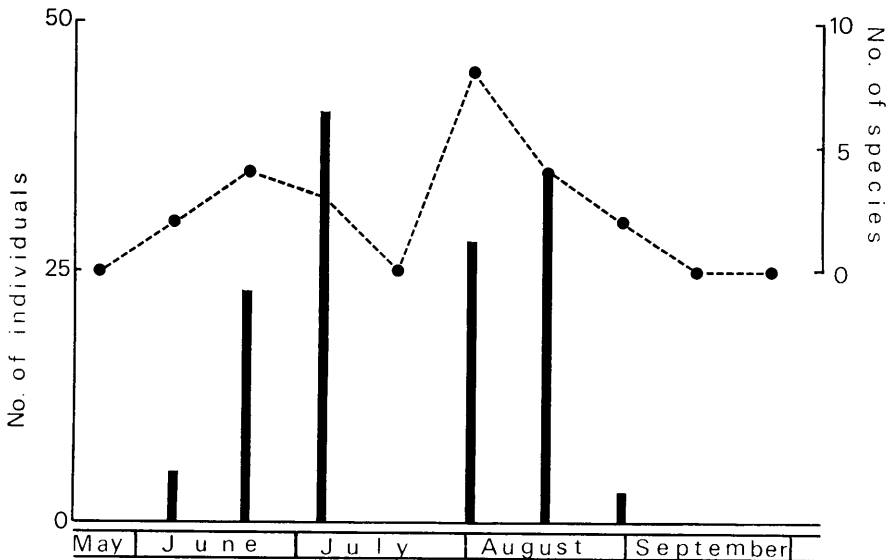
In total 134 tabanid flies involving 10 species of 4 genera were collected in this investigation by CO<sub>2</sub>-lured mosquito-net traps (Table 1). Among them, genus *Tabanus* was most predominant, consisting of 5 species and 64

**Table 1.** Faunal composition of tabanid flies collected at the Tohbestu municipal pasture in 1985

Species	No. of indiv. (%)
<i>Chrysops japonicus</i>	5 ( 3.7)
<i>C. suavis</i>	15 ( 11.3)
<i>Hybomitra distinguenda</i>	48 ( 35.8)
<i>Hy. hirticeps</i>	1 ( 0.7)
<i>Tabauns trigeminus</i>	10 ( 7.5)
<i>T. nipponicus</i>	18 ( 13.4)
<i>T. kinoshitai</i>	2 ( 1.5)
<i>T. sapporoenus</i>	6 ( 4.5)
<i>T. chrysurus</i>	28 ( 20.9)
<i>Haematopota tamerlani</i>	1 ( 0.7)
Total	134 (100.0)

individuals. The second was *Hybomitra* (2 species, 49 indiv.), followed by *Chrysops* (2 species, 20 indiv.), and the least was *Haematopota* (1 species, 1 indiv.).

*Hybomitra distinguenda* was the most predominant species which accounted for 35.8 percent (48 indiv.), *T. chrysurus* being the next (20.9%, 28 indiv.), followed by *T. nipponicus* (13.4%, 18 indiv.) and *C. japonicus* (11.2%,



**Fig. 3.** Seasonal prevalence of tabanid flies at the Tohbetu municipal pasture.

15 indiv.). *Hy. hirticeps*, a rare species as Japanese Tabanidae, but only one specimen was collected on June 6th. This species has hitherto been collected only from the northern parts of Honshu<sup>10</sup>. Therefore, this becomes the first collection and sighting record in Hokkaido. The fact that *Hy. hirticeps* is distributed even in the central part of Hokkaido is very interesting with regard to the tabanid fauna of this region.

The predominancy of *Hy. distinguenda* seems quite characteristic to this study pasture. In pastures in Hokkaido, *T. nipponicus* is most predominant in general, except for the east or northern parts of Hokkaido where *Ha. tristis* is mostly predominant instead<sup>5,6,10,13</sup>. *Hy. distinguenda* is rather

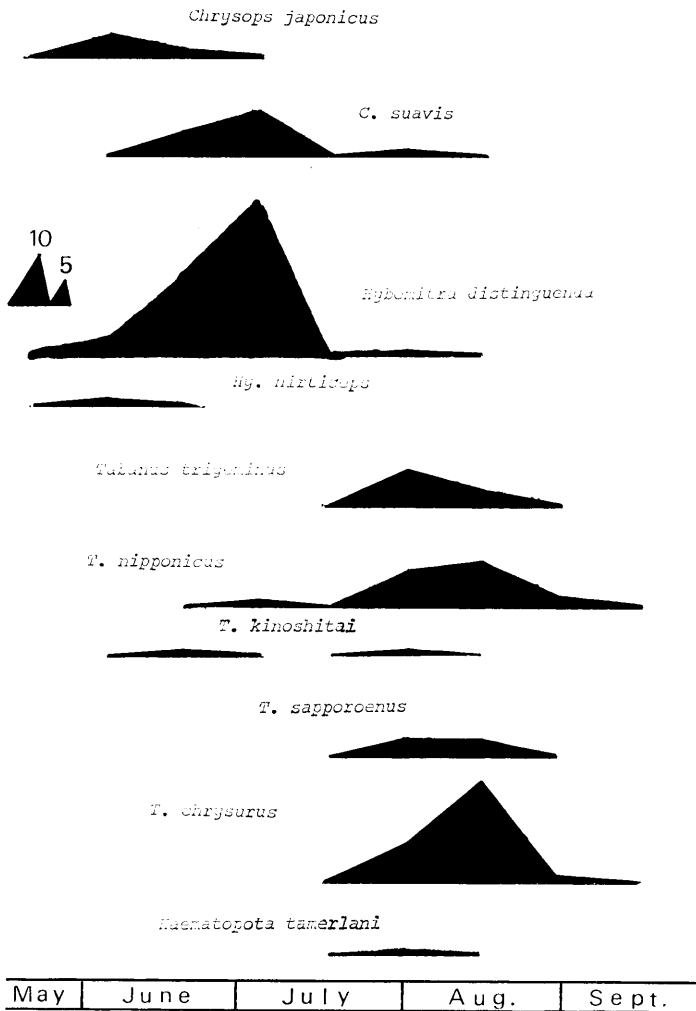


Fig. 4. Seasonal prevalence of each species of the tabanid flies at the Tohbetu municipal pasture.

abundant in the central parts of Hokkaido, but its predominancy among tabanid flies is less than the 3rd<sup>6,7,12</sup>. It is interesting also that *Ha. tristis*, although a very common species in Hokkaido, not even a single specimen was found at this pasture. The reason for this may be partly attributable to the lack of any tabanid flies collected in the period of mid July. *C. vanderwulpi kitaensis* and *Atylotus horvathi*, also rather common species in Hokkaido, were not collected at this pasture, but *C. japonicus* was collected in a relatively high ratio. These results were obtained from only one fly season. More species of tabanid flies will be added to this fauna, if the investigation is continued further.

Seasonal prevalence

The number of the tabanid flies collected at this pasture showed two peaks in appearance. One is in late June and other is in mid August (Fig. 3). The early peak is dominated by *C. suavis* and *Hy. distinguenda*, and the late peak by *T. trigeminus*, *T. nipponicus*, *T. sapporoenus* and *T. chrysurus* (Fig. 4). No tabanid flies were collected at the period of mid July. Therefore this accounts for the main reason for the appearance of the two peaks. The weather of the study day in mid July was not so unfavourable

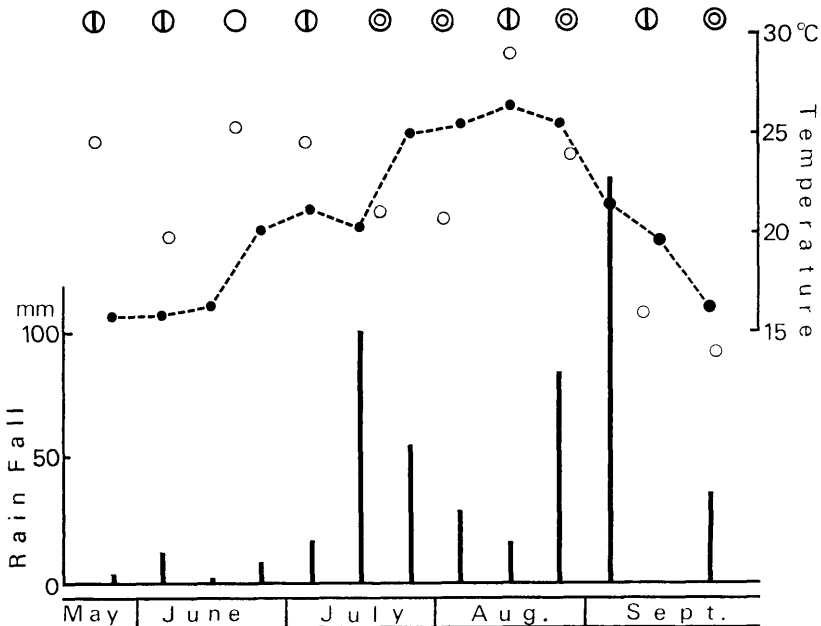


Fig. 5. Air temperature and rain fall at the Tohbetsu municipal pasture.

- : air temperature at 12:00 on the study day
- : mean temperature of 10 days before and behind the study day

for the activity of tabanid flies<sup>1,9)</sup>. The long spell of rainy and cool weather (Fig. 5) before the study day might influence on the emergence of tabanid flies in this period.

Except for the above-mentioned period, the seasonal prevalence in each species generally corresponded to those of other reports investigated in the central parts of Hokkaido<sup>5,12)</sup>.

The results obtained in this investigation may represent a part of the dynamics of tabanid flies inhabiting in this pasture. Therefore, further studies on the annual fluctuation of tabanid flies will be required.

### Summary

One hundred and thirty four individuals of tabanid flies belonging to 4 genera and 10 species were collected by means of CO<sub>2</sub>-lured mosquito-net traps at the Tohbetu municipal pasture in Hokkaido during the pasturing period in 1985. The predominant species were *Hybomitra distinguenda*, *Tabanus chrysurus* and *T. nipponicus*. *Hy. hirticeps* was collected for the first time from Hokkaido.

The seasonal prevalence of the tabanid flies showed two peaks in appearance, one is in late June and other is in mid August.

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## 要 摘

北海道の当別町有牧野において、1985年の放牧期の5月下旬から9月下旬までの期間、概ね2週間に1回合計10回、晴天ないしは高曇りの日を選び、それぞれ午前10時から正午までの2時間、炭酸ガス誘引の蚊帳トラップで吸血性アブ類を採集調査し、4属10種、合計134個体を得た。

最優占種は、キバラアブで35.8%を占め、アカウシアブとニッポンシロフアブが続いた。また、北海道新記録種として、マルヒゲアブが採集された。

アブ類の捕獲消長は、6月下旬と8月中旬にピークを持つ双峰型を示したが、前者はキバラアブの、後者はアカウシアブ、ニッポンシロフアブの採集のピークに一致した。