# Tipulidae, Limoniidae, Cylindrotomidae, Trichoceridae and Ptychopteridae of Lithuania

# Sigitas PODENAS

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Abstract. A check-list of the Lithuanian Tipulidae, Limoniidae, Cylindrotomidae, Trichoceridae and Ptychopteridae families is presented. From the material collected in Lithuania 84 species of Tipulidae, 162 - of Limoniidae, 4 - of Cylindrotomidae, 10 - of Trichoceridae and 6 - of Ptychopteridae families have been identified. The abundance, sex ratio and active period are indicated for each species.

Key words: Tipulidae, Limoniidae, Cylindrotomidae, Trichoceridae, Ptychopteridae, Lithuania.

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### INTRODUCTION

During the years 1982 to 1990 the Diptera fauna of Lithuania was intensively studied. This paper deals with the species abundance, flight periods, sex ratio of the Tipulidae, Limoniidae, Cylindrotomidae, Trichoceridae and Ptychopteridae families. These families are poorly known in Lithuania. VALENTA and PODENAS (1988) mentioned only 11 species of crane-flies in Lithuania. Other papers concerning these families are lacking.

#### **MATERIALS**

Insects were sampled in different biotopes in all parts of Lithuania; in addition relevant specimens from Museum of Institute of Zoology in Leningrad (ZIN) and Museum of Zoology in Kaunas were studied.

# DISCUSSION

At present there are 84 species of crane-flies (Tipulidae) known from Lithuania, which belong to 8 genera in all three subfamilies Dolichopezinae, Tipulinae and Ctenophorinae. The majority of species belonged to the subfamily Tipulinae (78) and the genus *Tipula* (58). There are 14 subgenera of g. *Tipula* represented in Lithuania.

Limoniidae are presented by 162 species, which belonged to 4 subfamilies: Pediciinae - 15 species, Hexatominae - 36, Eriopterinae - 70 and Limoniinae - 41.

Four species of Cylindrotomidae belonged to 4 different genera, but only 2 of them were common.

There are 10 species of Trichoceridae (g. *Trichocera*) and 6 species of Ptychopteridae (g. *Ptychoptera*) known in Lithuania.

The check-list of Lithuanian Tipulidae, Limoniidae, Cylindrotomidae, Trichoccridae and Ptychopteridae

des Liberidas Cylindrologidas Inchoseridas sud lugadop la cool. cracov, 35(1): 47-156.  The Librarian Typultas coise lac, Cylindrolomidas, Tragación Lamilión in presented from the material collected in the collec	%	of collected specimens	Flight period (dates of the earliest and latest collected spe- cimens)
on R., 1988/39. Gaptina taken Pitonja desanok kolapibnikosa bo	2	3	×981-184.4
Emonitore, Cylindronoidae, Trichidoeridae, Plychopicridae,	Sitsituqi	Platenie class	exact Museums. And
Tipulidae		iko pelao	rkijschen Rogion, Liel
D o l i c h o p e z i n a e	RESTAURA RESTAURA	BELLOTI 28 Deed 340	igic ittV
Dolichopeza albipes (STRÖM.)	0.12	0.67	8.6.90-16.6.91
Tipulinae	unik ili	w.prirod.a	rustva, Zagreb, 49-53.
Nephrotoma aculeata (Lw.)	0.35	0.67	29.6.84-21.8.90
N. analis analis (SCHUM.)	1.13	1.18	5.6.88-6.8.84
N. cornicina (L.)	1.11	1.19	4.7.80-10.8.90
N. crocata (L.)	0.33	0.75	26.6.80-28.7.82
N. dorsalis dorsalis (F.)	1.20	2.00	11.6.88-1.8.89
N. flavescens (L.)	1.58	2.20	21.6.84-28.7.84
N. lamellata (RIED.)	0.14	0.17	29.5.89-20.6.89
N. lunulicornis (SCHUM.)	3.24	0.71	19.5.89-24.8.87
N. appendiculata (PIERRE)	9.62	1.05	26.5.89-4.7.85
N. pratensis (L.)	5.02	1.54	9.5.90-4.7.87
N. quadrifaria (MG.)	0.45	1.75	9.6.90-23.7.88
N. quadristriata (SCHUM.)	1.27	0.54	5.6.88-23.8.86
N. scalaris (MG.)	0.14	0.17	25.6.89-18.8.88
N. scurra scurra (MG.)	3.52	0.82	3.6.88-2.9.84
N. submaculosa (EDW.)	0.38	3.00	21.6.84-21.8.89
N. tenuipes (RIED.)	0.14	1.00	1.7.84-19.7.88

2 1 3	2	3	4
Nigrotipula nigra nigra (L.)	0.31	5.50	13.5.88-9.7.89,90
Prionocera pubescens Lw.	0.05	2/-	3.5.89
P. subserricornis (ZETT.)	0.21	2.00	14.5.88-20.8.89
P. turcica (F.)	0.19	1.67	15.5.88-2.6.88
Tipula (Acutipula) fulvipennis fulvipennis DEG.	1.94	1.10	2.6.85-19.9.89
T. (A.) luna WESTH.	4.06	1.84	10.5.90-5.7.85
T. (A) maxima maxima PODA	0.92	1.67	20.5.89-9.7.78
T. (A.) tenuicornis SCHUM.	1.06	1.65	9.5.89,90-4.6.88
T. (Beringotipula) unca unca WIED.	5.38	1.27	28.5.89-22.7.89
T. (Dendrotipula) flavolineata MG.	0.07	2.00	18.5.89-8.6.90
T. (Lunatipula) affinis SCHUM.	0.05	2/-	4.7.86
T. (L.) lactabilis ZETT.	0.68	0.38	28.6.88-11.8.88
T. (L.) fascipennis MG.	6.07	0.82	10.6.88-30.7.84,85
T. (L.) humilis STAEG.	2.22	4.87	15.6.88-15.7.77
T. (L.) livida v. d. WULP.	0.16	0.67	25.6.89-13.7.88
T. (L.) lunata L.	3.54	1.42	27.5.89-5.8.85
T. (L.) peliostigma SCHUM.	0.02	1/-	28.6.88
T. (L.) selene MG.	0.12	2.00	30.5.88-15.6.88
T. (L.) vernalis MG.	4.23	1.66	9.5.89-3.7.82
T. (Lindenrina) bistilata bistilata LUND.	0.16	1.33	19.5.89-15.6.88
T. (Odonastisca) juncea juncea MG.	0.50	0.62	20.5.89-20.7.88
T. (Platytipula) autumnalis Lw.	0.02	1/-	19.9.89
T. (Pl.) luteipennis luteipennis MG.	3.64	37.50	20.8.89-2.10.84
T. (Pl.) melanoceros SCIIUM.	0.05	2/-	20.9.89
T. (Pterelachisus) pabulina MG.	0.73	1.21	9.5.90-5.7.79
T. (P.) trifascingulata THEOW.	0.07	0.50	4.6.89-15.6.88
T. (P.) truncorum MG.	0.14	0.20	23.6.90-26.7.89
T. (P.) pauli MUUKS.	0.07	-/3	1.6.89-22.6.85
T. (Pt.) hortulana MG.	1.46	2.87	9.5.89,90-25.6.85
T. (Pt.) irrorata MACQ.	0.76	0.55	26.5.89-24.7.88
T. (Pt.) jutlandica NIELS.	0.05	2/-	4.6.89
T. (Pt.) luridirostris SCHUM.	0.09	1.00	16.6.88-15.8.85
T. (Pt.) mutila WAIILGR.	0.02	-/1	15.6.88
T. (Pt.) pseudoirrorata GOETGII.	0.21	0.50	28.5.89-2.7.85
T. (Pt.) pseudovariipennis Cz.	0.73	1.25	13.5.89-26.6.86
T. (Pt.) variipennis MG.	1.94	5.83	10.5.90-12.6.88
T. (Pt.) wahlgreni LACK.	0.05	1.00	28.5.85
T. (Savtshenkia) interserta RIED.	0.38	1.28	7.5.88-8.5.88
T. (S.) invenusta invenusta RIED.	0.09	-/4	2.10.84-8.10.88
T. (S.) limbata ZETT.	0.35	0.36	20.5.89-18.10.85,89
T. (S.) grisescens ZETT.	0.07	0.50	12.4.90-11.5.90
T. (S.) confusa Van Der WULP.	0.02	-/1	5.6.73

ε 1 g DISCUSSI	2	3	4
T. (C.) -k-s-k-s-Mo	0.05	owa fro	10 10 05 15 10 00
T. (S.) obsoleta MG.	0.05	2/-	10.10.85-15.10.88
T. (S.) signata STAEG.	0.38	0.23	25.8.88-30.10.89
T. (S.) staegeri NIELS.	0.02	-/1	8.10.88
T. (S.) subnodicornis ZETT.	0.12	0.67	5.5.90-16.5.88
T. (Schummelia) variicornis variicornis (SCHUM.)	2.53	1.28	14.5.89-22.7.89
T. (s. str.) czizeki de JONG	0.14	2.00	5.10.86-16.10.84
T. (s. str.) oleracea L.	0.14	0.50	8.8.86-21.8.89
T. (s. str.) paludosa MG.	5.19	2.56	14.7.83-1.10.86
T. (Vestiplex) hortorum L.	1.06	2.58	9.5.90-28.5.85
T. (V.) nubeculosa MG.	1.18	4.00	20.5.89-7.7.86
T. (V.) scripta scripta MG.	6.71	1.28	19.5.89-16.10.84
T. (Yamatotipula) caesia SCHUM.	0.19	0.60	21.6.84,85-16.8.90
T. (Y.) couckei TONN.	0.94	2.15	24.4.89-27.8.86
T. (Y.) latemarginata coerulescens LACK.	0.19	7.00	8.5.88-10.8.89
T. (Y.) lateralis MG.	2.86	1.18	29.4.89-16.9.84
T. (Y.) marginella TIEOW.	0.85	2.27	29.4.89-13.8.88
T. (Y.) montium EGG.	1.23	0.44	20.5.88-16.9.84
T. (Y.) pruinosa pruinosa WIED.	1.98	3.37	26.5.89-16.8.89
T. (Y.) quadrivittata quadrivittata STAEG.	0.02	1/-	1.6.89
T. (Y.) fierrei TONN.	0.80	1.83	4.5.90-8.8.88
C tenophorinae 💮 💮	.olid	noomij is	(Odonastisca) junci
Dictenidia bimaculata bimaculata (L.)	0.19	3.00	27.6.90-30.7.84
Ctenophora flaveolata (F.)	0.07	-/3	23.4.90-17.5.88
Ct. guttata MG.	0.12	0.25	5.4.27-19.6.90
Ct. pectinicornis (L.)	0.02	-/1	3.5.27
Tanyptera atrata atrata L.	0.40	0.70	9.5.90-27.6.87
	100.00	8.67	(P.) truncorum MG
Limoniidae	1133	1.16	(P.) Pauli Mooks
P e d i c i i n a e	1.11	1,39	of 780 (0.5 do) (Pt.) Horridana Mo
Ula (s. str.) bolitophila L W.	0.03	0.50	20.5.88-24.7.88
U. (s. str.) sylvatica (MG.)	0.17	0.33	18.5.88,89-24.9.89
Dicranota (s. str.) bimaculata (SCIIUM.)	0.56	3.08	29.4.89-19.9.89
D. (s. str.) guerini ZETT.	0.22	2.50	1.5.88,89-7.5.88
D. (Paradicranota) gracilipes WAIILGR.	0.37	4.00	25.4.85-7.5.88
D. (P.)landrocki Cž.	0.01	1/-	6.4.91
D. pavida (HAL.)	0.02	2/-	29.7.89
D. (P.) robusta LUNDSTR.	0.01	1/-	5.6.88
D. (P.) subtilis Lw.	0.44	9.75	1588-14588, 108.90
D. (Rhaphidolabis) exclusa (WALK.)	0.73	4.15	3.5.89-2.6.88
Pedicia (Crunobia) straminea (MG.)	0.05	5/-	10.8.90-19.9.89
P. (s. str.) rivosa (L.)	0.73	9.28	19.5.88-20.9.89
Tricyphona (s. str.) immaculata (MG.)	0.38	1.25	13.5.88-20.9.89

2 (1 3	2	3	4
T. (s. str.) livida MAD.	0.01	1/-	9.6.89
T. (s. str.) unicolor (SCHUM.)	0.37	5.33	16.4.88-26.5.88
II e x a t o m i n a e	0.05	(2L85386) 1	
Elephantomyia (s. str.) edwardsi LACK.	0.13	0.86	4.6.89-17.6.89
Helius (s. str.) flavus (WALK.)	0.94	0.82	8.6.90-16.8.90
II. (s. str.) longirostris longirostris (Mg.)	1.69	1.18	18.5.89-21.8.89
Paradelphomyia (Oxyrhiza) fuscula (Lw.)	0.13	0.08	17.6.85-20.9.89
Austrolimnophila (Archilimnophila) unica (OS.)	0.01	-/1	17.5.89
Epiphragma ocellare ocellare (L.)	4.48	3.99	9.5.89-29.7.88
Adelphomyia punctum (MG.)	0.27	0.53	4.6.88-17.6.89
Elocophila apicata (Lw.)	0.04	3.00	9.6.89-3.8.88
E. maculata (MG.)	1.47	2.28	17.5.89-16.8.86
E. verralli (BERGR.)	0.03	2.00	14.5.88
Eutonia barbipes (MG.)	0.21	18.0	26.5.89-1.8.86
Idioptera fasciata (L.)	0.72	12.40	20.05.89-10.7.88
I. macropteryx (TJED.)	0.01	1/-	30.6.90
I. pulchella (MG.)	0.09	3.50	14.5.88-21.7.88
Limnophila (s. str.) pictipennis (MG.)	0.12	5.00	9.5.89-9.8.90
L. (s. str.) punctata (SCHR.)	4.99	3.26	29.4.89-8.6.90
Neolimnomyia (Brachylimnophila) nemoralis (MG.)	6.05	1.64	22.5.90-28.10.84
N. (s. str.) batava (EDW.)	0.05	0.25	8.6.90-15.8.88
N. (s. str.) filata (WALK.)	0.01	1/-	8.6.90
Phylidorea (Euphylidorea) dispar (MG.)	0.07	6.00	29.5.85-3.7.85
P. (E.) meigeni (VERR.)	0.02	1.00	8.6.88-16.6.88
P. (E.) phaeostigma (SCHUM.)	0.04	2.00	4.7.86-7.7.86
P. (Macrolabina) nigronotata nigronotata (SIEBKE)	0.36	2.89	14.5.88-10.6.89
P. (Paraphylidorea) fulvonervosa (SCIIUM.)	0.99	1.14	20.5.89-25.9.88
P. (s. str.) abdominalis (STAEG.)	0.02	1.00	21.8.89
P. (s. str.) bicolor (MG.)	0.03	2.00	20.5.88-23.6.89
P. (s. str.) ferruginea (MG.)	0.84	1.44	22.5.86-20.9.89
P. (s. str.) glabricula glabricula (MG.)	0.34	2.00	20.5.89-29.7.88
P. (s. str.) nigricollis (MG.)	0.23	21.00	13.5.88-28.5.85
P. (s. str.) squalens squalens (ZETT.)	0.06	2.00	2.6.88
Pilaria discicollis discicollis (MG.)	0.15	2.75	23.6.90-30.8.86
P. fuscipennis (MG.)	0.04	3.00	28.6.90-4.7.90
P. meridiana (STAEG.)	0.04	0.33	21.5.88-30.6.90
Pseudolimnophila lucorum (MG.)	0.92	1.44	20.5.89-20.8.89
P. sepium (VERR.)	1.38	0.63	18.5.89-15.8.89
Hexatoma (Eriocera) cimicoides (SCOP.)	0.03	0.50	29.4.89-16.5.88
Eriopterinae	0.28	26.00	27.4.07-10.3.88
Crypteria (s. str.) limnophiloides BERGR.	0.03	-/3	25.6.88-2.10.85
Neolimnophila carteri (TONN.)	0.14	12.00	7.5.88-19.6.89

ε 1 \$	2	3	4
Arctoconopa melampodia (LW.)	0.02	1.00	26.6.88
A. zonata (ZETT.)	0.02	-/1	4.6.88
Erioptera (s. str.) divisa (WALK.)	4.37	3.49	9.5.89-20.8.86
E. (s. str.) fuscipennis MG.	0.01	1/-	9.7.89
E. (s. str.) juscipetitus Mo. E. (s. str.) gemina gemina TJED.	1.88	6.91	9.6.90-9.7.90
E. (s.str.) griseipennis MG.	0.58	6.00	4.6.88-9.6.90
E. (s. str.) limbata LW.	0.04	1.00	8.6.90
E. (s. str.) lutea lutea MG.	2.57	1.99	30.4.89-19.9.89
E. (s. str.) sordida ZETT.	0.14	0.40	18.5.85-22.9.88
E. (s. str.) squalida LW.	0.38	0.56	11.5.88-25.9.88
Gonempeda flava (SCHUM.)	0.37	0.62	11.6.88-29.7.89
Scleroprocta sororcula (ZETT.)	0.06	-/6	8.6.90
Symplecta (Psiloconopa) stictica (MG.)	0.12	0.50	1.5.89-30.8.86
S. (s. str.) hybrida (MG.)	0.76	1.22	19.4.86-23.9.88
S. (Trimicra) pilipes (F.)	0.17	0.78	18.5.85-26.8.89
Cheilotrichia (s. str.) imbuta (MG.)	1.04	10.62	4.6.88-21.7.87
Ch. (Empeda) affinis (LACK.)	0.14	1.33	13.5.86-20.9.89
Ch. (E.) cinerascens (MG.)	1.37	0.38	30.4.89-21.8.89
Ch. (E.) staryi MENDL	0.04	0.33	19.9.89-17.10.89
	0.03	2.00	14.9.88-2.10.85
E. trivialis (MG.)	0.18	4.67	7.5.88-19.1089
Ilisia (s. str.) maculata (MG.)	0.35	1.00	1.6.89-16.8.90
I. (Parilisia) areolata (SIEBKE)	0.13	0.50	14.5.89-26.6.88
I. (P.) subalpina BANG.	0.01	1/-	30.6.90
I. (P.) vicina (TONN.)	0.93	3.94	1.5.89-16.7.89
	3.81	1.20	17.5.89-21.89
M. (s. str.) ater (MG.)	0.19	3.50	4.5.89-18.5.90
M. (s. str.) bifidus GOETGH.	0.02	2/-	7.4.90
M. (s. str.) bihamatus MEIJ.	0.03	2.00	4.6.88-17.6.89
M. (s. str.) cinereifrons MEIJ.	0.24	0.53	9.6.90-21.8.89
M. (s. str.) corniger MEIJ.	0.06	5.00	29.6.86-10.8.90
M. (s. str.) griseus (MG.)	0.03	1.00	10.6.89-6.7.88
M. (s. str.) maurus LACK.	0.01	1/-	26.6.90
M. (s.str.) medius MEIJ.	2.78	1.98	2.6.88-22.7.89
M (s. str.) obscurus (MG.)	0.02	1.00	9.6.90-28.10.84
M. (s. str.) ochraceus (MG.)	0. 64	0.79	1.6.89-16.8.89
M. (s. str.) ochrescens EDW.	0.13	2.00	9.6.89-16.8.90
M. (s.str.) pleuralis MEIJ.	1.01	23.50	15.6.89-13.8.89
M. (s.str.) propinguus propinguus (EGG.)	0.36	3.25	14.5.89-5.7.90
M. (s. str.) pullus LACK.	0.03	0.50	4.7.84
M. (s. str.) serpentiger EDW.	0.10	2.33	17.5.89-23.6.88
Ormosia (s. str.) aciculata EDW.	0.02	2/-	20.4.90-26.6.88

2 1 3	2	3	4
O. (s. str.) brevinervis (LUNDSTR.)	0.03	0.50	5.5.88-7.5.88
O. (s. str.) clavata (TONN.)	0.33	1.13	21.4.89-8.8.89
O. (s. str.) depilata EDW.	0.05	4.00	26.4.86-28.5.89
O. (s. str.) lineata (MG.)	0.57	2.25	20.4.89-29.7.88
O. (s. str.) nodulosa (MACQ.)	0.03	3/-	6.5.89-9.5.89
O. (s. str.) pseudosimilis (LUNDSTR.)	0.01	-/1	19.5.89
O. (s. str.) ruficauda (ZETT.)	0.18	2.00	22.7.89-15.8.88
O. (s. str.) staegeriana AL.	0.03	2.00	13.5.88-27.7.89
Rhypholophus haemorrhoidalis (ZETI.)	0.09	0.50	15.8.88-21.8.89
R. varius (MG.)	0.23	0.57	11.8.88-19.9.89
Tasiocera (Dasymolophilus) murina (MG.)	0.02	2/-	8.6.90
Dicranoptycha (s. str.) cinerascens (MG.)	0.11	1.00	13.5.88-11.7.88
D. (s. str.) fuscescens (SCHUM.)	0.31	0.93	5.4.88-16.8.85
D. (s. str.) livescens LW.	0.07	1.33	3.8.88-28.8.86
Gnophomyia viridipennis (GIMM.)	0.01	1/-	2.8.87
Gonomyia (s. str.) lucidula MEIJ.	0.42	0.73	20.5.89-10.8.90
G. (s. str.) recta TONN.	0.02	2/-	28.6.90
G. (s. str.) simplex TONN.	0.01	1/-	7.6.90
G. (s. str.) tenella (MG.)	0.03	2.00	28.5.85-21.7.87
G. (Teuchogonomyia) edwardsi LACK.	0.01	-/1	19.5.89
diocera (Ellipteroides) lateralis (MACQ.)	0.02	-/2	10.7.84
Lipsothrix ecucullata EDW.	0.10	4.00	5,6.88-16.7.89
L. errans (WALK.)	0.02	-/2	30.6.89-9.7.89
L. nigristigma nigristigma EDW.	0.06	2.00	8.6.90-28.6.90
L. remota (WALK.)	0.34	1.20	8.6.90
Rhabdomastix (Sacandaga) laeta (LW.)	0.20	5.33	15.6.88-16.7.89
Limoniinae 00.001			
Antocha (s. str.) vitripennis (MG.)	3.09	7/3	28.5.85-16.9.84
Orimarga (s. str.) attenuata (WALK.)	0.01	1/-	30.6.90
Atypophthalmus inustus (MG.)	0.02	2/-	29.7.90-10.8.90
Dicranomyia (Achyrolimonia) decemmaculata (L.W.)	0.04	3.00	13.5.89-30.8.86
D. (s. str.) chorea (MG.)	0.17	15.00	9.5.90-23.9.89
D. (s. str.) didyma (MG.)	0.25	3.80	22.5.90-14.8.89
D. (s. str.) distendens distendens LUND.	0.07	0.40	8.6.88-13.10.89
D. (s. str.) dumetorum (MG.)	0.12	1.33	7.6.90-15.8.88
D. (s. str.) frontalis (STAEG.)	0.38	0.95	16.6.88-16.10.84
O. (s. str.) halterata OS.	0.06	1.00	30.6.89-3.8.88
D. (s. str.) handlirschi LACK.	0.10	1.50	15.5.88-20.9.89
D. (s. str.) longipennis (SCHUM.)	0.26	0.92	31.5.89-15.10.88
D. (s. str.) mitis (MG.)	0.28	26.00	30.7.90-5.9.89
D. (s. str.) modesta (MEIG.)	4.26	0.77	31.5.89-28.10.84
D (s. str.) omissinervis MEIJ.	0.07	2.50	12.6.88-11.8.88

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D. (s. str.) patens LUND.	0.02	1.00	26.7.88
D. (s. str.) ventralis (SCHUM.)	0.73	1.39	17.5.89-25.8.88
D. (s. str.) zernyi LACK.	0.01	1/-	24.9.89
D. (Idiopyga) autumnalis (STAEG.)	0.25	0.50	13.5.89-16.10.84
D. (I.) magnicauda LUND.	0.19	1.00	5.6.88-20.10.88
D. (I.) murina (ZETT).	0.01	1/-	16.6.88
D. (I.) stigmatica (MG.)	0.80	6.00	4.5.89-17.10.89
D. (Melanolimonia) morio (F.)	0.02	1.00	15.6.89
D. (M.) occidua EDW.	0.04	3.00	13.5.88-17.7.85
D. (Glochina) tristis (SCHUM.)	0.02	2/-	8.6.90-30.7.90
Discobola annulata (L.)	0.04	3.00	22.7.89-21.8.89
D. caesarea (OS.)	0.14	2.25	29.6.86-2.10.84
Libnotes (Afrolimonia) ladogensis (LACK.)	0.01	1/-	8.6.90
Limonia albifrons (MG.)	0.01	-/1	8.6.90
L. flavipes (F.)	1.56	0.86	17.5.89-28.6.90
L. macrostigma (SCHUM.)	0.86	1.24	6.5.89-20.9.89
L. nigropunctata nigropunctata (SCHUM.)	0.01	1/-	13.5.89
L. nubeculosa MG.	0.30	0.61	19.4.89-2.10.85
L. stigma (MG.)	2.96	0.99	30.6.89-24.8.89
L. tripunctata (F.)	10.34	0.88	18.5.89-8.8.89
L. trivittata (SCHUM.)	1.96	0.04	23.6.89-30.7.88
Metalimnobia bifasciata bifasciata (SCIIR.)	0.99	1.23	13.5.89-21.8.89
M. quadrimaculata (L.)	0.25	1.67	14.5.86-16.9.84
M. quadrinotata quadrinotata (MG.)	1.57	1.29	20.4.89-10.9.85
Rhipidia (s. str.) maculata MEIJ.	7.48	4.50	4.5.89-28.10.84
Rh. (s. str.) uniseriata uniseriata SCHIN.	0.03	2.00	8.6.90-30.6.89
	100.00		b &569 1565 80m
Cylindrotomidae	9.02 (.		odia (s. st.6) ilifrip
Cylindrotoma distinctissima (MEIG).	69.71	2.38	10.5.90-2.9.84
Diogma glabrata (MG).	28.08	1.72	15.6.87-6.8.85
Phalacrocera replicata (L.)	0.63	2/-	3.5.89-14.5.88
Triogma trisulcata (SCHUM).	1.58	0.67	3.5.89-13.5.88
0.25 3.80.33.4022.5(90-04(8.89)) 34	100.00		DNEE WORLD CARE
Trichoceridae	21291.1		ระเทศได้เราะเนื้อ 1.60
Trichocera annulata MG.	0.12	1.00	19.9.89-8.10.88
Tr. forcipula NIELS.	0.18	0.50	8.10.89
Tr. hiemalis (DE GEER).	55.22	3.61	22.2.90-11.5.88;
11. 19290068221M3102.1 01.0	1.01	29-53	19.10.88-19.9.89
Tr. maculipennis MG.	4.13	7.12	11.1.89-23.5.89; 10.10.89
Tr. major EDW.	2.53	0.81	19.9.89-30.10.89
Tr. parva MG.	0.68	11/-	24.9.89-30.10.89

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	yovotíV .	1891 JAN	ALESTA B., S. PODE
Tr. regelationis (L.)	1.17	2.00	24.3.90-1.5.89; 19.10.88-30.10.89
Tr. rufescens EDW.	4.19	0.65	24.9.89-10.11.89
Tr. saltator (IIAR).	31.72	2.71	5.4.86-18.5.86; 16.8.84-16.11.88;
Tr. sp.	0.06	1/-	13.10.90
	100.00		
Ptychopteridae			
Ptychoptera albimana (F.)	22.07	9.12	2.5.89-5.10.90
Pt. contaminata (L.)	20.48	1.59	13.5.88-17.8.83,86
Pt. lacustris MG.	35.11	0.98	10.5.90-9.7.89,90
Pt. minuta TON.	0.80	3/-	21.7.88
Pt. paludosa MG.	2.66	1.00	22.5.88,90-20.8.89
Pt. scutellaris MG.	18.88	1.37	9.5.90-11.7.88
	100.00		

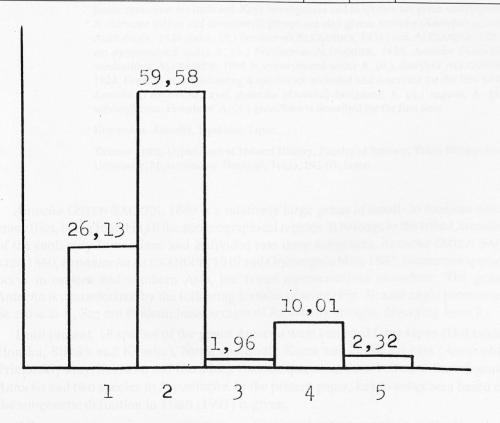


Fig. 1. Abundance of insects in families: Tipulidae - 1, Limoniidae - 2, Cylindrotomidae - 3, Trichoceridae - 4 and Ptychopteridae - 5.

# REFERENCES

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