

ENTOMOLOGICAL STUDIES IN THE LAKE HAZEN AREA, ELLESMERE ISLAND, INCLUDING LISTS OF SPECIES OF ARACHNIDA, COLLEMBOLA, AND INSECTA*

D. R. OLIVER†

IN 1947 the Division of Entomology and the Division of Botany and Plant Pathology, Canada Department of Agriculture and the Defence Research Board, Canada Department of National Defence, began a joint project of organized entomological investigations in Northern Canada (Twinn 1950, Freeman and Twinn 1954). The research has dealt mainly with the problems of systematics and distribution of northern insects, and in the early years of the project in general with the ecology and control of biting flies. The studies on systematics and distribution, the Northern Insect Survey, have been continued by the Division of Entomology and later by the Entomology Research Institute, and up to 1962 in all 73 field parties of the Survey, consisting of one or two men each, have visited 72 localities in arctic and sub-arctic regions.

As a development of this work the Entomology Research Institute has initiated a new program of studies on arctic insects. The main orientation of this program is ecological and experimental, but it will continue also to investigate the problems of systematics and distribution. It is hoped to make detailed investigations, continuing over several seasons, of the interrelationships of insects with each other and with their environment at a number of sites, the first of these being the laboratory of the Defence Research Board at Hazen Camp (81°49'N. 71°18'W.) on Lake Hazen.

In 1961 the writer made a general collection of the insects occurring in the Hazen Camp area and began ecological investigations of the chironomids. The program was considerably expanded in 1962. The members of the party in 1962 were: P. S. Corbet (ecology and behaviour of mosquitoes and caddisflies), J. A. Downes (ecology and behaviour of biting midges, mosquito predators, and plant-feeding insects), W. H. Forrest (insect rearing and assisting in the mosquito research), R. B. Madge (general collecting

* Paper No. 1 in the program "Studies on Arctic Insects", Entomology Research Institute, Canada Department of Agriculture.

† Entomology Research Institute, Research Branch, Canada Department of Agriculture, Ottawa, Ontario.

and rearing), J. F. McAlpine (general collecting and flower visiting of higher Diptera), R. H. Mulvey (general collecting of nematodes), D. R. Oliver (ecology and behaviour of chironomids and the moths *Byrdia*), and D. B. O. Savile of the Plant Research Institute (ecological studies in support of the entomological work and collecting of fungi).

The 11 species of Arachnida, 14 species of Collembola, and 189 species of Insecta collected in the vicinity of Hazen Camp in 1961 are given in the following list. This is not complete, as at least 25 additional species of insects, not yet identified, were taken in 1962. Only three species of insects had been recorded from the Lake Hazen area prior to 1961: *Phormia terranova* and *Fucellia pictipennis* collected by J. W. Goodsell, surgeon of the Peary Arctic Expedition (Aldrich 1918), and *Pseudodiamesa arctica* (Oliver 1959).

This opportunity is taken to review also the records for the whole of the Queen Elizabeth Islands. In the list of the species from Hazen Camp those previously recorded from the Queen Elizabeth Islands are marked with an asterisk, and a second list is given of the species recorded from the Queen Elizabeth Islands previously (McLachlan 1879, Kieffer 1926, Bruggemann 1958), but not taken at Hazen Camp in 1961. The latter list is a mere compilation from the literature, and further study will probably reveal that a few of the old identifications are incorrect or that several names are synonymous with those in the list for Hazen Camp. However, it can be expected that many of the species will eventually be found to occur at Hazen Camp.

The author is indebted to the specialists, acknowledged after the family names, who made the list for Hazen Camp possible. Thanks are also extended to the Defence Research Board for the use of their facilities at Hazen Camp.

List of species of Arachnida, Collembola, and Insecta collected at Hazen Camp in 1961.

Species marked with an asterisk have been recorded previously from the Queen Elizabeth Islands.

ARACHNIDA

ARANEIDA

LYCOSIDAE (det. A. L. Turnbull)

- * *Pardosa glacialis* Thorell
- * *Tarantula exasperans* Cambridge

THOMISIDAE (det. A. L. Turnbull)

- Xysticus deichmanni* Soerensen

MICROPHANTIDAE (det. A. L. Turnbull)

- * *Erigone psychrophilia* Thorell
- Hilaira* sp. near *nubigena* Hull
- Minyriolus pampia* Chamberlin
- Microphantidae 3 spp.

DICTYNIDAE (det. A. L. Turnbull)

- Dictyna* sp.

ACARINA

HYDRACARINA (det. D. R. Cook)

- Libertia* sp.

COLLEMBOLA

PODURIDAE (det. W. R. Richards)

- * *Anurida* sp. nr. *granaria* Nic.
- * *Hypogastrura viatica* Tullberg
- * *H.* sp. nr. *armata* Nic.
- Neanura (Morulina)* sp.
- Podura aquatica* Linn.

ISOTOMIDAE (det. W. R. Richards)

- * *Agrenia bidenticulata* Tullberg
- Folsomia bisetosa* Gisin
- F. diplophthalma* Axelsson
- * *Isotoma viridis* Bourlet
- * *I. violacea* Tullberg
- * *Isotomurus palustris* Muller

ONYCHIURIDAE (det. W. R. Richards)

- Onychiurus* sp. (*groenlandicus* grp.)

NEELIDAE (det. W. R. Richards)

- * *Neelus (Megalothorax) minimus* Willem.

SMINTHURIDAE (det. W. R. Richards)

- Sminthurides aquaticus* Bourlet

INSECTA

HOMOPTERA

PSEUDOCOCCIDAE (det. W. R. Richards)

- Pseudococcus (Trionymus)* sp.

COLEOPTERA

STAPHYLINIDAE (det. W. J. Brown)

- * *Atheta* sp.

DYTISCIDAE (det. W. J. Brown)

- Hydroporus polaris* Fall

TRICHOPTERA

LIMNEPHILIDAE (det. G. B. Wiggins)

- * *Apatania zonella* Zett. Rec. by Bruggemann (1958) as *Radema* sp.

LEPIDOPTERA

OLETHREUTIDAE (det. T. N. Freeman)

- Aphania* sp.
- * *Olethreutes inquietana* Walk.

GEOMETRIDAE (det. E. G. Munroe)

- * *Dasyuris polata* Dup.
- * *Psychophora sabinii* Kby.

LYMANTRIDAE (det. M. R. Mackay)

- * *Byrdia groenlandica* Hom. (only larvae taken at Hazen Camp)

NOCTUIDAE (det. D. F. Hardwick)

- * *Anarta richardsoni* Curt.
- * *Crymodes* sp. nr. *exulis* Lef.
- * *Lasiestra leucocycla* Staud.
- Sympistris labradoris* Staud.
- * *Syngrapha parilis* Hbn.

ARCTIIDAE (det. M. R. Mackay)

Larva only

PIERIDAE (det. T. N. Freeman)

- * *Colias hecla* Lef.

NYMPHALIDAE (det. T. N. Freeman)

- * *Boloria chariclea* Schneid.
- * *B. polaris* Bdv.

LYCAENIDAE (det. T. N. Freeman)

- * *Lycaena feildeni* McLach.
- * *Plebeius aquilo* Bdv.

DIPTERA

TRICHO CERIDAE (det. C. Dahl)

- Trichocera borealis* Lacksch.
- Trichocera* sp.

TIPULIDAE (det. J. R. Vockeroth)

- * *Dactylolabis rhicnoptiloides* Alex.
- Erioptera (Symplecta)* sp.
- Nephrotoma arcticola* Alex.
- Ormosia* sp.
- * *Tipula arctica* Curt.

CHIRONOMIDAE (det. D. R. Oliver)

Podonominae

- Trichotanyppus posticalis* Lundb.

Tanytopodinae

- Procladius* sp.

Orthoclaadiinae

- * *Protanyppus caudatus* Edw.
- * *Pseudodiamesa arctica* Mall.
- Diamesa arctica* Boh.
- * *D. simplex* Kieff.
- Abiskomyia virgo* Edw.
- Cricotopus alpicola* Goetgh.
- C. basalis* Staeg.
- C. pavidus* Holmgr.
- Cricotopus* 3 spp.
- Diplocladius bilobatus* Brund.
- Heterotrissocladius subpilosus* Kieff.
- Orthoclaadius (s.s.) decoratus* Holmgr.
- Orthoclaadius (s.s.)* sp.
- O. (Pogonoclaadius) consobrinus* Holmgr.
- O. (Euorthoclaadius)* 2 spp.
- O. (Eudactylocladius) mixtus* Holmgr.
- * *Psectrocladius barbatimanus* Kieff.
- P. fennicus* Storå
- P. limbatellus* Holmgr.
- Trissocladius fusistylus* Goetgh. n. comb.
- T. tornetråskensis* Edw.
- Trissocladius* 2 spp.
- Chaetoclaadius adsimilis* Goetgh. n. comb.
- C. grandilobus* Brund.
- C. perennis* Meig.
- C. holmgreni* Jacob.
- Chaetoclaadius* sp.
- Limnophyes borealis* Goetgh.
- L. globifer* Lundstr.
- Limnophyes* 3 spp.
- Metriocnemus obscuripes* Holmgr.
- Smittia polaris* Kieff. n. comb.
- S. polymorpha* Ander.
- Corynoneura ? scutellata* Winn.
- Parakiefferiella nigra* Brund.
- * *Prosmittia nanseni* Kieff. n. comb.
- * *Paraphaenoclaadius despectus* Kieff. n. comb.
- ? Genera, 2 spp.

Chironominae

- * *Chironomus (s.s.)* 2 spp.

- Micropsectra insignilobus* Kieff.
M. natvigi Goetgh.
Paratanytarsus setosimanus Goetgh.
Tanytarsus gracilentus Holmgr.
T. niger Ander.
- CERATOPOGONIDAE** (det. J. A. Downes)
Forcipomyia sp.
Ceratopogon 4 spp.
Culicoides sp.
- CULICIDAE** (det. J. R. Vockeroth)
 * *Aedes impiger* Walk.
 * *A. nigripes* Zett.
- MYCETOPHILIDAE** (det. J. R. Vockeroth)
Bolitophila n. sp.
 * *Exechia frigida* Holmgr.
 * *Exechia* sp.
Mycomya sp.
Sciophila sp.
- SCIARIDAE** (det. J. R. Vockeroth)
Bradysia parva Holmgr.
Bradysia 8 spp. Probably 2 of these recorded by Bruggemann (1958) as *Sciara* spp.
Scaptosciara sp.
- CECIDOMYIIDAE** (det. J. R. Vockeroth)
 Lestremiinae 1 sp.
 Cecidomyiinae 1 sp.
- DOLICHOPODIDAE** (det. J. R. Vockeroth)
Dolichopus dasyops Mall.
D. humilis v. D.
- EMPIDIDAE** (det. J. G. Chillcott)
Rhamphomyia flicauda Lundb.
R. sp. nr. *lamelliseta*
R. (Dasyrhamphomyia) nigrita Zett.
- PHORIDAE** (det. J. R. Vockeroth)
Megaselia sp.
- SYRPHIDAE** (det. J. R. Vockeroth)
Carposcalis carinata Curran
 * *Helophilus borealis* Staeg.
 * *Metasyrphus chillcotti* Fluke
Phalacrodira nigropilosa Curran
- SAPROMYZIDAE** (det. J. F. McAlpine)
Sapromyza hyalinata Mq. (a very doubtful record. It is common around Ottawa and possibly had been carried to Hazen Camp in collecting equipment)
- PIOPHILIDAE** (det. J. F. McAlpine)
Allopiophila arctica Holmgr.
Lasiopiophila pilosa Staeg.
- AGROMYZIDAE** (det. G. E. Shewell)
Phytomyza sp.
- CALLIPHORIDAE** (det. G. E. Shewell)
 * *Boreëllus atriceps* Zett.
 * *Phormia terraenovae* R. D.
Protocalliphora sp.
- TACHINIDAE** (det. J. F. McAlpine)
 * *Exorista* sp.
Peleterioptis aenea Staeg.
- MUSCIDAE**
 Scatophaginae (det. J. R. Vockeroth)
- Gonarcticus arcticus* Beck.
 * *Scatophaga apicalis* Curt.
 * *S. multisetosa* Holmgr.
 * *S. nigripalpis* Beck.
- Anthomyiinae (det. J. G. Chillcott)
 * *Fucellia pictipennis* Becker
Hylemya fasciventris Ringd.
Pegomyia arctica Ringd.
P. tunicata Zett.
- Phaoniinae (det. J. G. Chillcott)
Eupogonomyia groenlandica Lundb.
Pogonomyoides segnis Holmgr.
- Linnophorinae (det. J. G. Chillcott)
Spilogona almquisti Holmgr.
S. deflorata Holmgr.
S. denudata Holmgr.
S. dorsata Zett.
S. extensa Mall.
S. latilamina Collin
S. monacantha Collin
S. obsoleta Mall.
S. sanctipauli Mall.
S. tornensis Ringd.
S. tundrae Schnabl.
Spilogona sp.
- HYMENOPTERA
- TENTHREDINIDAE** (det. W. R. M. Mason)
 * *Nematus* sp.
- BRACONIDAE** (det. W. R. M. Mason)
 * *Apanteles* 3 spp.
Aphidius sp.
 * *Rogas* sp.
- ICHNEUMONIDAE** (det. W. R. M. Mason)
 * *Atractodes* 6 spp.
Bathythrix sp.
 * *Cryptus arcticus* Schd.
Diplazon sp.
Exochus pullatus Tow.
Gelis sp.
Himerta sp.
Horogenes sp.
 * *Hyposoter luctus* Davis
Ichneumon lariae Curtis
Mesochorus sp.
Mesoleius 5 spp.
 * *Opidnus* sp.
Orthocentrus sp.
 * *Phygadeuon* 3 spp.
Plectiscus sp.
Proclitus sp.
Saotis sp.
Stenomacrus 4 spp.
- CHALCIDIDAE** (det. W. R. M. Mason)
Copidosoma sp.
- BOMBIDAE** (det. H. E. Milliron)
 * *Megabombus polaris* Curtis Rec. by Bruggemann (1958) as *Bombus arcticus* Kby.
 * *M. hyperboreus* Schönh.

List of species of Arachnida, Collembola, and Insecta recorded from the Queen Elizabeth Islands, not collected at Hazen Camp in 1961.

ARACHNIDA

ARANEIDA

- Erigone provocans* Cambr. (McLach. 1879)
E. vezatrix Cambr. (McLach. 1879)
Tegenaria destabilis Cambr. (McLach. 1879)

ACARINA

- Bdella* sp. (McLach. 1879)
Brachychthonius scalaris Forssl. (Hammer 1953)
Damaeus nr. *geniculatus* Kock (McLach. 1879)
Dermaleichus sp. (McLach. 1879)
Eylais sp. (McLach. 1879)
Fuscozetes sellnicki Hammer (Hammer 1953)
Hydrachna sp. (McLach. 1879)
Oribata lucasii Nicolet (McLach. 1879)
Oribata 2 spp. (McLach. 1879)
Sciurus sp. (McLach. 1879)
Tectocephus velatus Mich. (Hammer 1953)
Trichoribates polaris Hammer (Hammer 1953)

COLLEMBOLA

- Archisotoma besselsi* Packard (Hammer 1954)
Entomobyra sp. (Hammer 1954)
Folsomia fimetaria Linn. (Hammer 1954)
F. quadrioculata Tullb. (Hammer 1954)
F. regularis Hammer (Hammer 1954)
Isotoma olivacea Tullb. (Hammer 1954)
Lipura sp. (McLach. 1879)
Mourulina? *gigantea* Tullb. (Hammer 1954)
Neogastrura tullbergi Schäffer (Hammer 1954)
Onychiurus debilis Moniez (Hammer 1954)
O. groenlandicus Tullb. (Hammer 1954)
Podura hyperborea Boheman (McLach. 1879)
Polyacanthella sp. (Hammer 1954)
Proisotoma mackenziana Hammer (Hammer 1954)
Sira erudita Nic. (Hammer 1954)
Sminthurides malmgreni Tullb. (Hammer 1954)
Vertagopus arborea Linn. (Hammer 1954)

INSECTA

ORTHOPTERA

BLATTIDAE

- Blatella germanica* L. Alert, introduced in 1951 (Bruggem. 1958)

MALLOPHAGA

- Colpocephalum* sp.? (McLach. 1879)
Docophorus ceblebrachys Nitzsche (and 2 others) (McLach. 1879)
Nirmus cingulatus Burm. (McLach. 1879)
N. phaeonotus Nitzsche
Menopon gonophaeum Burm., var.? (McLach. 1879)

ANOPLURA

HAEMATOPINIDAE

- Haematopinus trichechi* Boheman (Bruggem. 1958)

COLEOPTERA

STAPHYLINIDAE

- Micralymma brevilingue* Schiödte (Bruggem. 1958)
Quedius fulgidus Erichson (Bruggem. 1958)

LATHRIDIIDAE

- Lathridius minimus* L. (Bruggem. 1958)

LEPIDOPTERA

OLETHREUTIDAE

- Olethreutes mengelana* Fern. (Bruggem. 1958)

PYRALIDAE

- Udea torvalis* Möschl. (Bruggem. 1958)

PTEROPHORIDAE

- Stenoptilia mengeli* Fern. (Bruggem. 1958)

LYMANTRIIDAE

- Byrdia rossi* Curt. (Bruggem. 1958)

DIPTERA

TRICHOCERIDAE

- Trichocera regelationis* L. (Bruggem. 1958)

CHIRONOMIDAE

- Camptocladius fulvipluma* Kieff. (Kieff. 1926)
C. glacialis Kieff. (Kieff. 1926)
C. nanseni Kieff. (Kieff. 1926)
Chironomus polaris Kby. (Bruggem. 1958)
Diamesa polaris Kieff. (Kieff. 1926)
Holtedahlia brevivalpis Kieff. (Kieff. 1926)

- Metriocnemus polaris* Kieff. (Kieff. 1926)
Psectrocladius polaris Kieff. (Kieff. 1926)
Syndiamesa polaris Kieff. (Kieff. 1923)
- CULICIDAE
Aedes hexodontus Dyar (Bruggem. 1958)
- EMPIDIDAE
Rhamphomyia ursinella Mel. (Bruggem. 1958)
- SYRPHIDAE
Stenosyrphus bulbosus Fluke (Bruggem. 1958)
- EPHYDRIDAE
Lamproscatella sp. (Bruggem. 1958)
- MUSCIDAE
Anthomyia sp. (Bruggem. 1958)
Pyrellia cadaverina Kby. (Bruggem. 1958)
- SIPHONAPTERA
- PULICIDAE
Haplopyllus glacialis glacialis Taschenb. (Bruggem. 1958)
- HYMENOPTERA
- TENTHREDINIDAE
Nematus borealis Marlatt (Bruggem. 1958)
N. marginifer Strand (Bruggem. 1958)
N. stordalensis Strand (Bruggem. 1958)
Pachynematus sp. (Bruggem. 1958)
- ICHNEUMONIDAE
Campoletis sp. (Bruggem. 1958)
Eriplanus sp. (Bruggem. 1958)
Ichneumon amauropis Hein. (Bruggem. 1958)
I. erythomelas McLach. (Bruggem. 1958)

References

- Aldrich, J. R. 1918. Notes on diptera. *Psyche* 25:31-5.
- Bruggemann, P. F. 1958. Insects and environments of the high Arctic. Proc. Tenth Int. Congr. Ent. Montreal 1956 1:695-702.
- Freeman, T. N., and C. R. Twinn. 1954. Present trends and future needs of entomological research in northern Canada. *Arctic* 7:275-83.
- Hammer, M. 1953. Collemboles and oribatids from the Thule district (Northwest Greenland) and Ellesmere Island (Canada). *Medd. om Grønland*. 136(5):2-16.
- 1954. Collemboles and oribatids from Peary Land (North Greenland). *Medd. om Grønland*. 127(5):1-28.
- Kieffer, J. 1926. Chironomiden der 2. Fram-Expedition (1898-1902). *Norsk ent. Tidsskr.* 2:78-89.
- McLachlan, R. 1879. Report on the Insecta (including Arachnida) collected by Captain Feilden and Mr. Hart between parallels of 78° and 83° north latitude, during the recent arctic expedition. *J. Linn. Soc.* 14:98-122.
- Oliver, D. R. 1959. Some Diamesini (Chironomidae) from the Nearctic and Palaearctic. *Ent. Tidskr.* 80:48-64.
- Twinn, C. R. 1950. Studies of the biology and control of biting flies in northern Canada. *Arctic* 3:14-26.