

Throughout this paper I have given only those localities which I personally knew of, either through having captured the insects myself or having seen those captured by others, except in the case of the old records. So the account of the distribution is necessarily meagre, and this makes it the more desirable that Orthopterists should publish local lists, and record the occurrence of individual species; and it will give me great pleasure to help any collector, as far as I can, towards identifying specimens.

Wandsworth, London, S.W.:

June, 1890.

NEUROPTERA FROM THE ISLAND OF UNST.

BY JAMES J. F. X. KING, F.E.S.

Having spent the months of July and August of last year in the remote island of Unst (Shetland), devoting much of my time to the working-out of its Neuropterous fauna, it has occurred to me that a few notes might be of some interest to Neuropterists, for, excepting the records in this Magazine at pp. 91 and 153 of Vol. xxi by Mr. McLachlan of twelve species of *Trichoptera*, collected by Messrs. Briggs and Roper-Curzon, nothing is known regarding the occurrence of these insects upon this northern island.

The island of Unst (which is about twelve miles long by five broad) is the most northerly of the Shetland group, and, as a rule, has very moist summers from what I could learn from the natives, although last summer proved a notable exception, being the driest within the memory of the proverbial oldest inhabitant. Having thus far disposed of the climate, it will be well to give a few hints as to the accommodation to be had at Baltasound, the best point from which to work the island. The regular lodging house at which "commercial" and anglers, as well as "brothers of the net," put up is Mrs. Hunter's, where bed and board can be had for about 5s. 6d. per day. Mrs. Arthur also has two or three rooms for letting; from my experience people will be very comfortable at her house, and her terms are very moderate.

Although so far north, Baltasound is well supplied with the comforts of town, *i. e.*, a telegraph and post office with post three times a week, and two well supplied shops where most commodities may be obtained. There are two churches, "Free" and "Established," the

former heated with oil stoves during cold weather, the latter, which is a large building, capable of seating 700 or 800 people, has only spiritual comforts, and is not much frequented, the stoves seemingly having the effect of drawing a large number of people from the establishment.

The island of Unst is well supplied with fresh-water lochs, the largest of which is Loch of Cliff, about three miles in length, where good trout fishing may be had; by the way, the fresh-water and sea fishing is free, as is also the rabbit, golden plover and snipe shooting. A first class road, with a branch to Belmont, extends from Baltasound to Uyeasound, there is also a good road from Baltasound in a north-easterly direction to Haroldswick, otherwise the moor has to be taken for reaching Burrafirth, Woodwick, &c., but in no case is the walking heavy.

The hills of Hermaness* 657 feet and Saxavord* 934 feet rise on either side of Burrafirth in the north, and overlook the Muckle Flugga lighthouse, which is erected upon a mere rock, and is the most northerly inhabited spot in the British Isles.

With regard to the chief object of my visit, I may mention that the absence of trees, long heather, or long herbage of any description, in which the insects might find shelter, rendered collecting *Neuroptera* a matter of some difficulty, as most of the specimens had to be obtained by searching under stones, &c. The late Mr. Edmondston planted about two acres of trees near his house of Haligarth, Baltasound; these trees he enclosed within a high stone wall, to the height of which the trees managed to struggle, when they bent their heads in a horizontal direction so as to escape the keen winds from the sea. In this plantation I found many insects, such as *Psocidæ*, *Hemerobidæ*, and *Chrysopa*, which, I have very little doubt, were introduced with the shrubs, as none of these are to be found elsewhere in the island. Dragon flies do not occur in Unst as far as I could learn. I asked several of the natives and showed them specimens, but they did not remember to have seen anything like them, and I think that if dragon flies did occur I must have seen them, as I had been at all the promising localities on very favourable days.

On my way to Unst I spent a couple of days at Lerwick, in the neighbourhood of which I was fortunate enough to capture a few insects, the localities of which I will add after the Unst localities in brackets.

I will now proceed with the systematic list of my captures.

* Forming two of the three British localities where the Great Skua is still to be found. I saw several of these fine birds on both hills.

TRICHOPTERA.

PHRYGANEIDÆ.

PHRYGANEA VARIA, F.—At Loch Watlee I took this species; the specimens were rather lighter than those from the Highlands of Scotland. [Occurs near Lerwick].

LIMNOPHILIDÆ.

COLPOTAULIUS INCISUS, Curt.—A few pigmies occurred at Loch Watlee, and beside the burns at Crussafield. The males measure 11 mm. and the females 12½ mm. across the wings.

LIMNOPHILUS RHOMBICUS, L.—A female, measuring 37 mm., of the ordinary form was taken at Vallafeld.

L. MARMORATUS, Curt.—A small race of this, measuring 26 mm., occurs, in which there is not much difference from southern specimens, excepting size.

L. LUNATUS, Curt.—One specimen at Tonga Daal, small and dark, very similar to specimens which I have in my cabinet from Orkney, collected by Professor Trail.

L. IGNAVUS (Hag.), McLach. — Ordinary specimens, calling for no special remark, occurred at Crussafield.

L. VITTATUS, F.—A prettily marked form occurred at Baltasound, in which the dorsal portion of the fore-wing is of a dark colour, while the costal portion is very light and transparent, with the pterostigma well marked.

L. AFFINIS, Curt.—Very common in the ground at Haligarth and upon the stone walls on Crussafield. The wings were more or less sprinkled with dark dots, giving the insect a rather pretty look; the pterostigma was in all cases very dark. The specimens measured from 21—27 mm.

L. AURICULA, Curt.—Common by beating the bushes in Haligarth Gardens. I took a number of specimens measuring only 14 mm., but did not see any so small (12½ mm.) as the one Mr. McLachlan mentions as having been taken by Mr. Curzon.

L. GRISEUS, L.—A specimen of the ordinary form occurred on Crussafield.

L. SPARSUS, Curt.—The specimens of this species were remarkable for the uniform colour of their wings, being either of a pale smoky-grey or a dark brown with a slightly darker pterostigma; some of the specimens reaching barely 18 mm. in expanse of wings.

STENOPHYLAX LATIPENNIS, Curt.—This appears to be the commonest caddis fly in Unst; the cases with larvæ might be found in any quantity almost under any stone in the Lochs, and the fly could be reared by placing the cases in any vessel with a little damp moss. At night it was not a case of catching the fly but of turning it out of the net, as at every sweep along the short herbage bordering streams, lochs, &c., numbers might be bagged. Some of the specimens were very small, only measuring 28½ mm., ♂ & ♀. A few are light straw coloured, although the majority are of a more or less dark colour.

S. CONCENTRICUS, Zett.—A few females of this were taken at Crussafield, being attracted by a white sheet spread for that purpose. Expanse of wings, 40 mm.

MESOPHYLAX IMPUNCTATUS, McLach., *var. ZETLANDICUS*, McLach.—This occurred all over the Crussafield burns, and might be taken by sweeping after dark. I captured over a dozen of it.

MICROPTERNA LATERALIS, Steph.—A male of this was taken at the beginning of July near Baltasound, which measured only 32 mm.

HALESUS RADIATUS, Curt.—A few small specimens, measuring only 33 mm., were taken at Burrafrith towards the end of July by sweeping herbage at night.

DRUSUS ANNULATUS, Steph.—This species was very common at night in various parts of the island; the specimens do not call for any special remark, excepting that some of both sexes measured only 16 mm. in expanse of wings.

SERICOSTOMATIDÆ.

LEPIDOSTOMA HIRTUM, F.—Common at Loch of Cliff, also at Crussafield [Taken near Lerwick].

LEPTOCERIDÆ.

LEPTOCERUS FULVUS, Ramb.—Common at Loch Watlee and Loch of Cliff; specimens not unlike those from the mainland of Scotland. [Abundant near Lerwick].

L. CINEREUS, Curt.—Common at Loch of Cliff. [Also taken near Lerwick].

MYSTACIDES AZUREA, L.—Common at Loch of Cliff. [Also at Lerwick].

CECETIS OCHRACEA, Curt.—Very pale specimens of this were taken at Loch of Cliff and Belmont Loch, much paler than any which I have seen from the mainland of Scotland or Ireland. [Also occurs near Lerwick].

HYDROPSYCHIDÆ.

PHILOPOTAMUS MONTANUS, Donov.—Occurred near Westing in the middle of July, rather dark in colour.

PLECTROCNEMIA CONSPERSA, Curt.—Taken in fair numbers in various places over Unst, such as Crussafield and Virdafield. Some of the specimens are of the normal size, but a little dark in colour.

POLYCENTROPUS FLAVOMACULATUS, Pict.—Very common at Burrafrith, Loch of Cliff, Loch Watlee, Hellier's Water, and Loch Belmont. Specimens did not vary much from southern, excepting that they are perhaps on the whole a little smaller. [Also near Lerwick].

CYRNUM TRIMACULATUS, Curt.—Fairly common all over the island, as a whole the specimens were much darker and smaller than southern ones, a few expanded only to 11 mm. [Also from near Lerwick].

TINODES WENERI, L.—Very common at many places, many of the specimens being small. [Common near Lerwick].

RHYACOPHILIDÆ.

RHYACOPHILA DORSALIS, Curt.—Almost equally common with *Stenophylax latipennis* in the same localities. The specimens do not call for much in the way of remark, except that they may be a little smaller and much darker than those from the south. [Also at Lerwick].

AGAPETUS FUSCIPES, Curt.—Fairly common at Loch of Cliff by searching under stones; at Belmont Loch numbers might be obtained, measuring only 6½ mm., by sweeping the herbage.

HYDROPTILIDÆ.

HYDROPTILA SPARSA, Curt.—Along the streams in Vallafield.

H. FEMORALIS, Eaton.—Loch Watlee.

OXYETHIRA COSTALIS, Curt.—Various streams that run into Vallafield.

NEUROPTERA—PLANIPENNIA.

HEMEROBIIDÆ.

HEMEROBIUS OROTYPUS, Wall., SUBNEBULOSUS, Ste., NERVOSUS, Fab.—A few of each occurred in Haligarth Grounds.

CHRYSOPIDÆ.

CHRYSOPA VULGARIS, Schn.—One specimen occurred at Haligarth.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

CLOTHILLA PULSATORIA, L.—Common in the houses.

PSOCUS BIFASCIATUS, Latr.—Common in Haligarth plantation.

ELIPSOCUS UNIPUNCTATUS, Müll.—Very common in Haligarth plantation.

E. WESTWOODII, McLach.—Ordel House among the honeysuckle, and in the Haligarth plantation.

PERLIDÆ.

ISOPTERYX TRIPUNCTATA, Scop.—A small race of this was to be obtained by searching under stones along Loch of Cliff and Loch Watlee, some of the specimens measuring only 6 mm. [Also at Lerwick, but the specimens were much larger.]

LEUCTRA FUSCIVENTRIS, Ste.—Not uncommon at Loch of Cliff and by the streams at Hermaness. [Also near Lerwick].

EPHEMERIDÆ.

CLÖEON SIMILE, Eaton.—Not uncommon at Loch of Cliff and Loch Watlee. [Very common near Lerwick].

CENTROPTILUM LUTEOLUM, Müll.—Common at Loch Watlee.

BÆTIS TENAX, Eaton.—Loch of Cliff, Vallafield, Burrafirth, Tonga Daal, and the streams on Hermaness. [Also common near Lerwick].

The following is a summary of the species collected in Unst and near Lerwick:—

	UNST.		near LERWICK.
TRICHOPTERA	32 species	10 species.
PLANIPENNIA	4	”	— ”
PSOCIDÆ	4	”	— ”
PERLIDÆ	2	”	2 ”
EPHEMERIDÆ	3	”	2 ”

207, Sauchiehall Street, Glasgow :

May, 1890.

Bibliography of the Neuropterida

Bibliography of the Neuropterida Reference number (r#):
9291

Reference Citation:

King, J. J. F. X. 1890 [1890.??]. Neuroptera from the island of Unst. Entomologist's Monthly Magazine 26:176-180 [or vol. (2)1].

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