

quencing conifers. I cannot discover that it has been anywhere described, but there can be little doubt it is confused with the allied species in some collections and lists. I possess about thirty-five examples referred here. Males (with females) from Finmark (*Chapman* and *Lloyd*); Switzerland (Bergün, *Zeller*; Valais, *Fallow*); North Italy (Macugnaga, Val Anzasca, Val Furva, *Eaton*, *McLachlan*); Alps of Dauphiné (Bourg d'Oisans and La Grave, *McLachlan*); Pyrénées Orientales (*McLachlan*), Eaux Bonnes (*Eaton*). Also females without males (hence slightly less certain) from Switzerland (Bignasco, *Eaton*; Val Levantina, *McLachlan*); Tyrol (Cortina, *Champion*); Austria (*Brauer*); Carinthia (*Zeller*); Savoy (Chamonix, *McLachlan*); Central Pyrenees (*Eaton*); various localities in Germany (*Zeller*). Mr. Morton took both sexes (the types) at Rannoch, Scotland, in June, 1898.

There might be a possibility of confounding this with examples (exceptional in neuration) of *H. concinnus*, Steph., var. *quadrifasciatus*, Reuter. But both sexes of the latter differ widely in the anal parts, for in *H. concinnus* the female abdomen ends in a prominent short upturned ovipositor.*

I have a species from North America (Colorado) so much like *Mortoni* that I dare not say it is distinct.

Lewisham, London:

January, 1899.

PSEUDO-NEUROPTERA, PLANIPENNIA, AND TRICHOPTERA
COLLECTED AT RANNOCH IN JUNE, 1898.

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

Towards the end of 1897 Mr. C. A. Briggs made a proposal to the effect that an excursion should be arranged to Rannoch of such entomologists as were more or less interested in *Neuroptera*, with the view of working up this group especially, and particularly of capturing *Æschna cærulea (borealis)* and *Somatochlora arctica*. The result of this proposal was that Mr. G. T. Porritt joined me in Glasgow on the afternoon of June 6th; we left the city by the early West Highland train on the morning of the 7th, meeting Mr. Briggs, who had travelled through from Lynmouth, at a wayside station outside of

* I take this opportunity of stating that the North American *H. longifrons*, Walker, was introduced by me (Journ. Linn. Soc., Zool., ix, pp 272-273) into the European Fauna in error, and the name should be expunged from the lists. The European examples were *H. concinnus*, var. *quadrifasciatus*, and I now feel sure the American *H. longifrons* is distinct, but allied.

Glasgow. We then arrived at Rannoch station about 11 a.m., where we met the Rannoch mail coach, which carried us to the head of the loch, but as the mail route was along the north side that day, we had to proceed on our way to Camachgouran on foot, our baggage being brought along in a cart.

Having arrived at our quarters, and partaken of some refreshment, during which our baggage was announced, we got our nets, &c., into order, and sallied forth to have a look at the well-known entomological hunting ground, the Black Wood.

Mr. K. J. Morton joined our small party on the Friday after our arrival, and stayed over the week end. During our stay, which just extended to a fortnight, we had the pleasure of the company of Dr. McCallum and Mr. Wm. Reid, and of Mr. and Mrs. Cowl, of Bournemouth.

On the whole, we had very fair weather, although there was a considerable amount of snow on the hills around; the evenings were very cold, and on one day we had a thunderstorm.

Previous to our visit, the season had been very wet and cold, consequently the ground was damp, and in parts of the wood very swampy.

The take of *Neuroptera* was fairly good, including as it did three species new to Britain (indicated by asterisks), and some others rather uncommon.

Our work was confined to the immediate vicinity of Camachgouran and the Black Wood, only one or two trips extending to any distance from our head-quarters.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

Psocus fasciatus, F., one specimen.

Elipsocus hyalinus, Steph., a few, rather immature.

PERLIDÆ.

Perla maxima, Scop., was taken by Messrs. Briggs and Morton under stones in Cross Craig Burn.

Isogenus nubecula, Newm., abundant under stones along the loch side, very often ten or twelve could be seen nestled together under one small stone.

Chloroperla grammatica, Poda, common.

Isopteryx tripunctata, Scop., Cross Craig Burn and loch, common; *torrentium*, Cross Craig Burn and loch, common.

Teniopteryx Risi, Mort., taken by us all, sparingly.

Nemoura variegata, Oliv., common; *Meyeri*, Pict., not common; *cinerea*, not common.

Lucetra, sp.?, common.

EPHEMERIDÆ.

Leptophlebia marginata, Linn., Cross Craig Burn, two specimens; *submarginata*, Steph., Cross Craig Burn, two specimens; **Meyeri*, Etn., on the moor above the Black Wood, common.

**Ameletus inopinatus*, Etn., one specimen on the sandy spit at the mouth of the Dall Burn was taken by Mr. Briggs.

Siphylurus lacustris, Etn., a few were taken.

Ecdyurus venosus, Fab., a few were taken: *lateralis*, Curt., a few were taken.

ODONATA.

Leucorrhinia dubia, Lind., was not uncommon at two or three localities, but, as usual, males were rather difficult to catch. On June 11th and 12th the ♀s were found drying their wings near a little loch above the Black Wood, near which we also found the empty skins of the nymph.

Libellula quadrimaculata, Linn., as usual very common everywhere.

Somatochlora arctica, Zett. This species was obtained in the Black Wood, flying south from the direction of the loch towards the higher ground; over a dozen specimens were taken in all.

Cordulegaster annulatus, Latr., as usual, common.

Æchna cærulea, Strm. (*borealis*). With hard work this species was obtained in numbers; we all found that it is inclined to be inquisitive, one specimen alighted in my white net, and another settled on Mr. Briggs' face. This has been observed before by Mr. Morton, when in the Glen Lochay district. *Juncea*, Lin. A curious specimen, so much like a *cærulea* that it may be a hybrid, especially as no other *juncea* occurred to any of us, and it was early for the species.

Pyrrhosoma minium, Harr., common.

Enallagma cyathigerum, Charp., common.

PLANIPENNIA.

Sialis lutaria, Linn., common; *fuliginosa*, Pict., Mr. Briggs obtained this by sweeping at a small stream near the Black Wood.

Hemerobius inconspicuus, McL., Black Wood, one specimen; *nitidulus*, Fab., common; *micans*, Oliv., common; *humuli*, Lin., one specimen by beating; *limbatus*, Wesm., common; *nervosus*, Fab., fairly common; **Mortoni*, McL., two specimens by beating in the Black Wood were obtained by Mr. Morton.

Coniopteryx psociformis, Curt., *aleyrodiformis*, Steph., both species fairly common in the firs.

TRICHOPTERA.

Neuronia ruficrus, Scop. This species was found flying in the sunshine upon the moor, and was also beaten out of the fir trees, not uncommon.

Phryganea obsoleta, McL. A few specimens were taken at a loch above the Black Wood.

Colpotaulius incisus, Curt., was obtained by sweeping at night in the low marshy ground between Camachgouran and the loch.

Grammotaulius atomarius, F., taken along with the last species.

Limnophilus flavicornis, F., was taken in the same ditch as the two previous species; *elegans*, Curt., two specimens of this scarce species were obtained by beating

firs, one by Mr. Morton, the second by myself; *centralis*, Curt., common everywhere by beating; *auricula*, Curt., taken in the Black Wood; *griseus*, L., very common by beating firs; *extricatus*, McL., *luridus*, Curt., *sparsus*, Curt., these three were obtained by sweeping over the marshy ground, and also by beating firs.

Micropterna lateralis, Steph., taken at night by sweeping, and also at the Lepidopterists' sugar.

Ecolisopteryx guttulata, Pict., one specimen taken.

Apatania Wallengreni, McL., not uncommon along the loch side, but we were much too late for the males, only an odd one or so being taken.

Brachycentrus subnubilus, Curt., common, with the last.

Philopotamus montanus, Donovan., taken on the moor above Camachgouran.

Plectrocnemia conspersa, Curt., not uncommon in the small streams upon the moor, but a little difficult to catch.

Rhyacophila dorsalis, Curt., on the moor burns.

Hydroptila forcipata, Etn., in bedroom, probably from Cross Craig Burn, introduced on my beating umbrella.

207, Sauchiehall Street, Glasgow :

February, 1899.

MICRO-LEPIDOPTERA IN CUMBERLAND IN 1898.

BY G. WILKINSON.

The season of 1898, taken as a whole, was rather a disappointing one; nevertheless, I succeeded in adding about twenty species new to my list. In January larvæ of *Phlæodes immundana* were as usual very common all through the district in alder catkins, and cases of *Coleophora cæspitiella* swarmed wherever the common rushes were growing. I collected a lot of oak and beech leaves for *Lithocolletis* pupæ, and subsequently bred plenty of *L. quercifoliella*, *faginella*, *Cramerella*, *Heegeriella*, and a few *irradiella*. Throughout February hibernated examples of *Depressaria applana*, *arenella* and *ocellana* were frequently met with. On March 12th I took my first *Diurnea fagella* sitting on a fir trunk, and on the same date *Tortricodes hyemana* was flying in profusion. I found the best method of taking the females of the latter to be by searching the oak trunks at night with a lamp; they appeared to prefer to be near the ground, as most of them were found very low down. April 3rd saw *Ephestia Kühniella* coming out in scores from larvæ obtained in one of the flour mills in town. On the 8th, whilst travelling to Keswick, I took in the railway carriage a new *Tortrix* to my list, *Phlæodes orenana*.

It was now about time to look up the various species in the genus *Micropteryx*. The way we worked for these was by procuring a large white sheet about 8 ft. by 6 ft., and two held the sheet underneath the trees whilst one beat them; I always found the best time to work was between four and six o'clock. By beating through the day they mostly fly, and therefore do not get into the sheet; whilst towards dusk they drop down and sit quite still. By this means we took *caledoniella*, *purpurella*, *Sangii*, *semipurpurella*, *subpurpurella*, *unimaculella* and *Sparmannella*. By far the most common was *unimaculella*. We did not confine ourselves to any kind of tree,

Bibliography of the Neuropterida

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