

**FURTHER ADDITIONS TO THE LIST OF BRITISH
COLUMBIA GEOMETRIDAE**

By E. H. Blackmore, Victoria, B.C.

This paper is really an addition to the one that I read before you at the last annual meeting (Proc. B.C. Ent. Society, No. 6, N.S., p. 116, et seq.), and is induced by the fact that I have been able, during the past year, to obtain several new records to be added to our list, as well as finding out further changes in nomenclature which affect our British Columbia Geometridae. I will deal with the new records first, keeping the corrections and changes for the latter part of my paper. Altogether there are over twenty species and varieties new to our British Columbia List, which I have gathered from the following sources. In November last, while going through a number of papered specimens collected by Mr. W. H. Danby at Rosslund some fifteen years ago, I found about thirty specimens of Geometridae. After relaxing and setting these up I was very pleased to find three species which had not previously been authentically recorded. At the beginning of January I was asked by the authorities at the Mount Tolmie University to re-arrange and re-label the collection of the late Capt. R. V. Harvey, who was for many years one of our most valued members. In the Geometrid portion I found three more species which were new to the list. In my paper at the last annual meeting I spoke of the captures made by Mr. E. M. Anderson at Atlin in 1914, while on a general collecting trip for the Provincial Museum. At that time several species of Geometridae were held over for investigation, and amongst them, two more have been found new to the Province. There are two from Mr. J. W. Cockle of Kaslo, as well as several others apparently undescribed, and I feel sure that there will be several more new records to his credit when they are thoroughly worked out. Amongst material collected last season at Cranbrook by Mr. C. B. Garrett for the Provincial Museum, there were a number of Geometridae, three of which are new records. A very rare variety which is new to Canada was captured by Mr. G. O. Day at Duncan, and I have been instrumental in adding eight new records, including one species and three varieties new to science.

I will now take them in order in which they appear in Dyar's List, which is at present the classification used by the leading Museums of North America. They are as follows:

Carsia paludata Thunb., taken by the late Capt. Harvey in the Hope Mountains on 19th July, 1906. This is an interesting capture, as its regular habitat is Arctic America. I have a specimen in my own collection from Labrador, with which it fully agrees.

Eupithecia laisata Streck. In the summer of 1914 I took a long series of **E. longipalpata**, and amongst them I found a short series of six

which were different to the others. At first I thought they were a well marked variety, but later they turned out to be *laisata*. Mr. L. W. Swett of Boston compared them with a specimen in the Pearsall collection at New York, which specimen was labelled "compared with Strecker's type," and my specimens matched it exactly. This species is very close to *longipalpata* but is of a lighter colour and has the spots on the veins elongated, the latter being, to my mind, its most distinguishing feature. I am inclined to believe it more of a variety of *longipalpata* than a distinct species, although that can only be proved by breeding. Its type locality is California.

Eupithecia usurpata Pearsall. This species was described in the Proc. Entomological Society of Washington, Vol. XI., 1909. It belongs to the same group as *limnata* and *olivacea*, and is in shape and colour very much like *limnata*, only it is somewhat smaller and is of an even dark yellowish brown, not mottled as in *limnata*, and the discal dots are much less clear than in the latter species. It flies with *limnata* in the same localities and is, with the latter, one of our earliest species, flying round the "sallow blossoms" in late March. I took two on the 26th March last year at Victoria, but it is almost certain to occur at Duncan and other points on the Island.

Eucymatoge vitalbata D. & S., taken by Mr. J. W. Cockle at Kaslo on the 6th August, 1907, and is the only known specimen in British Columbia. This species is taken commonly at Calgary, Alberta, by Mr. Wolley-Dod, from where it was first recorded as North American. It also occurs in Manitoba and I have specimens from Ontario.

Rheumaptera luctuata var. *obductata* Moesch. Through some misidentification of the late Mr. Taylor, he has the wrong form listed in our British Columbia Check List. The insect that he has listed there, as *R. luctuata* is in reality the var. *obductata*, which has the secondaries entirely black. I have this form from Atlin, Rossland and Vancouver.

Dysstroma mulleolata Mosch. Mention of this species was made by me at our annual meeting two years ago (See Proc. B.C. Ent. Socy., No. 4, N.S., p. 45). At that time I listed it as a variety of *Dysstroma citrata* Linn., but with additional material that I have collected during the past two seasons and a careful comparison with Hulst's type, which was made through the kindness of Mr. H. Weiss, of New Brunswick, N.J., the true form of *mulleolata* has been located. It is quite distinct from any of its allies and is of a very striking appearance; it is much larger than any of the *citrata* group, and is on the wing fully a month earlier. It is apparently local and far from being common. I may add that I have three distinct varieties of this species, descriptions of which will shortly be published in the Canadian Entomologist.

Hydriomena nubilofasciata var. *cupidata* Swett. This very rare and interesting geometer was taken by our worthy President, Mr. G.

O. Day, not far from his residence at Quamichan Lake, on the 22nd May, 1914. This variety was described in *Can. Entomologist*, August, 1910. Commenting on this capture, Mr. Swett says, "This is a rare variety and rather unexpected to turn up in B.C. I have only seen it from California so far, and only two specimens at that."

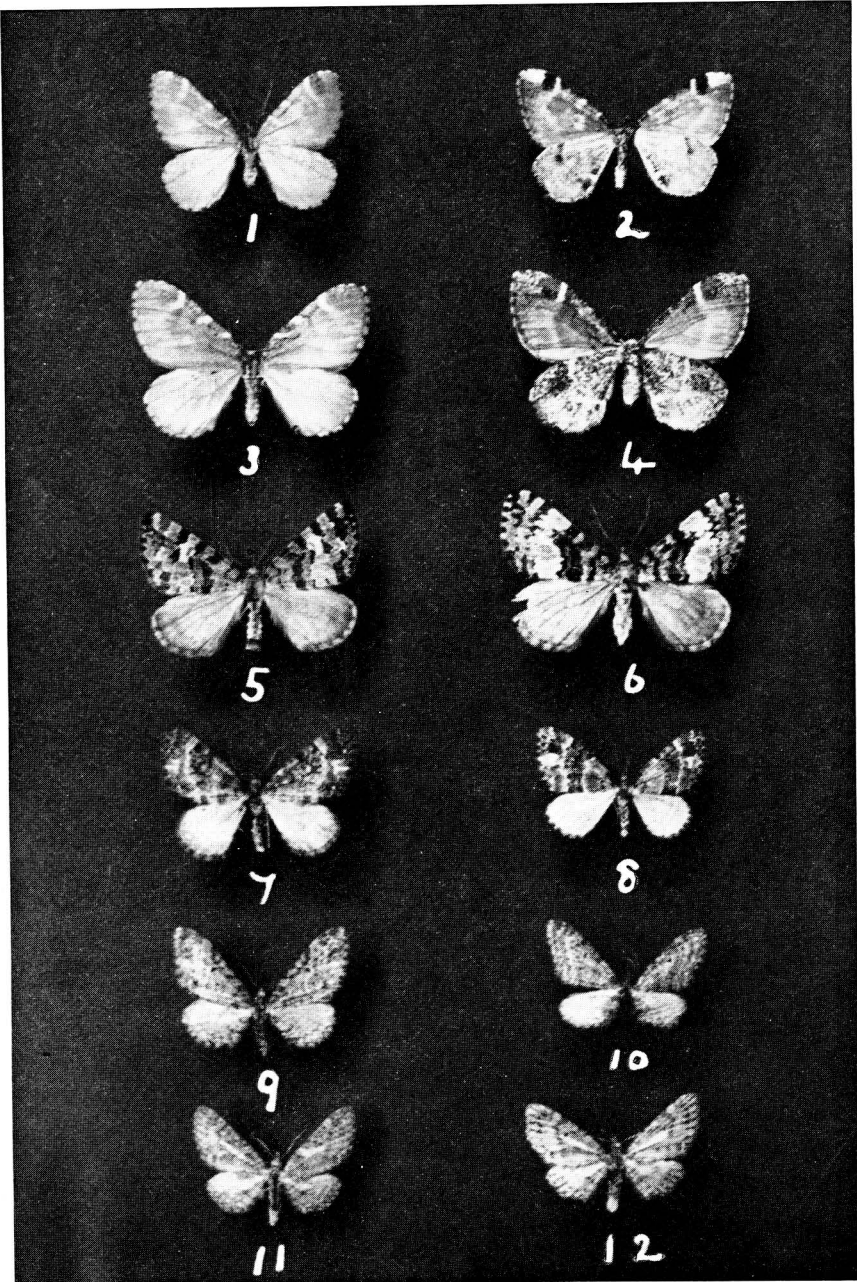
Hydriomena speciosata var. **ameliata** Swett (nov. var.) This variety has a broad white median band which easily distinguishes it from the typical form. So far I have only taken two specimens, one on the 7th July, 1914, at Garden City, and the other two days later at Swan Lake, both of them being females. The type remains in my own collection while the paratype is in the collection of Mr. L. W. Swett. It was described in the *Can. Ent.*, February, 1915.

Hydriomena grandis var. **saawichata** Swett (nov. var.) This is a very striking variety and cannot be confused with typical **grandis**, the rusty-brown colour of the basal and outer thirds greatly contrasting with the black median band. It flies with **grandis** about the middle of May, and is on the wing about a month. It is not uncommon, although I have never taken more than two in any one day. It gets worn much quicker than **grandis**, and is hard to get in good condition; out of eighteen that I have taken in the past two years, only seven are in perfect condition. The name was originally written **saanichata**, but owing to a typographical error was printed as **saawichata**, and according to international custom I am afraid that name will have to stand.

Stamnodes blackmorei Swett (nov. sp.) This species is very local, and only occurs, as far as I know, in the vicinity of Victoria. It is a very pretty species, especially on the underside, which is suffused with a rosy flush, this being very noticeable in freshly caught specimens. It is by no means common, although it occurs regularly; I having taken twenty-two specimens in the last three years. It had gone for many years under the name of **gibbicostata** Walk., an eastern form which occurs as far west as Winnipeg. I was always doubtful about our form being conspecific with this latter, and after receiving additional specimens of the true **gibbicostata** from Montreal, Que.; London, Ont., and Cincinnati, Ohio, I noticed many differences which have led to its being described as a new species. In size it is much smaller, and underneath on the hind wings it is quite clear, where **gibbicostata** is heavily striated. It also flies a month earlier, emerging about the first week in July. I have placed paratypes of both this and the preceding one in the Provincial Museum at Victoria, and have also sent a paratype of each to the Canadian National Museum at Ottawa.

Petrophora defensaria var. **mephistaria**, Swett (nov. var.) On the 30th August, 1914, I took a very striking variety of **defensaria**, which was entirely unlike anything I had seen before. As it did not fit any published description that I had, I sent it to Mr. Swett, who, it appears,

PLATE II.



FOR EXPLANATION OF THIS PLATE SEE PAGE 20

had one sent to him some years ago by Mr. A. J. Croker of this city. These were then described under the above name. This is a very distinct variety, the basal area and the outer third being flesh-coloured, while the median band is solid black. It is rather a rare variety, as I have only taken five during the past two seasons. The descriptions of the above three geometers were published in *Can. Ent.*, May, 1915, p. 155 et seq. I would like to add here that during the past season both Mr. Swett and myself have devoted a lot of time to the **defensaria** group, which has resulted in the addition of four more distinct varieties, all of which will be described in one of the forthcoming numbers of the *Canadian Entomologist*.

Leptomeris frigidaria Mosch. Several specimens of this Arctic species were taken by Mr. Anderson at Atlin in July, 1914. The markings are somewhat similar to **subfuscata** Taylor, but it is smaller in size and is of a greyish colour.

Leptomeris ancillata Hulst. Three specimens taken by Mr. C. Garrett at Cranbrook on the 6th July, 1915. It is about the same size as **quinquelinearia** Pack., but is of a chalky white colour and has more pointed wings. This is also taken by Mr. Cockle at Kaslo.

Deilinia behrensaria var. **cervinicolor** Hulst. I have two specimens from Rossland taken by Mr. Danby in 1901. This variety differs from typical specimens in having the reddish ochre colour on all wings replaced by cervinus, or deer-gray. This colour variety is very striking and rather uncommon.

Deilinia carnearia Hulst. A specimen in Mr. Cockle's collection, taken at Trail, B.C., without date. I have a note that another specimen was also taken at Peachland by, I believe, a Mr. Wallis.

Diastictis occiduaria Pack. Taken by Mr. Garrett at Cranbrook on the 20th July, 1915. Two specimens were taken and, as there has been a doubt between this and a closely allied species, I have had them compared with Packard's type of **occiduaria** by Mr. Swett, who states that they match the type exactly.

Diastictis brunneata Thunb. One specimen taken by the late Capt. Harvey at Similkameen on 20th July, 1906. This species has a wide distribution, being found in the Northern United States and Europe. I also have specimens taken at Calgary, Alberta.

Diastictis denticulodes Hulst. This was also taken by Capt. Harvey in the same locality two days later. This species bears a striking resemblance to **Sciagraphia denticulata** Grote, but is slightly larger and is easily distinguished by the bi-pectinate antennae of the male. Mr. Cockle of Kaslo has also taken this species.

Alcis imitata Walk. This geometer appears in all our local collections under the name of **A. latifasciaria** Pack., which also occurs here. In

many cases both species are mixed together under this latter name. During the last three seasons I have taken a long series of both these species and find them easily separable, the chief distinguishing feature is that in *latifasciaria* the extra-discal line on the primaries is heavily shaded with blackish-brown, whereas *imitata* is of an even colour throughout. Also the median band of *imitata* is concolorous with the rest of the wing, whilst in *latifasciaria* it is broken up and mottled with a lighter shade. They fly together in the same localities, but my notes tell me that *latifasciaria* is generally a week later in emerging and it is also much less common than *imitata*.

Metanema determinata Walk. Two specimens taken at Cranbrook by Mr. Garrett on the 12th May, 1915. Its general habitat is the North Atlantic States, but it has been taken at Calgary by Mr. Wolley Dod, although but very rarely.

Sabulodes cervinaria Pack. I have a pair in good condition, taken by Mr. Danby at Rosslund on the 4th May, 1900. They have been compared with Packard's type and are correct. In the 1904 Catalogue of B.C. Lepidoptera it was listed as a doubtful species, but I found on examination that the insect with that label was a female specimen of *Pherne jubararia* Hulst.

Sabulodes auranticaria Pack. I have one from Rosslund, also taken by Mr. Danby. I have a note somewhere that Mr. Taylor saw a female specimen of this species taken by Mr. Cockle at Kaslo many years ago.

This concludes the main part of my paper relating to the additions to the B.C. List, and I will now proceed to the corrections and changes in nomenclature which affect our B.C. Geometridae.

In the paper I read before you at the last Annual Meeting (Pro. Ent. Socy. B.C., No. 6, N.S.), I have to correct one error of identification, and that is *Philopsia nivigerata* Walk., which was made from a single specimen. Since then, through the kindness of Mr. G. O. Day and Mr. A. W. Hanham, I have obtained additional material, with the result that although very close, it is not *nivigerata* but is probably *tabulata* Hulst, but I will not state so positively until I have had the specimens compared with Hulst's type. We have three distinct forms of this group in British Columbia, but it has been definitely settled that *montanata* does not occur here, and therefore must be dropped from our lists. The variety *magnoliatoidata* Dyar I have from both Rosslund and Kaslo. The species that I have tentatively called *tabulata* Hulst are from Victoria and Quamichan Lake, while the third form was taken by Mr. Day at Stewart, B.C., and is probably a northern form of *Philopsia canaves-tita* Pearsall. I hope to have this group worked out satisfactorily by our next annual meeting.

Three species of *Eupithecia* listed by Dr. Dyar from Kaslo in 1904 must be struck off our lists; his determinations were made at a great

disadvantage, as his material was very scanty and the collection in the U.S. National Museum at that time was exceedingly poor in this genus. They are as follows: *E. laquaearia* H-S., named from a single specimen, turned out to be *E. albicapitata* Pack., and the latter name must be substituted for it. This has also been taken at Cowichan Lake. *E. laricata* Freyer was also named from a single specimen in Mr. Cockle's collection, but Mr. Taylor, with more abundant material and a careful comparison with British specimens, described it as new in the Can. Ent., Dec., 1906, under the name of *E. perbrunneata*.

E. satyrata Hub. is European and should have been the *E. perfusca* of Hulst, and as both names appear in our list, *satyrata* must be struck off.

In the Trans. N.Y. Ent. Socy., 1913, p. 189, Mr. R. F. Pearsall revised the genus *Philobia*, with the result that the *enotata* of Dyar's list turns out to be *aemulataria* Walker, which is a smaller species occurring in the Eastern United States. The species that we have always listed under the name of *enotata* he has described as *ulsterata* from specimens taken in British Columbia and the Catskill Mountains, N.Y. The B.C. specimens are a trifle larger but otherwise the same. We must, therefore, revise our list accordingly.

Doctors Barnes and McDunnough in their "Contrib. Lepidoptera of North America, Vol. 2, No. 5," tell us that the names *Mesoleuca intermediata* Gue., and *M. lacustrata* Gue. have been interchanged at some time or other. Dr. McDunnough who visited Europe in the autumn of 1913, saw Guenee's type of *intermediata* in Paris, and says it is the species which is commonly known here as *lacustrata*. This is the form with white subterminal area and large discal spot. Therefore in future our present *lacustrata* will be known as *intermediata*, and vice versa. They also tell us that *Petrophora abrasaria* H.S. is typically European, and that our species should be called *congregata* Walk. In the same paper, on p. 212, they give the name of *ornata* to the summer form of *Eutrapela alciphearria* Walk. This form is much smaller and of a brighter yellow on the upper side; they both occur on Vancouver Island.

I have brought with me a case containing the majority of the species and varieties mentioned in this paper, in the hope that it may be of some interest to my fellow-members.

Before concluding, I would like to say a few words in regard to the preparation of a new Check List of B.C. Lepidoptera, to which necessity I called attention at our last Annual Meeting. As you are all probably aware, the Geometrid portion was entrusted to me for revision, and I had hoped to have had my part ready for the printer this spring. I find, however, that although I have been at work on this part for the past five months, there is still much more remaining to be done, if we are to have a thoroughly representative list. There are two main reasons why

we cannot publish a new Check List at the present time; one of them is that although the majority of the species have been worked out and correctly identified, there are still a number of species, both in the Noctuidae and Geometridae, that cannot be accurately identified until comparisons are made with the author's types; whilst others are apparently undescribed. It is of no use issuing a Check List of B.C. Lepidoptera which does not include every species known up to the date of publication, neither is it right to include a doubtful species which, with a little time and trouble, may be cleared up one way or the other. The second reason is that Doctors Barnes and McDunnough intend issuing a new Check List of North American Lepidoptera in the near future. In that work the changes in nomenclature are very considerable, and, as is very likely, that when published it will be the standard list for some years to come, it is advisable for us, as a scientific society, to have our B.C. List follow along the same up-to-date lines.

Author's Note.—Since the above notes were written, it has been found that *Sabulodes aurantiacaria* Pack. is the female of *S. cervinaria* Pack., which latter was described from two males taken by Behrens in California. Therefore, the name *aurantiacaria* will automatically become a synonym of *cervinaria*.
E. H. B.

Explanation of Plate II.

- Fig. 1. *Stamnodes blackmorei* Swett. Co-type.
 Fig. 2. *Stamnodes blackmorei* Swett. Underside.
 Fig. 3. *Stamnodes gibbicostata* Walk.
 Fig. 4. *Stamnodes gibbicostata* Walk. Underside.
 Note difference in size and maculation between Figs. 2 and 4.
 Fig. 5. *Hydriomena speciosata* Pack. Typical.
 Fig. 6. *H. speciosata* form *ameliata* Swett. Allotype.
 Note the broad white median band and strongly marked intra-discal line of this form as compared with Fig. 5.
 Fig. 7. *Hydriomena grandis* Hulst. Typical.
 Fig. 8. *H. grandis* form *saawichata* Swett. Paratype.
 Note the solid dark median band contrasting with the lighter unicolorous basal area.
 Fig. 9. *Eupithecia limnata* Pears.
 Fig. 10. *Eupithecia usurpata* Pears.
 Fig. 11. *Eupithecia longipalpata* Pack.
 Fig. 12. *Eupithecia laisata* Streck.

Figures 3 and 4 were taken by A. F. Winn at Montreal, Que. All the others were taken by E. H. Blackmore in the vicinity of Victoria, B.C.