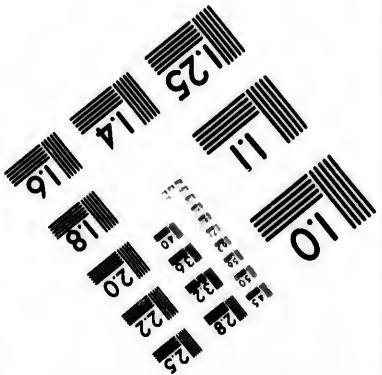
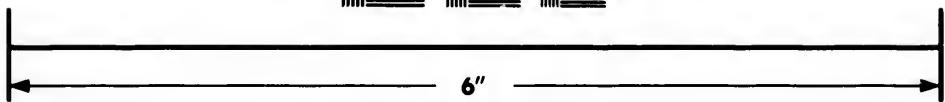
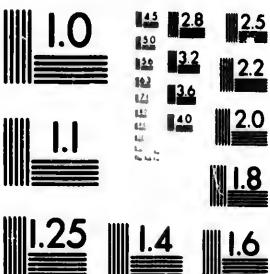


IMAGE EVALUATION TEST TARGET (MT-3)



Photographic
Sciences
Corporation

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

**CIHM/ICMH
Microfiche
Series.**

**CIHM/ICMH
Collection de
microfiches.**



Canadian Institute for Historical Microreproductions

Institut canadien de microreproductions historiques

1980

Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion
along interior margin/
La reliure serrée peut causer de l'ombre ou de la
distortion le long de la marge intérieure
- Blank leaves added during restoration may
appear within the text. Whenever possible, these
have been omitted from filming/
Il se peut que certaines pages blanches ajoutées
lors d'une restauration apparaissent dans le texte,
mais, lorsque cela était possible, ces pages n'ont
pas été filmées.
- Additional comments:/
Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Includes supplementary material/
Comprend du matériel supplémentaire
- Only edition available/
Seule édition disponible
- Pages wholly or partially obscured by errata
slips, tissues, etc., have been refilmed to
ensure the best possible image/
Les pages totalement ou partiellement
obscures par un feuillet d'errata, une pelure,
etc., ont été filmées à nouveau de façon à
obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12X 16X 20X 24X 28X 32X

e
étails
s du
modifie
r une
image

The copy filmed here has been reproduced thanks
to the generosity of:

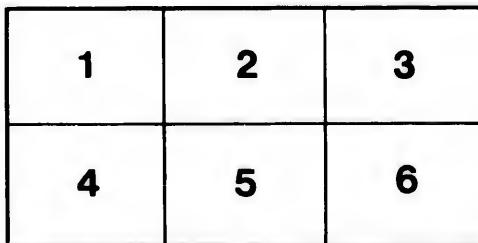
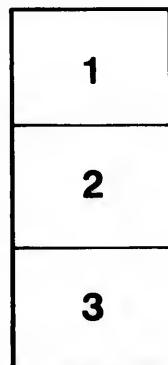
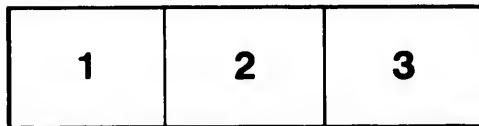
National Library of Canada

The images appearing here are the best quality
possible considering the condition and legibility
of the original copy and in keeping with the
filming contract specifications.

Original copies in printed paper covers are filmed
beginning with the front cover and ending on
the last page with a printed or illustrated impres-
sion, or the back cover when appropriate. All
other original copies are filmed beginning on the
first page with a printed or illustrated impres-
sion, and ending on the last page with a printed
or illustrated impression.

The last recorded frame on each microfiche
shall contain the symbol → (meaning "CON-
TINUED"), or the symbol ▽ (meaning "END"),
whichever applies.

Maps, plates, charts, etc., may be filmed at
different reduction ratios. Those too large to be
entirely included in one exposure are filmed
beginning in the upper left hand corner, left to
right and top to bottom, as many frames as
required. The following diagrams illustrate the
method:



L'exemplaire filmé fut reproduit grâce à la
générosité de:

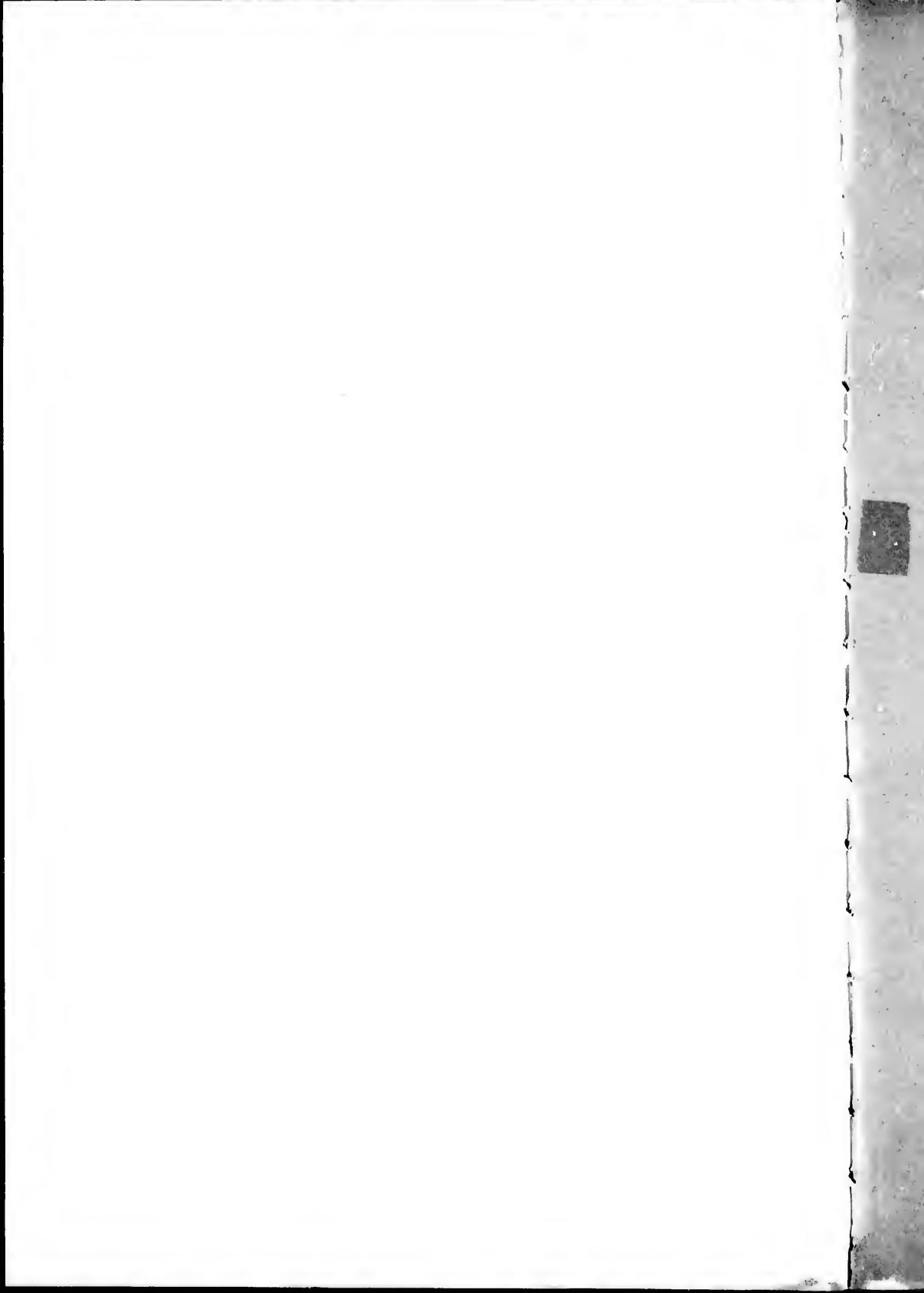
Bibliothèque nationale du Canada

Les images suivantes ont été reproduites avec le
plus grand soin, compte tenu de la condition et
de la netteté de l'exemplaire filmé, et en
conformité avec les conditions du contrat de
filmage.

Les exemplaires originaux dont la couverture en
papier est imprimée sont filmés en commençant
par le premier plat et en terminant soit par la
dernière page qui comporte une empreinte
d'impression ou d'illustration, soit par le second
plat, selon le cas. Tous les autres exemplaires
originaux sont filmés en commençant par la
première page qui comporte une empreinte
d'impression ou d'illustration et en terminant par
la dernière page qui comporte une telle
empreinte.

Un des symboles suivants apparaîtra sur la
dernière image de chaque microfiche, selon le
cas: le symbole → signifie "A SUIVRE", le
symbole ▽ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être
filmés à des taux de réduction différents.
Lorsque le document est trop grand pour être
reproduit en un seul cliché, il est filmé à partir
de l'angle supérieur gauche, de gauche à droite,
et de haut en bas, en prenant le nombre
d'images nécessaire. Les diagrammes suivants
illustrent la méthode.



THE
BUTTERFLIES
.... OF
NEW BRUNSWICK
.... BY

WILLIAM McINTOSH.

Reprinted from Bulletin of the Natural History Society
of New Brunswick, No. XVII, 1899.

**SAINT JOHN, N. B.,
CANADA.**



(Reprinted from Bulletin of the Natural History Society of New Brunswick,
No. XVII, 1890.)

ARTICLE IV.

THE BUTTERFLIES OF NEW BRUNSWICK.

BY WILLIAM MCINTOSH.

(Read December 6th, 1890.)

This list of New Brunswick Butterflies can only be considered a preliminary one, as very little collecting has been done in this province. There can be no doubt that with a more extended knowledge of the insect life of New Brunswick this list will be found incomplete.

In the past collections have been made by officers of the army and navy, but we have no detailed record of their captures. Among the early collectors whose specimens have remained in the province the following are perhaps worthy of mention.

A collection of Lepidoptera captured on the Ketchum estate, Fredericton, by Capt. Moody, A. D. C. to Governor Gordon. This collection is in the University of New Brunswick at Fredericton.

A collection of miscellaneous insects taken in the vicinity of St. John, by Mrs. C. E. Heustis. Mrs. Heustis was for a number of years a contributor to the *Canadian Entomologist*, and may be considered the pioneer entomologist of the Natural History Society of New Brunswick.

A collection of miscellaneous insects captured in St. John County, by Mr. H. E. Goold. This collection contains a number of very interesting species.

A number of insects, principally Coleoptera and Lepidoptera, collected in Kings County, N. B., by Mr. Gibson Williamson, of Oak Point.

These three collections are in the museum of the Natural History Society of New Brunswick. At the present time these combined collections contain less than a thousand specimens, and so represent but a fraction of the species indigenous to this section of Eastern Canada.

During the past two years much interest has been evinced in this branch of nature study, and during the present year a number of collectors have been working, over 3,500 specimens having been taken

in the vicinity of St. John and Fredericton during the past season. It is to be hoped that this interest will continue, so that in the near future something may be added to the meagre knowledge of the insect life of New Brunswick.

The remarks on the species in this list are based mainly on the writer's personal observations during the past three years.

No doubt upon more extended research not only will many additional species become known, but a number of those considered not common will be found to be more abundant in other localities.

In the preparation of this list I am indebted to Dr. James Fletcher for the identification of doubtful species, and to Miss Edith Darling for a list of species found at Sussex, and to Mr. Geo. W. Bailey for a list of Fredericton butterflies with notes, and also for procuring a list of species taken by Mr. R. McL. Vanwart. Mr. Bailey also sent me a catalogue of Capt. Moody's collection. From the above lists all references to Sussex and Fredericton species have been taken.

I have followed Rev. C. J. S. Bethune ("The Butterflies of the Eastern Provinces of Canada") in adding in brackets "Mr. Scudder's name for the species whenever it differs from the name employed."

LEPIDOPTERA.

RHOPALOCERA.

Family NYMPHALIDÆ.

Sub-family EUPLOEINÆ.

Danias archippus, Fabr.

(*ANOSIA PLEXIPPUS.*)

This beautiful butterfly is usually rare in the vicinity of St. John and Fredericton, but it is occasionally seen in considerable numbers. Flies in July and August.

Argynnis idalia, Drury.

Very rare, only four specimens are known to have been taken in New Brunswick. Two of these, captured by H. E. Goold, are at present in the collection of the Natural History Society.

Argynnis cybele, Fabr.

This species is rare in the southern sections of the Province, and probably not abundant in any part of New Brunswick.

Argynnis aphrodite, Fabr.

This butterfly is common throughout the Province. It is frequently mistaken for *A. cybele* which it very much resembles, but may be separated from that species by its smaller size. Flies in July and August.

Argynnis atlantis, Edw.

Common at St. John, Fredericton, Sussex, Belleisle, Moncton and Chipman. This butterfly is more abundant than *A. aphrodite*, frequenting the same localities and flying in company with that species.

Argynnis myrina, Cram.

(*BRENTHIS MYRINA.*)

Abundant throughout New Brunswick. This is our most common *Argynnis*, flying from the latter part of June to the last of August.

Argynnis bellona, Fabr.

(*BRENTHIS BELLONA.*)

This species is rare in St. John County, and does not appear to be numerous in any part of New Brunswick.

Melitaea phatton, Drury.

(*EUPHYDRYAS PHATTON.*)

Rare; a few specimens have been captured near St. John. On June 18th of the present year, Mr. Geo. W. Bailey captured a specimen at Springhill, York County.

Melitaea harrisii, Scud.

(*CINCLIDIA HARRISII.*)

A specimen of this species was taken near St. John by Philip J. R. McIntosh during the summer of 1897. Rev. C. J. S. Bethune (*The Butterflies of the Eastern Provinces of Canada*) gives New Brunswick as a locality for this rare Canadian butterfly.

Phyciodes tharos, Drury.

Abundant from early in July to September. The form MARCIA, Edw. being taken in the earlier part of the season, and the form MORPHEUS, Fabr. later. It is found in open meadows and fields during June, July and August.

Grapta interrogationis, Fabr.

(*POLYGONIA INTERROGATIONIS.*)

Forms UMBROSA, Lint. MORPHEUS, Fabr.

Rare in the vicinity of St. John, and probably not common in any part of New Brunswick.

Grapta comma, Harris.

(POLYGNIA COMMA.)

Forms DRYAS, Edw. HARRISII, Edw.

This butterfly is not uncommon at St. John and Fredericton. Also reported as occurring at Dalhousie, by Rev. C. J. S. Bethune (The Butterflies of the Eastern Provinces of Canada.)

Grapta faunus, Edw.

(POLYGNIA FAUNUS.)

This species is not so abundant as G. comma in this locality, and is reported as not common at Fredericton and Sussex.

Grapta progne, Cram.

(POLYGNIA PROGNE.)

Common throughout the Province, flying from May to October.

Grapta gracilis, Grote and Rob.

(POLYGNIA GRACILIS.)

Evidently rare. Mr. R. McL. Vanwart reports this butterfly from Fredericton. If the specimens have been correctly identified it will be an interesting addition to our New Brunswick list.

Grapta j-album, Boisd, Lec.

(EUGONIA J-ALBUM.)

This species does not appear to be common in the southern section of the Province, only two or three specimens have been taken in St. John County during the past three years.

Vanessa antiopa, Linn.

(EVANESSA ANTIOPA.)

Abundant throughout the Province. Flying from April to October, but most plentiful during the latter part of August.

Vanessa milberti, Godt.

(AGLAIS MILBERTI.)

This species is not common in St. John County, but it is apparently more numerous in the interior of the Province.

Pyrameis atlanta, Linn.

(VANESSA ATALANTA.)

Common at St. John, Fredericton and Sussex, and probably abundant throughout the entire Province. Flies, from June to the latter part of September. This species was unusually numerous from the 18th to the 25th of June of the present year.

Pyrameis cardui, Linn.

(VANESSA CARDUI.)

This butterfly is usually abundant, but during the past three years has been rare in this neighborhood, although quite abundant twenty miles inland. Flies during June, July and August.

Pyrameis huntera, Fabr.

(VANESSA HUNTERA.)

This species is occasionally abundant, and is generally found flying with *P. cardui*.

Limenitis arthemis, Drury.

(BASILARCHIA ARTHEMIS.)

Not uncommon at St. John, Rothesay, Hampton, Belleisle, Fredericton, and probably throughout the entire province. Flying from June to the latter part of August.

Limenitis disippus, Godt.

(BASILARCHIA ARCHIPPUS.)

This interesting species is not very common. Specimens have been taken at St. John, Fredericton, Belleisle and Grand Lake. Flies in June, July and August.

Sub-family SATYRINÆ.

Neonympha canthus, Boisd Lec.

(SATYRODES ERYDICE, Linn.)

NEONYMPHA BOISDUVALLI, Harris.

This butterfly is not uncommon on the Belleisle and at Fredericton and Sackville.

Satyrus nephele, Kirby.

(CERCYONIS NEPHELE.)

EREbia NEPHELE.

Abundant throughout the province. Flying in July and August. Frequenting swampy meadows and fields bordered by woods.

Satyrus alope, Fabr.

(CERCYONIS ALOPE.)

HIPPARCHIA ALOPE.

This species is reported from Fredericton, but appears to be rare in the northern sections of the province. It is very common in the vicinity of St. John. Frequenting the same localities and flying in company with *S. nephele*.

Satyrus alope nephele, Scud.

This butterfly, apparently a hybrid between *alope* and *nephele*, is sometimes taken at St. John.

Family LYCAENIDÆ.**Sub-family LYCAENINÆ.****Thecla augustus, Kirby.**

(INCISALIA AUGUSTUS.)

Not uncommon, but difficult to capture, owing to its small size, dark color, and the shrubby localities which it frequents. Flies in May.

Chrysophanus epixanthe, Boisd Lee.

(EPIDEMIA EPIXANTHE.)

This little butterfly is not uncommon in two or three localities near St. John, but it appears to be very local in its habits, frequenting the same places (sometimes only a few yards in extent) year after year. Flies in July and possibly into August.

Chrysophanus hypophlaeas, Boisd.

CHYSOPHANUS AMERICANA, D'Urban.

(HEODES HYPOPHLAEAS.)

Common at St. John, Fredericton, Sussex and Grand Lake, from June to September. This species is no doubt abundant in every part of New Brunswick.

Lycena pseudargiolus, Boisd Lec.

(CYANIRIS PSEUDARGIOLUS.)

This butterfly is very common throughout the province. The forms VIO-LACEA, Edw., being very abundant in May and June, and the form NEGLECTA, Edw., less common, in June, July and August.

Family PAPILIONIDAE.

Sub-family PIERINÆ.

Pieris napi, Esper.

(PIERIS OLERACEA, Harris.)

A number of specimens have been taken at St. John, Fredericton, and on the Belleisle, but this species is no doubt uncommon throughout the province.

Pieris rapiv, Linn.

This species is an importation from Europe, and is our most common butterfly in New Brunswick. Flying from May to October.

Collas philodice, Godt.

(EURYMMUS PHILODICE.)

Very common throughout the province. Flying from May to September, and during the present year as late as October 23rd.

Collas interior, Scud.

(EURYMMUS INTERIOR.)

Usually not very common, but during the present year this species was unusually abundant, being much more numerous than *C. philodice*. Flying from July 9th to late in August.

Sub-family PAPILIONINÆ.

Papilio turnus, Linn.

(JASONIADES GLAUCUS, Scud.)

This species is common in every part of New Brunswick, and occasionally very numerous. Flying in June and July.

Papilio cresphontes, Cram.

PAPILIO THOAS, Boisd.

(HERACLIDES CRESPHONTES.)

Rev. C. J. S. Bethune, in his list of the "Butterflies of the Eastern Provinces of Canada," gives St. John, N. B., as a locality for this species. None of our local collectors have met with it. It is a southern insect and no doubt rarely occurs in this province.

Papilio brevicauda, Saunders.

At present we have no local record of the capture of this species, but Rev. C. J. S. Bethune, in his list of the "Butterflies of the Eastern Provinces of Canada," mentions it as having been taken in Dalhousie, N. B. When the insects of the northern sections of New Brunswick become better known, this butterfly will no doubt be found among them.

Papilio asterias, Fabr.

(PAPILIO POLYXENES.)

This species is usually abundant, but during the past two years it has been very rare in the vicinity of St. John. Not uncommon on the Belleisle and at Fredericton.

Family HESPERIDÆ.

Carterocephalus mandan, Edw.

This species is not uncommon in two or three localities near St. John, but it appears to be extremely local in its habits frequenting wood roads and open grassy places in woods. Flies in June and July.

Pamphila zabulon, Boisd-Lee.

(ATRYTONE ZARULON.)

The form HOROMOK, Harris, is common throughout the Province, flying in June and July.

Pamphila leonardus, Harris.

(ANTHOMASTER LEONARDUS.)

This species is rare in this vicinity, only two specimens having been taken, and at present it is not reported from any other locality in New Brunswick.

Pamphila peckius, Kirby.

(POLITES PECKIUS.)

PAMPHILA WAMSUTTA, Harris.

The most common Pamphila in this locality, frequenting meadows and oat fields, found in every part of New Brunswick, flying in June and July.

Pamphila mystic, Scud.

(THYMELOCUS MYSTIC.)

This species is found in the same localities as the preceding, but it is not nearly so abundant. Flies in July and August.

Pamphila cernes, Boisd-Lee.

(LIMOCORES TAUMAS, Fabr.)

PAMPHILA AHATON, Harris.

Common at St. John, Fredericton, Hampton, and also abundant in Victoria County. Flies in June and July.

Nisionades brizo, Boisd-Lee.

(THANOS BRIZO.)

Rare in the vicinity of St. John, only two specimens having been taken.

Nisionades icelus, Lint.

(THANOS ICELUS.)

Taken at St. John and Fredericton. This species is quite abundant in the vicinity of St. John, frequenting wood roads and pathways bordered by low shrubbery.



