



ANNUAL SURVEY OF FOREST INSECT DISEASES
IN THE MARITIME PROVINCES, 1958-1962

by

D. E. Elgee

INTERIM RESEARCH REPORT
FOREST ENTOMOLOGY AND PATHOLOGY LABORATORY
FREDERICTON, N. B.

CANADA
DEPARTMENT OF FORESTRY
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1. INTRODUCTION

A survey of forest insect diseases in the Atlantic Provinces was started in 1950 in co-operation with the Forest Insect and Disease Survey and the Insect Pathology Research Institute at Sault Ste. Marie. Since then all insects collected by Survey staff with symptoms of disease have been examined microscopically for disease-causing microorganisms. Before 1958 all specimens diagnosed as diseased were sent to the Insect Pathology Research Institute for confirmation. In recent years, however, the only larvae forwarded to the Institute have been those in which microorganisms might be present but were difficult to identify by dark-field microscopy. In the past few years this survey has been expanded to include the microscopic examination of insect material submitted from various research projects. Also, special collections have been occasionally made in areas where unusually high mortality from disease has been reported.

Originally this survey was intended to cover all four Atlantic Provinces, but Newfoundland has not been included since 1961.

From 1951 to 1962 inclusive, 25,855 insect specimens have been examined for disease. In many of the cases where bacteria or fungi were noted, no attempt was made to determine whether these were primary or secondary infections. Since the validity of diagnosis of granulosis infection with the light microscope has been questioned only very good examples of such infection have been included. A list of insects examined for pathogens but in which none were found is also included (Table III).

TABLE I

Microorganisms Recovered From Forest Insects
in Atlantic Provinces - 1951-62

| Host | Locality | County | Prov. | Year |
|--|-------------------|-------------------|--------|------|
| FUNGUS | | | | |
| (<u>Aspergillus</u> sp.) | | | | |
| <u>Malacosoma disstria</u> Hbn. | Rockville | Kent | N.B. | 1951 |
| <u>Choristoneura fumiferana</u> (Clem.) | Marshfield | Queens | P.E.I. | 1954 |
| | Monticello | Kings | " | " |
| (<u>Beauvaria</u> sp.) | | | | |
| <u>Altica ambiens</u> (Harris) | Burt's Corner | York | N.B. | 1953 |
| <u>Choristoneura fumiferana</u> (Clem.) | Upsalquitch | Rest. | " | 1952 |
| | Sisson Ridge | Vic. | " | 1954 |
| | Blackville | North. | " | " |
| | Fraser Ferry | Rest. | " | " |
| | Blacklands | " | " | " |
| | Champlain Rd. | North. | " | " |
| | Black Duck | St. Georges Nfld. | " | " |
| | Marshfield | Queens | P.E.I. | " |
| | Monticello | Kings | " | " |
| | Bathurst | Glouc. | N.B. | 1955 |
| | Rio Grande | " | " | " |
| | LePlante | " | " | " |
| | Richibucto | Kent | " | " |
| Derby | North. | " | " | |
| Blackville | " | " | " | |
| Reids Is. | Vic. | " | " | |
| Northview | " | " | " | |
| (<u>Cladisporium</u> sp.) | | | | |
| <u>Anoplonyx luteipes</u> (Cress.) | Carrolls Crossing | North. | " | 1953 |
| (<u>Emposa</u> sp.) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) | Upsalquitch | Rest. | " | 1952 |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | Hare Bay | White Bay Nfld. | " | 1953 |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|--|---------------------|-------------|-------|------|
| FUNGUS (cont'd) | | | | |
| (<u>Hirsutella</u> sp.) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) | Bathurst | Glouc. | N.B. | 1954 |
| | Champlain Rd. | North. | " | " |
| | Fraser Ferry | Rest. | " | " |
| | Blacklands | " | " | " |
| | Biggar Ridge | Carleton | " | 1958 |
| (<u>Isaria</u> sp.) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) | Portage Bk. | North. | " | 1951 |
| (<u>Penicillium</u> sp.) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) | Long Lake | Vic. | " | 1951 |
| <u>Stilpnotia salicis</u> (L.) | McAdam | York | " | 1953 |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | Lost Pond | Grand Falls | Nfld. | 1954 |
| (Unspecified) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) | Upper Blackville | North. | N.B. | 1952 |
| | Dunphy | " | " | " |
| | Fraser-Burchill Rd. | " | " | " |
| | Bass River | Glouc. | " | " |
| | Rio Grande | " | " | " |
| | Tatagouche Falls | " | " | " |
| | Nepisiquit | North. | " | " |
| | Ludlow | " | " | " |
| | Anderson | Rest. | " | " |
| | Glenlevit | " | " | " |
| | Hillgard | " | " | " |
| | Ripples | Sun. | " | " |
| | Jardine Br. | Vic. | " | " |
| | Charlo | Rest. | " | 1954 |
| | Bass Rv. Rd. | Glouc. | " | 1955 |
| | Quisibis Rv. | Mad. | " | " |
| | Barnaby Rv. | North. | " | " |
| | Blacklands | Rest. | " | " |
| | McGivney Jct. | York | " | " |
| | MacKenzie Mtn. | Inv. | N.S. | " |
| | St. Georges | St. Georges | Nfld. | " |
| | Bass Rv. | Glouc. | N.B. | 1956 |
| | Bertrand | " | " | " |
| Lockstead Rd. | North. | " | " | |
| Blackville | " | " | " | |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|--|--------------------------|----------------|-----------|-----------|
| FUNGUS (cont'd) | | | | |
| (Unspecified) (cont'd) | | | | |
| <u>Choristoneura fumiferana</u> (Glem.) | Parker Sta. | North. | N.B. | 1956 |
| | Boiestown | York | " | " |
| | Little Rv. | Inv. | N.S. | " |
| | Aspy Valley | " | " | " |
| | Cape North | Vic. | " | " |
| | Vernon Bridge | Queens | P.E.I. | " |
| | Eldon | " | " | " |
| | Bedford Sta. | " | " | " |
| | Biggar Ridge | Car. | N.B. | 1958 |
| | | Vic. | N.S. | 1959 |
| | Parks | North. | N.B. | 1961 |
| | Greenmount | Prince | P.E.I. | 1962 |
| <u>Diorycetria reniculella</u> (Grote) | Robichaud Sett. | North. | N.B. | 1952 |
| | McKinleyville | " | " | 1954 |
| | Glenlevit | Rest. | " | " |
| | Steady Br. | Humber | Nfld. | " |
| | South Branch | St. Georges | " | " |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | Schoals Dam | Kings | N.B. | 1954 |
| | Shepody Rd. | " | " | " |
| | Gambo Rd. | Bonavista | Nfld. | " |
| | | N. | | |
| | Trites Br. | Bonavista | " | " |
| | | S. | | |
| | Wolf Rv. | Gr. Falls | " | " |
| | Hare Bay | White Bay | " | " |
| <u>Malacosoma disstria</u> Hbn. | Cumberland Bay McAdam | Queens York | N.B. " | 1951 " |
| <u>Nyctobia limitaria</u> Wlk. | Bishops | Gr. Falls | Nfld. | 1952 |
| <u>Nymphalis antiopa</u> (L.) | Upper Durham | York | N.B. | 1956 |
| <u>Operophtera bruceata</u> (Hulst) | -- | Gr. Falls | Nfld. | 1955 |
| <u>Pikonema alaskensis</u> (Roh.) | Keswick BelleFleur | York Mad. | N.B. " | 1953 " |
| <u>Pikonema dimockii</u> (Cress.) | Little Rapids | Humber | Nfld. | " |
| <u>Pristiphora geniculata</u> (Htg.) | Alandale | York | N.B. | 1956 |
| | Loggieville | North. | " | 1960 |
| | Jacksonville | Car. | " | 1960 |
| <u>Semiothisa</u> sp. | Burma Rd. | Vic. | " | 1955 |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|----------------------------|-----------------|-----------|-----------|
| BACTERIA | | | | |
| (<u>Bacillus</u> sp.) | | | | |
| <u>Archips cerasivorana</u> Fitch | Magaguadavic | Char. North. | N.B. " | 1951 " |
| <u>Choristoneura fumiferana</u> (Glem.) | 74-mile Branch | North. | " | 1951 |
| | Simpson Field | Rest. | " | " |
| | Jardine Bk. | Vic. | " | " |
| | Howard | North. | " | 1952 |
| | Fraser Burch. Rd. | " | " | " |
| | Papineau Falls | " | " | " |
| | Upsalquitch | Rest. | " | " |
| | Tobique Fks. | Vic. | " | " |
| | Tatagouche Falls | Glouc. | " | 1953 |
| | Park | North. | " | " |
| | Bass Rv. Rd. | Glouc. | " | 1955 |
| | Champlain Rd. | North. | " | " |
| | Blackville | " | " | " |
| | Doaktown | " | " | " |
| | McKinleyville | " | " | " |
| | Mackenzie Mtn. | Inv. | N.S. | " |
| | Tatagouche Falls | Glouc. | N.B. | 1956 |
| | Petit Lameque | " | " | " |
| | Lockstead | North. | " | " |
| | Blackville | " | " | " |
| | Holmes L. | " | " | " |
| | Wayerlon School | " | " | " |
| | Parker Sta. | " | " | " |
| | McKinleyville | " | " | " |
| | Glenlevit | Rest. | " | " |
| | Ripples | Sun. | " | " |
| | Riley Bk. | Vic. | " | " |
| Salmonhurst | " | " | " | |
| Dundas | Kings | P.E.I. | " | |
| Mt. Stewart | Queens | " | " | |
| Eldon | " | " | " | |
| -- | Vic. | N.S. | 1959 | |
| <u>Croesus latitarsus</u> Nort. | Fredericton Nashwaaksis | York " | N.B. " | 1952 " |
| <u>Datana ministra</u> (Drury) | Glenholme | Col. | N.S. | 1955 |
| <u>Hemerocampa leucostigma</u> (J.E. Smith) | Camden | Col. | " | 1954 |
| | Presguile | Inv. | " | " |
| <u>Hemichroa crocea</u> (Fourc.) | Mictau L. | Rest. | N.B. | 1951 |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|--|-------------------------------------|-------------|-------------|-------|
| BACTERIA (cont'd) | | | | |
| (<u>Bacillus</u> sp.) (cont'd) | | | | |
| <u>Hyalophora cecropia</u> (L.) | Debert | Col. | N.S. | 1960 |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | St. Croix | York | N.B. | 1951 |
| | Hare Bay | White Bay | Nfld. | 1953 |
| | Fairfield | St. John | N.B. | 1954 |
| <u>Malacosoma americana</u> (F.) | Oak Bay | Char. | " | 1956 |
| | Upper Mills | " | " | " |
| | Havelock | Kings | " | " |
| | Parker Sta. | North. | " | " |
| | Tweedsmuir | Sun. | " | " |
| | Newmarket | York | " | " |
| <u>Malacosoma disstria</u> Hbn. | Artillery Range | Glouc. | " | 1951 |
| | Frankhyder | " | " | " |
| | Price Bk. | North. | " | " |
| | McAdam | York | " | " |
| | Lakeside | St. Georges | Nfld. | " |
| <u>Nymphalis antiopa</u> (L.) | Kedgwick | Rest. | N.B. | 1952 |
| | Corner Brook | Humber | Nfld. | " |
| | Pinch Gut Rv. | St. Georges | " | " |
| | Haven | " | " | " |
| | Hare Bay | White Bay | " | " |
| | Main Bk. | " | " | " |
| | Salmonhurst | Vic. | N.B. | 1953 |
| | Teaque Bk. | Car. | " | " |
| | Main Dam | Humber | Nfld. | " |
| | Curling | " | " | " |
| | Deer L. | " | " | " |
| | Harry's Rv. | St. Georges | " | " |
| | Upper Durham | York | N.B. | 1956 |
| | <u>Operophtera bruceata</u> (Hulst) | Glenwood | Grand Falls | Nfld. |
| <u>Orgyia antiqua</u> (L.) | North R. | Vic. | N.S. | 1962 |
| <u>Pikonema alaskensis</u> (Roh.) | Grand Falls | Grand Falls | Nfld. | 1951 |
| <u>Pristiphora erichsonii</u> (Htg.) | Pickolville | | Nfld. | 1953 |
| | Avalon Pen. | Avalon | " | " |
| | Alec Bay Sta. | Bonavista | N. " | " |
| | Kepen Koch Rv. | " | " | " |
| | Terra Nova | " | S. " | " |
| | Popes Harbour | Halifax | N.S. | 1960 |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|--------------------------------------|------------------|--------------|-------|------|
| BACTERIA (cont'd) | | | | |
| (<u>Bacillus</u> sp.) (cont'd) | | | | |
| <u>Pristiphora geniculata</u> (Htg.) | Lakeside | St. Georges | Nfld. | 1951 |
| | Salmon Cr. | Queens | N.B. | 1953 |
| | Dorchester | West. | " | " |
| | Fredericton | York | " | " |
| | Riverside | Albert | " | 1956 |
| | Howard Bk. | Car. | " | " |
| | LacBelledune | Glouc. | " | " |
| | Notre Dame | Kent | " | " |
| | Barnaby Rv. | North. | " | " |
| | Loggieville | " | " | " |
| | Lower Derby | " | " | " |
| | Gagetown | Queens | " | " |
| | Dalhousie Jct. | Rest. | " | " |
| | Covered Bridge | York | " | " |
| | Alandale | " | " | " |
| | Colburn | " | " | " |
| | Kingsclear | " | " | " |
| | Smithfield | " | " | " |
| <u>Stilpnotia salicis</u> (L.) | Woodstock | Car. | " | 1952 |
| | Stickney | " | " | " |
| <u>Stilpnotia salicis</u> (L.) | E. Florenceville | Car. | " | 1952 |
| | Peel | " | " | " |
| | Florenceville | " | " | 1953 |
| | Jacksonville | " | " | " |
| | Williamstown | " | " | " |
| | Woodstock | " | " | " |
| | St. Johns | Avalon | Nfld. | " |
| | Gambo | Bonavista N. | " | " |
| | Bishop Falls | Gr. Falls | " | " |
| | Grand Falls | " | " | " |
| | Junction Sta. | " | " | " |
| | Deer L. | Humber | " | " |
| | Corner Brook | St. Georges | " | " |
| | St. Georges | " | " | " |
| | Gander | Gander | " | 1954 |
| | Glenwood | Gr. Falls | " | " |
| | Deer L. | Humber | " | " |
| | Bathurst | Glouc. | N.B. | 1955 |
| | Douglastown | North. | " | " |
| | | Bonaventure | Nfld. | 1956 |
| | | N. | " | " |
| | | Grand Falls | " | " |
| | | Humber | " | " |
| | Caraquet | Glouc. | N.B. | 1959 |
| | Salisbury | West. | " | " |
| | Lr. Belledune | Glouc. | " | 1962 |
| <u>Trichiosoma triangulum</u> Kby. | Seely L. | Char. | " | 1951 |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|---------------------|--------|-------|------|
| PROTOZOA | | | | |
| (Microsporidia) | | | | |
| <u>Archips cerasivorana</u> (Fitch) | Edmundston | Mad. | N.B. | 1953 |
| | Fredericton | York | " | 1961 |
| <u>Choristoneura fumiferana</u> (Clem.) | Stewart Hwy. | Mad. | " | 1951 |
| | Portage Bk. | North. | " | " |
| | Simpson Field | Rest. | " | " |
| | Jardine Bk. | Vic. | " | " |
| | Baker Bk. | " | " | " |
| | Long Lake | " | " | " |
| | Dawsonville | Glouc. | " | 1952 |
| | Green R. | Mad. | " | " |
| | Upper Blackville | North. | " | " |
| | Fraser-Burchill Rd. | " | " | " |
| | Nepisiquit | " | " | " |
| | Bath Motor Rd. | " | " | " |
| | Upsalquitch | Rest. | " | " |
| | Blacklands | " | " | " |
| | Carry Bk. Rd. | " | " | " |
| | Gulguac | Vic. | " | " |
| | Nashwaak L. | York | " | " |
| | Bass R. | Glouc. | " | 1953 |
| | Tatagouche Falls | " | " | " |
| | Tabusintac | " | " | " |
| | Shoals Dam | Kings | " | " |
| | Richibucto | Kent | " | " |
| | Roy Rd. | " | " | " |
| | St. Anne | Mad. | " | " |
| | Derby | North. | " | " |
| | Bartibog | " | " | " |
| | Millbank | " | " | " |
| | Barnaby R. | " | " | " |
| | Park | " | " | " |
| | Newcastle | " | " | " |
| | White Rapids | " | " | " |
| | Gilks | " | " | " |
| | -- | " | " | " |
| | Ludlow | " | " | " |
| | New Mills | Rest. | " | " |
| | Glenlevit | " | " | " |
| | Upsalquitch | " | " | " |
| | Dawsonville | " | " | " |
| | Lorne Rd. | " | " | " |
| | Plaster Rock | Vic. | " | " |
| | Dorchester | West. | " | " |
| | Clearwater Bk. | York | " | " |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|------------------|-------------|--------|------|
| PROTOZOA (cont'd) | | | | |
| (Microsporidia) (cont'd) | | | | |
| <u>Choristoneura fumiferana</u> (Glem.) | Rocky Bk. | York | N.B. | 1953 |
| (cont'd) | Moose L. | " | " | " |
| | French R. | Queens | P.E.I. | 1953 |
| | Poplar Cr. | Prince | " | " |
| | St. Georges | St. Georges | Nfld. | " |
| | Nictau L. | North. | N.B. | 1954 |
| | Miramichi | " | " | " |
| | Fraser Ferry | Rest. | " | " |
| | Blacklands | " | " | " |
| | Simpson Field | " | " | " |
| | Charlo | " | " | " |
| | Acadia Sta. | Sun. | " | " |
| | Sisson Ridge | Vic. | " | " |
| | Riley Bk. | " | " | " |
| | Black Duck | St. Georges | Nfld. | " |
| | Bass R. Rd. | Glouc. | N.B. | 1955 |
| | Leplante | " | " | " |
| | Bathurst | " | " | " |
| | Nepisiquit Rd. | " | " | " |
| | Rio Grande | " | " | " |
| | Dunlop | " | " | " |
| | St. Anne | Kent | " | " |
| | Richibucto | " | " | " |
| | Pt. Sapin | " | " | " |
| | Quisibis R. | Mad. | " | " |
| | Champlain Rd. | North. | " | " |
| | Upper Blackville | " | " | " |
| | Derby | " | " | " |
| | Blackville | " | " | " |
| | Priceville | " | " | " |
| | Jardine Bk. | Rest. | " | " |
| | Kedgwick Fks. | " | " | " |
| | Blacklands | " | " | " |
| | Three Brooks | Vic. | " | " |
| | Reeds Is. | " | " | " |
| | Astle | York | " | " |
| | Bantalor | " | " | " |
| | Rocky Bk. | " | " | " |
| | MacKenzie Mtn. | Inv. | N.S. | " |
| | St. Georges | St. Georges | Nfld. | " |
| | Tatagouche Falls | Glouc. | N.B. | 1956 |
| | Bathurst | " | " | " |
| | Baker Bk. | Mad. | " | " |
| | Parks | North. | " | " |
| | Blackville | " | " | " |
| | -- | " | " | " |
| | Parker Sta. | " | " | " |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|------------------|-------------|--------|------|
| PROTOZOA (cont'd) | | | | |
| (Microsporidia) (cont'd) | | | | |
| <u>Choristoneura fumiferana</u> (Glem.) | Newcastle | North. | N.B. | 1956 |
| (cont'd) | Trout Bk. | " | " | " |
| | McKinleyville | " | " | " |
| | Simpson Field | Rest. | " | " |
| | Glenlevit | " | " | " |
| | Kedgwick R. | " | " | " |
| | 18 mi. Stream | Sun. | " | " |
| | Riley Bk. | Vic. | " | " |
| | Tilley | " | " | " |
| | Salmonhurst | " | " | " |
| | Boiestown | York | " | " |
| | Astle | " | " | " |
| | Little R. | Inv. | N.S. | " |
| | Aspy Valley | " | " | " |
| | Cape North | Vic. | " | " |
| | St. Peters | Kings | P.E.I. | " |
| | Eldon | Queens | " | " |
| | Hartville | " | " | " |
| | Belle R. | " | " | " |
| | Vernon Bridge | " | " | " |
| | Port au Port | -- | Nfld. | " |
| | -- | Humber | " | " |
| | St. Barbe | | " | " |
| | | St. Georges | " | " |
| | Clearwater Rd. | Car. | N.B. | 1957 |
| | Parker Sta. | North. | " | " |
| | Gaspereau Fks. | Queens | " | " |
| | Goshen | " | " | " |
| | Ripples | Sun. | " | " |
| | Rocky Bk. | York | " | " |
| | Tignish Bridge | Cumb. | N.S. | " |
| | Salem | " | " | " |
| | Margaree Fks. | Inv. | " | " |
| | Port Hastings | " | " | " |
| | Port Hood | " | " | " |
| | Scotsville | " | " | " |
| | Strathlorne | " | " | " |
| | Grand Etang | " | " | " |
| | MacIntosh Bk. | " | " | " |
| | Inverness | " | " | " |
| | Cape North | Vic. | " | " |
| | Bay St. Lawrence | " | " | " |
| | Ingonish Bk. | " | " | " |
| | Little R. | " | " | " |
| | North Aspy | " | " | " |

TABLE I (cont'd)

| | Locality | County | Prov. | Year |
|---|--------------------|-------------|--------|------|
| PROTOZOA (cont'd) | | | | |
| (Microsporidia) (cont'd) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) (cont'd) | N. Ingonish | Vic. | N.S. | 1957 |
| | Serpentine Rd. | Humber | Nfld. | " |
| | Little Barochois | St. Georges | " | " |
| | Public Works Field | " | " | " |
| | Main R. Bridge | " | " | " |
| | South Branch | " | " | " |
| | Biggar Ridge | Car. | N.B. | 1958 |
| | Juniper | " | " | " |
| | Six Roads | Glouc. | " | " |
| | Bathurst | " | " | " |
| | Ranger Cache | Kent | " | " |
| | Park | North. | " | " |
| | Parker Sta. | " | " | " |
| | Carrols | " | " | " |
| | Redmondville | " | " | " |
| | Little Bartibog | " | " | " |
| | Campbellton | Rest. | " | " |
| | South Tilley | Vic. | " | " |
| | Sisson Ridge | " | " | " |
| | Hainesville | York | " | " |
| | Warren | " | " | " |
| | Strathlorne | Inv. | N.S. | " |
| | Grand Etang | " | " | " |
| | Port Hood | " | " | " |
| | Margaree Fks. | " | " | " |
| | Ingonish Centre | " | " | " |
| | Little R. | Vic. | " | " |
| | Dalvau | Queens | P.E.I. | " |
| | Juniper | Car. | N.B. | 1958 |
| | Shippegan Is. | Glouc. | " | " |
| | Little Fks. | Kent | " | " |
| | Redmondville | North. | " | " |
| | Ripples | Sun. | " | " |
| Salmon Cr. | " | " | " | |
| -- | Inv. | N.S. | " | |
| -- | Vic. | " | " | |
| Glassville | Car. | N.B. | 1960 | |
| Carrols | North. | " | " | |
| Hainesville | York | " | " | |
| Maplewood | " | " | " | |
| Juniper | Car. | " | 1961 | |
| Ashland | " | " | 1962 | |
| Biggar Ridge | " | " | " | |
| Glassville | " | " | " | |
| Juniper | " | " | " | |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|---|-----------------------|------------------------|----------------|
| PROTOZOA (cont'd) | | | | |
| (Microsporidia) (cont'd) | | | | |
| <u>Ghoristoneura fumiferana</u> (Clem.) (cont'd) | South Tilley Ingonish Centre Brundel R. | Vic. Inv. Kings | N.B. N.S. P.E.I. | 1962 " " |
| <u>Herculia thymstusalis</u> (Wlk.) | 30 mi. Depot | Grand Falls | Nfld. | 1953 |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | St. Croix | York | N.B. | 1952 |
| <u>Nymphalis antiopa</u> (L.) | Wine R. | North. | " | 1956 |
| <u>Pikonema alaskensis</u> (Roh.) | Charles Cove | Guys. | N.S. | 1958 |
| <u>Pristiphora erichsoni</u> (Htg.) | Little Barachois | St. Georges | Nfld. | 1957 |
| <u>Pristiphora geniculata</u> (Htg.) | Barnville | North. | N.B. | " |
| | Patrieville | Mad. | " | 1958 |
| | -- | -- | N.S. | 1960 |
| <u>Stilpnotia salicis</u> (L.) | Bristol | Car. | N.B. | 1954 |
| | Bathurst | Glouc. | " | 1955 |
| | Nashwaaksis | York | " | 1961 |
| <u>Zeiraphera ratzeburgiana</u> Ratz. | Barachois | St. Georges | Nfld. | 1959 |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|---------------------|--------|-------|------|
| VIRUS | | | | |
| (Granulosis) | | | | |
| <u>Archips cerasivorana</u> (Fitch) | Magaguadavic | Char. | N.B. | 1951 |
| <u>Archips packardiana</u> Fern. | Fisher Rd. | Humber | Nfld. | 1953 |
| <u>Choristoneura fumiferana</u> (Clem.) | New Barton | Glouc. | N.B. | 1951 |
| | W. Bathurst | " | " | " |
| | Little R. | " | " | " |
| | Nigadoo | " | " | " |
| | -- | Mad. | " | " |
| | Kedgwick Rd. | " | " | " |
| | Devils Bk. | North. | " | " |
| | Guanamitz Rd. | Rest. | " | " |
| | Sport Camp Gulch | " | " | " |
| | Violette Bk. | Vic. | " | " |
| | Salmon R. | " | " | " |
| | Nictau L. Rd. | " | " | " |
| | Hammond | " | " | " |
| | Black Bk. | " | " | " |
| | Baker Bk. | " | " | " |
| | Juniper | Car. | " | 1952 |
| | Juniper Sta. | " | " | " |
| | Horny Bk. | Glouc. | " | " |
| | Bass R. | " | " | " |
| | Green R. | Mad. | " | " |
| | Upper Blackville | North. | " | " |
| | Fraser-Burchill Rd. | " | " | " |
| | Holtville | " | " | " |
| | Tabusintac R. | " | " | " |
| | Grainfield | " | " | " |
| | Howard | " | " | " |
| | Morse Bk. | " | " | " |
| Papineau Falls | " | " | " | |
| Nepisiquit | " | " | " | |
| Bath Motor Rd. | " | " | " | |
| Stephenville | St. Georges | Nfld. | 1953 | |
| St. Georges | " | " | " | |
| South Branch | " | " | " | |
| Hershy Cr. | Queens | N.B. | 1952 | |
| Upsalquitch | Rest. | " | " | |
| Blacklands | " | " | " | |
| Colburn | " | " | " | |
| Carry Bk. Rd. | " | " | " | |
| Trousers L. | Vic. | " | " | |
| Long L. Rd. | " | " | " | |
| Gulguac | " | " | " | |
| Hammond Rd. | " | " | " | |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|------------------|-------------|-------|------|
| VIRUS (cont'd) | | | | |
| (Granulosis) (cont'd) | | | | |
| <u>Choristoneura fumiferana</u> (Glem.) (cont'd) | Beaver Dam | York | N.B. | 1952 |
| | Barker Dam | " | " | " |
| | Stanley | " | " | " |
| | Cooks Bk. | Humber | Nfld. | " |
| | Paquetville | Glouc. | N.B. | 1953 |
| | Rio Grande | " | " | " |
| | Dunlop | " | " | " |
| | Tatagouche Falls | " | " | " |
| | Tabusintac | " | " | " |
| | St. Anne | Mad. | " | " |
| | Morrow Mills | " | " | " |
| | Newcastle | North. | " | " |
| | White Rapids | " | " | " |
| | " | " | " | " |
| | Ludlow | " | " | " |
| | Glenlevit | Rest. | " | " |
| | Ripples | Sun. | " | " |
| | Jardine Bk. | Vic. | " | " |
| | Clearwater Bk. | York | " | " |
| | Rocky Bk. | " | " | " |
| | Moose L. | " | " | " |
| | Charlo | Rest. | " | 1954 |
| | Port Elgin | West. | " | " |
| | Bass R. Rd. | Glouc. | " | 1955 |
| | Nepisiquit Rd. | " | " | " |
| | St. Anne | Kent | " | " |
| | Quisibis R. | Mad. | " | " |
| | Ludlow | North. | " | " |
| | Upper Blackville | " | " | " |
| | Blackville | " | " | " |
| | Wisharts Pt. | " | " | " |
| | Priceville | " | " | " |
| | Kedgwick Fks. | Rest. | " | " |
| | Northview | Vic. | " | " |
| | Rocky Bk. | York | " | " |
| | " | Guys. | N.S. | " |
| | St. Georges | St. Georges | Nfld. | " |
| | Tatagouche Falls | Glouc. | N.B. | 1956 |
| | Bathurst | " | " | " |
| | Petite Lameque | " | " | " |
| Baker Bk. | Mad. | " | " | |
| Parks | North. | " | " | |
| Blackville | " | " | " | |
| " | " | " | " | |
| Parker Sta. | " | " | " | |
| Trout Bk. | " | " | " | |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|-------------------|--------------|--------|------|
| VIRUS (cont'd) | | | | |
| (Granulosis (cont'd)) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) (cont'd) | Papineau Falls | North. | N.B. | 1956 |
| | Glenlevit | Rest. | " | " |
| | Glenwood | " | " | " |
| | Kedgwick R. | " | " | " |
| | 18 mi. Stream | Sun. | " | " |
| | Ripples | " | " | " |
| | Salmonhurst | Vic. | " | " |
| | Boiestown | York | " | " |
| | N.E. Margaree | Inv. | N.S. | " |
| | Bay St. Lawrence | Vic. | " | " |
| | St. Peters | Kings | P.E.I. | " |
| | Hartville | Queens | " | " |
| | Eldon | " | " | " |
| | St. Barbe | -- | Nfld. | " |
| | -- | St. Georges | " | " |
| | Clearwater | Car. | N.B. | 1957 |
| | Parker Sta. | North. | " | " |
| | Renous | " | " | " |
| | Gaspereau Fks. | Queens | " | " |
| | Ripples | Sun. | " | " |
| | McGivney | York | " | " |
| | Zealand | " | " | " |
| | Malignant Cove | Antig. | N.S. | " |
| | Scotsville | Inv. | " | " |
| | North R. | Vic. | " | " |
| | Public Works Fld. | St. Georges | Nfld. | " |
| | Corner Brook | " | " | " |
| South Branch | " | " | " | |
| Robinsons R. | " | " | " | |
| Little Forks | Kent | N.B. | 1959 | |
| Ashland | Car. | " | 1960 | |
| Juniper | " | " | 1962 | |
| <u>Dioryctria reniculella</u> (Grote) | Goshen | Kings | " | 1952 |
| <u>Eupithecia filmata</u> Pears. | Victoria Dam | Grand Falls | Nfld. | 1953 |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | Bear Is. | York | N.B. | " |
| <u>Pristiphora geniculata</u> (Htg.) | Spruce Br. | St. Georges | Nfld. | 1951 |
| <u>Semiothisa granitata</u> (Guen.) | Richards Sett. | North. | N.B. | 1951 |
| <u>Stilpnotia salicis</u> (L.) | River Head | Bonavista N. | Nfld. | 1952 |
| | Bishops Falls | Grand Falls | " | " |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|---------------------|-------------|-------|------|
| VIRUS (cont'd) | | | | |
| (Polyhedrosis - Cytoplasmic) | | | | |
| <u>Acleris variana</u> Fern. | Champlain Rd. | North. | N.B. | 1952 |
| <u>Choristoneura fumiferana</u> (Clem.) | Green R. | Mad. | " | " |
| | Fraser-Burchill Rd. | North. | " | " |
| | Bath Motor Rd. | North | " | " |
| | Serpentine R. Rd. | " | " | " |
| | Upsalquitch | Rest. | " | " |
| | Blacklands | " | " | " |
| | Gary Bk. Rd. | " | " | " |
| | Trousers L. | Vic. | " | " |
| | Janeville | Glouc. | " | 1953 |
| | Bass R. | " | " | " |
| | Beresford | " | " | " |
| | St. Anne | Mad. | " | " |
| | Bartibog | North. | " | " |
| | Mains L. | " | " | " |
| | Anderson | Rest. | " | " |
| | Dawsonville | " | " | " |
| | St. Georges | St. Georges | Nfld. | " |
| | S. Stephenville | " | " | " |
| | Nictau L. | North. | N.B. | 1954 |
| | Charlo | Rest. | " | " |
| Acadia Sta. | Sun. | " | " | |
| Hare Bay | White Bay | Nfld. | " | |
| Bass R. Rd. | Glouc. | N.B. | 1955 | |
| Quisibis R. | Mad. | " | " | |
| McGivney Jct. | York | " | " | |
| Lockstead Rd. | North. | " | 1956 | |
| Blackville | " | " | " | |
| St. Georges | St. Georges | Nfld. | " | |
| Ripples | Sun. | N.B. | 1957 | |
| Margaree Fks. | Inv. | N.S. | " | |
| (Polyhedrosis - Nuclear) | | | | |
| <u>Erannis tiliaria</u> (Harr.) | Wilsons Bk. | Mad. | N.B. | 1955 |
| | Glenlevit | Rest. | " | " |
| <u>Hemerocampa leucostigma</u> (J.E. Smith) | Camden | Col. | N.S. | 1954 |
| | Goshen | -- | " | 1956 |
| | Beaver L. | -- | " | " |
| | Musquodobit | -- | " | " |
| | Hopewell Gape | Albert | N.B. | 1957 |
| | McMannus | West. | " | " |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|--|---|---|--|--|
| VIRUS (cont'd) | | | | |
| (Polyhedrosis - Nuclear) (cont'd) | | | | |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | Hare Bay | White Bay | Nfld. | 1954 |
| <u>Neodiprion nanulus nanulus</u> Schedl. | Acadia Sta. Boiestown | York North. | N.B. " | 1958 1961 |
| <u>Operophtera bruceata</u> (Hulst) | Glenwood -- | Grand Falls " " | Nfld. " " | 1955 " " |
| <u>Operophtera brunata</u> (L.) | Hebron Waverly Timberlea St. Margarets Bay Lr. Sackville Shelburne | Yar. Hal. " " " Shel. | N.S. " " " " " | 1961 1962 " " " " |
| <u>Orgyia antiqua</u> L. | North R. | Vic. | " | " |
| <u>Stilpnotia salicis</u> (L.) | Woodstock Deer L. Woodstock Kingsport | Car. Humber Car. Kings | N.B. Nfld. N.B. N.S. | 1954 " 1955 1962 |
| <u>Diprion hercyniae</u> (Htg.) | Meadow Stream Nigadoo Poke R. St. Francis Baker Bk. Birch Ridge Kintore Middle Arm Waverly Waweig -- Camp 17 " 75 Caron Bk. Lr. Five Is. Harrison Sett. Anti Dam New Laing Bay Verte Shepody Rd. Benoit Cove Cooks Bk. | Char. Glouc. " Mad. " Vic. " White Bay Hal. Char. " White Bay " Mad. Col. Gumb. Hal. Pictou White Bay Kings Humber " | N.B. " " " " " " Nfld. N.S. N.B. " Nfld. " N.B. Nfld. Nfld. N.B. Nfld. " | 1951 " " " " " " " 1952 " " 1953 " " " 1954 " " |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|------------------|-----------|-------|------|
| VIRUS (cont'd) | | | | |
| (Polyhedrosis - Nuclear) (cont'd) | | | | |
| <u>Diprion hercyniae</u> (Htg.) (cont'd) | Haltway Pt. | Humber | Nfld. | 1954 |
| | Frenchmans Cove | " | " | " |
| | Mt. Marian | " | " | " |
| | Lady Slipper Rd. | " | " | " |
| | Serpentine R. | " | " | " |
| | South Bk. | " | " | " |
| | Springhill | York | N.B. | 1956 |
| | Zealand | " | " | " |
| | Gore Rd. | -- | " | 1957 |
| | Maloney Fields | -- | " | " |
| | South Tilley | Vic. | " | " |
| | Riley Bk. | " | " | " |
| | Springhill | York | " | " |
| | Greenfield | Col. | N.S. | " |
| | Tangier | Hal. | " | " |
| | West Inglisville | Annap. | " | " |
| | Barton | | " | " |
| | Woodstock | Car. | N.B. | 1958 |
| | Kirkland | " | " | " |
| | Lindsay Rd. | " | " | " |
| | Rte.2, Limestone | " | " | " |
| | Baker Bk. | Mad. | " | " |
| | Riley Bk. | Vic. | " | " |
| | Salmonhurst | " | " | " |
| | South Tilley | " | " | " |
| | Port Elgin | West. | " | " |
| | Antigonish | Antig. | N.S. | " |
| | Greenfield | Col. | " | " |
| | Kempton | " | " | " |
| | Tangier | Hal. | " | " |
| | New Laing | Pictou | " | " |
| | St. Phillips Rd. | Green Bay | Nfld. | " |
| | Birchy Ridge | " | " | " |
| | Lavillette | -- | N.B. | 1959 |
| | Kirkland | Car. | " | " |
| | Connors | Mad. | " | " |
| | Baker Bk. | " | " | " |
| | Siegas | " | " | " |
| | Gaspereau Fks. | Queens | " | " |
| | Salmon Cr. | " | " | " |
| Ripples | Sun. | " | " | |
| Four Falls | Vic. | " | " | |
| Jardine Bk. | " | " | " | |
| Salmonhurst | " | " | " | |
| Blayne Ridge | York | " | " | |
| Norrad Bridge | " | " | " | |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|-------------------|-------------|-------|------|
| VIRUS (cont'd) | | | | |
| (Polyhedrosis - Nuclear) (cont'd) | | | | |
| <u>Diprion hercyniae</u> (Htg.) (cont'd) | Newmarket | York | N.B. | 1959 |
| | Prince William | " | " | " |
| | Thomaston Corner | " | " | " |
| | Warren | " | " | " |
| | East Bay | Cape Breton | N.S. | " |
| | Albert Ridge | " | " | " |
| | Kempton | Col. | " | " |
| | Eastville | " | " | " |
| | Stewiacke | " | " | " |
| | Acadiaville | Digby | " | " |
| | Trafalgar | Guys. | " | " |
| | Sheet Harbour | Hal. | " | " |
| | Moose R. | Pictou | " | " |
| | Moods Mill | Yar. | " | " |
| | Glen Burneu | St. Barbe | Nfld. | |
| | Jacksonville | Car. | N.B. | 1960 |
| | Kirkland | " | " | " |
| | Connors | Mad. | " | " |
| | Perth | Vic. | " | " |
| | Bon Accord | " | " | " |
| | Three Brooks | " | " | " |
| | South Tilley | " | " | " |
| | Hartin Sett. | York | " | " |
| | Lavillette | -- | " | " |
| | Flat Mtn. | -- | " | " |
| | W. Inglisville | Annap. | N.S. | " |
| | College Grant | Antig. | " | " |
| | Glen Alpine | " | " | " |
| | East Bay | Cape Breton | " | " |
| | Greenfield | Col. | " | " |
| | Tatamagouche Mtn. | " | " | " |
| | Eastville | " | " | " |
| | Harrison Sett. | Cumb. | " | " |
| | Tibideau Rd. | Digby | " | " |
| | Country Harbour | Guys. | " | " |
| | Aspen | " | " | " |
| | Sheet Harbour | Hal. | " | " |
| | Sweets Corner | Hants | " | " |
| | Centreville Mtn. | Kings | " | " |
| | New Laing | Pictou | " | " |
| | Brookland | " | " | " |
| | French R. | " | " | " |
| Drummondville | Rich. | " | " | |
| Allan Hill Rd. | -- | " | " | |
| Kirkland | Car. | N.B. | 1961 | |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|---|-----------------------------------|-------------|-------------|-------|
| VIRUS (cont'd) | | | | |
| (Polyhedrosis - Nuclear) (cont'd) | | | | |
| <u>Diprion hercyniae</u> (Htg.) (cont'd) | Mamozekel Rd. | Rest. | N.B. | 1961 |
| | St. Martins | St. John | " | " |
| | Riley Bk. | Vic. | " | " |
| | Salmonhurst | " | " | " |
| | South Tilley | " | " | " |
| | Bon Accord | " | " | " |
| | Tobique Rd. | " | " | " |
| | Trafalgar | Guys. | N.S. | " |
| | Kirkland | Car. | N.B. | 1962 |
| | Kedgwick R. | Rest. | " | " |
| | Mamozekel R. | " | " | " |
| | Riley Bk. | Vic. | " | " |
| | <u>Neodiprion abietis</u> (Harr.) | George L. | St. Georges | Nfld. |
| Gallants | | " | " | " |
| Grand L. Rd. | | " | " | " |
| Moose Pond | | " | " | " |
| Hynes Pond | | " | " | " |
| Stray Pond | | " | " | " |
| Gallants | | " | " | 1958 |
| Moose Hill | | " | " | " |
| Lake St. George | | " | " | " |
| E. New Annan | | Col. | N.S. | 1959 |
| Sutherlands L. | | " | " | " |
| St. Georges L. | | St. Georges | Nfld. | " |
| East Village | | Col. | N.S. | 1960 |
| New Annan | | " | " | " |
| Downing Clear | | " | " | " |
| Sutherlands L. | | Cumb. | " | " |
| Liscomb R. | | Guys. | " | " |
| Beaver Harbour | | Hal. | " | " |
| East R. | | " | " | " |
| Popes Harbour | | " | " | " |
| Spry Harbour | | " | " | " |
| Staples Rd. | | Col. | " | 1961 |
| Whipsey L. | | " | " | " |
| McCallum Sett. | | " | " | " |
| Frog L. | | " | " | " |
| Sherbrook | | Guys. | " | " |
| Halfway Bk. | | Hal. | " | " |
| Port Dufferin | | " | " | " |
| L. Charlotte | | " | " | " |
| Salmon R. Bridge | | " | " | " |
| Murphy Cove | " | " | " | |
| Blue Mtn. Rd. | " | " | " | |
| Ship Harbour | " | " | 1962 | |
| Clam Harbour | " | " | " | |

TABLE I (cont'd)

| Host | Locality | County | Prov. | Year |
|--|----------------|-------------|--------|------|
| VIRUS (cont'd) | | | | |
| (Polyhedrosis - Nuclear) (cont'd) | | | | |
| <u>Neodiprion abietis</u> (Harr.) | Beaver Harbour | Hal. | N.S. | 1962 |
| (cont'd) | Oyster Pond | " | " | " |
| | Halfway Bk. | " | " | " |
| | Blue Mills | Inv. | " | " |
| (Polyhedrosis - Unspecified) | | | | |
| <u>Choristoneura fumiferana</u> (Clem.) | Green R. | Mad. | N.B. | 1951 |
| <u>Erranis tiliaria</u> (Harr.) | Ritchie Br. | Vic. | " | 1956 |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | Hare Bay | White Bay | Nfld. | 1953 |
| <u>Malacosoma disstria</u> Hbn. | Graves Sett. | Albert | N.B. | 1951 |
| | Richards | Kent | " | " |
| | Chatham | North. | " | " |
| | -- | Glouc. | " | " |
| | Geary | Sun. | " | 1953 |
| <u>Nymphalis antiopa</u> (L.) | Haven | St. Georges | Nfld. | 1951 |
| | Upper Durham | York | N.B. | 1956 |
| <u>Stilpnotia salicis</u> (L.) | McAdam | " | " | 1951 |
| | Midgel | Kings | P.E.I. | 1956 |
| | -- | Humber | Nfld. | " |
| | Cheticamp | Inv. | N.S. | 1959 |
| | Port Hilford | Guys. | " | 1961 |
| <u>Pristiphora geniculata</u> (Htg.) | Jacquet R. | Rest. | N.B. | 1957 |

TABLE II
Summary of Host Species Infected
by Various Pathogens

| Host species | No. exam. | No. diseased | | | | |
|---|--------------|--------------|-------|-------|--------|-------|
| | | Bact. | Fung. | Gran. | Micro. | Poly. |
| COLEOPTERA | | | | | | |
| <u>Altica ambiens</u> (Harris) | 195 | | 1 | | | |
| LEPIDOPTERA | | | | | | |
| <u>Acleris variana</u> (Fern.) | 44 | | | | | 1 |
| <u>Archips cerasivorana</u> (Fitch) | 110 | 4 | | | 14 | |
| <u>Choristoneura fumiferana</u> (Glem.) | 6837* | 84 | 139 | 409 | 543 | 48 |
| <u>Datana ministra</u> (Drury) | 111 | 100 | | | | |
| <u>Diorycetria reniculella</u> (Grote) | 67 | | 5 | 1 | | |
| <u>Erannis tiliaria</u> (Harr.) | 56 | | | | | 35 |
| <u>Eupithecia filmata</u> Pears. | 8 | | | 1 | | |
| <u>Hemerocampa leucostigma</u> (J.E.Smith) | 126 | 13 | | | | 31 |
| <u>Herculia thymetusalis</u> (Wlk.) | 63 | | | | 1 | |
| <u>Lambdina fiscellaria fiscellaria</u> (Guen.) | 499 | 11 | 32 | 1 | 1 | 7 |
| <u>Malacosoma americanum</u> (F.) | 129 | 49 | | | | |
| " <u>disstria</u> Hbn. | 349 | 30 | 79 | | | 65 |
| <u>Nymphalis antiopa</u> (L.) | 242 | 159 | 2 | | 5 | 4 |
| <u>Operophtera bruceata</u> (Hulst) | 83 | 1 | 1 | | | 62 |
| " <u>brumata</u> (L.) | 289 | | | | | 13 |
| <u>Orgyia antiqua</u> L. | 46 | 10 | | | | 5 |
| <u>Schizura concinna</u> (J.E.Smith) | 33 | | | | 1 | |
| <u>Semiothisa granitata</u> (Guen.) | 22 | | | 1 | | |
| <u>Stilpnotia salicis</u> (L.) | 1577 | 738 | 1 | 3 | 3 | 24 |
| <u>Zeiraphera ratzeburgiana</u> Ratz. | 251 | | | | 1 | |
| HYMENOPTERA | | | | | | |
| <u>Anoplonyx luteipes</u> (Cress.) | 101 | | 1 | | | |
| <u>Creosus latitarsus</u> Nort. | 29 | 17 | | | | |
| <u>Diprion hercyniae</u> (Htg.) | 8408 | | | | | 446 |
| <u>Hemichroa crocea</u> (Fourc.) | 49 | 16 | | | | |
| <u>Neodiprion abietis</u> (Harr.) | 2463 | | | | | 1835 |
| " <u>nanulus nanulus</u> Schedl. | 262 | | | | | 18 |
| <u>Pikonema alaskensis</u> (Roh.) | 275 | 1 | 2 | | | |
| " <u>dimockii</u> (Cress.) | 89 | | 1 | | | |
| <u>Pristiphora erichsonii</u> (Htg.) | 1156 | 64 | | | 1 | |
| " <u>geniculata</u> (Htg.) | 772 | 339 | 24 | 3 | 12 | 1 |
| <u>Trichiosoma triangulum</u> Kbn. | 1 | 1 | | | | |

*79 Specimens were infected with more than one disease

TABLE III

List of Species Examined for Disease in
Which no Pathogens were Found

| Species | No. examined |
|---|--------------|
| COLEOPTERA | |
| <u>Chrysomella</u> sp. | 5 |
| <u>Cryptorhynchus lapathi</u> L. | 1 |
| <u>Elaphidion villosum</u> (F.) | 1 |
| <u>Saperda unicolor</u> Felt. | 1 |
| LEPIDOPTERA | |
| <u>Acrobasis betulella</u> Hulst | 35 |
| <u>Acronicta grisea</u> Wlk. | 6 |
| " sp. | 5 |
| <u>Alsophila pometaria</u> (Harr.) | 66 |
| <u>Anacampsis innoculella</u> Z. | 43 |
| <u>Anisota rubicunda</u> (F.) | 1 |
| " <u>virginiensis</u> (Drury) | 1 |
| <u>Anomgyna elimata</u> (Guen.) | 2 |
| " sp. | 2 |
| <u>Archips alberta</u> Mcd. | 4 |
| " <u>conflictana</u> (Wlk.) | 1 |
| " <u>packardiana</u> Fern. | 1 |
| " sp. | 4 |
| <u>Argyresthia laricella</u> Kft. | 54 |
| <u>Argyrotaenia occultana</u> Free. | 2 |
| " sp. | 1 |
| <u>Caripeta divisita</u> Wlk. | 4 |
| <u>Catocala</u> sp. | 1 |
| <u>Cephalia</u> sp. | 7 |
| <u>Coleophora laricella</u> (Hbn.) | 5 |
| " <u>salmani</u> Heinr. | 5 |
| <u>Ectropis crepuscularia</u> (Schiff.) | 16 |
| <u>Elaphria versicolor</u> (Grote) | 7 |
| <u>Epirita autumnata</u> (Guen.) | 2 |
| <u>Eucordylea atrupictella</u> Dietz. | 13 |
| <u>Eupithecia luteata</u> Pack. | 1 |
| " <u>pelpata</u> Pack. | 1 |
| <u>Feralia jocosu</u> (Guen.) | 8 |
| " sp. | 3 |
| <u>Griselda radicana</u> Wlschm. | 13 |
| <u>Halisodota maculata</u> (Harr.) | 10 |
| <u>Hemerocampa</u> sp. | 5 |
| <u>Hyphantria cunea</u> (Drury) | 145 |
| <u>Lithophane</u> sp. | 2 |
| <u>Meroptera pravella</u> Grote | 2 |
| <u>Nepytia canosaria</u> Wlk. | 5 |

TABLE III (cont'd)

| Species | No. examined |
|---|--------------|
| LEPIDOPTERA (cont'd) | |
| <u>Oporina autumnata</u> (Guen.) | 8 |
| <u>Orthosia revicta</u> (Morr.) | 8 |
| <u>Paleacrita vernata</u> (Peck) | 4 |
| <u>Panthea acronyctoides</u> (Wlk.) | 1 |
| <u>Papilio glaucus</u> L. | 2 |
| <u>Paraphia piniata</u> (Pack.) | 1 |
| <u>Polygona interrogationis</u> (F.) | 1 |
| <u>Protobormia porcelaria</u> Guen. | 3 |
| <u>Pteronidea</u> sp. | 46 |
| <u>Recurvaria</u> sp. | 12 |
| <u>Rhyacionia buoliana</u> (Schiff.) | 1 |
| <u>Schizura ipomoeae</u> | 1 |
| <u>Semiothisa oweni</u> Swett. | 6 |
| " <u>sexmaculata</u> (Pack.) | 8 |
| " sp. | 4 |
| <u>Sparganothis acervorana</u> Mackay | 10 |
| " <u>pettitana</u> (Roh.) | 15 |
| <u>Solenobia walsheilla</u> Clem. | 6 |
| <u>Zeiraphera fortunana</u> Kft. | 11 |
| HYMENOPTERA | |
| <u>Acantholyda</u> sp. | 4 |
| <u>Arge clavicornis</u> (Fab.) | 2 |
| " <u>pectoralis</u> (Leach) | 1 |
| <u>Caliroa cerasi</u> (L.) | 6 |
| <u>Cimbex americanum</u> Leach | 2 |
| <u>Dimorphopteryx errans</u> (Roh.) | 3 |
| <u>Fenusa pusilla</u> (Lep.) | 22 |
| <u>Nematus</u> sp. | 72 |
| <u>Neodiprion americanum</u> (Leach) | 62 |
| " <u>banksianae</u> Roh. | 1 |
| " <u>dyari</u> Roh. | 1 |
| " <u>pinetum</u> (Nort.) | 67 |
| " <u>pratti banksianae</u> Roh. | 6 |
| " sp. | 111 |
| " <u>virginiana</u> Roh. | 1 |
| <u>Periclista quercus</u> Roh. | 2 |
| <u>Pleuroneura borealis</u> Felt | 7 |
| <u>Pontania</u> sp. | 23 |
| <u>Pristiphora</u> sp. | 54 |
| <u>Pteronidia harringtoni</u> (Marlatt) | 22 |
| <u>Trichocampis viminalis</u> (Fall) | 2 |