FOREST PEST CONDITIONS IN THE MARITIMES IN 1976 WITH AN OUTLOOK FOR 1977

by

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ABSTRACT

This report reviews the status of forest insects and tree diseases in the Maritimes Region in 1976 and gives, for some pests, a forecast of conditions for 1977.

RESUME

Ce rapport passe en revue les conditons relatives aux divers insectes et maladies des arbres dans la Région des Maritimes en 1976 et présente un aperçu des conditions prévue pour quelques uns des ces organismes nuisibles en 1977.

INTRODUCTION

One of the objectives of the Forest Insect and Disease Survey is to monitor forest insect and disease conditions and to report on the status of the important and most common pests. In the Maritimes, this information is published in Seasonal Highlights, Special Reports on pests of particular interest, Information Reports, and in the Annual Report of the Forest Insect and Disease Survey, published under the Authority of the Minister of Fisheries and the Environment, Ottawa, Canada.

This report outlines forest pest conditions in 1976 with an outlook on conditions expected in 1977. It aims to provide forest managers with information on pest conditions early enough to be considered in management decisions before the start of the following season. Only those insects and diseases that were widespread and caused considerable concern are discussed in detail. Others of localized or of lesser importance are presented in tabular form.

More information on specific conditions will be provided upon request from the Maritimes Forest Research Centre. Pest Control Leaflets, each describing a specific pest and the recommended control, are also available.

We acknowledge the information contributed by the Pest Detection Officers of the New Brunswick Department of Natural Resources, the Nova Scotia Department of Lands and Forests, the Prince Edward Island Department of Agriculture and Forestry, and Industry.

IMPORTANT FOREST INSECTS

Spruce budworm, *Choristoneura fumiferana* (Clem.)--Detailed information on the spruce budworm infestation in 1976 is reported by Kettela (Information Report in preparation). The following summary is based on that report.

In New Brunswick, defoliation of balsam fir and spruce stands occurred on 570,000 ha (1.4 million acres), of which defoliation was severe on about 226,000 ha (560,000 acres), moderate on 172,000 ha (424,000 acres), and light on 190,000 ha (469,000 acres). This represents a large reduction in the affected area compared to 1975 when 3.6 million ha (8.9 million acres) were moderately or severely defoliated.

A significant reduction in spruce budworm infestations is forecast for 1977. Based on egg mass counts population levels will be high to very high over about 1.2 million ha (3 million acres) and moderate on 1.2 million ha (3 million acres). The area of high and extremely high hazard to stands (risk of tree mortality and top killing with further attack) is estimated at a little over 2 million ha (5 million acres) in 1977, compared to 4.9 million ha (12 million acres) in 1976.

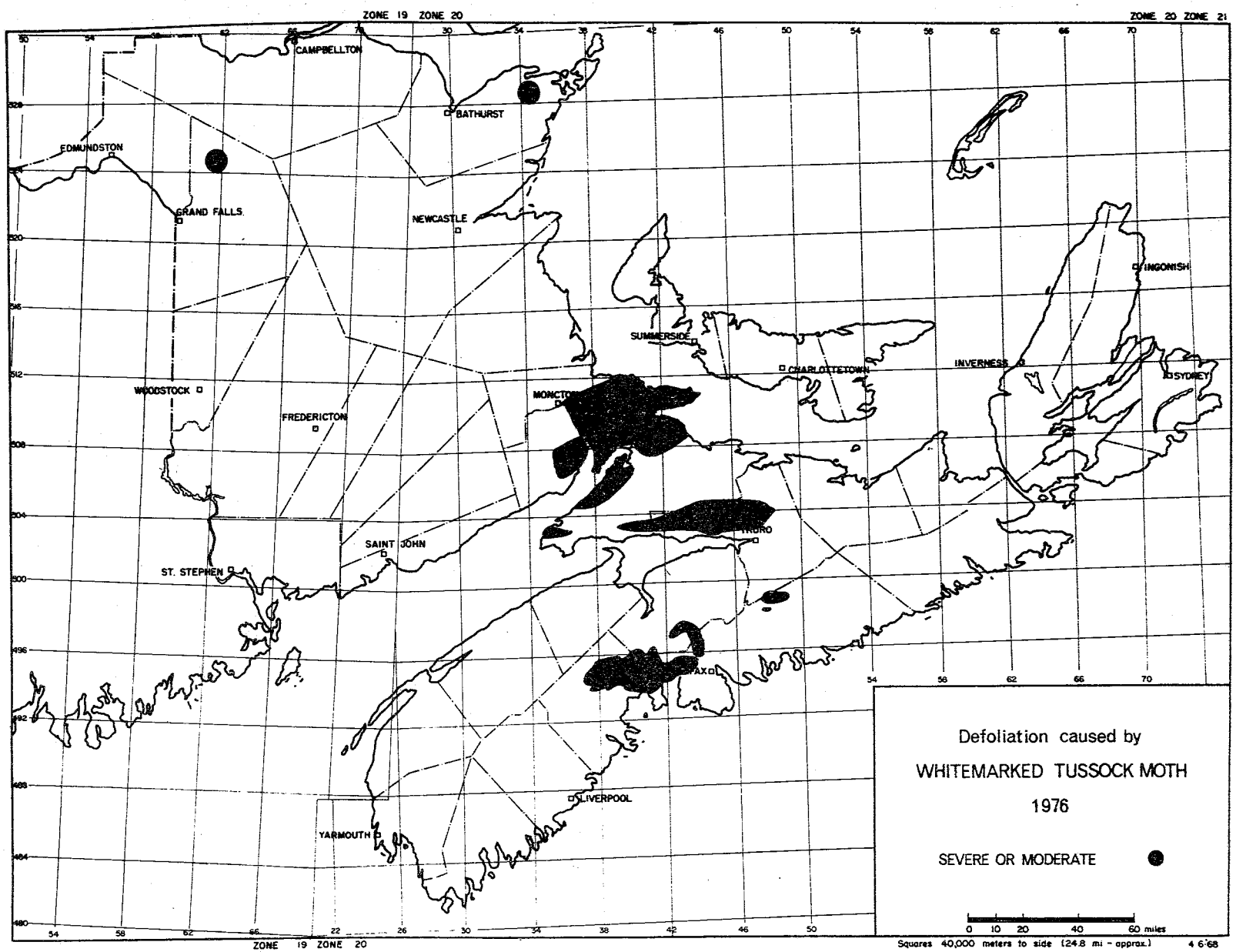
In Nova Scotia, virtually all balsam fir and spruce stands were severely defoliated on Cape Breton Island while moderate to severe defoliation occurred in pockets in the northern mainland counties. Defoliation was severe on about 690,000 ha (1.7 million acres), moderate on 530,000 ha (1.3 million acres), and light on 115,000 ha (282,000 acres). In addition, 153,000 ha (377,000 acres) on Cape Breton Island, mostly on the Highlands, were classified "moribund" where stands were in an extremely

weakened condition as a result of 2 to 3 years severe defoliation. Some trees were dead, many others had dead tops. In 1977, increased spruce budworm populations on Cape Breton Island are expected to cause very severe defoliation; the hazard to stands on almost 485,000 ha (1.2 million acres) is high to extremely high. Infestations on most of the mainland will be low, except for patches of moderate to severe defoliation mostly in Cumberland County.

In Prince Edward Island, severe defoliation of balsam fir and spruce was widespread except in the southeast corner of the Province. Scattered tree mortality occurred in a few areas where the trees had been exposed to repeated attack. Defoliation was severe on about 150,000 ha (375,000 acres), moderate on 18,000 ha (44,000 acres), and light on 33,000 ha (82,000 acres). In 1977, spruce budworm populations are expected to be lower than in 1976 but still present in sufficient numbers to cause severe defoliation in many areas.

Whitemarked tussock moth, *Orgyia leucostigma* (J.E. Smith)--This insect continued as one of the major pests in the Maritimes and caused widespread and severe defoliation on both conifers and hardwoods. Affected areas increased in size in 1976 and severe or moderate defoliation of miscellaneous tree species occurred over approximately 345,400 ha (853,500 acres) in Nova Scotia and 206,400 ha (510,100 acres) in New Brunswick (Fig. 1).

The largest outbreak covered 250,500 ha (619,000 acres) from the Moncton-Shediac Highway in Westmorland County, N.B. to the Lower Shinimecas-Amherst-Sand River line in Nova Scotia. Elsewhere in Nova


ZONE 19 ZONE 20
ZONE 20 ZONE 21
CAMPBELLTON
BATHURST
EDMUNDSTON
GRAND FALLS
NEWCASTLE
INGONISH
SUMMERSIDE
CHARLOTTETOWN
INVERNESS
SYDNEY
WOODSTOCK
FREDERICTON
MONCTON
SAINT JOHN
ST. STEPHEN
TRURO
HALIFAX
LIVERPOOL
YARMOUTH
Defoliation caused by
WHITEMARKED TUSSOCK MOTH
1976
SEVERE OR MODERATE
0 10 20 40 60 miles
Squares 40,000 meters to side (24.8 mi - approx.)
4 6 68

Scotia, an outbreak near Portapique, first reported in 1974, expanded again in 1976 and covered about 174,800 ha (432,000 acres) on high grounds between Parrsboro and Earltown in Cumberland and Colchester counties. The 1975-outbreak in western Halifax and eastern Lunenburg counties also expanded, reaching into Hants County and covering about 93,800 ha (231,800 acres). About 6,500 ha (16,000 acres) were affected near Apple River, Cumberland County and patchy but severe defoliation occurred over 2,300 ha (5,700 acres) in the Middle Musquodobit-Glenmore district, Halifax County. Both hardwoods and conifers, mostly balsam fir and tamarack, were affected in the Nova Scotia outbreaks. In New Brunswick, a new outbreak in the Caledonia Mountain-Hopewell Cape area in southeastern Albert County caused moderate to severe defoliation of balsam fir and white birch on about 24,000 ha (59,000 acres). Another outbreak, where the insect was associated with larvae of the rusty tussock moth (*O. antiqua*), occurred in white spruce and jack pine plantations near Black Brook in northwestern New Brunswick, and although young hardwoods and ground cover were severely defoliated over 40 ha (100 acres) only light defoliation of the coniferous species occurred. Near Pacquetville, Gloucester County, larvae of whitemarked tussock moth and saddled prominent (*Heterocampa guttivitta*) caused moderate defoliation of sugar maple trees on about 4,200 ha (10,400 acres). Elsewhere in the Region, the insect was common but in low numbers.

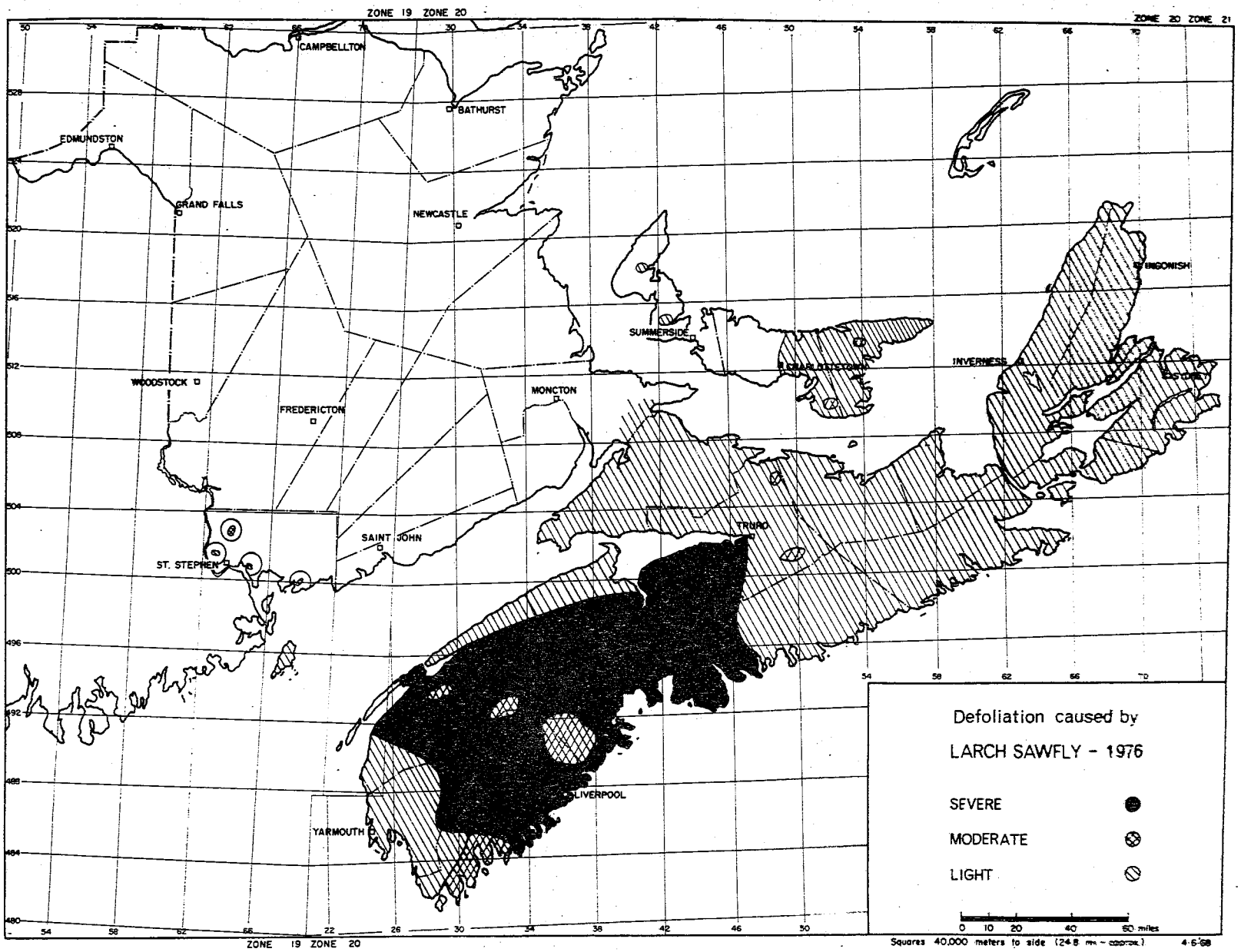
Outbreaks are likely to continue in 1977, although, because of a viral disease, some decline in populations and possible collapse of infestations in the central portion of older outbreaks can be expected.

The new outbreaks in New Brunswick may expand and other outbreaks could occur in the vicinity of the infestations as a result of larval drift.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)--Defoliation by larch sawfly was still widespread throughout the Region (Fig. 2), although populations of the insect were much reduced from last year. Trees in various stages of dieback are common in pockets, which vary from 0.2 to 4 ha (0.5 to 10 acres), in areas where repeated heavy defoliation has occurred. In 1976, defoliation was severe in western Nova Scotia west of the Truro-Halifax Highway with the exception of areas in Lunenburg, Queens, Shelburne, Annapolis, and Digby counties where defoliation was moderate, and the southwestern tip of the Province and parts of Hants, Kings, and Annapolis counties where it was light. In the northern and eastern parts of Nova Scotia, eastern Prince Edward Island, at scattered locations in Prince County, P.E.I., and in southern New Brunswick defoliation was light; moderate patches occurred only in Colchester County, N.S., Queens and Kings counties, P.E.I., and near Meridith, Charlotte County, N.B.

Further deterioration of tamarack will occur in areas where severe defoliation has added yet another year of stress for already weakened trees. The current infestations will probably continue in 1977.

Eastern Hemlock Looper, *Lambdina fiscellaria fiscellaria* (Guen.)--In northeastern Kings County, P.E.I., where severe defoliation of balsam fir occurred in 1975, the hemlock looper populations persisted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CAMPBELLTON
BATHURST
EDMUNDSTON
GRAND FALLS
NEWCASTLE
SUMMERSIDE
INVERNESS
WOODSTOCK
FREDERICTON
MONCTON
SAINT JOHN
ST. STEPHEN
TRURO
LIVERPOOL
YARMOUTH
Defoliation caused by
LARCH SAWFLY - 1976
SEVERE
MODERATE
LIGHT
0 10 20 40 60 miles
Squares 40,000 meters to side (24.8 mi - approx.)
4-6-76
ZONE 19 ZONE 20

but at a much lower level than last year. The area of infestation remained essentially the same with some extension into a few adjoining stands. Assessment of mortality in selected stands showed that an average of 52% (5-100%) of balsam fir trees, or 29% of all trees in these stands, were dead. In stands near Beaton Mills, Queens County mortality of balsam fir and hemlock was 12%, or 9% of all trees. In Nova Scotia, the insect, in association with others, severely defoliated balsam fir over about 120 ha (300 acres) near Lindsay Lake, Halifax County. Elsewhere in western Nova Scotia, only a trace of defoliation occurred in the 1975-infestation areas after high larval mortality reduced the population in early summer. At Lower West Pubnico, 82% of balsam fir was dead, and in the northern Yarmouth-southern Digby outbreak dead trees were scattered. Mortality in the latter area was confined mainly to understory trees and to those weakened by balsam woolly aphid (*Adelges piceae*) "twig attack". In eastern Nova Scotia and in New Brunswick, the insect was present at numerous locations in very low numbers and caused no noticeable defoliation.

Defoliation is expected again in eastern Prince Edward Island in 1977 and further tree mortality is likely to result.

European Pine Shoot Moth, *Rhyacionia buoliana* (Schiff.)--This introduced insect has spread throughout Nova Scotia in the past 50 years and there are few, if any, red pine plantations in the Province without some shoot damage. The infestations are severe in many places and will not likely subside in 1977. A few damaged shoots were observed at scattered locations in New Brunswick and Prince Edward Island.

Balsam Gall Midge, *Dasineura balsamicola* (Lint.)--This insect was common on balsam fir throughout Nova Scotia. Populations were generally low but pockets of moderate to severe damage, especially on small understory trees and Christmas tree plantations, occurred in the western and central parts of the Province. Damage was severe in Lunenburg County at Union Square, Walden, and Watford; in Yarmouth County at Kemptville, and in Cumberland County along the Hunter Road. Moderate damage occurred in Lunenburg County at Chester Grant; in Cumberland County at East Advocate and Bulmer Brook Road; in Colchester County at East Mines and West New Annan. In New Brunswick, trees in a small area at the Acadia Forest Experiment Station suffered moderate damage. Infestations were light in all twelve areas checked in Prince Edward Island.

More damage can be expected in Nova Scotia in 1977, especially in Christmas tree areas, since the increase in midge populations, reported in 1975, seems to be continuing. Some areas in Prince Edward Island may also be affected although probably to a lesser degree than in Nova Scotia.

Balsam Twig Aphid, *Mindarus abietinus* Koch--Infestations of this aphid were common on balsam fir throughout the Region. Trees in both natural stands and Christmas tree areas were affected. Severe shoot damage occurred in Christmas tree stands at Connors and St. Francois, Madawaska County, at Hacheyville, Gloucester County, N.B., and at Bezanson Lake, Lunenburg County, N.S. Damage was moderate in natural stands at Salmon River, Victoria County, Bathurst, Gloucester County, and Doaktown, Northumberland County, N.B., and at New Albany, Annapolis County, N.S.

The trend in the past two years may indicate higher populations of the aphid for 1977.

Saddled Prominent, *Heterocampa guttivitta* (Wlk.)--In New Brunswick, defoliation of beech, sugar maple, red maple, white birch, and yellow birch occurred in pockets over about 14,200 ha (35,000 acres) west and southwest of the St. John River, throughout York and Carleton counties. The intensity of defoliation varied from light to severe with large patches of beech trees completely defoliated. The main infestations occurred west of Bolton Lake, within 16 km (10 mi) of the United States border. A similar outbreak in southeastern Gloucester County and in a small area west of Allainville, Northumberland County covered about 20,200 ha (50,000 acres). Beech and sugar maple were affected to varying degrees, with numerous large pockets of trees severely defoliated. Within this outbreak, sugar maple was moderately defoliated over about 4,200 ha (10,400 acres) near Paquetville by the saddled prominent and whitemarked tussock moth (*Orgyia leucostigma*). At St. Isidore, defoliation was as high as 85% in sugar maple groves used for syrup production. The insect was present in small numbers at scattered locations elsewhere in New Brunswick and Nova Scotia where all infestations reported in 1975 collapsed.

The outlook for 1977 is uncertain but the western New Brunswick outbreak may collapse because of disease in the population.

Forest Tent Caterpillar, *Malacosoma disstria* (Hbn.)--In Prince Edward Island, the forest tent caterpillar population was high in western Prince County for the third consecutive year. The major infestation

areas between Springhill and Portage, near St. Louis, and around Duvar changed little from 1975. Egg-mass counts indicate a continuation of the outbreak in 1977, although the presence of diseased larvae in some areas could mean that older infestations will start to decline. In Nova Scotia, trembling and largetooth aspen trees were completely defoliated in a stand of about 8 ha (20 acres) southeast of Kentville, Kings County. Only a few larvae were found at scattered locations elsewhere in Nova Scotia and in New Brunswick where the outbreak predicted in the vicinity of Ashton Hill did not materilize.

No major outbreaks are expected to occur in 1977 in either Nova Scotia or New Brunswick.

Fall Cankerworm, *Alsophila pometaria* (Harr.)--Severe or moderate defoliation of various hardwoods occurred in many areas in southern New Brunswick. The most striking outbreak occurred at Hardings Point, Kings County where 75% of white ash, red oak, and various ornamental trees along Highway 845 for about 1.5 km (1 mile) were 75-100% defoliated. New foliage developed on all these trees later in the season. In Nova Scotia, severe defoliation occurred for the second year near Wamboldt Lake, Kings County on about 180 ha (450 acres) and near South Victoria, Cumberland County on 12 ha (30 acres). Defoliation was moderate to severe at locations in the northern mainland counties and at Ingonish Beach, Victoria County. Larvae, often associated with other defoliators, were present in low numbers in most of the mainland counties. In Prince Edward Island, the population increased over previous years and moderate to severe defoliation occurred at several locations in Queens County.

Populations are expected to be about the same level again in 1977 and moderate to severe defoliation will probably occur in the same general areas as this year.

Maple Leaf Roller, *Cenopis pettitana* (Rob.)-- The maple leaf roller population in New Brunswick was much lower than expected and severe defoliation occurred only in small areas at Belledune, Gloucester County, and at Burtts Corner, York County, where 96% and 78%, respectively, of the leaves examined were rolled. Defoliation was moderate in patches in northeastern New Brunswick and in central Queens County, and was light along the Stewart Highway from St. Leonard to Campbellton on hardwood ridges, and in the eastern and the southern part of the Province. In Prince Edward Island, infestations continued but defoliation was light. In Nova Scotia, severe leaf rolling occurred on sugar maple trees at Margaree Forks, Inverness County but elsewhere the population decreased to endemic levels in Annapolis, Cumberland, Colchester, and Pictou counties.

No significant changes in population levels are expected in 1977. There will no doubt be isolated patches of moderately or severely affected trees, especially in New Brunswick, but no major outbreaks should occur.

Birch Casebearer, *Coleophora fuscedinella* (Zell.)--In Nova Scotia, severe leaf browning of white birch and wire birch again occurred in western Cumberland, northeastern Victoria, mid-western Inverness counties and in the Hall's Harbour, Kings County area. The insect was common throughout the Region but caused only light browning with moderate

to severe discoloration occurring at scattered locations in Prince Edward Island, central Nova Scotia, and at Six Roads, Gloucester County, New Brunswick.

The situation should be essentially the same in 1977, but in New Brunswick the insect will probably occur in lower numbers than this year.

Birch Leaf Miner, *Fenusa pusilla* (Lep.)--This insect caused light leaf browning throughout the Region on wire birch and occasionally on white birch, except in the following areas, where trees in various-sized pockets were severely or moderately discolored: southcentral and northeastern New Brunswick; Halifax, east Colchester, east Pictou, and west Antigonish counties, between Maitland Bridge and Milton, Queens County, around Bridgewater, Lunenburg County, near Nictaux, Annapolis County and in the Kentville area, Kings County, N.S.; and in the southwestern parts of Queens and Kings counties, P.E.I.

The insect will likely be widespread again in the Region in 1977.

Insect	Locality	Remarks
		Coniferous Hosts
Balsam fir sawfly *Neodiprion abietis* complex	Nova Scotia	Outbreak in northeastern Colchester County is continuing and deterioration of balsam fir stands is progressive due to repeated attack by this insect and the whitemarked tussock moth. Trace defoliation near Lindsay Lake, Halifax Co., few larvae present in Colchester, Guysborough, Halifax, Pictou, and Hants Co.
Balsam shootboring sawfly *Pleroneura brunneicornis* Rohwer	New Brunswick	Numerous young balsam fir trees affected near North Cains, York Co.
Eastern blackheaded budworm *Acleris variana* (Fern.)	Region	Present on balsam fir and spruce at endemic levels except in northeastern New Brunswick. Average number of larvae per m^3 (1 cu yd) is less than 1.
European spruce sawfly *Diprion hercyniae* (Htg.)	Region	Present throughout on spruce in endemic numbers. Highest numbers of larvae per tree were 6 in Nova Scotia, 3 in Prince Edward Island, and 2 in New Brunswick.
Jack pine budworm *Choristoneura pinus pinus* Free.	New Brunswick	Defoliation of jack pine severe near Bartibog, Northumberland Co., and moderate west of Hacheyville, Gloucester Co., N.B. Population slightly higher than in 1975; caused light defoliation in Kings and Queens Co.
Larch casebearer *Coleophora laricella* (Hbn.)	Region	As predicted, populations were low, light browning of tamarack occurred at scattered locations in southern and eastern New Brunswick, and in Colchester and Pictou Co., N.S.

Insect	Locality	Remarks
		Coniferous Hosts
Larch needleworm *Zeiraphera improbana* (Wlk.)	New Brunswick	Larval populations moderate.
Pine root collar weevil *Hylobius radicis* (Buch.)	Nova Scotia	Approximately 10% tree mortality in a red pine plantation near Stoddartville, Annapolis Co.
Ragged spruce gall aphid *Pineus similis* (Gill.)	Region	Twig mortality on white spruce at Brackley Beach, Queens Co., P.E.I.; severe on young red spruce near Kemptville, Yarmouth Co., N.S. Common but light elsewhere in Nova Scotia on red, white, and Norway spruces. Almost complete mortality of new shoots of red/black hybrid spruce over 0.5 ha (1 acre) at Skin Gulch, Victoria Co., N.B.
Red pine sawfly *Neodiprion nanulus nanulus* Schedl	Region	Severe defoliation of old foliage of red pine in two plantations near Lake Paul, Kings Co., N.S. and in another at Bridgetown, Kings Co., P.E.I.; light on scattered trees in several plantations in Yarmouth and Guysborough Co., N.S., and on jack pine at Wallace, Cumberland Co. Only one larva found in New Brunswick. A polyhedrosis virus sprayed soon after insect emergence, effectively controlled a potential outbreak in a seed orchard at the Garden of Eden Barrens, N.S.
Saddleback looper *Ectropis crepuscularia* (Schiff.)	Nova Scotia New Brunswick	In association with other insects, defoliated balsam fir over 1200 ha (3000 acres) of which 120 ha (300 acres) near Lindsay Lake, Halifax Co. was severe. Outbreak near Kemptown, Colchester Co. collapsed. Population low and scattered in rest of Nova Scotia and New Brunswick.
Spruce bud moths *Zeiraphera canadensis* Mut. & Free. and *Zeiraphera fortunana* Kft.	Region	Distributed throughout on white spruce but the population is low and no damage reported.

Insect	Locality	Remarks
		Hardwood Hosts
Aspen casebearer *Coleophora innotabilis* Braun.	Prince Edward Island	The infestations continued in aspen stands east of the Montague-Cardigan area to Georgetown, and over about 10 km^2 (4 sq mi) at St. Marys Rd. Small new infestations at Covehead, York Point, Queens Co. and at Woodvale, Prince Co.
Birch skeletonizer *Bucculatrix canadensisella* Cham.	Nova Scotia Prince Edward Island	Severe browning of foliage in many white birch and wire birch stands in mainland Nova Scotia from Hants Co. eastward, on the lowlands of Cape Breton Island, and in southeastern Queens and southwestern Kings Co., P.E.I. Discoloration is light to moderate elsewhere on Prince Edward Island.
Bruce spanworm *Operophtera bruceata* (Hlst.)	Nova Scotia New Brunswick	Infestation continued in the Lynn-East Mapleton to Simpson Lake area of Cumberland Co., N.S. over about 3200 ha (7,800 acres) on sugar maple and beech but defoliation was only trace to light, slightly more on understory trees. Decreased insect population credited to high numbers of ground beetles. Only a few larvae found at five locations in New Brunswick.
Cherry scallopshell moth *Hydria prunivorata* Ferg.	Nova Scotia	Severe browning of black cherry foliage over 20 ha (50 acres) near Turf Lake, Halifax Co.
Elm leafminer *Fenusa ulmi* Sund.	Region	Severe browning of English elm in most areas where the host is present, generally on shade trees in town and villages. The insect has become a serious pest.
European elm bark beetle *Scolytus multistriatus* Marsh	New Brunswick	Trapped 2 beetles near Stanley, 1 at Fredericton in Multilure traps during region-wide surveys.

Insect	Locality	Remarks
		Hardwood Hosts
Fall webworm *Hyphantria cunea* (Drury)	Region	A few nests on miscellaneous hardwood trees scattered throughout Prince Edward Island, western and central Nova Scotia, and in southern New Brunswick.
Greenstriped mapleworm *Dryocampa rubicunda rubicunda* Fabr.	Nova Scotia	Light defoliation in a few red maple stands in the Chignecto Game Sanctuary and a trace of feeding near Westchester Station, N.S. Few larvae elsewhere in the Region at scattered locations.
Gypsy moth *Porthetria dispar* (L.)	Region	From 135 pheromone traps set out in the Region, male adults were caught at a total of 14 locations in Charlotte and Albert Co., N.B., and Yarmouth and Annapolis Co., N.S. With the exception of 2 adults in a trap at St. Andrews, single moths were trapped at each location. No egg masses found.
Large aspen tortrix *Choristoneura conflictana* (Wlk.)	New Brunswick Prince Edward Island	Only single larvae collected at widely scattered locations on miscellaneous hardwoods. The infestation of a casebearer in Kings Co., P.E.I., continued but the involvement of *C. conflictana* in 1976 is not reported.
Lesser maple spanworm *Itame pustularia* (Gn.)	Region	Populations very low, light defoliation of maple, in association with maple leaf roller (*Cenopis pettitana*), at two locations in New Brunswick. At Priceville, N.B., about 50% of the maple trees are dead or dying and many more not expected to recover as a result of repeated defoliation in past years.
Maple trumpet skeletonizer *Epinotia aceriella* Clem.	Nova Scotia	Widespread, but populations low in sugar maple stands north of Five Islands along the Lynn Rd, and between Wyvern and Economy, Cumberland Co.

Insect	Locality	Remarks
		Hardwood Hosts
Obliquebanded leafroller *Choristoneura rosaceana* (Harr.)	Region	Present in low numbers on a wide variety of hardwoods throughout New Brunswick; in Cumberland and Pictou Co., N.S., and in Queens Co., P.E.I. Caused appreciable defoliation on ornamentals at two locations in Northumberland Co., N.B.
Oak leaf shredder *Croesia semipurpurana* (Kft.)	New Brunswick Nova Scotia	Severe defoliation of red oak in 10 ha (25 acres) near Nictaux Falls, Annapolis Co., N.S. and west of the Cains River Rd., Northumberland Co., N.B. where over 80% of the leaves were rolled; moderate defoliation in parts of Queens, Sunbury, and Kings Co., N.B., and light at a few scattered locations elsewhere in southern New Brunswick.
Oak leaftier *Psilocorsis quercicella* Clem.	Nova Scotia	Severe defoliation in red oak stands from West Clifford to Colpton, Lunenburg Co. and moderate from South Brookfield to Middlefield, Queens Co.
Poplar leafroller *Sciaphila duplex* Wlshm.	Region	Severe defoliation of trembling aspen trees along the Trans-Canada Highway between Central West River and Sutherland River, Pictou Co., N.S. Widely scattered elsewhere but only in small numbers.
Poplar serpentine leafminer *Phyllocnistis populiella* (Cham.)	Albert and Queens counties northeastern New Brunswick	Various degrees of foliage discoloration throughout area.
Satin moth *Stilpnotia salicis* (L.)	Region	Moderate or severe defoliation of ornamental poplar trees at 5 locations in Prince Edward Island, 4 in Nova Scotia, 3 in southeastern New Brunswick, and moderate defoliation in a trembling aspen stand at Young's Cove, Queens Co., N.B.

Insect	Locality	Remarks
		Hardwood Hosts
Uglynest caterpillar *Archips cerasivoranus* (Fitch)	Region	Common wherever chokecherry present but especially numerous in Cumberland, Colchester, and Pictou Co., N.S., less common in New Brunswick.
Wandering sawfly *Dimorphopteryx pinguis* (Nort.)	Nova Scotia	Severe defoliation of yellow birch trees over 20 ha (50 acres) near Carleton Lake, Yarmouth Co.
Willow flea weevil *Rhynchaenus rufipes* (Lec.)	Prince Edward Island	Severe leaf browning on willow trees at Clyde River, Bunbury, and Vernon Bridge, Queens Co.
Winter moth *Operophtera brumata* (L.)	Nova Scotia	Moderate to severe defoliation of apple and elm trees in localized areas in Cumberland, Colchester, Pictou, and Hants Co., in the Annapolis Valley, N.S., Queens and eastern Prince Co., P.E.I. Insect most often associated with fall cankerworm (*Alsophila pometaria*). In New Brunswick outbreaks in Albert and Westmorland counties collapsed.

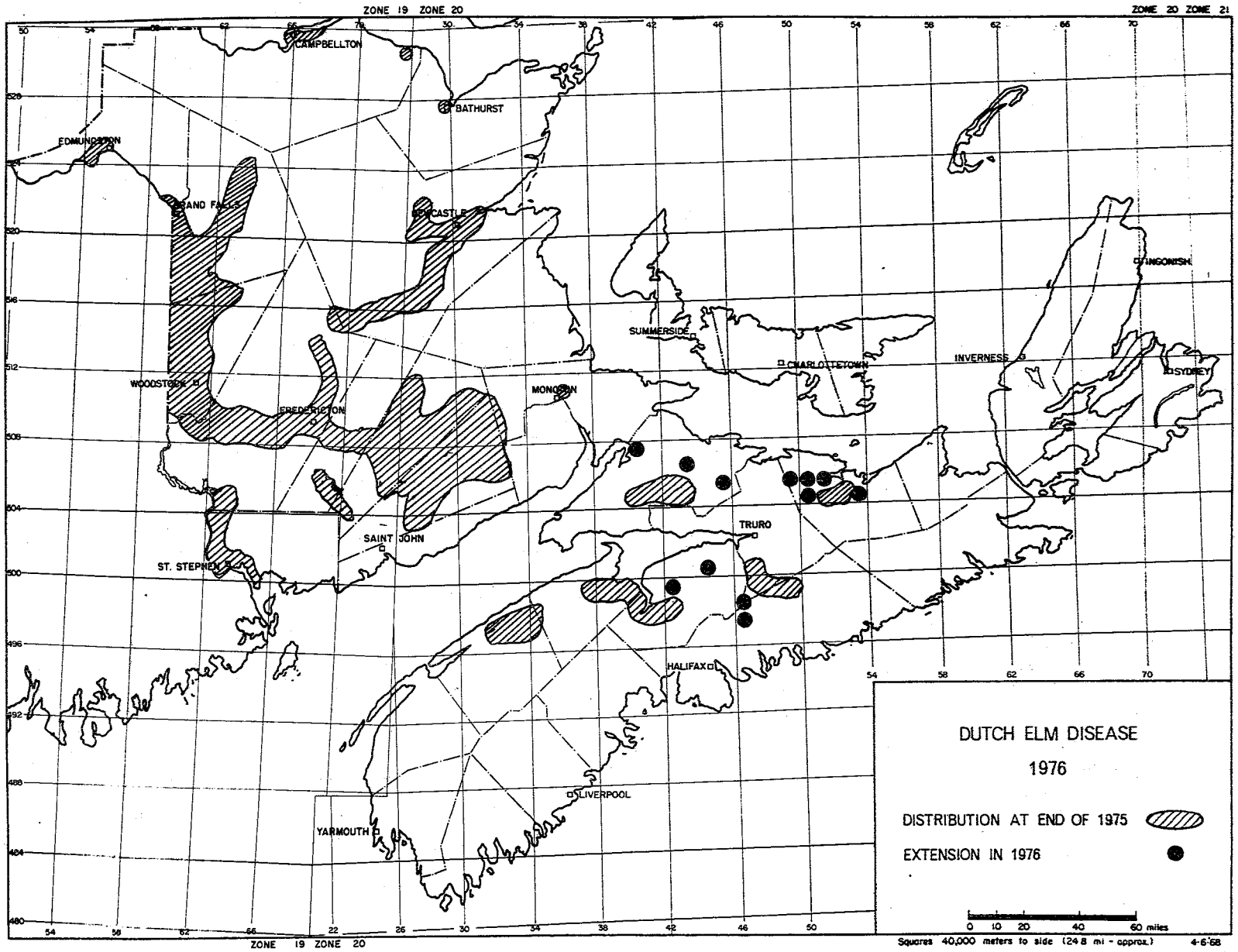
IMPORTANT TREE DISEASES

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C. Moreau--The disease continues to spread or intensify and to cause elm mortality. In Nova Scotia, extensions of the 1975 distribution occurred in Pictou, Halifax, Hants, and Cumberland counties (Fig. 3). In Pictou County, the disease is well established as more than 300 suspect-trees were noted along the West River from Durham to Watervale, 75, near West Branch River John, and 60, in the Plymouth-McLellan Brook-Priestville area.

In New Brunswick, new infections and dead elms were common within the affected areas. At Fredericton, where annual sanitation has been conducted since the early 1950's, the incidence of new infections increased over previous years but this increase is well below that found in nearby unsantitized areas. Even with this increase, less than 15% of the elms have been lost to infection in Fredericton since 1961, when the disease was first found there, compared to 77-95% incidence of infection in unsanitized areas since 1970. Populations of the native elm bark beetle, *Hylurgopinus rufipes* Eich., continue to be much lower in Fredericton than in the unsanitized areas.

A region-wide survey collected only 3 European elm bark beetles, *Scolytus multistriatus* Marsh; 1 at Fredericton and 2 near Stanley, N.B.

Thirty-three apparently healthy elms have been examined yearly since 1967 in eight areas of high elm mortality as part of a study of resistance to Dutch elm disease. In 1976, 6 remain unaffected, 6 are living but diseased, 17 have been killed by the disease and 4 have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INVERNESS
SYDNEY
WOODSTOCK
FREDERICTON
MONCTON
SAINT JOHN
ST. STEPHEN
TRURO
HALIFAX
LIVERPOOL
YARMOUTH
DUTCH ELM DISEASE
1976
DISTRIBUTION AT END OF 1975
EXTENSION IN 1976
0 10 20 40 60 miles
Squares 40,000 meters to side (24.8 mi - approx.)
4-6-68

died from other causes. Of the 6 infected but living trees, one was confirmed as infected 7 years ago, another 6, and a third, 5 years ago.

The disease has not yet been found in Prince Edward Island.

Further spread and intensification of Dutch elm disease is expected in 1977, especially in Nova Scotia.

Abiotic Injuries: Ocean salt blown inland during a severe storm on February 2 "painted" the seaward sides of conifer trees a brilliant red for distances up to 32 km (20 mi) inland along coastal areas of all three provinces, especially along the Fundy coast of New Brunswick and Nova Scotia. No significant tree mortality occurred but twig and bud mortality was common on exposed trees near the ocean; at Pennfield, N.B. about 9,000 pruned and mature balsam fir Christmas trees were culled due to damage from this storm. High winds and salt spray in June caused moderate leaf browning on exposed maple and horse-chestnut ornamentals near Sydney, N.S. Roadside salt spray and/or winter drying caused varying degrees of foliar browning on conifers along major highways in the Region. Winter drying symptoms on conifers were observed at scattered locations in the Region; injury was usually light on young open-grown balsam fir and pine trees and was severe in a small plantation of Jack pine, Scots pine, and Norway spruce on the highlands near Northeast Margaree, N.S. Plantations of red spruce and Norway spruce in northern New Brunswick were not affected. Late spring frost injury occurred on balsam fir and spruce reproduction and young plantations at scattered locations throughout the Region. Injury was severe on black spruce and Norway spruce in plantations on the Cape Breton Highlands, N.S. and on

balsam fir at Union Brook, N.B., and moderate on balsam fir and spruce at Salem, N.S. The Norway spruce on the Cape Breton Highlands were also injured by an early fall frost which affected lammas growth that was formed in 1976.

Foliar Diseases of Hardwoods--Ink spot of trembling aspen, *Ciborinia whetzelii* (Seaver) Seaver, was found at many locations in the Region. Intensity on young trees in small patches (1 ha, 2 acres or less) was usually light in Nova Scotia and Prince Edward Island, moderate in New Brunswick except in Gloucester County where the disease was more common, and was severe over more than 60 ha (150 acres) near Caraquet and Belledune.

Leaf and twig blight of trembling aspen, *Venturia macularis* (Fr.) E. Muell. & Arx, was severe on several clumps of young trembling aspen at Smiths Cove, N.S. and small patches (1 ha or less, 2 acres or less), with light intensity were common in the Region.

A leaf spot, *Drepanopeziza tremulae* Rimpau, caused light browning to the lower crowns of young trembling aspen in about 1 ha (2 acres) patches at Jackson, N.S. and along the St. John River from Woodstock to Fredericton, N.B.; aerial observations over Northumberland and Gloucester counties, N.B. detected many patches of similar browning.

A leaf spot, caused by *Mycosphaerella populicola* G. E. Thompson, caused moderate or severe browning in young balsam poplar stands throughout Victoria, Carleton, and western York counties, N.B.

Willow blight, *Venturia saliciperda* Nuesch. caused moderate or severe browning on a few ornamental trees at St. Jacques, Baker Brook,

North Lake, and Fredericton, and light at several locations in north-eastern New Brunswick. In Nova Scotia, browning from this disease was very light for the second consecutive year with moderate browning being observed only at Oxford. In Prince Edward Island, moderate browning was observed at Caledonia, Queens County.

Foliar browning caused by anthracnose, *Kabatiella apocrypta* (Ell. & Ev.) Arx, was very light on red maple and sugar maple trees at scattered locations in Cumberland County, N.S., Prince Edward Island, and New Brunswick; light injury was common on forest trees in the Canterbury to McAdam area of New Brunswick.

Both incidence and intensity of foliar diseases are dependent on weather conditions, consequently their occurrence and severity cannot be predicted.

Condition of Balsam Fir and Spruce--The examination of balsam fir and spruce trees in semi-mature or older stands on 210 prelocated plots in southern New Brunswick revealed that 12.5% (0-68.8%) of the stems examined were dead. Mortality occurred to one or both species at 155 locations. A similar examination on Cape Breton Island, N.S., found 7.3% (0-24.6%) of stems dead, with mortality occurring at 19 of 23 locations. The condition of living trees varied from healthy to more than 90% of the foliage missing. The top two or more feet of many trees was bare but the majority of these were not dead.

Disease	Locality	Remarks
		Coniferous Hosts
Bark canker *Scoleconectria cucurbitula* (Tode ex Fr.) Booth	Nova Scotia	Present on several white pine trees in a small plantation at South Wallace Lake, Yarmouth Co.
Needle cast *Isthmiella faullii* (Darker) Darker	New Brunswick	Severe on individual balsam fir trees at scattered locations in the Green River watershed, Restigouche and Madawaska counties.
Needle cast *Lirula mirabilis* (Darker) Darker	New Brunswick	Severe on scattered semi-mature balsam fir trees at Union Brook, Restigouche Co.
Needle cast *Lirula nervata* (Darker) Darker	New Brunswick	Light on a few trees in a balsam fir Christmas tree area, near Pelletiers Mill, Madawaska Co.
Needle rust *Chrysomyxa ledi* d. By. and *C. ledicola* Lagh.	New Brunswick	Less than 5% of black spruce foliage infected on 0.3-1.0 m (1-3 ft) trees growing about 0.6 m (2 ft) from Labrador tea, the alternate host, at Geary, Sunbury Co.
Needle rust *Coleosporium asterum* (Diet.) Syd.	Prince Edward Island	Light infection on old foliage in a 1 ha (2-acre) Austrian pine plantation at Brookvale, Queens Co.
Needle rust *Pucciniastrum epilobii* Otth	New Brunswick	About 10% of current balsam fir needles on undergrown regeneration infected at Napadogan Brook, York Co.

Disease	Locality	Remarks
		Coniferous Hosts
Needle rust *Pucciniastrum goeppertianum* (Kuehn) Kleb.	New Brunswick	About 25% of current balsam fir needles on undergrown regeneration infected at Carr, Carleton Co.
Scleroderris canker *Gremmeniella abietina* (Lagerb.) Morelet	Nova Scotia New Brunswick	No new infections in plantations examined at Garden of Eden Barrens, Pictou Co., N.S. First found in pine plantations at two new locations in New Brunswick.
Shoot blight *Sirococcus strobilinus* Preuss	Nova Scotia	Very light incidence and intensity in four red pine plantations in Yarmouth Co.
Sooty mold	New Brunswick	Severe in a young black spruce plantation associated with a high infestation of spruce bud scale at Veneer Siding, Madawaska Co.
Sulphur dioxide injury	New Brunswick	Slight discoloration on potted alfalfa and a few white pine trees at monitoring plots within 1.6 km (1 mi) of SO_2 source. Near South Little River, Gloucester Co.
Sweetfern blister rust *Cronartium comptoniae* Arth.	Southwestern Nova Scotia	About 10% of lodgepole pine with stem cankers in single plantations in Queens and Shelburne counties.
White pine blister rust *Cronartium ribicola* J. C. Fischer	Region	Since 1973, disease has killed less than 1% of white pine in permanent plots in Nova Scotia, and 3% in New Brunswick. Death from other causes was 1 and 2%, respectively.

Disease	Locality	Remarks
	Hardwood Hosts	
Anthracnose *Discula quercina* (West.) Arx	Nova Scotia New Brunswick	Moderate on a few white ash trees at Round Hill, Annapolis Co., N.S., and on beech near Roger's Lake, Gloucester Co., N.B.
Ash rust *Puccinia sparganioides* Ell. & Barth.	Western Nova Scotia	Less frequent than in 1975; moderate intensity at Tupperville, Annapolis Co., and light at Argyle, Yarmouth Co.
Cherry blight	Western Nova Scotia	Severe on several clumps of pin cherry at Kentville, Kings Co., and light at Jordan Falls, Shelburne Co.
Hardwood decline	New Brunswick	76% of semi-mature white birch examined were dead and 42% of the remaining trees had more than half the crown dead in a selective cut area recently harvested near Upsalquitch River, Restigouche Co.
Hypoxylon canker *Hypoxylon mammatum* (Wahl.) Miller	Region	Since 1973 disease killed 3% of trembling aspen in permanent plots in Nova Scotia and 4% in New Brunswick. Death from other causes was 7% and 11% respectively.
Leaf blotch *Guignardia aesculi* (Peck) V.B. Stew.	Nova Scotia Prince Edward Island	Light or moderate at most locations where horse-chestnut grows.
Leaf spot *Cylindrosporium* sp.	New Brunswick	Severe browning on patches of white birch near South Dungarvon River, Northumberland Co.
Leaf spot *Discula betulina* (West.) Arx	Prince Edward Island	Birch leaves severely affected in a shelterbelt near Darnley, Prince Co.
Red flag	Nova Scotia	About 5% of sugar maple shade trees with 1-30 flags per tree at 5 locations in eastern Nova Scotia.