

FOREST INSECT AND DISEASE SURVEYS
IN THE ALGONQUIN REGION OF ONTARIO, 1975

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Frontispiece. Severe damage to a planted red pine by the Saratoga spittlebug.

SURVEY HIGHLIGHTS

The following report describes insect and disease conditions in the Algonquin Region in 1975.

The spruce budworm continued to be the most important insect with tree mortality becoming apparent in parts of four districts. Egg-mass surveys indicate a slight decline of infestation intensities in 1976, especially in the older infestations, but serious damage is expected (see Report O-X-250). As anticipated, large areas of forest were severely defoliated by the forest tent caterpillar. Extensive areas of trembling aspen were also defoliated by the large aspen tortrix and high numbers of Bruce spanworm were again common on maple in the central part of the Region. Defoliation caused by the red-headed pine sawfly was commonly observed in many red pine plantations. Feeding by adult Saratoga spittlebugs, insects uncommon in Ontario, caused branch and top mortality in red pine plantations in the Pembroke District.

Surveys to determine the extent and incidence of sweetfern blister rust on jack pine stands and white pine blister rust in plantations of white pine were carried out. A small portion of survey time was spent on defining the extent and intensity of several abiotic conditions.

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APPENDIX

INSECTS

The Saratoga Spittlebug, *Aphrophora saratogensis* (Fitch)

Serious damage to plantations of red pine (*Pinus resinosa* Ait.) in the central part of Pembroke District in 1974 worsened in 1975. Extensive branch and top mortality (see Frontispiece) was detected in 13 privately owned and Crown-managed plantations located in parts of Alice, Fraser, Hagarty, Matawatchan, North Algona and Sherwood townships. Late in the fall of 1975, feeding punctures by adult Saratoga spittlebugs were confirmed in damaged twigs and overwintering spittlebug eggs were found in red pine buds in Fraser and Hagarty townships indicating that more damage can be expected in 1976. Infestations of Saratoga spittlebug occur only in areas where sufficient numbers of the alternate host, which is required by the nymphal stage, are present. Although there is a large number of alternate hosts, sweetfern (*Comptonia peregrina* [L.] Coult.), the preferred host, is abundant at all locations. Spittle masses are formed in June on alternate host plants. The adult spittlebugs are elusive because they are easily disturbed and able to fly at high speeds. They are present from late June to mid-August and they feed by means of their piercing mouth parts on the previous year's growth of red pine. Population densities can be determined by counting current feeding scars. Two preliminary counts (Table 1) indicated that spittlebug numbers were high at locations in Fraser and Hagarty townships. Further similar quantitative data will be obtained to determine plantations subject to attack in 1976 and to help delineate areas where control measures may be warranted.

Table 1. Summary of Saratoga spittlebug feeding scars on samples of 1974 growth

| Location (Twp) | No. of twigs examined | Avg no. of feeding scars per 4 in. ^a of twig | 1976 population forecast |
|-------------------|--------------------------|---|--------------------------------|
| Fraser | 5 | 52 ^b | H |
| Hagarty | 4 | 41 | H |

^a 1 in. = 2.54 cm

^b Scars in excess of 30 per 4-in. (10-cm) twig indicate heavy damage.

Cedar Leafminers, *Argyresthia thuiella* Pack. and
Pulicalvaria thujaella (Kft.)

A marked increase in the extent of severe browning of eastern white cedar (*Thuja occidentalis* L.) occurred in Minden and Bancroft districts. Stands in Harvey, Galway, Somerville, Laxton, Digby, Dalton and Carden townships were affected in Minden District whereas only cedar in Carden Township had been infested in 1974. In Burleigh Township, Bancroft District, heavy damage occurred 6 miles (9.6 km) beyond last year's infestation. Moderate mining was evident through Methuen and the southern portions of Chandos and Wollaston townships (see Appendix, Fig. A1). Also, much browning of foliage that could not be attributed to leafminer feeding was evident on cedar (see Browning of Eastern White Cedar).

Large Aspen Tortrix, *Choristoneura conflictana* Wlk.

Populations increased considerably in the three easterly districts of the Region. Severe defoliation of largetooth aspen (*Populus grandidentata* Michx.) and trembling aspen (*Populus tremuloides* Michx.) persisted in Osler, Lister and Maria townships in the Algonquin Park District (see Appendix, Fig. A2). Additional areas of severe defoliation were mapped in Devine, Airy and Sabine townships. In the Pembroke District a pocket of damage in Griffith and Lyndoch townships expanded from 4 sq. miles (10.3 km²) to 40 sq. miles (103.6 km²). A small stand north of Bancroft along with large areas of aspen through McClure, Wicklow and Herschel townships in north Bancroft District were severely defoliated. Damage by this leaf roller was not observed in Bracebridge, Minden or Parry Sound districts.

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

The results of damage surveys, population sampling and egg-mass counts have been included with those of other survey regions in a special report by G.M. Howse et al. (Report O-X-250). This report provides a complete description and analysis of developments in the spruce budworm situation in Ontario in 1975 and gives infestation forecasts for the province for 1976.

Oak Leaf-tier, *Croesia semipurpurana* (Kft.)

This insect, which has been defoliating scattered stands of red oak (*Quercus rubra* L.) through the eastern portion of the Region since 1972, was common again this year in four districts. Pockets of severe defoliation occurred in the Petawawa-Deep River area, through Brougham

and Blithfield townships and in Raglan and Jones townships (see Appendix, Fig. A3) in the Pembroke District; in Head, Guthrie and Master townships in the Algonquin Park District; and in Mayo Township, Bancroft District. In the Bracebridge District severe defoliation recurred in the vicinity of Bracebridge. Also, light defoliation was common through McClintock Township and the north side of Sherborne Township with pockets of heavy damage east of Dorset and in the Oxtongue Lake area.

Greenstriped Mapleworm, *Dryocampa rubicunda rubicunda* (Fabr.)

Since 1970 population levels of this defoliator of red maple (*Acer rubrum* L.) and sugar maple (*A. saccharum* Marsh.) have fluctuated in the northern part of Algonquin Park District. The intensity of defoliation was lower in the areas that had been infested in 1974 but new severe infestations occurred in a large part of Boyd and Pentland townships, Algonquin Park District, and in a small area west of Deep River in Rolph Township in the Pembroke District (see Appendix, Fig. A4).

Birch Leafminer, *Fenusa pusilla* (Lep.)

Mining of white birch (*Betula papyrifera* Marsh.) foliage was again common throughout the Region. Severe browning occurred within a large area between Bracebridge and South River including 10 townships in Bracebridge District and McMurrich and Ryerson townships in Parry Sound District (Table 2). Heavy leaf mining was also recorded on ornamental white birches located in towns along the Ottawa River in Pembroke District. Light defoliation was common on roadside and open-grown trees elsewhere in the Region.

Table 2. Summary of damage by the birch leafminer on white birch in the Algonquin Region in 1975 (based on the examination of 100 leaves selected randomly from three trees at each location).

| Location (Twp) | Avg DBH (in.) ^a | Leaves mined (%) |
|----------------------|-------------------------------|------------------|
| Bracebridge District | | |
| Armour | 5 | 86 |
| Chaffey | 5 | 93 |
| Perry | 5 | 91 |
| Stephenson | 5 | 87 |
| Strong | 5 | 86 |

^a 1 in. = 2.54 cm

Fall Webworm, *Hyphantria cunea* Dru.

For the third consecutive year feeding nests and webbing were conspicuous throughout most of the Region. The highest populations occurred in Bromley, Grattan, McNab, Ross and Wilberforce townships in the Pembroke District and near MacTier in Freeman Township of the Parry Sound District. Various species of deciduous trees were defoliated but black ash (*Fraxinus nigra* Marsh.) and white elm (*Ulmus americana* L.) were the preferred hosts.

Aspen Blotchminer, *Lithocolletis ontario* Free.

Leaf mining, generally confined to understory and semimature trembling aspen, was frequently observed through the eight most easterly townships of Algonquin Park District. The heaviest damage was noted on regeneration poplar (*Populus* sp.) in Fitzgerald Township. The only conspicuous damage noted elsewhere in the Region was north of Barrys Bay in the Pembroke District.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Populations of this insect increased considerably in the Parry Sound, Bracebridge, Minden and Bancroft districts of the Region. In the Parry Sound District a large continuous area of moderate-to-severe defoliation (Fig. 1) extended from the French River in the north to Freeman Township near MacTier in the south. Scattered pockets of defoliation were mapped elsewhere throughout the District (see Appendix, Fig. A5). In the Bracebridge District two large pockets of damage were detected east of the Rosseau Lake-Lake Muskoka area and south of Bernard Lake. Scattered pockets of defoliation were also common, especially south of Lake of Bays. In the Minden District last year's widely separated pockets of infestation in Cavendish and Minden townships joined to form one large infestation. Pockets of moderate-to-severe defoliation occurred in the southwest corner of the Bancroft District. Egg-band counts taken within and between infested areas indicate that infestations will continue to expand somewhat in 1976 (Table 3).

Balsam Fir Sawfly, *Neodiprion abietis* complex

Scattered instances of defoliation of balsam fir (*Abies balsamea* [L.] Mill.) were observed through the eastern portion of the Region. A pocket of severe defoliation occurred in the southern half of McNab Township in Pembroke District. Defoliation was light to moderate between Golden Lake and Wilno, around the town of Renfrew, in the northwest corner of Rolph Township and north of Dacre in Grattan Township in the Pembroke District; in Lister Township in Algonquin Park District; and along highway 35 and the Hindon Road in Minden and Hindon townships in the Minden District.

Table 3. Summary of forest tent caterpillar egg-band counts and infestation forecasts for 1976 in the Algonquin Region (counts based on the examination of one to three trees at each location).

| Location (Twp) | Host ^a | Avg DBH (in.) ^b | No. of trees examined | Avg no. of egg bands per tree | 1976 infestation forecast |
|--------------------------------|-------------------|-------------------------------|-----------------------------|-------------------------------------|---------------------------------|
| Bancroft District | | | | | |
| Cardiff | tA | 4 | 2 | 0.5 | light |
| Cardiff | tA | 4 | 2 | 0.0 | nil |
| Chandos | tA | 3 | 1 | 6.0 | heavy |
| Chandos | sM | 4 | 3 | 3.0 | medium |
| Dungannon | tA | 5 | 3 | 3.0 | medium |
| Faraday | tA | 4 | 3 | 0.0 | nil |
| Limerick | tA | 4 | 2 | 0.0 | nil |
| Bracebridge District | | | | | |
| Armour | tA | 3 | 1 | 10 | heavy |
| Chaffey (Arrowhead Park) | tA | 5 | 1 | 4.7 | medium |
| Machar (Mikisew Park) | tA | 4 | 1 | 11 | heavy |
| Watt | tA | 3 | 1 | 10.0 | heavy |
| Minden District | | | | | |
| Cavendish | tA | 4 | 1 | 13.0 | heavy |
| Hindon | sM | 4 | 1 | 20.0 | heavy |
| Parry Sound District | | | | | |
| Blair | tA | 3 | 1 | 10.0 | heavy |
| Carling | sM | 3 | 3 | 0.3 | light |
| Carling | tA | 2 | 1 | 12.0 | heavy |
| Christie | tA | 3 | 1 | 20.0 | heavy |
| Croft | tA | 2 | 1 | 11.0 | heavy |
| Harrison | tA | 3 | 1 | 11.0 | heavy |
| Henvey | tA | 3 | 1 | 18.0 | heavy |
| Mowat (Grundy Park) | tA | 6 | 1 | 170.0 | heavy |

^a tA = trembling aspen, sM = sugar maple

^b 1 in. = 2.54 cm



Fig. 1. Aerial view of defoliation by the forest tent caterpillar.



Fig. 2. A canker on the lower bole of a jack pine tree, caused by the sweetfern blister rust.

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch)

The upsurge in population levels observed in 1974 continued in 1975 in portions of the Region where red pine plantations are common. The most noticeable population increases occurred in Bagot, Horton and Raglan townships, Pembroke District; in Lyell Township, Algonquin Park District; and in Lutterworth and Snowdon townships, Minden District (Table 4). Feeding colonies were also observed at other locations in Pembroke and Minden districts as well as in Bracebridge and Parry Sound districts. Control measures were carried out by Ontario Ministry of Natural Resources personnel on several Crown plantations in the Bancroft, Pembroke, Minden and Parry Sound districts.

Table 4. Summary of redheaded pine sawfly colony counts made on red pine in 1974 and 1975 (based on the examination of 100 randomly selected trees at each location)

| Location (Twp) | Avg DBH (in.) ^a | No. of colonies | |
|-------------------------|-------------------------------|-----------------|------|
| | | 1974 | 1975 |
| Algonquin Park District | | | |
| Lyell | 2 | -- | 89 |
| Bracebridge District | | | |
| Draper | 3 | -- | 15 |
| Minden District | | | |
| Dudley | 3 | -- | 28 |
| Galway | 2 | -- | 13 |
| Harvey | 1 | -- | 13 |
| Lutterworth | 1 | -- | 13 |
| Lutterworth | 1 | 15 | 61 |
| Minden | 2 | -- | 21 |
| Snowdon | 1 | -- | 89 |
| Parry Sound District | | | |
| Carling | 2 | 21 | 23 |
| McMurrich | 2 | -- | 13 |
| Pembroke District | | | |
| Horton | 3 | -- | 66 |
| Raglan | 1 | -- | 61 |

^a 1 in. = 2.54 cm

Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl

As in the past number of years, scattered colonies of this sawfly were observed through the Region. Populations were high in Burleigh and Methuen townships in Bancroft District. The most noteworthy occurrence was south of Jacks Lake where 44% of red pine underplantings were infested.

European Pine Sawfly, *Neodiprion sertifer* (Geoff.)

The status of this introduced sawfly remained unchanged in the Region. Feeding on old foliage was detected in many of the same plantations as in 1974 in the Bancroft and Minden districts.

Redheaded Jack Pine Sawfly, *Neodiprion virginianus* complex

This common defoliator of jack pine (*Pinus banksiana* Lamb.) has caused no appreciable damage over the past several years. In 1975 several jack pine plantations in the adjacent townships of North Algona and Wilberforce in the Pembroke District were severely defoliated and some pole-sized trees were completely stripped of old foliage. Moderate defoliation was observed in a plantation near Sprucedale in McMurrich Township in the Parry Sound District where colony counts averaged 86 per 100 trees.

Bruce Spanworm, *Operophtera bruceata* Hlst.

The infestation of this looper which occurred in five townships in 1974 expanded to include 15 townships in the central portion of the Region. Pockets of severe defoliation were mapped south of Bracebridge, along the southwest side of Lake of Bays and in McClintock and Livingstone townships in the Bracebridge District (see Appendix, Fig. A6). Light-to-moderate defoliation occurred through a large portion of western Algonquin Park including Paxton, Biggar, Butt, Devine, McCraney, Hunter, Finlayson, Peck, Canisbay and Lawrence townships. Understory sugar maple trees sustained severe damage and complete defoliation was commonly observed.

White Pine Weevil, *Pissodes strobi* (Peck)

Little change in the high incidence of weevil attack was evident on white pine (*Pinus strobus* L.). Extensive leader mortality was noted in Somerville Township, Minden District; in Faraday and Limerick townships, Bancroft District; and in Hagarty Township, Pembroke District (Table 5).

Table 5. Summary of white pine damage caused by white pine weevil in five districts in 1973, 1974 and 1975 (based on the examination of 100 trees at each location)

| Location (Twp) | Avg DBH (in.) ^a | Trees weevilled (%) | | |
|-------------------------|-------------------------------|---------------------|------|------|
| | | 1973 | 1974 | 1975 |
| Algonquin Park District | | | | |
| Bronson | 2 | 10 | 13 | 14 |
| Lyell | 2 | -- | 38 | 31 |
| Bancroft District | | | | |
| Faraday | 2 | 76 | 85 | 76 |
| Limerick | 3 | -- | 55 | 52 |
| Bracebridge District | | | | |
| Stisted | 2 | -- | -- | 2 |
| Pembroke District | | | | |
| Hagarty | 4 | -- | 66 | 64 |
| McNab | 5 | 30 | 31 | 40 |
| Minden District | | | | |
| Minden | 2 | -- | -- | 19 |

^a 1 in. = 2.54 cm

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Over the past several years defoliation of larch (*Larix laricina* [Du Roi] K. Koch) has occurred in varying degrees throughout the Pembroke District. This year severe damage was noted in 22 stands of larch examined in Alice, Hagarty, Petawawa, Rolph, Sherwood, Wilberforce and Wylie townships. In the remainder of the Region population levels remained low.

Table 6. Other forest insects

| Insect | Host(s) | Remarks |
|------------------------------------|---------|---|
| <i>Altica ulmi</i> Wood | wE | moderate defoliation found at only one location in Chandos Twp, Bancroft District |
| <i>Anacampsis innocuella</i> Zell. | 1A | pockets of heavy leaf rolling in Anglin and Deacon twp, Algonquin Park District and in Alice Twp, Pembroke District |

(continued)

Table 6. Other forest insects (continued)

| Insect | Host(s) | Remarks |
|--|----------------------|---|
| <i>Aphrophora parallela</i> (Say) | jP, ScP | commonly observed through Region; high numbers in Wallbridge and Mowat twp, Parry Sound District |
| <i>Cenopsis pettitana</i> Rob. | Ba, sM | considerable feeding in south Pembroke District; collected through Region |
| <i>Cephalcia</i> sp. | rP | over 50% of trees infested by web-spinning sawflies at a few locations in Minden District |
| <i>Choristoneura pinus pinus</i> Free. | jP | low numbers in Algonquin Park, Bancroft, Parry Sound and Pembroke districts |
| <i>Choristoneura rosaceana</i> Harr. | I | heavy damage through southern Pembroke District |
| <i>Coleophora laricella</i> Hbn. | tL | pocket of light-to-moderate defoliation near Sprucedale in McMurrich Twp, Parry Sound District |
| <i>Conophthorus resinosae</i> Hopk. | rP | high numbers noted again at Petawawa Forest Experiment Station, Pembroke District |
| <i>Corythucha</i> spp. | wE, wB, W Ba, bCh | Severe browning common through Bancroft and Pembroke districts, especially around Arnprior and Renfrew |
| <i>Elaphidionoides parallelus</i> (Newm.) | rO, wO | pruned twigs at a few locations in Pembroke and Bancroft districts |
| <i>Erranis tiliaria</i> | Deciduous | high numbers in Rolph and Brudenell twp, Pembroke District, Master Twp, Algonquin Park District; common in Region |

Table 6. Other forest insects (concluded)

| Insect | Host(s) | Remarks |
|--|-----------|--|
| <i>Eucosma gloriola</i> Heinr. | rP | light infestation in McMurrich Twp, Parry Sound District |
| <i>Gonioctena americana</i> (Schaeef.) | tA | severe defoliation in parts of Arrowhead Provincial Park, Bracebridge District |
| <i>Hylobius pales</i> (Hbst.) | wP | debudding of seedlings by adults in Glamorgan Twp, Minden District |
| <i>Ips pini</i> Say | rP | common on weakened trees in McMurrich Twp, Parry Sound District |
| <i>Malacosoma americanum</i> F. | Deciduous | high numbers in Bancroft, Bracebridge, Minden, Parry Sound and Pembroke districts |
| <i>Neodiprion pratti banksianae</i> Roh. | jP | considerable feeding on pole-sized trees in Chandos Twp, Bancroft District and in Harrison Twp, Parry Sound District |
| <i>Pikonema alaskensis</i> (Roh.) | wS, bS | scattered severe defoliation of open-grown trees through the Region |
| <i>Plagioderia versicolora</i> Laich | W | common again in Pembroke District |
| <i>Pristiphora geniculata</i> (Htg.) | Mo | low numbers frequently seen |
| <i>Psilocorsis</i> sp. | wB | tied leaves commonly observed |
| <i>Psilocorsis quercicella</i> Clem. | rO | heavy browning near Calabogie in Bagot Twp, Pembroke District |
| <i>Sericothrips tiliae</i> Hood | Ba | considerable blackening and curling of leaves in Bancroft and Pembroke districts |

TREE DISEASES

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C. Moreau

Stand deterioration continued at a high rate through the Region. Six 40-tree plots, established in 1973 and retallied this year, showed average mortality rates about double those of 1973-1974 (Table 7). Although mortality at the Bromley and South Algona plots remained low, general observations indicate that damage increased noticeably in the Pembroke District where heretofore the impact of this disease has been relatively low.

Table 7. Summary of annual mortality caused by Dutch elm disease in six plots in the Algonquin Region

| Location (Twp) | No. of living trees | | | Annual mortality rate | |
|----------------------|---------------------|------|------|-----------------------|-----------|
| | 1973 | 1974 | 1975 | 1973-1974 | 1974-1975 |
| Bracebridge District | | | | | |
| Machar | 40 | 15 | 3 | 62.5 | 80.0 |
| Morrison | 40 | 32 | 20 | 20.0 | 37.5 |
| Watt | 40 | 33 | 24 | 17.5 | 27.3 |
| Minden District | | | | | |
| Carden | 40 | 35 | 15 | 12.5 | 57.1 |
| Pembroke District | | | | | |
| Bromley | 40 | 37 | 35 | 7.5 | 5.4 |
| South Algona | 40 | 39 | 39 | 2.5 | 0.0 |

Ink Spot of Aspen, *Ciborinia whetzeli* (Seaver) Seaver

This foliage disease was not as prevalent as in previous years, but trace defoliation levels were common. A high proportion of the trees were moderately defoliated at two locations: a 5-acre (2.0-ha) sapling-sized stand in Raglan Township, Pembroke District, and a 100-acre (40.0-ha) semimature stand in Snowdon Township, Minden District.

Sweetfern Blister Rust, *Cronartium comptoniae* Arth.

Randomly selected stands of jack pine were assessed across Ontario in an attempt to gain a comprehensive picture of the status of this pathogen. In the Algonquin Region seven pure stands of jack pine in four districts were examined to determine the impact of this disease which causes a basal stem canker (Fig. 2, see page 6). This disease remains fairly constant

from year to year in stands 10 years old and older. Appreciable damage was noted at only one location in Petawawa Township, Pembroke District (Table 8). Past records indicate that moderate numbers of trees are also affected in Richards and Wylie townships, Pembroke District and in Maria Township, Algonquin Park District.

Table 8. Summary of damage levels of sweetfern blister rust in the Algonquin Region in 1975

| Location (Twp) | Avg tree height (ft.) ^a | Damage level |
|---------------------------------------|---------------------------------------|--------------|
| Algonquin Park District Fitzgerald | 64 ^b | low |
| Bancroft District Methuen | 49 | low |
| Parry Sound District Carling | 23 | nil |
| Harrison | 18 ^b | nil |
| McMurrich | 35 | nil |
| Pembroke District Petawawa | 55 ^b | moderate |
| Wilberforce | 18 | nil |

^a 1 ft. = 30.48 cm

^b alternate host (sweetfern) present

White Pine Blister Rust, *Cronartium ribicola* J. C. Fischer

The status of this stem and branch canker on semimature and mature stands of white pine has been generally determined over the past years in the Algonquin Region. In 1975 an effort was made to determine the impact that the pathogen has on juvenile plantations. Of six plantations examined, three had light damage levels and three had moderate damage levels (Table 9).

Table 9. Summary of damage level and mortality of white pine caused by white pine blister rust in the Algonquin Region in 1975 (based on the examination of 150 trees at each location)

| Location (Twp) | Avg tree height (ft) ^a | % affected | Damage level | Mortality (%) |
|-------------------------|--------------------------------------|---------------|-----------------|------------------|
| Algonquin Park District | | | | |
| Lyell | 10 | 6 | light | 0 |
| Bancroft District | | | | |
| Faraday | 10 | 3 | light | 0 |
| Minden District | | | | |
| Galway | 10 | 23 | moderate | 1 |
| Minden | 8 | 6 | light | 1 |
| Pembroke District | | | | |
| Brougham | 12 | 14 | moderate | 1 |
| Horton | 10 | 9 | moderate | 0 |

^a 1 ft = 30.48 cm

Abiotic conditions

Browning of Eastern White Cedar - Considerable browning of the old foliage of eastern white cedar occurred through parts of the Minden and Bracebridge districts. Although this condition occurred in conjunction with high populations of the cedar leafminer in the southern part of the Minden District, trees were also affected farther west beyond the leafminer infestation. Conspicuous browning of old foliage was also evident through Ridout, McLean, Oakley, Draper and Ryde townships, Bracebridge District but was not apparent elsewhere in the Region. It is thought that a weather-related factor was involved.

Drought - Hot, dry weather throughout most of the summer resulted in extensive browning and dropping of trembling aspen and white birch foliage through the Region by the third week of August.

Frost - No foliar damage occurred as a result of frost conditions in 1975.

Winterburn - Very little browning of coniferous trees was observed this spring in the Region.

Rodent Damage

In the Pembroke District numerous pine plantations and hedgerows, especially those with a heavy grass cover, were damaged by the winter feeding of rodents. Some 80% of the stems in a small plantation of young jack pine in South Algona Township were girdled and 9% of red pine saplings were attacked in Grattan Township.

Top-killing and Branch Mortality of Scots Pine (*Pinus sylvestris* L.) and Red Pine

The serious problem of top-killing of Scots pine that occurred in 1973 at a few locations in Bancroft and Minden districts has not recurred for the past two years. *Cenangium ferruginosum* Fr. ex Fr., the fungus commonly isolated from damaged plantations at that time, was collected again in 1975 from a Scots pine plantation in Joly Township, Bracebridge District, where 52% of the trees were affected. Since most infections were present on branches, only moderate damage occurred. Branch mortality was extremely heavy in one red pine plantation in Somerville Township, Minden District. *Tympanis* sp. was commonly associated with the flagging condition. In the central part of the Pembroke District a problem on red pine, tentatively diagnosed in 1974 as a disease problem, has now been attributed to the feeding of Saratoga spittlebug. *Cenangium ferruginosum* and *Tympanis* sp. were present in the red pine plantations that were weakened by insect feeding. These pathogens, considered as secondary invaders, may have hastened branch and top mortality.

Table 10. Other forest diseases

| Organism | Host(s) | Remarks |
|--|--------------------------|--|
| <i>Arceuthobium pusillum</i> Pk. Dwarf mistletoe | bS | no change in status of this disease, previously recorded in Bancroft, Bracebridge and Algonquin Park districts |
| <i>Armillaria mellea</i> (Vahl ex Fr.) Kummer Shoestring root rot | rP, wP, jP, bF, bS | general throughout the Region |
| <i>Cytospora chrysosperma</i> (Pers.) Fr. Cytospora canker | eCo | 12% of trees severely affected in a plantation in Ross Twp, Pembroke District |
| <i>Endocronartium harknessii</i> (J.P. Moore) Y. Hiratsuka Western gall rust | jP | moderate and heavy damage levels of this gall rust at scattered locations in the Region |

Table 10. Other forest diseases (concluded)

| Organism | Host(s) | Remarks |
|--|---------------|--|
| <i>Gremmeniella abietina</i> (Lagerberg) Morelét Scleroderris canker | rP, jP ScP | continues to be a problem in Bracebridge and Parry Sound districts |
| <i>Hypoxylon mammatum</i> (Wahl.) Miller Hypoxylon canker | tA | common through the Region |
| <i>Meloderma desmazierii</i> (Duby) Darker Needle cast | wP | browning of old foliage common at one location in Osler Twp, Algonquin Park District |
| <i>Pollaccia radiosa</i> (Lib.) Bald. & Cif. Leaf and twig blight of poplar | tA | generally low through Region; collected in Armour Twp, Bracebridge District |
| <i>Polyporus tomentosus</i> Fr. Root rot | bS, wS | no additional areas of infection observed in Region |
| <i>Scoleconectria cucurbitula</i> (Tode ex Fr.) Booth Canker & dieback | rP | associated with insect-damaged plantations in Pembroke District |
| Semimature tissue needle blight | wP | common in 1967, 1968 and 1972; not observed in past 3 years in Region |

APPENDIX

ALGONQUIN REGION

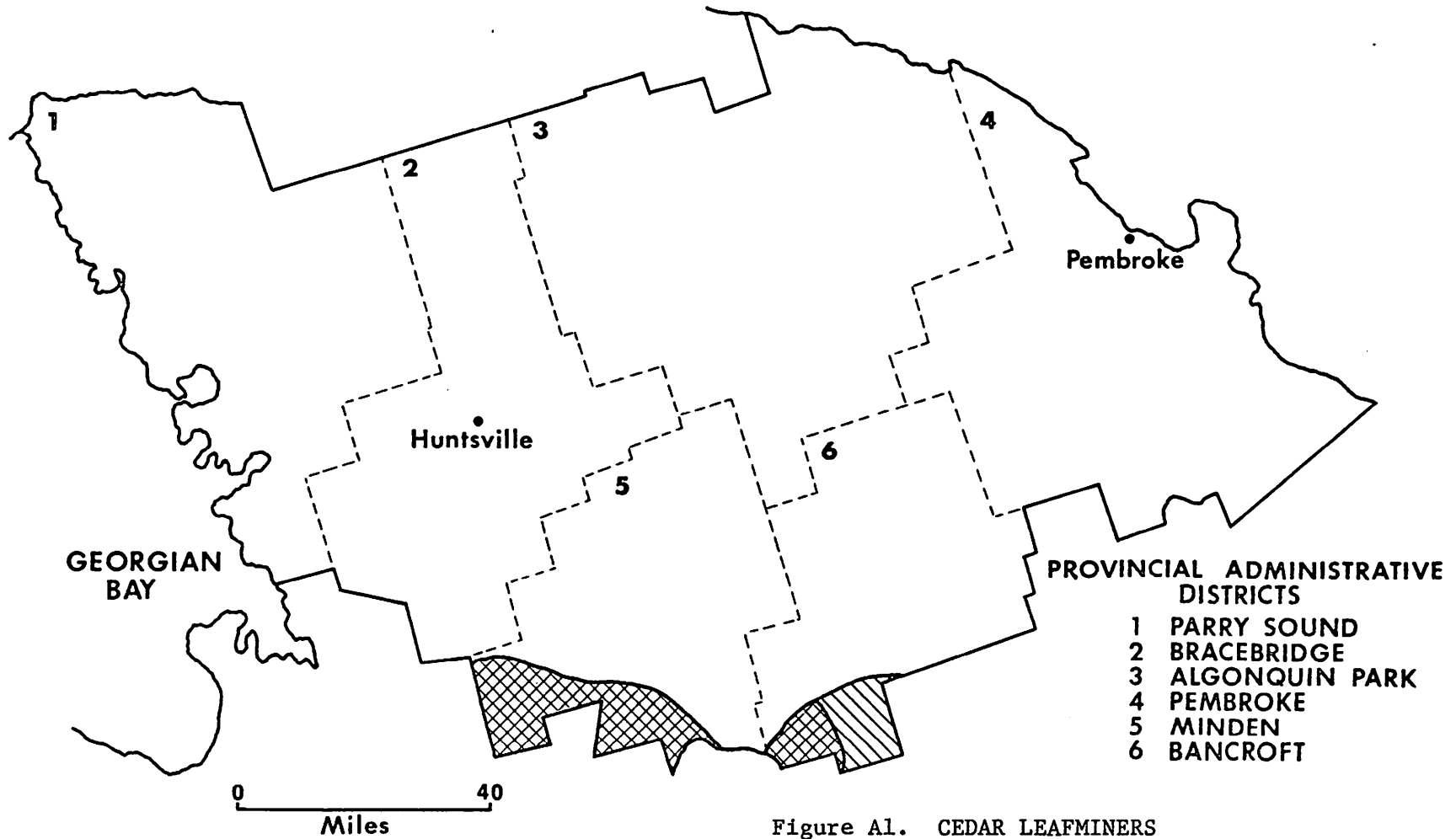




Figure A1. CEDAR LEAFMINERS

Areas within which damage to eastern white cedar occurred in 1975

- Moderate browning of foliage 
- Severe browning of foliage 

ALGONQUIN REGION

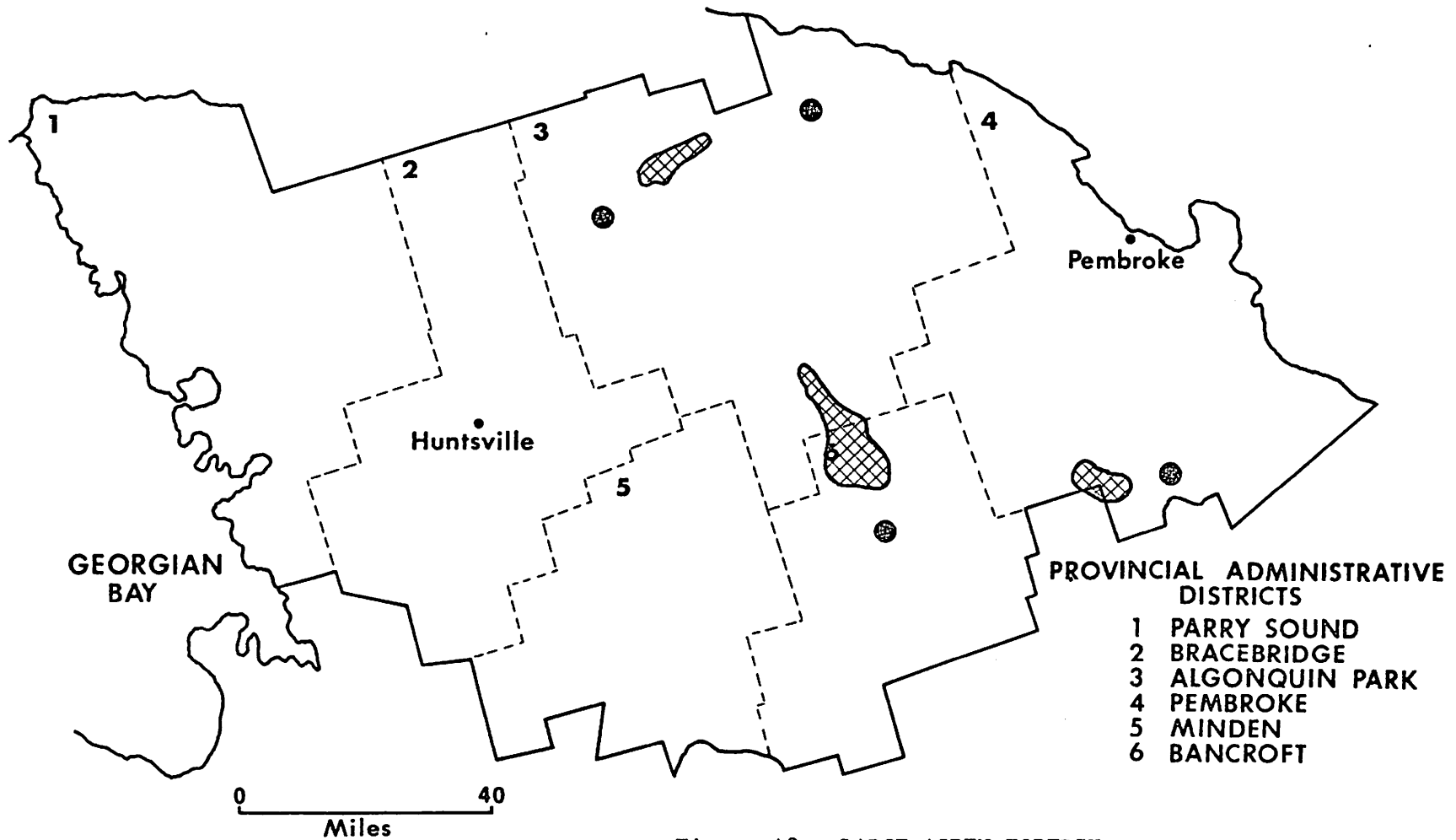




Figure A2. LARGE ASPEN TORTRIX

Areas within which defoliation of aspen occurred in 1975

Moderate-to-severe defoliation  or 

ALGONQUIN REGION

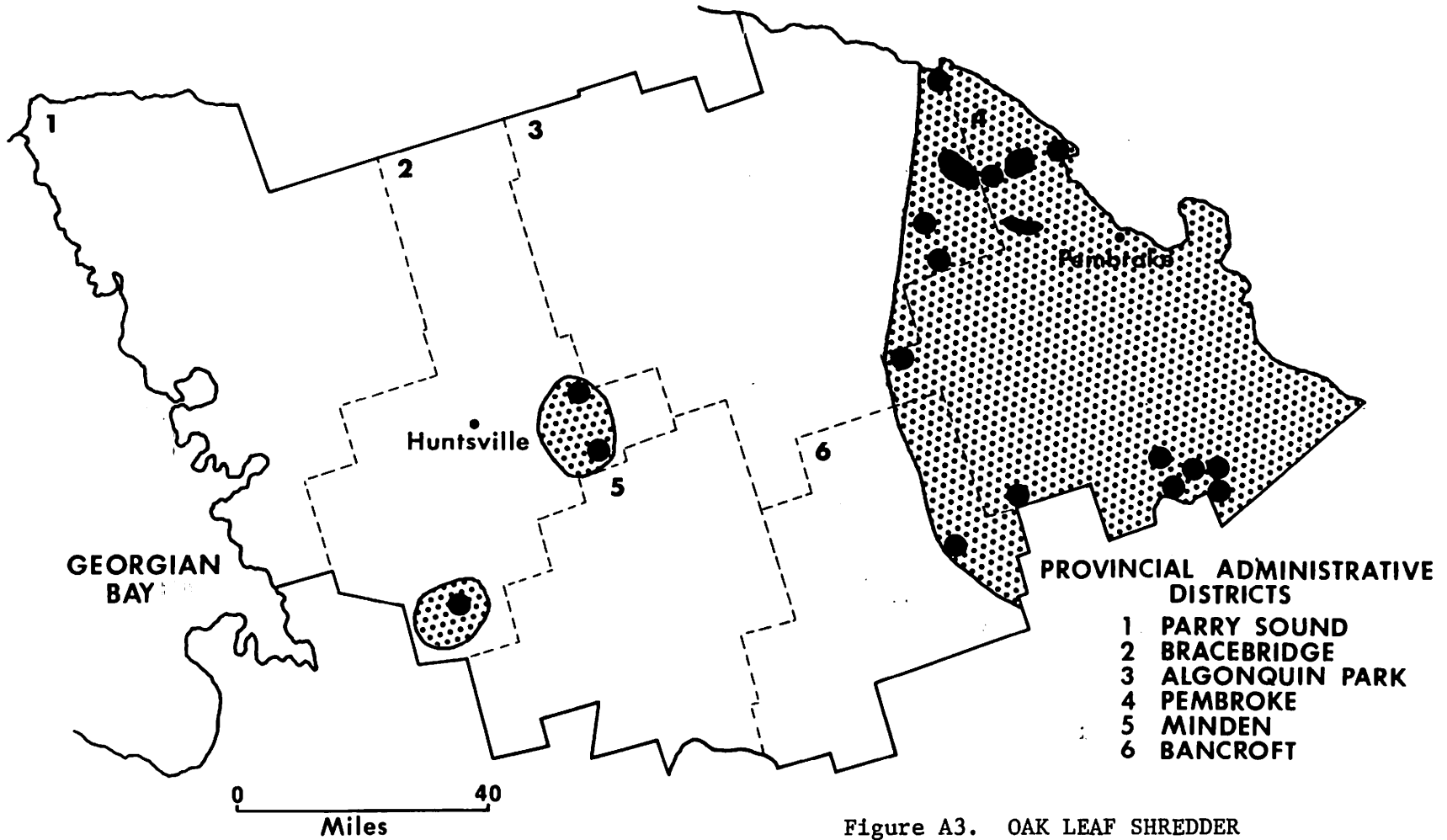



Figure A3. OAK LEAF SHREDDER

Areas within which defoliation of red oak occurred in 1975

Light defoliation 

Moderate-to-severe defoliation . . . 

ALGONQUIN REGION

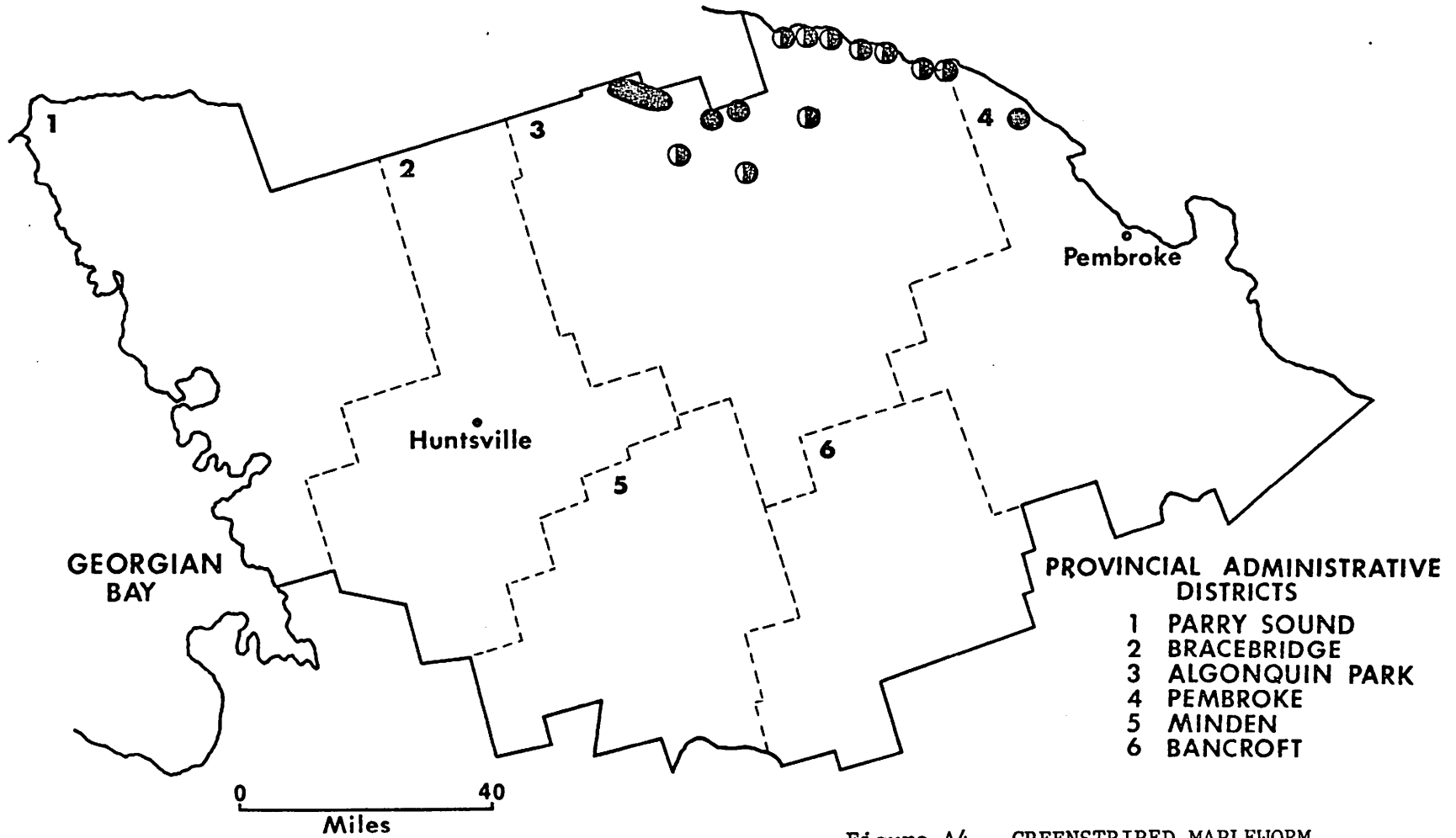


Figure A4. GREENSTRIPED MAPLEWORM

Areas within which defoliation of mainly red maple occurred in 1975

Moderate defoliation (○)

Severe defoliation (◐)

ALGONQUIN REGION

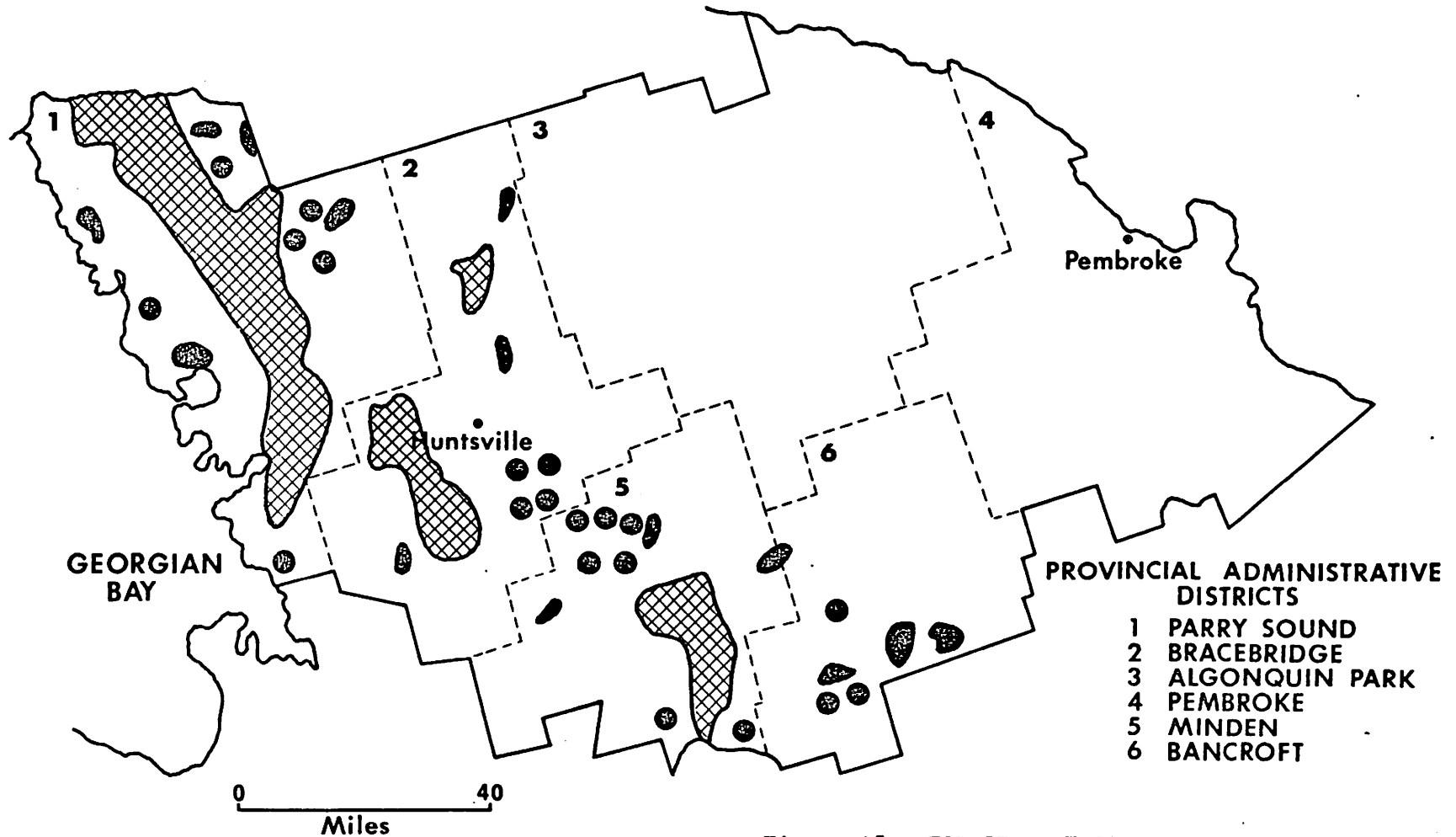




Figure A5. FOREST TENT CATERPILLAR

Areas within which moderate-to-severe defoliation of broad-leaved trees occurred in 1975

Moderate-to-severe defoliation . . .  or 

ALGONQUIN REGION

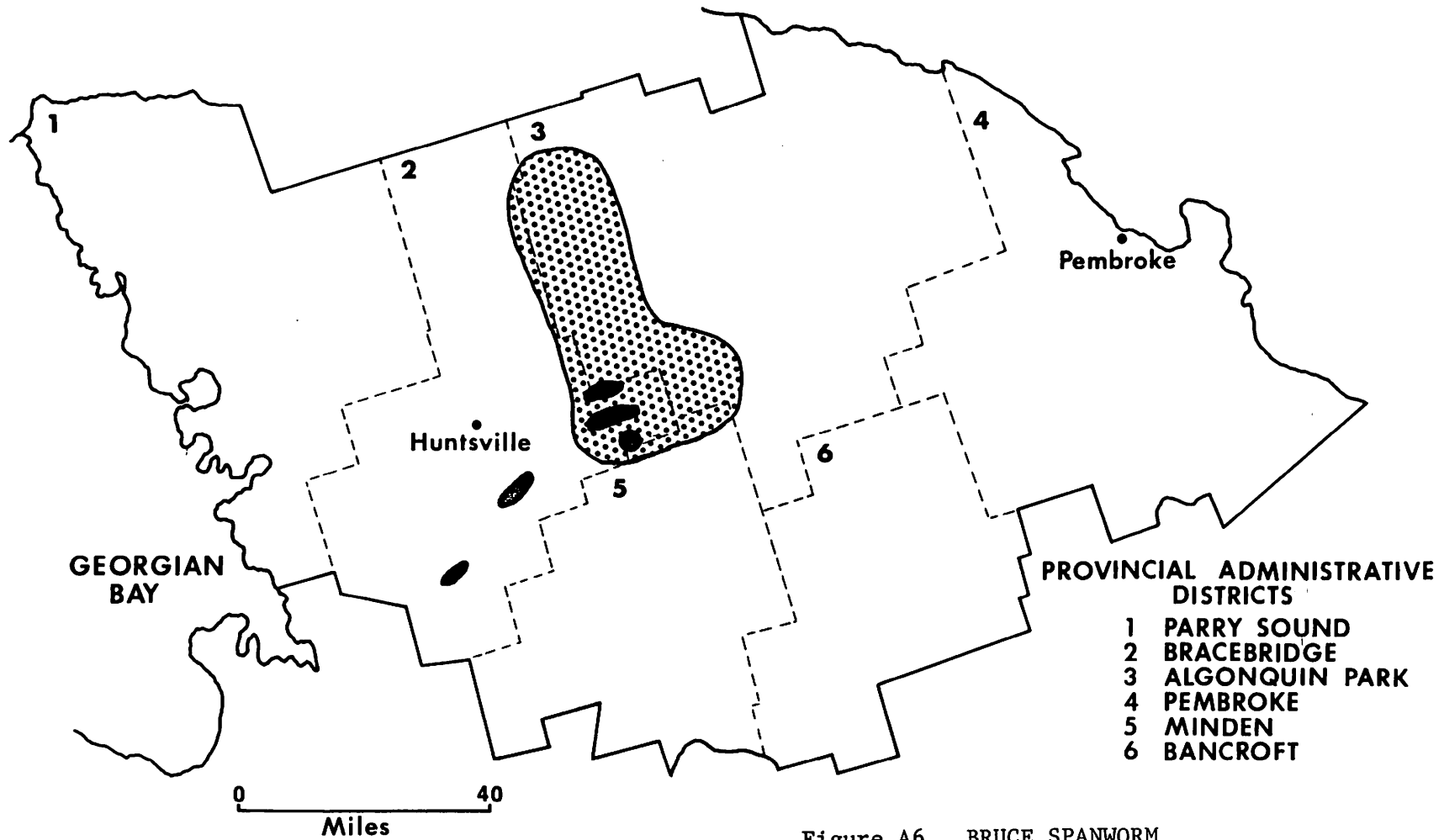



Figure A6. BRUCE SPANWORM

Areas within which defoliation of sugar maple and yellow birch occurred in 1975

- Light-to-moderate defoliation 
- Severe defoliation 