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SURVEY BULLETIN

Forest Insect and Disease Conditions in Ontario

Spring 1989



Forest tent caterpillar larvae

FOREST INSECT AND DISEASE CONDITIONS IN ONTARIO

Spring 1989

This is the first of three bulletins to be issued in 1989 by the Forest Insect and Disease Survey Unit (FIDS) of Forestry Canada, Ontario Region.

RETIREMENT

Mr. Walter Jansons, a district ranger with FIDS, retired on 31 March 1989, after 28 years of service. Walter joined the department in 1961 after working for the Great Lakes Paper Company in Thunder Bay. He worked with FIDS in a number of districts, including Fort Frances, Lake Huron, Pembroke, and Geraldton. For the past few field seasons he has been assigned to Kapuskasing District.



Walter Jansons

RANGER FIELD ASSIGNMENTS

There are several changes in field assignments for 1989. R.J. Sajan has been transferred from Minden to Sioux Lookout as regional supervisor for the Northwestern Region. He has been replaced at Minden by C.G. Jones, who will be regional supervisor for the Algonquin and Eastern regions. H. Brodersen has been transferred from St. Williams to Fort Frances, B. Smith from Chalk River to Kapuskasing and E. Czerwinski from Fort Frances to St. Williams. A new recruit, Paul Bolan, has been assigned to Chalk River. A complete list of FIDS rangers and their 1989 field assignments appears on the following page.

REGION

Northwestern	R.J. Sajan	R.R. #1, Site 25, Box 9 Sioux Lookout, Ontario POV 2T0 (807) 737-3630
	H. Brodersen	210 Butler Avenue Fort Frances, Ontario P9A 2N7 (807) 274-6821
North Central	H.J. Evans	R.R. #6, Station F Thunder Bay, Ontario P7C 5N5 (807) 939-1142
	S. Melbourne	P.O. Box 495 Geraldton, Ontario POT 1M0 (807) 854-1317
Northern	L.S. MacLeod	P.O. Box 267 Temagami, Ontario POH 2H0 (705) 569-3467
	S. Payne	P.O. Box 817 Chapleau, Ontario POM 1K0 (705) 864-1042
	B. Smith	P.O. Box 202 Moonbeam, Ontario POL 1V0 (705) 367-2185
Northeastern	D.C. Constable	P.O. Box 490 Sault Ste. Marie, Ontario P6A 5M7 (705) 949-9461
	W. Ingram	R.R. #1, Site 5 Box 7 Sudbury, Ontario P3E 1X2 (705) 674-0453

(cont'd)

REGION (concl.)

Algonquin and Eastern	C.G. Jones	P.O. Box 550 Minden, Ontario KOM 2K0 (705) 286-2650
	P. Bolan	Petawawa National Forestry Institute Chalk River, Ontario K0J 1J0 (613) 589-2932
	A. Keizer	P.O. Box 1150 Kemptville, Ontario K0G 1J0 (613) 258-5664
Central and Southwestern	W.D. Biggs	P.O. Box 100 Angus, Ontario LOM 1B0 (705) 424-5721
	E.J. Czerwinski	P.O. Box 148 St. Williams, Ontario NOE 1P0 (519) 586-2041

SPECIAL SURVEYS IN 1988

Plantation Surveys

Plantation surveys are carried out each year as part of a long-term program to gather baseline data and to determine the influence of various pests in coniferous plantations in the province. In 1988, jack pine plantations were examined in northern Ontario and red pine plantations were examined in southern Ontario. Each ranger examined six plantations, two in each of the three height categories < 2 m, 2-6 m and > 6 m. Two visits were made to each plantation, timed to coincide with the larval feeding period of various pests that were expected to be present on the host species. In the jack pine survey either 150 or 300 trees were scrutinized on each visit; 150 trees were examined on each visit to the red pine plantations. In all, 9,850 jack pine and 4,500 red pine trees were examined. The results were as follows.

Jack Pine Plantations

Insects: The insect most commonly found was the jack pine budworm (*Choristoneura pinus pinus* Free.), which was observed on 710 trees (7.3% of the total). Damage caused by this insect was minimal, as defol-

iation of infested trees averaged 2.2%. Most of the affected trees were in the Northwestern Region. The eastern pine shoot borer (*Eucosma gloriola* Heinr.) destroyed the leaders on 169 trees and infested lateral shoots on 276 trees. Most of the trees infested by this species were in the Sudbury, Espanola and Thunder Bay districts. Leader damage was also caused by the white pine weevil (*Pissodes strobi* Peck), which infested 181 trees (1.8% of the total). Damage by this species was widely distributed in northern Ontario but seemed to be most concentrated in the Sudbury, Espanola and Chapleau districts. The jack pine tip beetle (*Conophthorus banksianae* McP.) was present on 160 trees, of which 118 sustained leader damage; most of these trees were in the Blind River and Thunder Bay districts. The northern pitch twig moth (*Petrova albicapitana* [Bsk.]) was recorded on 39 trees. Several other insects that caused no significant damage were encountered during the survey: the red pine sawfly (*Neodiprion nanulus nanulus* Schedl), the redheaded pine sawfly (*N. lecontei* [Fitch]), the pine tortoise scale (*Toumeyella parvicornis* [Ckll.]), a needle-tier (*Sparganothis sulfureana* [Clem.]) and the Zimmerman pine moth (*Dioryctria zimmermani* [Grt.]).

Diseases: The most prevalent disease was pine needle rust (*Coleosporium asterum* [Dietel] Sydow), which infected 1,448 trees (14.7% of the entire sample). Although the disease caused defoliation as high as 40% at one location in Sault Ste. Marie District, defoliation of affected trees averaged 4.9%. The next most abundant disease organism was eastern gall rust (*Endocronartium harknessii* [J.P. Moore] Y. Hirats.), which was present on 1,142 trees (11.6% of the total). The most severe infections were in the Northwestern and North Central regions, although the disease was found at a number of other widely separated areas in northern Ontario. Tar spot needle cast (*Davisomycella ampla* [J. Davis] Darker) was present on 586 trees (5.9% of the total) and caused an average of 12.7% foliar damage on affected trees. Stem rusts (*Cronartium* spp.) were found on 52 trees and armillaria root rot (*Armillaria mellea* [Vahl:Fr.] Kummer) occurred on 32 trees. Sixty-five dead trees, a number of which were killed by eastern gall rust and armillaria root rot, were encountered in the survey.

Red Pine Plantations

Insects: Insects were relatively scarce in the red pine survey. The most common insect was the pine false webworm (*Acantholyda erythrocephala* [L.]), which was found on 305 trees (7% of the total). Defoliation of affected trees averaged 15.3%, with the most severely damaged trees in the Carleton Place, Minden, Bancroft and Pembroke districts. Though not specifically sought, the European pine needle midge (*Contarinia baeri* [Prell]) was found on 138 trees (3% of the total). Most of these trees were located in the Bancroft and Carleton Place districts, and defoliation was less than 1% in most cases. The European pine needle midge infested 129 trees, although only three of these sustained leader damage. Several other potentially damaging insects were found in low numbers, including the European pine sawfly (*Neodiprion*

sertifer [Geoff.]) (14 trees), the redheaded pine sawfly (32 trees) and the Saratoga spittlebug (*Aphrophora saratogensis* [Fitch]) (3 trees).

Diseases: Foliar diseases were the most prevalent problems found in the survey. The most abundant of these was pine needle rust, which was found on 347 trees (5.5% of the sample). Defoliation of infected trees ranged from 1 to 10.7% and averaged 3.9%. The disease was widely distributed in the Eastern, Algonquin and Central regions. Brown spot needle blight (*Lecanosticta acicola* [ThUm.] H. Sydow) occurred on 48 trees in one plantation in Wicklow Township, Bancroft District. Foliar damage on the affected trees averaged 6.2%. A needle cast fungus (*Lophodermium* sp.) was found on 12 trees but defoliation of these trees averaged less than 1%. Armillaria root rot was found on seven trees. In all, 56 recently dead trees were recorded, most of them small trees that had succumbed to drought.

Cone and Seed Studies in 1988

This long-term program to gather baseline data on various agents that affect cone and seed production of the major coniferous species focused on jack pine in northern Ontario and red pine in southern Ontario in 1988. The methodology was the same in both cases. Each ranger collected a total of 100 mature but still green cones from three trees; the full cone-bearing length of the tree crowns was represented in this survey. The samples were shipped to the Sault Ste. Marie laboratory, where dissection and analysis took place.

Jack Pine: In all, 900 cones were examined, and 15.1% of these sustained damage. Damage varied from 2% in Huotari Township, Wawa District, to 48% in Firstbrook Township, Temagami District. Average seed loss within damaged cones was 29.5%. The principal agents causing the damage, in order of importance, were: unknown Lepidoptera, unknown agents, a coneworm (*Dioryctria* sp.), the northern pitch twig moth, a midge (*Resseliella* sp.), the fir coneworm (*Dioryctria abietivorella* [Grt.]) and the eastern pine seedworm (*Cydia toreuta* [Grt.]). No diseases were encountered on the cones examined.

Red Pine: In all, 500 cones were dissected and analyzed, and 295 (59%) were damaged. Damage varied from 18% at Stonecliffe, Pembroke District, to 94% in East Gwillimbury Township, Maple District. The average seed loss within damaged cones was 67.8%. The principal agents causing the damage were: unknown agents, unknown Lepidoptera, the red pine cone borer (*Eucosma monitorana* Heinr.), a midge (*Resseliella* sp.), the Zimmerman pine moth, the red pine cone beetle (*Conophthorus resinosae* Hopk.), the fir coneworm, and the eastern pine seedworm. As in the case of the jack pine cone survey, no diseases were found.

SURVEYS PLANNED FOR 1989

Plantation Surveys

This long-term project will continue in 1989, with black spruce and white pine as the study species in northern and southern Ontario, respectively. The methodology will be the same as in other years in that two plantations in each of three height categories (<2 m, 2-6 m and >6 m) will be examined in each ranger's work area. Two visits will be made to each plantation in order to observe a variety of pests known to attack these species.

Cone and Seed Study

This is another long-term project that will continue in 1989. As in the case of plantation surveys, white pine cones will be examined in southern Ontario, and black spruce will be the focus of cone and seed surveys in northern Ontario. As usual, each ranger will submit 100 green but mature cones to the Sault Ste. Marie laboratory for dissection and analysis.

Maple Health Studies

The FIDS unit continues to increase its surveillance of sugar maple in response to widespread concern about the health of this species in Ontario. At present, some 80 plots are maintained throughout the range of sugar maple in the province. These are examined each year for signs of dieback and decline as well as for damage caused by insects, disease and abiotic factors. In addition, the FIDS Unit is participating in a joint United States-Canada project called the North American Sugar Maple Decline Project, in an effort to determine if the continent's sugar maple stands are suffering unusual crown dieback and loss of vigor. The goal of this project is to shorten the course of the phenomenon wherever it is detected. To this end, some 24 plots, 12 in sugarbushes and 12 in woodlot stands, have been established and will be monitored closely. Efforts in 1989 will focus on urban and rural roadside maple trees. Some 70 new plots will be set up to assess the quality and rate of decline of maple trees growing in these situations.

G.M. Howse
Head, FIDS

M.J. Applejohn
Chief Ranger
31 May 1989
ISSN 0832-7173