DEPARTMENT OF FISHERIES AND FORESTRY

CANADIAN FORESTRY SERVICE
FOREST RESEARCH LABORATORY
FOREST INSECT AND DISEASE SURVEY

VICTORIA, B. C.

SPECIAL REPORT
April, 1970

Report on the Green-striped Forest Looper Infestation

North Vancouver Island

April, 1970

by

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An appraisal survey was made of the green-striped forest looper infestation in the Quatsino - Port Alice area during the week of March 23, 1970. The infested area was flown by helicopter and defoliation was mapped in light, medium and heavy categories; i.e., light defoliation visible from the air, top two or three feet with thinned appearance; medium, foliage noticeably thin, top third of many trees heavily defoliated, some completely stripped; heavy, 50% or more of the trees completely or almost completely defoliated, remainder more than half defoliated. Defoliation was mapped on some 18,500 acres from Coal Harbour to the south end of Neroutsis Inlet and around Victoria Lake. Approximately 1,700 acres were classed as heavy, 6,800 medium and 10,000 light. The accompanying map shows the areas of defoliation.

[1/] Ranger Supervisor

Pupae were obtained from six locations where pupal sampling was done in the fall of 1969. At four of these locations the numbers of pupae were counted in square-foot duff samples to check on predation by small animals and at the other two locations pupae were collected in quantity to give a sufficient number to rear at the Victoria insectary. A total of 1,527 pupae were collected at the six locations and reared for adult emergence and to determine the amount of mortality caused by parasites and disease. The following table shows a comparison between the numbers of pupae found in 12 one-square-foot duff samples at each location in the fall of 1969 and spring of 1970 and the condition of the pupae reared at the insectary.

Location	Total No. Pupae		Status of pupae in spring 1970			
	Fall 1969	Spring 1970	% parasitized	% diseased	% dead other cause	% emergence
Atkins Cove	311	196	66.8	6.7	11.7	14.8
Smith Cove (Julian)	764	370	44.9	19.5	-	35.6
N. end Victoria Lake	124	111*	37.8	29.7	6.3	26.2
Pump Station Victoria Lake	381	220	65	5.9	10.9	18.2
Pipeline Port Alice	475	244	47.9	3.3	8.6	40.2
Ketchen Island	710	386*	46.8	10.3	6.5	36.4
	2,765	1,527	51.1	11.7	6.6	30.6

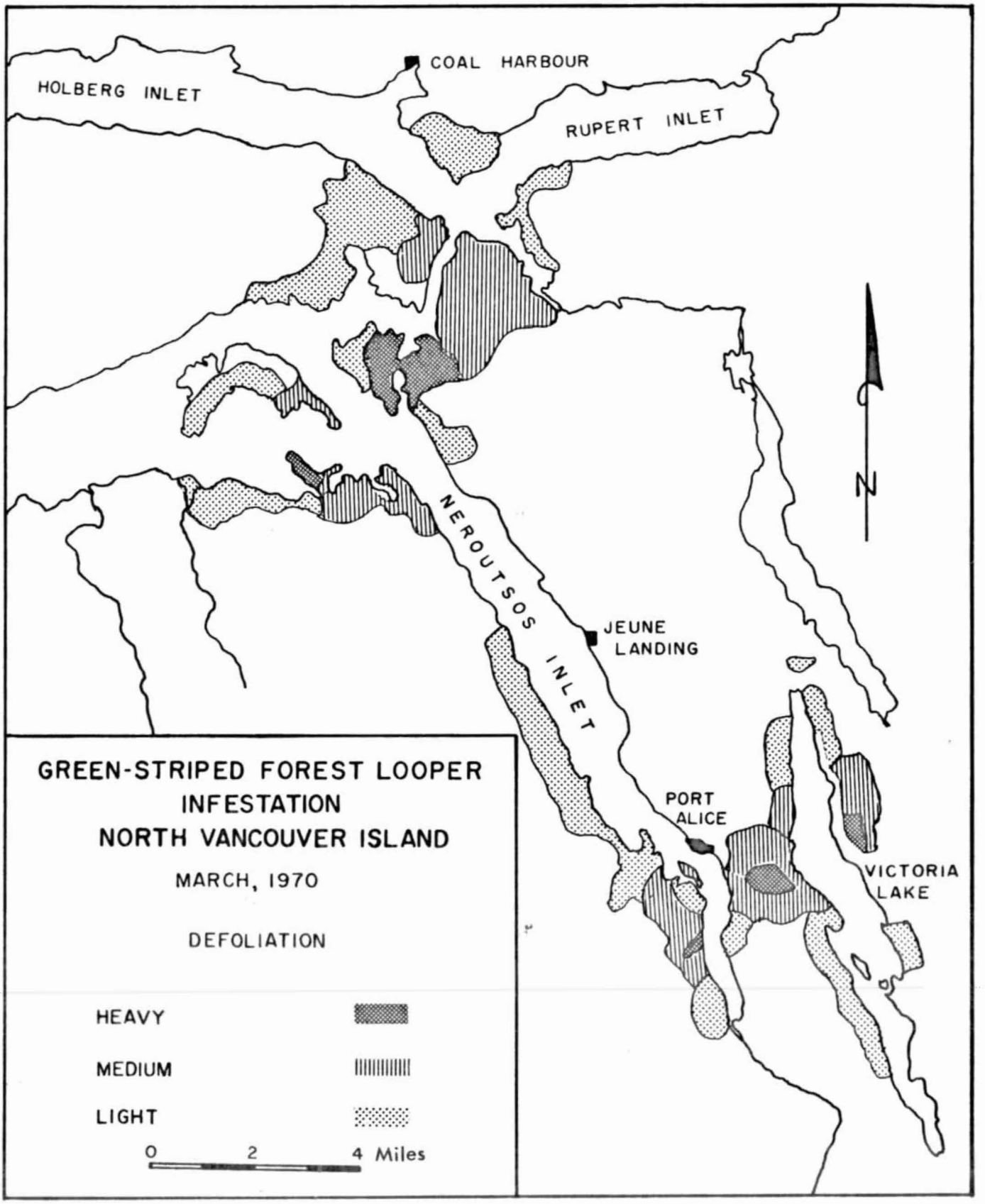
* Considerably more than 12 square feet of duff sampled to obtain this number of pupae.

Spring counts of pupae show a considerable reduction in the population due to predation by small animals. Considerably more than 12 square feet of duff were sampled to obtain the 111 and 386 pupae at the north end of Victoria Lake and Ketchen Island. Parasitism by an Ichneumonid parasite was surprisingly high in spring collected pupae, affecting more than 50% of the pupae reared at the laboratory. Less than 20% of the pupae were killed by disease or other causes and slightly more than 30% produced adult moths. Experienced insectary personnel said that female adults were not "heavy" with eggs and the moths generally were rather sluggish.

Discussion

Parasitism was high, and will not increase, but disease and predators could increase the amount of mortality in the field prior to emergence. Successful emergence of 30% of the remaining pupae could conceivably produce an adult population sufficient to continue or increase the infestation. Other factors such as unfavourable weather conditions at time of adult emergence or during mating and oviposition could reduce the population. Cold weather during the early larval period could prevent the very small insects from feeding and reduce the population by starvation.

In late April or early May cages will be placed over a specified area of duff at a number of locations to trap and determine adult emergence under field conditions. The trunk and branches of a couple of trees will be enclosed under a cage to check on the egg laying habits of this looper.


COAL HARBOUR
HOLBERG INLET
RUPERT INLET
N
NEROUTSOS INLET
JEUNE LANDING
PORT ALICE
VICTORIA LAKE
GREEN-STRIPED FOREST LOOPER INFESTATION
NORTH VANCOUVER ISLAND
MARCH, 1970
DEFOLIATION
HEAVY
MEDIUM
LIGHT
0 2 4 Miles