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INSECTS OF EASTERN LARCH, CEDAR AND JUNIPER

A. H. Rose, O. H. Lindquist and K. L. Nystrom

Natural Resources Canada
Canadian Forest Service

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The other Canadian Forest Service handbooks in this series include:

Insects of Eastern Pines
Insectes des pins de l'est du Canada

Insects of Eastern Spruces, Fir and Hemlock
Insectes des épinettes, du sapin et de la pruche de l'est du Canada

Insects of Eastern Hardwood Trees
Insectes des feuillus de l'est du Canada

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Abstract

This handbook is designed to enable people interested in trees to identify insects causing damage to them. All insect species or groups that have caused damage to larch, cedar and juniper in Canada east of the Rocky Mountains are included. About 85 species are treated and of these 47 are found on larch, 22 on cedar and 16 on juniper. The insect and/or its damage can be identified by means of keys using non-technical language along with about 150 color illustrations. Biological sketches of the insect are given, and the need for control measures, along with the timing of application, is prescribed. Common names of insects are used generally, but the scientific names are also given in the text.

Résumé

Ce guide a été conçu pour aider les gens qui portent intérêt aux arbres à identifier les insectes qui les endommagent. Il comprend toutes les espèces d'insectes ou groupes d'insectes qui ont endommagé le mélèze, le thuya et le genévrier du Canada à l'est des Rocheuses. Les auteurs étudient environ 85 espèces, dont 47 se retrouvent sur le mélèze, 22 sur le thuya et 16 sur le genévrier. Des clés, rédigées dans une langue non technique, permettent d'identifier l'insecte ou ses dégâts, et cette identité peut être confirmée par quelque 150 illustrations en couleurs. Le texte fait en outre la description biologique sommaire de l'insecte et mentionne les mesures de lutte éventuelles, y compris le moment propice pour les interventions. En général, les auteurs identifient les insectes par leur nom commun, mais le nom scientifique (latin) est aussi donné dans le texte.

Foreword to the 1980 Edition

This is the third in a series of handbooks that is capturing the attention of forest managers, pest extension people and those of the general public interested in the maintenance of healthy trees. This publication completes coverage of the major insects of coniferous trees in eastern Canada. As in *Insects of Eastern Pines* and *Insects of Eastern Spruces, Fir and Hemlock*, much information was drawn from the database developed over many years by the former Forest Insect and Disease Survey. Particular mention again is made of contributing specialists at the Canadian Forest Service regional establishments across the country, taxonomists at the Biological Resources Division, Centre for Land and Biological Resources Research (formerly the Biosystematics Research Institute), Agriculture and Agri-Food Canada, Ottawa, and dedicated field and laboratory staff of the Survey. The authors continue to challenge the task of preparing and presenting an enormous amount of information in a concise, attractive and useful form.

W. L. Sippell
Program Manager
Entomology and Pathology

Foreword to the 2000 Edition

This handbook and others in the *Insects of…* series came about because of the dedication of numerous staff who worked at the Great Lakes Forestry Centre: the late Art Rose, Research Scientist, and O.H. Lindquist, senior technician, whose dream it was to complete this series and to offer an educational and scientifically useful book to entomologists, foresters and people in general interested in insects and trees; the field staff who collected the insects, gathered the biological information and provided much of the photographic material; the taxonomists from the National Identification Service, Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, who identified or confirmed collections of insects; and contributing research scientists at other Canadian Forest Service centres.

This handbook was written for the scientist but also for those interested in trees and the insects that can be found feeding on them. About 85 species of insects and mites are included in this handbook along with biological information and general advice on control. Not all insects and mites found on larch, cedar or juniper are included but those that are have caused noticeable damage at one time or another. Easy to use keys and photographs of most of the insects and mites assist in identification.

Revisions of the handbooks in the *Insects of…* series occur from time to time to keep abreast of new scientific knowledge regarding insect name changes, biological information, distribution records and control of pests.

Kathryn Nystrom
Insect Identification Officer
Canadian Forest Service, Sault Ste. Marie

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Eastern larch

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Introduction

This handbook completes the series dealing with the insects of conifers in central and eastern Canada and adjacent areas of the United States. Earlier handbooks in this series published by the Canadian Forest Service are *Insects of Eastern Spruces, Fir and Hemlock*, Forestry Technical Report 23 (revised in 1994); *Insects of Eastern Hardwood Trees*, Forestry Technical Report 29 (revised in 1997); and *Insects of Eastern Pines*, Publication 1313 (revised in 1999). Information for this edition, like the others, was drawn mainly from data and material accumulated over a 50-year period by the former Forest Insect and Disease Survey in Ontario, now known as the Forest Health Monitoring Unit. However, additional information has been drawn from reports and publications of Forest Health Monitoring Units in other provinces as well as from the entomological literature. All insects that have caused injury in the past are included, and about 85 species or species groups are treated.

The format of this handbook differs from the earlier ones as shown in the Contents. In this text, it was found necessary to treat each species of tree separately because the insect complex on each one is for the most part different. However, where insects feed on more than one tree species they are included in each appropriate key, and the reader is referred to a single write-up in one of the sections. Keys are used to facilitate the identification of insects or insect injury, and biological information is provided for all species. For some species it was not possible to provide information on the seasonal occurrence of various stages over broad areas. However, Ontario data, usually given, may be used as a guide for other areas. References in the text to color illustrations are indicated by the symbol ▭. For the identification of any insect on larch, cedar or juniper not treated here, a representative sample of living specimens and damage should be forwarded to the Forest Health Monitoring Unit at the Canadian Forest Service centre serving your area listed on page 12.

Injury

Injury to trees can be caused by such varied factors as climate, insects, mites, diseases, birds and mammals. Humans often cause injury by mechanical means or by adversely altering the tree's environment either above or below ground. With a few exceptions, this handbook deals with problems created by insects or mites.

All parts of a tree are subject to attack by some insect species. The degree of injury inflicted, however, depends on the number of insects, type of feeding, time of year and how vital to survival is the part attacked.

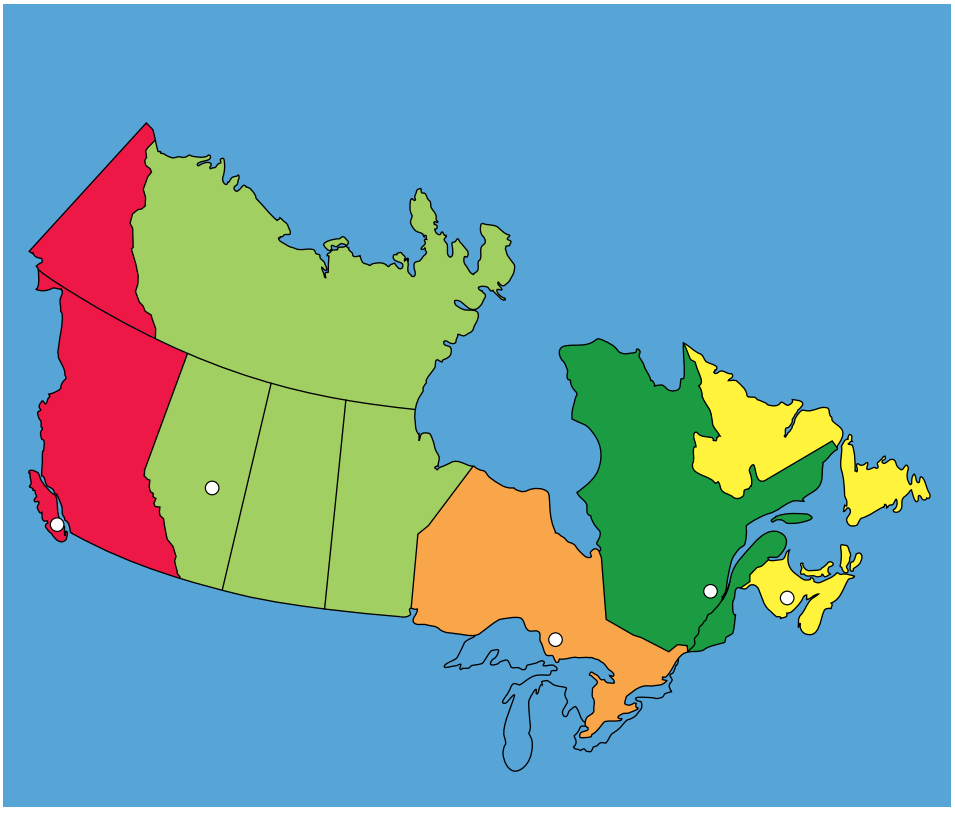
Control

Because the kinds of pesticide that may be used are constantly changing as unacceptable side effects are discovered, no specific control measures are given in this handbook.

However, the necessity for control and the stages in the pest's life cycle most susceptible to control measures are indicated. Also, to facilitate selection, the required type of pesticide (contact, stomach, systemic or fumigant) is given. In addition, other methods that place greater emphasis on biological control or are more selective and less deleterious to the environment may be proposed. Information on currently registered pesticides may be obtained from various government agencies and is available also on the label of the pesticide container. The pesticide used should be nontoxic to the targeted tree. If large-scale chemical control measures are necessary, the advice of a specialist should be obtained.

Further Reading

Historical information on important or noteworthy forest insects in Canada may be found in publications produced by the Canadian Forest Service, Natural Resources Canada. These include annual reports of the Forest Health Monitoring Units; a four-volume report, *Forest Lepidoptera of Canada* (1958–1965); *Insects Harmful to Forest Trees*, by R. Martineau, 1984; and *Forest Insect Pests in Canada*, by J.A. Armstrong and W.G.H. Ives, editors, 1995. *Insects of Eastern Forests*, by A.T. Drooz, editor, 1985, Miscellaneous Publication 1426 of the Forest Service of the United States Department of Agriculture, is a comprehensive treatment of forest insects and contains an extensive list of papers in entomology journals. We also recommend *Insects That Feed on Trees and Shrubs*, by W.T. Johnson and H.H. Lyon, 1976, Cornell University Press, and *Trees in Canada*, by J.L. Farrar, 1995, Canadian Forest Service, Natural Resources Canada/Fitzhenry & Whiteside Limited. For a further investigation into the insects that affect seeds and cones of larch and other conifers, we recommend *Management of Insect Pests of Cones in Seed Orchards in Eastern Canada*, by J.J. Turgeon and P. de Groot, 1992, Ontario Ministry of Natural Resources/Forestry Canada. A specialist in forest entomology should be consulted for more detailed information.



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