

# **Alaska Forest Pest Control Manual**



## **Category Twelve**

In general, applicators who apply pesticides to property other than their own must obtain certification from the Alaska Department of Environmental Conservation (ADEC) Pesticide Program. Applicators who apply restricted-use pesticides, regardless of location, must also be certified.

**Applicators who apply pesticides in forests or forest** must be certified by the Alaska ADEC in the Forest Pest Control Category (Category Twelve).

The information needed to successfully complete the written core examination required for all certified pesticide applicators in Alaska includes:

1. National Pesticide Applicator Certification Core Manual;
2. Alaska Core Manual; and
3. State of Alaska Pesticide Regulations in Title 18, Chapter 90 of the Alaska Administrative Code (18 AAC 90)

The information needed to successfully obtain certification in Category Twelve in Alaska includes:

1. This Alaska Manual;
2. United States Forest Service publication, *Insects and Diseases in Alaskan Forests*: <http://www.fs.fed.us/r10/spf/fhp/idbook/Page158.htm>; and
3. Ohio Department of Agriculture publication Forest Pest Control.

### **Learning Objectives**

In order to be able to pass the Category Twelve exam, you must be able to meet the following objectives from this manual:

- State the number of acres of forest lands in Alaska, including the number of acres by ownership.
- Explain some factors why forest pest management is uncommon in Alaska.

### **CALCULATIONS**

Precise and accurate application is important for every pesticide application, but this is particularly true for the types of pesticide applications allowed under Category Twelve. Strong math skills, including the ability to calculate speed, odd shaped areas, mixing ratios, rates of application, etc. will be necessary to successfully pass the Category Twelve Exam. You will need to carefully review pages 164-165, and 190-192 in the National Core Manual. Additional resources for pesticide applicator math are available online from the [Purdue Pesticide Program](#).

### **GENERAL INFORMATION ON ALASKA FOREST MANAGEMENT**

Alaska has nearly 130 million acres of forest lands. Approximately 77 million acres are federally owned, 22 million acres are owned by the state, and 30 million acres are privately owned (Alaska Department of Commerce).

There are few planted stands, forest nurseries, or tree farms in Alaska. Pest management in natural (unmanaged) forests is not commonly conducted except in the case of serious outbreaks or infestations. Direct control of pests is limited by the vast areas involved, the inaccessibility of

many forested areas, and the long life cycle of trees. In cases where controls must be applied, understanding the life-cycle of the pest is essential for success.

The goals of forests managed for habitat are significantly different than those managed for timber harvest. Forests managed for habitat can benefit from pests and diseases that contribute to structural and biological diversity. In areas where timber production is important, there is less tolerance for pests and diseases.

## **FROM FOREST SERVICE *INSECTS AND DISEASES IN ALASKAN FORESTS***

### **Learning Objectives**

#### **Introduction**

- Explain how forest insects and diseases can be beneficial to forest health.

#### **Forests of Alaska**

- List common trees found in the Alaska coastal rainforest.
- List common trees found in the south central Alaska transitional forest.
- List common trees found in the Alaska boreal forest.
- Describe the most significant cause of large scale disturbance in each forest type.

#### **Invasive Species**

- Describe some reasons why invasive species may become more prevalent in Alaska.

#### **Defoliators**

- Describe how defoliator insects damage trees.
- Explain why defoliators can have more impact on coniferous trees.
- Explain the different feeding habits of leaf chewers, leaf miners, skeletonizers, and sap-suckers.
- List the most important defoliators in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.

#### **Bud and Shoot Insects**

- Describe how bud and shoot insects damage trees.
- List the most important bud and shoot insects in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.

#### **Sap-Sucking Insects and Mites**

- Describe how sap-sucking insects and mites damage trees.
- Describe the common signs of damage from these pests.
- Identify the type of tree (conifer or hardwood) that is most susceptible to these pests.
- List the most important sap-sucking insects and mites in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.

**Bark Beetles**

- Describe how bark beetles damage trees.
- List some of the common traits of Alaska bark beetles.
- Explain what an egg gallery is, and what information can be gained from observing the egg gallery.
- List the most important bark beetles in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.

**Wood Borers**

- Describe how wood borers damage trees.
- Describe the damage to trees caused by round-headed borers or long-horned beetles.
- Describe the general characteristics of larvae and adults of round-headed borers.
- Describe the type of wood that flat-headed wood borers are typically found in.
- Describe the characteristics of the larval galleries of flat-headed wood borers.
- Describe the general characteristics of adult flat-headed borers.
- Describe how ambrosia beetles damage logs.
- Describe the conditions necessary for ambrosia beetle activity.
- Describe the habitat where wood boring wasps are typically found.
- List the common wood borers in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.

**Cone and Seed Insects**

- Describe how cone and seed insects damage trees and forests.
- List the common cone and seed insects in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.

**Tree Diseases**

- List the tree diseases of greatest concern in Alaska.
- List the common foliar diseases in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.
- List the common shoot diseases in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.
- List the common stem and branch diseases in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.
- List the common root diseases in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.
- Explain the best way to reduce wood decay.
- Describe the two ways that wood decay fungus decomposes wood.
- List the common wood decay and stain fungi in Alaska, and describe the hosts, distribution, identification, damage, biology, and behaviors of each.

**Animal Damage**

- List the animals that may injure trees in Alaska.
- Describe the characteristic damage cause by each of these animals.

***FROM OHIO'S FOREST PEST CONTROL MANUAL*****Portions to Disregard**

Ohio states rules, requirements, and regulations cited in the Ohio manual do not apply in Alaska, and should be disregarded. Use of pesticides in Alaska is regulated under 18 AAC 90.

You may also disregard the following sections or pages of the Ohio manual, as they do not apply in Alaska:

- **Pages 1-3** (Chapter 1), covering information on Integrated Pest Management. This information is covered in the Core Exam.
- **Pages 23-29** (Chapter 5), covering information on Ohio Forest Types. This information is not relevant to Alaska.
- **Pages 31-50**, (Chapter 6-7), covering information on Ohio forest diseases and insect pests. Alaska forest diseases and insect pests are covered in the Forest Service manual.
- **Pages 56-59**, (Chapter 9), covering information on vertebrate pests. In Alaska, vertebrate pest control requires certification in Category 17.

**Learning Objectives**

Please refer to learning objectives listed in the Ohio Manual

## **Before Using Any Pesticide**

# **STOP**

**All pesticides can be harmful to health and environment if misused.**

**Read the label carefully. Use only as directed.**