

Alaska Public Health Pest Control Manual



Category Eight

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.

Individuals in the health care or environmental health field who use or recommend pesticides for control of pests that represent a public health hazard must be certified in the Public Health Pest Control category (Category Eight).

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 Eight in Alaska includes:

1. This Alaska Manual; and
2. Florida Public-Health Pesticide Applicator Training Manual.

Learning Objectives

- State how long bedbugs can survive without food.
- Explain why clutter must be removed to effectively control bedbugs.
- Explain why all gaps and exit routes must be sealed prior to heat or chemical treatment for bedbugs.
- Describe some effective chemical and non-chemical methods of controlling or reducing bedbugs.
- Explain why the use of ‘bug bombs’ is not recommended for control of bedbugs.
- Describe the identification, biology, development, behaviors, and symptoms of bites from hobo spiders.
- Describe factors to consider when choosing and applying a surface sanitizer.

CALCULATIONS

Precise and accurate application is important for most pesticide application. However, for this category, only basic math skills are required.

CONTROL OF MOSQUITOES AND BITING FLIES

The public health pest control category does include nuisance flies, but **does not** include control of mosquitoes or biting flies. To act as a pesticide consultant or apply pesticides (on property other than your own) for control of these pests, you must obtain certification in Category 10, Mosquito and Biting Fly Pest Control.

SPECIFIC PUBLIC HEALTH PESTS AND ISSUES IN ALASKA

Bed Bugs

The bedbug control information in the *Florida Manual* is somewhat outdated, as bedbugs are now making a resurgence. Due to their increasing presence across the nation, including Alaska, additional information is warranted.

Eradication of bedbugs can be extremely difficult – in general, chemical controls are only partially effective. Any bedbugs that remain can re-populate an area. In addition, bedbugs can easily survive up to 18 months without food. The use of Integrated Pest Management (several different tactics and methods used together) will result in the most effective control of bedbugs.

Bedbugs tend to hide behind baseboards, moldings, window frames, door frames, behind pictures, within paneled walls, in electrical outlets, inside electronic equipment, and any other small crevice or gap. This makes it difficult to reach bedbugs with control efforts.

Clutter is probably the single biggest obstacle that stands in the way of control. Bed bugs hide and lay their eggs virtually everywhere. As a result, clutter provides an unlimited number of hiding places for bed bugs. In addition, clutter creates areas that cannot be effectively treated or reached by control efforts. **The first step to controlling bedbugs is to eliminate as much clutter as possible and remove or expose as many hiding places as possible.**

Vacuum cleaners with disposable bags can be used to physically remove many bed bugs from areas of high infestation such as mattresses or other furniture. Low vapor steam cleaners that reach at least 220 degrees Fahrenheit can also be used to kill bedbugs in these areas. It is very important to dispose of the contents of the vacuum immediately after use. Vacuum bags should be placed into plastic trash bags, sealed shut, and disposed of outside of the building.

Furniture or other infested items that are to be disposed of should be tightly sealed in plastic, clearly labeled as “Infested with bedbugs”, and taken outside of the building. It is a good idea to destroy or disassemble these items to prevent ‘dumpster divers’ from taking these items home and starting a new infestation elsewhere.

Heat treatment is one method of controlling bedbugs. Temperatures over 120 degrees Fahrenheit are lethal to bedbugs and their eggs. Special portable heat units can be used to rapidly raise the temperature in a room to lethal levels. **The entire contents of the room must remain above this temperature for several hours.** Special heater units and fans are required to achieve these temperatures consistently throughout a room. This method is only effective if all gaps and exit routes are blocked to prevent bedbugs from avoiding temperature extremes or migrating into different rooms, and if all clutter is removed to prevent safe harborage for bedbugs. One advantage of heat treatment is that it has no chemical or toxic effects. This treatment may damage sensitive items such as photographs or electronics.

Heat treatment requires specialized equipment. Homeowners cannot heat their homes thoroughly enough to kill bed bugs. However, they may heat their home well enough to burn it down. Only professionals with training and appropriate equipment can safely do heat treatments.

Cold treatment is often suggested for controlling bed bugs, particularly in dry cabins or other structures that can be frozen. However, studies have shown that bed bugs can hibernate and survive down to -20°F or colder. Cold will not kill bed bugs unless the bugs are frozen very quickly. Homeowners cannot cool all areas where bed bugs may reside quickly enough to control bed bugs.

Most of the pesticides that are commercially available for bedbugs are effective as a contact spray, but have little or no residual effect. Chemicals like DDT and Malathion which were used in the past were very effective, largely due to their long-term residual properties. However, these products are no longer available due to serious environmental and human health effects from these chemicals.

The entire contents of a room must be exposed to any pesticide product used. Chemical controls are only effective if all gaps and exit routes are blocked to prevent bedbugs from avoiding the pesticide or migrating into different rooms, and if all clutter is removed to prevent safe harborage for bedbugs.

Available pesticides to control bedbugs change frequently. It is important for applicators to research products and know their advantages and disadvantages, as well as do regular reviews of information about available products.

Foggers or ‘bug bombs’ do not effectively penetrate into the tiny cracks and crevices where bed bugs hide. As a result, they introduce potentially dangerous chemicals into a building without being effective. Use of room foggers to control bedbugs is not recommended.

Whenever a bedbug infestation is identified, you should assume that rooms or apartments on all sides, including above and below, are also at risk. Whether heat or chemical controls are applied, these adjacent areas should also be treated.

Scabies

The *Florida Manual* does contain some information on scabies (called “itch mite” in that manual). However, *Sarcoptes scabiei* are somewhat more prevalent in Alaska.

Scabies is highly infectious human parasite. If a scabies outbreak is suspected, public health officers should work closely with the state epidemiology department. The Center for Disease Control has stated, "*Because it is so highly transmissible, crusted scabies requires rapid and aggressive detection, diagnosis, infection control, and treatment measures to prevent and control spread.*"

Scabies on humans is a medical situation. Individuals who have contracted scabies will need to seek medical treatment as soon as possible. However, control of scabies in living areas, bedding, and clothing is a pest control issue. Failure to adequately control the pests in the patient’s surroundings can lead to further spread.

Treatment of infested areas should include:

- Determine the extent of the infestation. Check surroundings and nearby rooms for signs of scabies.

- Hot laundering and hot drying of all bedding, clothing, etc. Care must be taken to isolate unlaundered items which could infest the laundry area and lead to further outbreaks.
- Vacuum and clean the infested area thoroughly. Make sure that scabies are not spread to other areas through vacuums or other cleaning tools.
- Isolate cleaned items from things not yet cleaned by storing in air tight containers or sealed up plastic bags
- Vacate the premises for several days; scabies cannot live without a host for more than about 72 hours.

Hobo Spiders

Although most venomous spiders do not exist in Alaska, the hobo spider, *Tegenaria agrestis*, may inhabit the panhandle area of Alaska.

The Hobo Spider is brown, with darker chevron markings on the back of its abdomen, with the chevrons pointing towards the head. The average size of a mature Hobo Spider is approximately $\frac{1}{2}$ to $\frac{3}{4}$ of an inch, with a leg span of 1.5 inches. Hobo Spiders create funnel shaped webs in cracks or crevices, and are generally found near ground level.

The symptoms of hobo spider bites vary considerably. Bites may cause a small irritation to the skin, necrotic lesions to the skin, systemic disturbances, blood disorders, or even internal organ damage, depending on the amount of venom injected.

Bites from these spiders are usually painless and initially form an expanding swollen reddish ring that may reach up to 15 cm in diameter. Numbing sensations or dizziness may also occur shortly after the bite. Within the first 36 hours, blisters may form around the lesion, possibly accompanied by severe headache, visual or auditory disturbances, weakness, or joint pains. Blisters at the lesion site will rupture, and discharge fluids which crust around the wound. After 2 or 3 days the area around the wound may blacken. A cycle of sloughing and crusting at the ulcerated site (with the discharge of blood and serum) may continue for some time, often requiring six months or more for complete healing to occur. Bites can also induce systemic symptoms, ranging from a persistent headache (the most common) to severe blood disorders, to permanent damage to internal organs.

Control of hobo spiders includes eliminating harborage sites, inspecting likely habitats for presence of spiders, and cautious use of residual insecticides.

Surface Sanitizing

Any surface cleaner that states it is **anti-bacterial** or **anti-microbial** is considered a pesticide. This does not include products designed to be applied directly to the body, such as hand soaps or hand sanitizers.

Products used to sanitize surfaces should be EPA registered products which are labeled for the specific intended use. If used in food preparation areas or on food contact surfaces, the sanitizer must be labeled for this type of use.

Precise measurement is very important when mixing sanitizers. Because only a small quantity is usually made, tiny errors in measurement can have a large effect on the overall concentration. Too low a concentration won't effectively sanitize; too high a concentration can be dangerous.

Many products must remain in direct contact for a certain period of time in order to effectively kill the target bacteria or microbes. It is important to read and follow all label instructions for the required contact time.

FLORIDA PUBLIC-HEALTH PESTICIDE APPLICATOR TRAINING MANUAL

Portions to Disregard

You may disregard the following sections or pages of the *Florida Manual*, as they either do not apply to this category, or do not apply in Alaska:

- **Chapter 1**, all, including introductory information and basic biology. This information is not required to obtain certification in this category.
- **Chapter 2**, pages 2-2 to 2-10, including information on mosquito borne diseases. Mosquitoes are not known to be disease vectors in Alaska.
- **Chapter 2**, page 2-14, including information on hanta virus. This disease is not known to occur in Alaska.
- **Chapter 3**, all; including information mosquito control. Control of mosquitoes is addressed under Category 10.
- **Chapter 5**, pages 5-3, including information on chiggers. These pests do not occur in Alaska.
- **Chapter 7**, all, including information on yellowjackets, hornets, wasps, bees, ants, venomous spiders, centipedes and scorpions, and urticating caterpillars. These pests do not present a public health hazard in Alaska.
- **Chapter 8**; pages 8-18 through 8-21; including information on ground squirrels, skunks, raccoons, opossums, mongooses, and snakes. These pests are not found in Alaska.

Learning Objectives

Chapter 2, Pests and Public Health

- Define the terms vector, pathogen, and host.
- Describe and give examples of mechanical transmission of disease.
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- Describe the disease tularemia, and list carrier insects that occur in Alaska.
- Describe some louse-borne diseases.
- Describe the vector, biology, development, and symptoms of bubonic plague.
- Describe the vector, biology, development, and symptoms of swimmer's itch.
- Describe some rodent-borne diseases.
- Define the terms entomophobia, contagious hysteria, and delusory parasitosis.

Chapter 4, House Frequenting Pests

- Describe the identification, biology, development, behaviors, and damage of lice.

- Describe techniques used to help control the spread of head, body, and crab lice.
- Describe the identification, biology, development, behaviors, symptoms caused by, and diseases spread by fleas.
- Describe chemical and non-chemical methods for controlling fleas.
- Describe the identification, biology, development, behaviors, and diseases spread by cockroaches.
- Describe the distinguishing characteristics and typical locations of the following species of cockroach; German, brown banded, American, and oriental.
- Describe ways to reduce harborage for cockroaches.
- Describe ways to improve sanitation to help reduce cockroaches.
- Explain why it is important to know the typical hiding locations of the species of roach to be treated prior to applying controls.
- Explain why the use of roach baits is an effective chemical control method for cockroaches.
- Explain some advantages and disadvantages of perimeter sprays to control cockroaches.

Chapter 5, Mites and Ticks

- Describe the symptoms caused by various types of mites and ticks.
- Explain some methods to help control mites and ticks.

Chapter Six, Flies

- Describe the four life stages of a fly.
- Describe the identification, biology, development, behaviors, and damage of various types of flies.
- Explain why identification of the species of fly is required to achieve adequate control.
- Describe some sampling and surveillance methods for flies.
- Describe ways to improve sanitation to help reduce presence of non-biting flies.
- List methods to exclude flies from entry into a structure.
- Explain some reasons why the use of larvacide to control flies is not recommended.

Chapter Eight, Vertebrate Pests

- Describe the identification, biology, development, behaviors, and damage caused by mice.
- Describe the identification, biology, development, behaviors, and damage caused by rats.
- Describe signs that indicate a rodent infestation.
- List methods to exclude rodents from entry into a structure.
- Describe ways to improve sanitation to help reduce rodents.
- Describe techniques to improve effectiveness of trapping for rodents.
- Describe techniques to improve effectiveness of bait blocks for rodent control.
- Compare advantages of acute versus chronic rodenticides.
- Explain how rodents ingest tracking powders.
- List some precautions that should be taken when applying rodenticides.
- Describe the various diseases that can be spread by birds.
- Describe non-chemical methods to control bird pests.
- List some precautions to take when using avicides.

- Describe the identification, biology, development, behaviors, damage, and health hazards caused by bats.
- Describe non-chemical methods to control bats.
- Describe damage that may be caused by tree squirrels (red squirrels and northern flying squirrels occur in Alaska).
- Describe various methods for controlling tree squirrels.

Before Using Any Pesticide

STOP

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

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