

# *Insect Life*



## **ENTOMOLOGY III** **4-H PROJECT BOOK**

Club Series Y-3

July 1958

# Insect Life

## 4-H Entomology III

### PURPOSE

This project provides opportunity for you:

- \* To learn more about insects.
- \* To increase your insect collection.
- \* To learn about harmful insects and how they are controlled.
- \* To go on field trips and participate in other club activities.

This project may be repeated. If you take it again, you can collect more insects, learn more about them, do more electives, and make a better exhibit.

### WHO MAY BE A MEMBER

Any boy or girl who is:

- \* Twelve years old and has completed one or more years in "Bug Catcher" or "Know Your Bugs" 4-H projects, or has studied insects.
- \* Interested in learning more about insects.
- \* Willing to do the requirements of this project.

## Project Requirements

- \* Undertake the control of one species of insect. The species should be different from insects controlled in previous projects.
- \* Collect, mount, label, and properly identify to order 50 species of insects representing at least 12 different orders.
- \* Conduct a survey of the emergence, distribution, or degree of infestation of one species.
- \* Prepare and label a mount or mounts of plant materials showing 10 types of insect injury, such as leaf ragging, stem girdling, stem boring, root injury, wood boring, bark injury, leaf injury from sucking insects, twig injury, leaf rolling, gall forming, skeletonizing of leaves, seed injury, etc.
- \* Do 10 of the electives on pages 6 and 7.
- \* Complete this project book and give it to your Club Leader at the end of the club year.

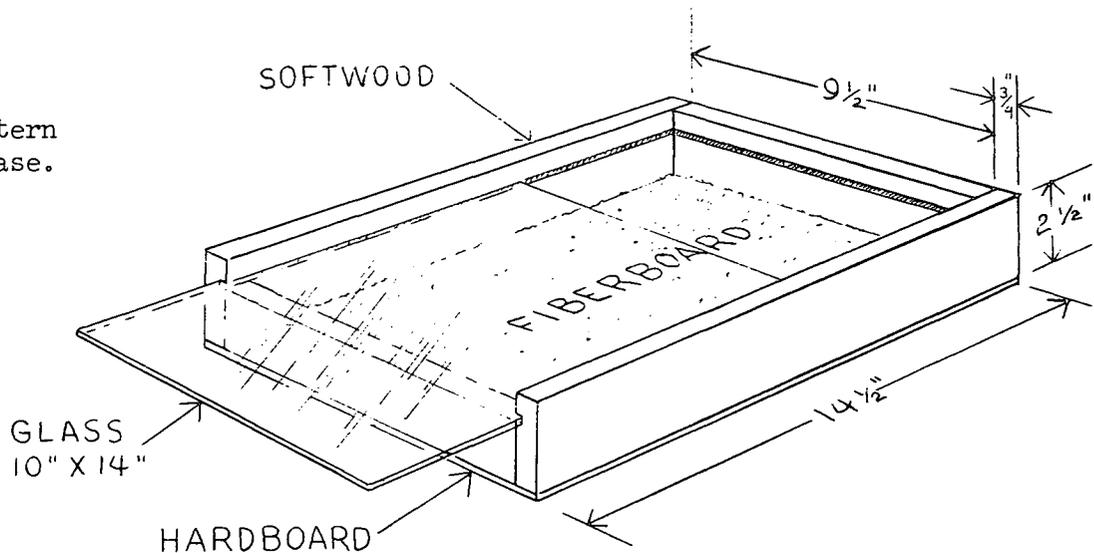
## Exhibit

It is recommended that display boxes be of a size and type similar to the one shown in the drawing on page 3. Larger boxes are difficult to handle and display. You may need several boxes for your exhibit. Be sure to put your name on each box. The Insect Life exhibit shall include:

- \* Your completed project book.

- \* Fifty mounted specimens, representing 50 species and at least 12 orders (50 insects only).
- \* A mount(s) of plant materials showing 10 types of insect damage. Label each specimen as to type of injury. Name the kind of plant and insect responsible for the injury if known.

Suggested pattern  
for exhibit case.



Basis for scoring exhibit:

- \* Correct number of insects, species, orders, etc., as specified in project book and premium list.
- \* Condition of insects--no missing or broken parts; properly mounted.

- \* Labels--complete, correct identification to order, legible, neat.
- \* General appearance of exhibit.
- \* Project book--complete, neat, accurate.

## How to Learn About Insect Life

- \* Join a 4-H Entomology Club, if possible.
- \* Attend club meetings regularly. Be on time.
- \* Do your work promptly and neatly.
- \* Read and use your 4-H Insect Manual and study bulletins and books on entomology. They will tell you many things.

- \* Discuss this project with your father and mother and your science teacher. Ask them to help you.
- \* Always do your share, and a little more.
- \* Be courteous to your fellow club members, your club leader, your parents, and others.
- \* Always do your best.

## Equipment and Materials

- \* You can make most of the equipment you will need. Your County 4-H Extension Agent has instructions for making nets, spreading boards, and collection boxes. Wooden boxes approximately 10 x 14 inches are recommended. You also will find suggestions for making equipment on pages 7, 8, and 9 of your 4-H Club Insect Manual. Equipment and

collection boxes can be purchased if you wish.

- \* Use carbon tetrachloride, ethyl acetate, or chloroform in your killing jar. These are not harmful if you use them carefully and can be purchased at drug stores. Do not use cyanide. It is very poisonous to humans.

\* Place a thin layer (about one-half inch) of plaster of Paris, shredded rubber, or a foam rubber pad in the bottom of the jar. Soak this with carbon tetrachloride, chloroform, or ethyl acetate.

\* If you use shredded rubber, cover with a cardboard disk, tightly crumpled paper, or cellulose cotton. (You can get shredded rubber from places where tires are recapped.)

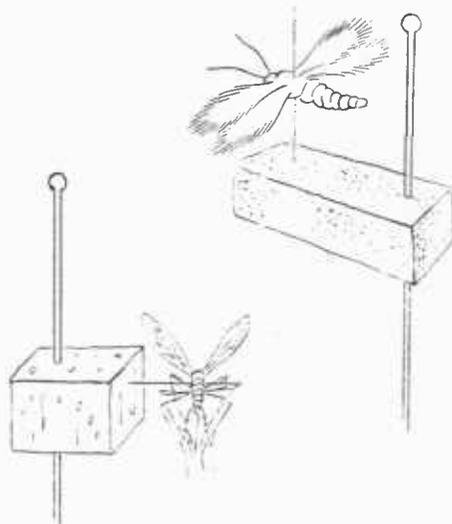
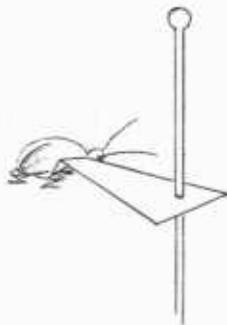
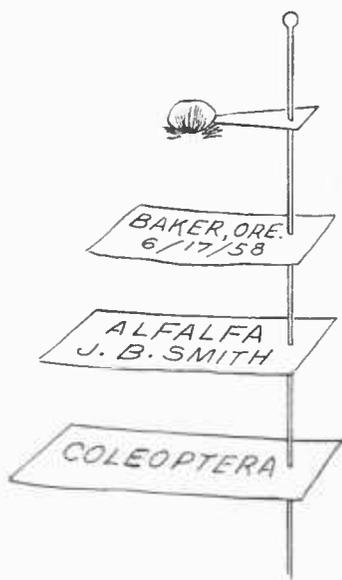
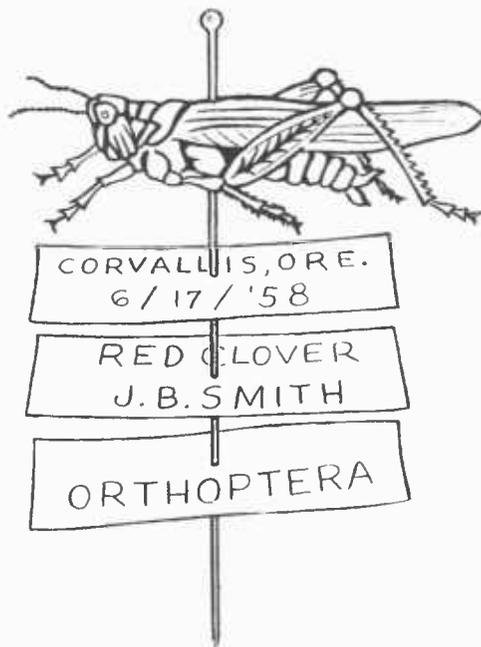
## Mounting Insects

You are required to collect 50 different species of insects representing at least 12 different orders.

You have now reached a point in your entomology club work where you will want to keep a permanent collection. In permanent insect collections, the collection data are placed on small labels with the insect as shown on this page. Your collection will look neater if you use a pinning block or box. Your Club Leader has or can obtain a copy of USDA Miscellaneous Publication No. 601, "Collection and Preservation of Insects." You will find it helpful to study this publication. It will be useful in completing electives.

Small insects should be mounted on card points, with labels in the proper order. A mounting block insures even spacing.

Small insects may be mounted on minuten pins inserted into small pieces of cork, allowing study of all parts of the insect.



All insects in your collection should be correctly mounted and labeled. On the first label below the insect should be the town nearest to where the insect was collected and the date collected. The second label should give the situation in which it was found. For example, under a stone, under bark, by sweeping with a net, in red clover, on cabbage, etc. The second label also should give the collector's name. The third label shows order to which the insect belongs. You may include the

family, common name, or species name on the third label.

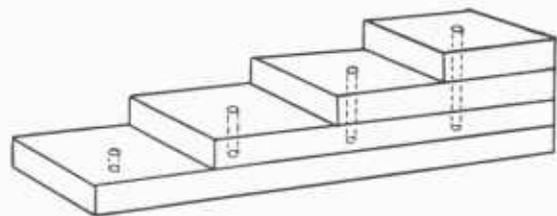
Information on labels should be printed so it can be read. The letters should be small and neat, but large enough to read. Labels should be cut from heavy paper such as 3 x 5 inch index cards. Use a fine pen or sharp pencil when printing labels

Mounting pins and card points are available from your County Extension Agent (4-H).

## How to Make a Mounting Block

Your collection will look neater if labels on all the pins are at the same height. A mounting block or pinning box will be helpful. To make it the following materials are needed:

1. Four pieces of soft wood one-fourth inch thick; 1 inch wide; 1, 2, 3, and 4 inches long.
2. Small carpenter's drill or small nail.
3. Glue, for gluing small pieces of wood together.



Drill or with a nail make a small hole in the center of each step as shown in the drawing. The holes need to be only slightly larger than the diameter of an insect pin.

## How to Make a Mounting Box

If you prefer you can make a mounting box. First, select a small, sturdy box of heavy cardboard or light wood. The box should be approximately 4 inches square and 1 1/2 to 2 inches deep.

Cut strips of paper of different widths to form 4 steps in the box, each step to have a 1-inch tread. The steps should be separated by light cardboard dividers. The strips to make the first step should be one-fourth inch high when placed on edge in the box. The strips to make the second step should be one-half inch, the third step three-fourths inch, and the fourth step one inch. The strips should be cut long enough to fit the box snugly.





# Personal Development Electives

Date

Signature

1. Serve as Junior Leader of an entomology club.
2. Prepare and present a demonstration relating to entomology.
3. Help plan and conduct a Sunday service or campfire program.
4. Help conduct an insect identification contest.
5. Tell about your project work at some public meeting, grange, service club, etc.
6. Give or assist with a radio or TV program dealing with your project.
7. Attend meeting of Oregon Entomological Society.
8. Prepare an exhibit to put in a store window or use at some public meeting.
9. Help plan a field trip.
10. Tell your club about some insect, how to identify it, how it lives, and how to control it if it is injurious.
11. \_\_\_\_\_  
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12. \_\_\_\_\_  
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13. \_\_\_\_\_  
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14. \_\_\_\_\_  
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# Life History Mount

One of the electives is to make a mount showing the different stages in the growth of an insect. Examples: the eggs, the larva, the pupa, and adult of the tent caterpillar or the eggs, nymph, and the adult squash bug.

If preferred, eggs may be shown by a drawing. This drawing should be part of the mount.

You can use a cardboard or wooden box about 6 inches wide, 8 inches long, and about 1 inch deep. You can, if you prefer, purchase a Riker mount. An example of the insect injury will increase the value of the mount.

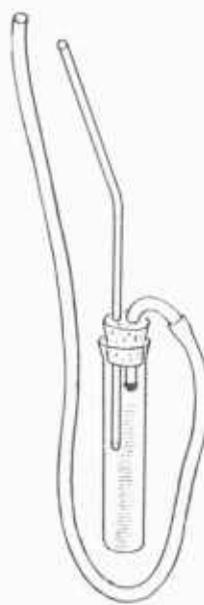
You will find some suggestion on page 48 of your 4-H Club Insect Manual that will help you make your life history mount.

## How to Make an Aspirator

The aspirator is a convenient device for collecting small insects, either from the beating net or beating cloth or directly from under stones, bark, etc. Its construction is simple. To make one the following materials are needed.

1. A glass vial 1 to 1 1/2 inches in diameter and about 4 1/2 inches long.
2. A rubber stopper with 2 holes.
3. Two pieces of metal or plastic tubing, one about one-fourth inch in diameter and 10 inches long, the other slightly larger and 4 or 5 inches long.
4. A piece of rubber tubing about 3 feet long and big enough to slip onto the larger of the metal or plastic tubes.
5. A small piece of bolting cloth or fine-mesh wire screen.

The metal tubes should fit snugly in the holes in the rubber stopper. The shorter metal tube should be bent as indicated so that the rubber tubing will not fold shut when in use. The bolting cloth should be fastened over the end of the larger metal tube; this is to keep



the insects from being sucked into the mouth. If wire screen is used it may be soldered to the end of the metal tube. It is desirable, but not necessary, to have the shorter tube come flush with the end of the cork. If metal or plastic tubing is not available or cannot conveniently be bent to suit, glass tubing may be used but has the disadvantage of breaking easily. The length and size of the tubing, as well as the degree of the bends, may be adapted to the user's convenience.

When the aspirator is assembled, place the end of the rubber tubing in the mouth, aim the longer tube of the aspirator at a small insect, and suck sharply. The air current will pull the insect into the vial. With a little practice it is possible to collect small insects much more quickly and in better condition this way than by almost any other method.

# Insect Control Study

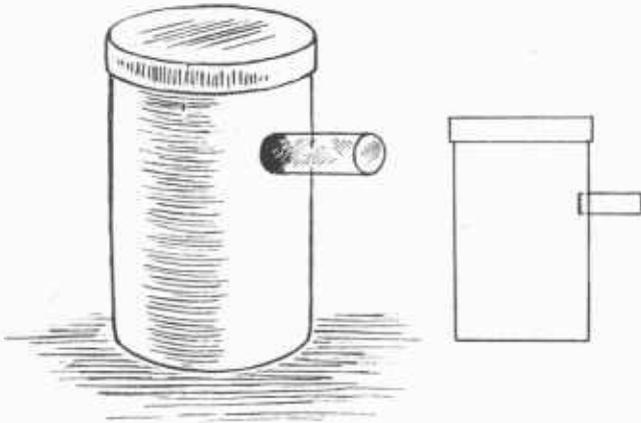
1. Name of insect controlled \_\_\_\_\_
2. What was the host? \_\_\_\_\_
3. Size and development of plant when insecticide was applied \_\_\_\_\_  
\_\_\_\_\_
4. Describe damage caused by the insect \_\_\_\_\_  
\_\_\_\_\_
5. What type of mouth parts does insect have? \_\_\_\_\_
6. Against what stage in life cycle of insect is control directed? \_\_\_\_\_  
\_\_\_\_\_
7. What insecticide (not trade name) was used? \_\_\_\_\_  
\_\_\_\_\_
8. Was it applied as spray, dust, or aerosol? \_\_\_\_\_
9. What strength insecticide is used? \_\_\_\_\_ Amount used? \_\_\_\_\_
10. Weather conditions at time insecticide was applied \_\_\_\_\_  
\_\_\_\_\_
11. Date or dates of application \_\_\_\_\_
12. Number of applications necessary for control \_\_\_\_\_
13. Kind or type of equipment used to apply insecticide \_\_\_\_\_  
\_\_\_\_\_
14. Describe briefly results of control work, that is: were insects killed, what percent killed, was crop protected, yield increased, and control profitable?  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_



# Cages for Insect Study

Use of an insect cage provides an interesting way of studying the life cycle of insects. Entomologists sometimes build a cage over an entire tree for study purposes.

The carton trap is a convenient way to collect small insects as they emerge from galls, bark, leaves, moss, soil, etc. Place sample in dark carton and when insects emerge they will seek light and go into the bottle.



# My Story of Field Trips

A field trip may be a club activity, or may be taken with several other club members, with your family, or by yourself. Time spent collecting insects can be considered as a field trip. Give a brief account of things you saw and did on each of your field trips.

Trip 1. Date \_\_\_\_\_ Locality \_\_\_\_\_

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Trip 2. Date \_\_\_\_\_ Locality \_\_\_\_\_

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Trip 3. Date \_\_\_\_\_ Locality \_\_\_\_\_

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Trip 4. Date \_\_\_\_\_ Locality \_\_\_\_\_

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Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_ County \_\_\_\_\_

Club Leader \_\_\_\_\_ Date \_\_\_\_\_