

4-H Forestry Project No. 8

Identifying Forest Insects and Diseases

In and around a forest is a world different from open fields or other types of biological settings. The various insects and diseases that depend on trees for their existence are an extremely important part of this "forest world."

Remember, not all insects or fungi are harmful. In fact, the forest depends on some insects, fungi, and bacteria for breaking down dead wood, twigs, bark, and leaves to incorporate these plant parts into the mineral soil. This is a form of fertilization much like compost used in many gardens.

However, many of the insects, fungi, and bacteria considered important also are destructive or damaging to trees. In the South every year, insects and diseases destroy and damage more trees than forest fires. Enough trees for hundreds of new houses, thousands of new books and newspapers, or enough furniture to furnish thousands of homes are destroyed. Remember, this damage is done every year!

Unlike a fire that is easy to see and does damage quickly, some insects and diseases are slow acting and hard to see. Often, these pests go totally unnoticed until a tree is seriously damaged or dead. Another major difference between fires and insects or diseases is that wildfire control measures are implemented quickly, but insect and disease problems may go unchecked for long periods.

The ability to identify the major insects and diseases of the forest is important. Only when you can identify these pests can you know what to expect – are they beneficial organisms or will they destroy acres of trees?

Spend some time with this project. Learn to identify these important pests of the forest.

Project References

1. *Insects and Diseases of Trees of the South*. USDA Forest Service General Report R8-GR5. 98 pages.

2. *Oak Pests — A Guide to Major Insects, Diseases, Air Pollution and Chemical Injury*. USDA Forest Service General Report SA-GR11. 69 pages.
3. *Insects on Trees and Shrubs Around the Home*. USDA Home and Garden Bulletin No. 214. 51 pages.
4. World Wide Web forest, insect, and disease references at www.msucares.com. Click on the 4-H Youth Forestry link. Scroll down to the heading "Forest Insects & Disease ID Links."
5. www.bugwood.org

Project Materials

1. Note paper (legal pad)
2. 3-ring binder or notebook
3. Black pen, typewriter or your home computer
(Items 4-9 are optional)
4. A 32 x 40-inch piece of poster board or display foam board available at your local discount or art supply store
5. A 32 x 40-piece of stiff cardboard or 1/4-inch plywood (not needed if you use the display foam board)
6. Felt-tip marker
7. One example of insect damage and one example of disease damage from the list of major forest pests
8. Two 3 x 5-inch index cards
9. Sharp knife or small saw

Sources of Help and Information

1. County director or 4-H youth agent, Mississippi State University Extension Service.
2. County forester, Mississippi Forestry Commission.
3. Extension Forestry Department, Mississippi State University Extension Service.

- District conservationist, Natural Resources Conservation Service, U.S. Department of Agriculture.
- Project forester or district ranger, U.S. Forest Service, U.S. Department of Agriculture.
- Industry foresters with local forest industries.
- Consulting foresters, self-employed.
- Garden clubs and other local conservation groups.

Major Forest Pests in Mississippi

Diseases

- Fusiform rust
- Annosus root rot
- Brown spot needle blight
- Black knot
- Needle casts
- Mistletoe
- Cedar apple rust
- Red heart
- Oak wilt
- Hypoxylon cankers

Insects

- Southern pine beetle
- Ips beetle
- Black turpentine beetle
- Nantucket pine tip moth
- Eastern tent caterpillar
- Fall webworm
- Pales weevil
- White oak borer
- Pine webworm
- Locust borer

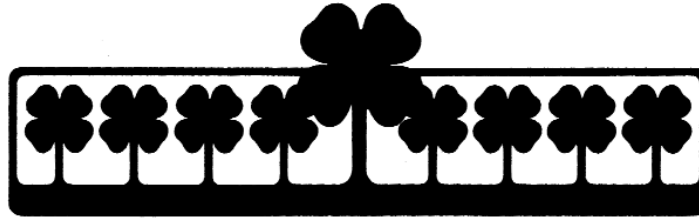
Instructions

- Using the references listed, prepare a brief written report on each insect and disease listed as a major forest pest in Mississippi. Each report should be on a separate page and should include the following information: importance, identifying the pest, identifying the injury, biology of the pest, and control. Please limit each report to 300 words or fewer.
- Assemble a notebook from the reports on the insects and diseases. Learn the types of damage caused by each of these pests. You may want to include a picture of the insect and/or its damage in your report. Being able to identify the injury is the first step in the control of any insect or disease problem.
- Check your reference materials. Prepare a 3 x 5-inch index card for each type of insect or disease damage you plan to exhibit. Type or clearly print the common name and brief description of each insect or disease. (You can also use your home computer to prepare this information.)
- Entitle your exhibit "Forest Insect and Disease Identification." Write or type the title in block letters 1 1/2 inches high, 1 inch from the top of the board.
- Collect a sample of the damaged tree that clearly shows the injury. These samples could range from bark pieces showing the feeding galleries of the bark beetles to twigs showing the evidence of defoliation. If possible, visit a local forester for assistance in locating a tree with damage.
- Now you are ready to put the exhibit together. First, place your index cards and damaged specimens on the board without glue. Arrange the materials so all items fit and are neatly spaced on the board. The more examples of damage you have, the harder it may be to fit and arrange.
- After you are satisfied with the arrangement, glue the cards and samples onto the board.
- Now that the exhibit is complete, get some good use from it as a visual presentation at club meetings or school. You might also want to use it as a window display or at a county fair.
- If possible, have someone take a picture of you and your finished exhibit. You may want to include a photograph in your 4-H member's record book.
- If possible, get a local forester to check your exhibit and sign your record sheet when your subject has been completed. Clip the record sheet and include it in your current year's record book.
- Save this project sheet and other materials for future reference as you continue in other 4-H forestry projects.

Optional Project Exhibit

If you want to make this project extra special and have a great visual aid, you can prepare an exhibit of insect and disease damage.

- Make your exhibit board by gluing white poster board (32 x 40-inch) on one side of a piece of heavy cardboard or a piece of 1/4-inch plywood. This gives your exhibit enough strength to hold its shape. Or, you can use display foam board.



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Full name _____ Your Age _____

Grade in school _____ Number of years in 4-H _____ Date of birth _____

Your parents' names _____

Your address _____

Name of club _____ Adult Leaders' names _____

1. List the common names of forest pests you studied that cause the following damage:

a. Defoliations _____

b. Bark damage _____

c. Foliage disease _____

d. Stem or branch disease _____

2. What was the most interesting forest pest you studied? Why?

3. What did you like most about studying forest pests?

4. What sources of information did you consult for help?

5. Did you complete the optional exhibit? If so, have you used your exhibit since you finished it?

(Example: visual presentation, county fair, other.)

6. Write down suggestions on how this project can be improved.

As a forester, I have checked the exhibit and found the specimens to be correct.

Forester

As a 4-H leader, I have checked the notebook and found it to be completed satisfactorily.

4-H Leader



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Revised and distributed by **Dr. Robert A. Daniels**, Extension Professor, Forestry Department.

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