

# **Entomology Collection Notebooks**

## **Guidelines and Requirements 2011-2012**

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# Entomology Collection Notebooks

2011-2012 4-H year

## Requirements for Notebooks:

4-Hers will take pictures of insects during the current 4-H year. Individual entries are to be placed for display in a three-ring notebook for competition. Two pictures of each insect are preferable to help with identification: 1) a top view, and 2) a side view. One picture is acceptable if that is all that can be obtained. You may have a separate page for the female and the male of a species. If there are two color forms of a species, such as the Tiger Swallowtail female, you may have a separate page for each color form. Pictures can be no smaller than 3" X 3" and no larger than 3" by 5". Pictures of only one insect are to be mounted or printed on each page of the notebook. Each page will contain the following information below the pictures on the page: (see example pages)

1. Order the insect belongs to
2. For Intermediate and Advanced Phases only, Family the insect belongs to
3. Common name of the insect
4. Date and locality where the insect was caught
5. Any additional notes such as host the insect was caught on, sex of insect, title and page of book insect identified from, beneficial or harmful, etc.

Each exhibitor is required to identify the notebook by placing a Title Page in the front of the notebook bearing the exhibitor's name, county or district and class. The number of orders, specimens and families (required in Intermediate and Advanced classes) must also be included on the Title Page.

A divider page is to be placed in front of each order of insects with the order name printed on the tab for the page and also on the front of the divider page. For the Intermediate and Advanced classes, insects are also to be grouped by family behind each order divider.

**4-Her must add at least ten new species pictures each year. In addition, the 4-Her should complete at least one special project during the year.** (see list of suggestions on separate page) Photos and an explanation of the special project should be put in a separate section of notebook with a divider page in front labeled "Special Project".

Emphasis in judging will be placed on the overall variety of Kansas insects represented in the notebook; accuracy of identification; creativity of subject matter; skill, technique, and quality in taking photos of the insects; quality of special project; and overall arrangement and appearance of the notebook.

Pictures of live insects are preferred. Insects should be photographed in the wild where possible, but this is not required and may not be practical in all cases, especially where one wants to obtain close-up images of specific features or specific life stages or if physical handicaps limit access to some insect habitats.

**Classes:**

**Introductory Entomology:** Display in one 3-ring notebook a collection of photos with a minimum of 10 and a maximum of 30 insect species representing at least six different orders. Species pages should be grouped according to order. (Notebooks should contain 15 to 60 photos). 4-Hers in their second year of this division need to list on a sheet of paper how many years you have been in this division of the project and what you did this year to improve your project. Place this paper just behind the Title Page in the front of your notebook. A 4-Her may exhibit in this class for a maximum of two years.

**Beginning Entomology:** Display in one 3-ring notebook a collection of photos with a minimum of 30 and a maximum of 60 insect species representing at least seven different orders. Species pages should be grouped according to order. (Notebooks should contain 50 to 120 photos). In a separate section 4-Hers should include pictures of different life stages or a series of specialized body parts (such as legs or antennae) for at least one order of insects. 4-Her may also include photos of damage or habitat in this section. A divider should be put in front of this section. List on a sheet of paper how many years you have been in this division of the project and what you did this year to improve your project. Place the paper just behind the Title Page in the front of your notebook. A 4-Her may exhibit in this class for a maximum of three years.

**Intermediate Entomology:** Display in one 3-ring notebook a collection of photos with a minimum of 60 and a maximum of 100 insect species representing at least nine orders. Species pages should be grouped according to order. Pictures in any two of the following six orders should be identified to family: Orthoptera, Hemiptera, Homoptera, Coleoptera, Diptera, and/or Hymenoptera. (Notebooks should contain 100 to 200 photos). In a separate section 4-Hers should include pictures of different life stages or a series of specialized body parts (such as legs, antennae, specialized mouth parts, or identifying features) for at least two orders of insects. 4-Her may also include photos of damage or habitat in this section. A divider should be put in front of this section. List on a sheet of paper how many years you have been in this division of the project and what you did this year to improve your project. Place the paper just behind the Title Page in the front of your notebook. A 4-Her may exhibit in this class for a maximum of three years.

**Advanced Entomology:** Display in one 3-ring notebook a collection of photos with a minimum of 100 insect species representing at least twelve orders. Species pages should be grouped according to order. In addition, family identification is required for all insects in the following six orders: Orthoptera, Hemiptera, Homoptera, Coleoptera, Diptera, and Hymenoptera. Family identification in the remaining orders is optional, but desirable as long as accuracy is maintained. (Notebooks should contain at least 150 photos). In a separate section 4-Hers should include pictures of different life stages or a series of specialized body parts (such as legs, antennae, specialized mouth parts, or identifying features) for at least two orders of insects. 4-Her may also include photos of damage or habitat in this section. A divider should be put in front of this section. List on a sheet of paper how many years you have been in this division of the project and what you did this year to improve your project. Place the paper just behind the Title Page in the front of your notebook. Members may continue to exhibit in this class for an unrestricted number of years as long as they remain eligible for 4-H membership.

### **Special Project Suggestions**

1. Make a display on insects at a library for the Summer Reading Program
2. Make a display or work with an Insect Class for Summer Day Camp
3. Do a Science Fair project on insects
4. Work with a class on Insects for an Agriculture Day
5. Do a display or work with an insect class for a Scout group
6. Do a display or work with an insect class for a preschool class
7. Do a display and give a talk on insects at a Sr. Citizen Center or Nursing Home.
8. Other things you can think of. Check them out with your project leader or County Extension Agent first.

Example Page



Order: Coleoptera

Family: Cantharidae (only for Intermediate or Advanced phases)

Common Name: Goldenrod Soldier Beetle

Date/Locality: 08-31-2011/ Pn.Co.Ks (top) 08-26-2011/ Pn.Co.Ks (bottom)

Notes: Host plants – Lady in Red and Majestic Blue Salvia; “Insects in Kansas” 2000 edition page 197; beneficial insect; chewing mouth parts; 4 wings.

## **Equipment Needed:**

Digital camera: needs to be fairly good quality to take nice clear pictures. Example pictures were taken with a Canon Power Shot SX120 IS. It has 10 mega pixels. A 35 mm camera can also be used.

Memory card: a 2 GB card is probably as big as you will need.

Batteries: make sure to keep a spare set of batteries in your camera case when you are out taking pictures. Rechargeable batteries are a good investment if your camera will use them.

## **Optional Equipment:**

Computer with Windows XP: Example page was created with Microsoft Office Picture Manager. Pictures can be taken with a 35 mm camera and the roll of film developed. Then the pictures can be cropped and glued to an 8 ½" X 11" sheet of paper.

Microscope with digital camera: can be used to take pictures of tiny insects.

Underwater digital camera: can be used to take pictures of insects in ponds, streams, stock tanks, etc.

## **Tips for Taking Insect Pictures**

1. Invest in a fairly good digital camera. Know how to use it before going out to find insects.
2. Move slow and patient when trying to take pictures. Fast movements scare the insects off.
3. Find a nice flower garden. Explain to the owner what you are doing and ask permission to take pictures of insects on their flowers. Remember you must have permission before going onto private property.
4. Early mornings and evenings when the temperature is cooler is a good time to find insects that move slower or sit still.
5. Go on a collection trip with other 4-Hers. Team up with them and take pictures of what insects they catch.
6. Take several pictures of the same view of each insect. What looks clear to you in the view finder may not be clear when you go to crop and select your pictures.

7. Don't get too close. Most good pictures will be taken from 6 to 12 inches from the insect.
8. Remember to take along a notebook and write down where you went collecting, what the insect was sitting on when you took the picture, and the date.
9. Capturing the insect and putting it in the refrigerator for a few minutes will slow it down. Then put it back on the plant where you caught it and take your picture. The insect will warm up and take off fairly quickly, but you can get your pictures.
10. You may need a microscope with a digital camera to take pictures of small insects such as fleas, springtails, etc.
11. Ask your local 4-H Photography Leader for tips and help improving your picture quality.

## **Picture Management**

For those with Microsoft Office, this is how to process pictures you have taken with your digital camera.

First, transfer your pictures from the SD card for your camera to your computer hard drive or a zip drive.

Next, open up the file for the pictures on your computer. Make a copy of the images that you want to work with and save them in a separate folder. **Only work with a copy or duplicate of your digital picture file. Treat the original as a negative and only copy it. Never work on or edit the original.** Once the copies of the images that you want to work with have been saved, click on the first picture you want to work with.

You will need to crop your picture. The project guidelines specify that pictures need to be 3-inch X 3-inch or 3-inch X 5-inch in size. For the example notebook I used the 3" X 5" size because I thought it looked the nicest. To crop your pictures, go into Microsoft Office Picture Manager on your computer. Click on the tab that says Picture. Click on Crop. Move size bars at the corners of the picture to center the image of the insect. Click on Crop Settings at the side of the page. In the drop down box, click on 3" X 5". Click on the floppy disc icon to save your cropped picture. Repeat this process to crop all the pictures you want to use in your notebook. Remember, you need to use the clearest pictures you have because you have to identify the insect from your pictures. Also, you need two views if possible of each insect – a side view and a top view.

Once you have cropped all your pictures, you need to transfer them to your notebook pages. Open up Microsoft Word. You need to set up the parameters for your notebook pages. Go to File. Go to Page Set Up. Set margins for your notebook pages to the following sizes:

Top: 1 inch      Bottom: 1 inch      Right: 1 inch      Left: 1 ½ inches

Set Page Orientation for Portrait. Click on OK.

To insert first picture on the page:

1. Click on Insert.
2. Click on Picture.
3. Click on Insert From File.
4. Click on the insect picture you want to insert on the page. The computer will insert that picture on your page.
5. Hit the Enter key twice.

Repeat these five steps to insert the second picture on the page. After you hit the Enter key twice you will be ready to type in the identification information below the pictures. This should include:

Order:

Common Name:

Date/Locality:

Notes:

Notes may include the host you caught the insect on, special marking or structures on the insect to tell whether it is a male or female, book the insect was identified from, Etc. For intermediate and advanced phases you will also need to put the Family Name of the common insect orders with your identification information.

When you have completed all your information, save your page to a folder on your hard drive or a zip drive. Print a copy if you are ready to put it in your notebook.

Then start a new document page for the next insect. You can make a master copy of a page with the basic identification information on it and save it in your folder. Then each time you work on your notebook, you can bring up this page from your folder and start from there. Make sure and make a backup copy of your notebook on a daily or hourly basis to avoid losing your information if the computer crashes.