



Pressing and Preserving Plant Specimens

Why preserve plant specimens?

When scientists do field research, it is important that they collect and preserve specimens of the plants that they study. These preserved specimens are usually deposited in a place called an **herbarium**, which is like a plant library. Other scientists can then look at the plants in the herbarium. Sometimes a scientist may encounter a plant that they cannot identify. If they preserve a specimen, then they can take it to an herbarium and have other scientists try to identify it. It could be a new species - if they do not preserve a specimen, they will never know!

Where do you find an herbarium?

Many universities, botanical gardens and research centers have herbaria. Fairchild Tropical Garden has an herbarium and a virtual herbarium online that is accessible through <http://www.virtualherbarium.org>.

Materials you will need:

- Newspaper
- Cardboard
- A plant press or heavy books to press plants flat
- White paper, at least 11x17, for mounting specimens
- Glue (Elmer's works well)
- Labels or 3x5 cards

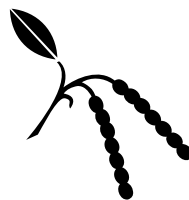
Lab activity:

1. Find some plants in your school yard. Collect some of the stems, leaves, fruits and/or flowers from each plant. Only collect plants that have either a fruit or flower on them. Plants without fruits or flowers are hard to identify. If the plant is a small herb or a grass, collect the roots too. It is not necessary to collect every leaf or every flower from the plant, especially if it is a tree or shrub, just collect a few stems with leaves and flowers.
2. Write down the following information:
 - a. The date.
 - b. Where you found the plant. This can be an address, coordinates or a general description of the location if there is no address or if you have no way to take coordinates (i.e. – you could say 2 kilometers west southwest of a given landmark, area or intersection). The more specific you are, the better.
 - c. A brief description of the habitat or area (i.e. – near fence in weedy field).
 - d. The Height of the plant (approximately).

- e. Any characteristics of the bark (example: gumbo limbo has peeling red bark).
- f. If there is any resin or latex in the plant, write down the color of it.
- g. Any other unusual characteristics you see.
- h. The color of the flower and/or fruit (this is important because the color will fade after the plant is dry).



3. The next step is to press the plants. This sounds simple, but there are some important rules to follow. You will place some of the stems, leaves, flowers and/or fruits between two sheets of newspaper and press between two pieces of cardboard. On the cardboard with the plant specimen, tape a 3x5 card that has all the information you wrote down in step 2 (height, location, date etc.), and the name of the plant if you know it. Then either put a heavy book on top of the cardboard to press it flat or use a plant press. Here are some simple rules to follow when pressing plants:
- a. Too much paper impedes air flow, which is necessary for proper drying
 - b. You don't want a lot of overlapping leaves. If the stem has lots of thick leaves, it is OK to cut some off, but be sure to leave evidence that there was a leaf there (i.e. – leave a part of the leaf stem base)
 - c. Turn some leaves upside down, or break one off and flip it over so that the underside is visible. Sometimes this can help in identification at the herbarium.
 - d. For extremely large leaves (such as palms) you can cut the leaf in half to fit on the paper
 - e. If you have several flowers on the specimen, it is good to cut one in half and open it to show the inside parts of it. You can also do cross sections with fruit.
 - f. If it is a plant with succulent stems (like an aloe plant) you must remove all of the internal substance. Otherwise, it may take ages to dry or it may rot first.
 - g. If the plant has very large fruits or cones, you will have to dry them separately and label them. Some fruits are too large to press whole, but you can take a cross section and press it.



4. The next step is to dry the plants. There are many ways to do this. If the plants are in a plant press, you can put them in an oven at **VERY LOW HEAT** (no more than 150° F) for 6 to 24 hours (drying times will vary for different plants). Be sure to get your parents permission to use the oven for this first. Another effective method is to leave them in a car in the hot Florida sun for a day or two! This may work better if you do not have a plant press but are using the heavy book method – it is not a good idea to put heavy books in your oven with the plants! If you can't do either of these methods, you can also leave the plants in a dry place in your home, especially a place that will get sun during part of the day, like under a window. However, it will take longer for the plants to dry and you run the risk of mold growing on them in the process. If you change the paper every day it will help prevent this from happening. The paper will absorb some of the moisture, so removing it and replacing with dry paper will help prevent mold. If you dry this way, expect it to take a week to two weeks.

5. You will know when the plants are dry – the leaves and flowers will have lost their color and turned mostly brown. You can gently touch the plant to see if you feel any moisture. If in doubt, dry them some more. When you have determined that they are dry, spread some glue (Elmer's works well) on a large piece of white, heavy bond paper or card stock (ideally 11"x17") and **CAREFULLY** place the dried specimen on the paper. Dried plants are very fragile, you must be patient and handle them with extreme caution. Let the glue dry. Make a formal label with the collector's name and specimen number at the top (number your specimens simply as #1, #2, #3 etc.) and all of the information you already took down on the 3x5 card including: name of plant (if known), location of the plant, height, unusual characteristics, color of sap or latex, color of the flowers, date collected (including year). Glue your label at the lower right corner of the paper with the dried plant on it. (see the label example below).



Below is a picture of what a properly prepared plant specimen looks like. You can find more examples in the Fairchild Tropical Garden's Virtual Herbarium website: <http://www.virtualherbarium.org>.



Example of a proper label:

Collectors' name:	Specimen number:
Date collected:	
Location collected:	
Habitat description:	
Common name(s) of plant:	
Scientific name:	Plant family:
Characteristics: (here, put flower color, resin or latex if observed, height, bark, other unique characteristics)	