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Reprinted from the
Wild Ones Journal,
November/December
2003 issue.

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If you, like I, were unaware of what was, and still is being done in the way of maintaining a record of native plant species, you will find this article about herbaria fascinating. Although we encourage people to do as little collecting as possible in the wild, using these techniques to collect plants from personal restorations as a means of maintaining a history or chronology of your project certainly would be appropriate. Some people use journals. Others use photos to keep a record of what is happening in their very special corner of nature. Maintaining herbaria is the way scientists keep a record of the occurrence of species for history. – Donna VanBuecken, executive director

What Is an Herbarium?

By Katherine D. Rill

"Dead Plants." That is the label on a box that I used to mail specimens from one herbarium to another. There is a second box labeled "Dried Plants For Scientific Use Only." I always chuckle when I see the label on the first box; both labels accurately describe the contents, but the second sounds so much more professional. Although the plants being transported are "dead," they died for a purpose. Both boxes contain plants collected for scientific study and are used for mailing to a botanist doing research.

Plants are collected as a record of what was growing in a particular location at a particular time in history. They are intended to become part of an herbarium; a collection of plants, dried, pressed, and glued onto regulation-sized, acid-free paper. A label is always attached to each sheet, usually in the lower right hand corner, with the scientific name of the plant (see *Wild Ones Journal*, March-April 2003, for a description of the rules for naming plants), the habitat in which it was collected, and the name of the collector. The herbarium sheets are arranged on the shelves of tight-fitting metal cabinets that keep out light and keep the specimens free of dust and insects. They are accessible to scientists for study. The curator of the collection is responsible for their care, for mailing them to researchers and securing their return, and for helping those who want plants identified. Herbaria (plural) in Europe go back to the 1700s.

Herbaria are valuable scientific records. We know when the last passenger pigeon died and it is just as helpful to know when a rare plant disappears. Collection dates that taper off are often the first indication that there is a problem. The Endangered Species Act, which lists plants as endangered or threatened, requires recovery plans that outline steps to be taken, such as protection of habitat, to prevent further loss of rare plant species. Conversely, herbarium specimens may be used to determine if a plant is native or non-native, by showing when a plant was first collected. New plants may appear as part of the flora of a region or the earliest collection date for an alien plant can give some indication of its rate of spread and help gauge its potential for becoming invasive.

Collection

Collect as much of the plant as is possible. The more parts of the plant available, the easier it is to identify. Often someone brings in a snippet of a plant and asks me to name it. Their faith is flattering but often the answer is, "Sorry. I need to see more to make a proper identification."

Keys are identification guides used by one trying to identify a plant. They are constructed to separate one plant from another, based on flowering parts, fruits, leaves, stem structure, and so on. Sometimes species are differentiated by as little as whether the hairs on



CONTINUED FROM PAGE 1 the back of a leaf stand erect or are appressed (lying down). Certain families cannot be identified without fruits, such as those in the bean family (*Fabaceae*), carrot family (*Apiaceae*), sedges (*Cyperaceae*) and grasses (*Poaceae*). Roots are often needed to ascertain if a plant is an annual, perennial, or biennial; I carry a small geologist's hammer with which to dig out the roots and a pruner to cut off pieces of large plants that cannot be collected whole. While collecting, take notes about flower color, height, growth habit, habitat, and what else is growing in the area.

Where to collect is a touchy question. If a plant is on private land, ask the owner for permission to collect or you will be trespassing. Usually explaining the reason for collecting and promising to be careful will result in permission. The owners are often interested in what is growing on their land. Here is a great opportunity to educate and you may be invited back when other plants will be in bloom. Certain places, such as state and federal natural areas, are usually off limits to collecting. As a good citizen, enjoy these places but leave the plants alone. Find out the regulations for where you live.

What not to collect is another question that needs answering. Endangered and threatened species should never be collected. Even if the plant is not endangered, do not collect if there are only a few present. Use common sense; if there are many of a particular kind, then collect just one or two.

While in the field, place the plant inside a folded sheet of newspaper with a piece of corrugated cardboard on either side, then put it into a portable plant press. A plant press can easily be made from two pieces of plywood held together with canvas strap or a more expensive version can be bought from a scientific supply house. If you do not have the press in the field and will not be out very long, plants may be placed in plastic bags. Be sure to keep your collection out of the sun and do not leave it in a hot car. The importance of note-taking for appropriate labeling cannot be overstressed.

A private herbarium

So, you would like to start your own herbarium? Don't! Instead collect for a college or university herbarium.

My private herbarium has close to 8,500 sheets; it is always growing, always needing more space. I did not intend to end up with such an assortment. It started, like the journey of many miles, with one step; when I started, I lived a fair distance from the nearest herbarium and had two small children so I collected plants for reference.

All my specimens are in plastic bags to keep out moisture. Most of my specimens are in metal, shelved



cabinets. Being unable to afford regulation cases, I bought my cases from office supply companies. Because I don't want moth balls in the house, I bought a small freezer to keep insects at bay and rotate the herbaria sheets in the freezer.

The oldest plants in my herbarium were collected by my mother in the early 1900s. As a student in Maine, she collected plants for a class project and saved them in a notebook. When she died, I could not throw the notebook out. I saved and mounted the plants that were in good condition.

As the years have gone by certain plants in my collection have become noteworthy. On Aug. 4, 1947 near Edgerton, WI, I collected a St. John's-wort (*Hypericum prolificum*) that turned out to be a state record – the first collected in Wisconsin. Another collector and I were the first to collect on two of the Apostle Islands in Lake Superior. Once, a duplicate that I gave to the Arizona State University Herbarium at Tempe from a picnic site was cited in a research paper. These experiences emphasize the importance of legitimate plant collection, and of communicating one's finds to local institutions.

Identification

After a plant is collected, how is it identified? There are helpful books for any part of the country. Use one that covers the area where the plant was collected. It is very frustrating to think you have matched the plant only to discover that it only grows a thousand miles away.

Bite the bullet and learn the flower parts. Learn how to use the dichotomous keys in guidebooks; at each step along the way, you must choose one "leg" of the key to be led to the right answer. With practice and (frequently) considerable missteps, in time it will become easier.

I encourage you to enjoy plants and learn how to identify them. Contact a nearby herbarium and see if the staff are interested in having you collect plants. If the answer is "yes," they will give you guidelines. They may also help you identify what you have found. Your collections will become part of a large body of information and will add to our knowledge of plants of the world. *

Katherine D. Rill works with the University of Wisconsin-Oshkosh Herbarium besides maintaining her own herbarium. She is a member of the Fox Valley Area Chapter (WI) Wild Ones. Botanist, teacher, and author of A Flora of Winnebago County, Wisconsin, Kay is a board member of Citizens Natural Resources Association of Wisconsin. Kay may be contacted at rferox@dbe.com.

Artwork © Patricia Armstrong. Pat is a co-founder and member of the Greater Du Page (IL) Chapter.

