## Best Practices to Follow When Taking Photos for Plant Identification

People often encounter a plant in the field that they do not know and will want to request assistance in identifying this unknown plant. The time-honored method was to take a sample of the plant, which was dried and pressed to send to an expert for identification. This method is still widely used, particularly when the presence of a plant species on a site needs to be documented for future reference. However, since most individuals routinely carry either digital cameras or cell phones that allow them to take high quality images, there is an increasing trend to request plant identification assistance electronically with photographs rather than with physical specimens.

Often many people will send an image such as the one shown to the left and ask the expert they are consulting "What plant is this?" A plant's flowers are generally the most conspicuous feature that people notice when they are out in the field. Therefore, people will tend to rely on flower pictures when trying to determine which plant species they have encountered. Indeed, many flowers or flower clusters are so distinctive in shape, form, or other characteristics that a plant expert can identify the plant to the genus or even to the species level just from a clear picture of its flowers. However, when you look at the second picture (left, below), the flowers and the arrangement of the flowers in the cluster are very similar to those of the plant in the first picture. Much of the reason for this similarity is because both plants are in the same family (Apiaceae or Carrot Family); however, they belong to different genera.

You might ask - Why is it important to know which species is which? Well, in this case, there could be real consequences for mistaking one of these plants for the other. The flowers of the first plant belong to Queen Anne's lace (*Daucus carota*). This non-native wildflower has naturalized along the roadsides in much of the county, including parts of Florida. Another common name for this plant is wild carrot because people dig up the taproot and eat it like a carrot. The second is a picture of another non-native plant that is fairly common in the Southeast, although not often found in Florida. It is poison hemlock (*Conium maculatum*). Poison hemlock plants also produce a taproot and there have been reports of people who thought they were eating wild carrots being poisoned by its roots. As in most endeavors, the rule of garbage in-garbage out applies to plant identification using photographs. If faulty or incomplete information is supplied by your photos, the chances that the plant species will be correctly identified are poor.

Below are some suggestions of things to think about when taking plant photographs in the field.

- Make sure that the plants you are photographing are growing vigorously and that their appearance is representative of plants of the same species that are growing in the area. There is often a great deal of variability in size, shape, color, etc. of the various parts of a plant among individuals in a population. If you take photos of plants that are not typical for the species, such as plants whose growth has been affected by saline soils or repeated close mowing, then it will be more difficult use them to correctly identify the species.

- The technical aspect of taking plant identification photos are the same as for taking photos of anything else. In general, the photos need to be in focus, not too light or too dark, and the color should accurately refect what you are seeing with your eye when you take the picture.
- When possible, include an object in the photograph to allow the viewer to determine the size of what you are photographing. This object could be a coin or a ruler. This may not be feasible for all photos you take, for example the plant may be too large, or what you are photographing may be too far from the ground to place an object in the photograph. However, when the viewer can determine a sense of scale from your photograph, it can allow them to refer to detailed species desciptions in plant taxonomy resources.
- Take a series of photos of the plant of interest rather than just a single picture. This will allow you to provide a wider set of clues to the person that is identify the plant. What you might want to take pictures of will vary depending on the plant, however, some suggestions are:
    - Pictures of various plant parts are vital. Take pictures that show the size, shape, color, and arrangement of the vegetative parts of the plant (leaves, stems, buds, bark, etc.). If the plant is flowering, take pictures of the flowers that clearly show how the flowers are arranged on the plant. Pictures of the fruit that show the size, shape, color, and attachment to the plant are also helpful. In many cases, it is not feasible to photograph both flowers and fruits at the same time, however, plant that are indeterminate in their fruiting habit can have both present on the plant at the same time. Or, more than one trip can be made to the site to take pictures of the fruit once they form.
    - Don't forget about the below-ground parts of the plant. Although, it may not be feasible to dig up a tree to take pictures of its roots, many smaller plants have distinctive characteristics or structures attached to their roots, rhizomes, or storage organs (tubers, bulbs, corms) that can be used to accurately identify them.
    - Take a picture that shows the overall growth habit of the plant. The individual identifying the plant needs to know if they are looking at for example, a tree or a woody vine, or an upright or trailing grass. These distinctions may not be obvious if looking only at photos of individual plant parts.
    - Back up and take a picture of the site that the plant is growing in. This will allow the expert to see such things as if the plant is growing in sun or shade, in dry or wet soils or in standing water, and what plants are growing alongside it. All of these factors provide clues to the identity of the plant in question.

Using the Queen Anne's lace/poison hemlock example, in addition to sending pictures of the flowers, if the following photos were included you could feel much safer about eating the taproot of this plant.



Janet Grabowski
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And, will know to avoid the taproot of this plant.



Janet Grabowski
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