

Search for the Biggest Trees in Hopewell Valley

Sponsored by the Hopewell Township Environmental Commission

Did you realize that there are probably over 100 different species of trees growing in Hopewell Valley? Long before people decided to create the Boroughs of Pennington and Hopewell within Hopewell Township, they were planting trees around their homes. Also, after the original farmers had cleared the land, many areas that were not so good for growing crops or as pasture were allowed to return to growing trees, so that today just over one-third of Hopewell Township is covered with trees. Many of those old trees are very big! Could one be the largest in the entire State?

The Hopewell Township Environmental Commission (HTEC) wants to compile a list of the biggest example of every species of tree found growing in our Valley. We need your help because these trees could be growing almost anywhere! So, in conjunction with the Hopewell Valley Municipal Alliance's efforts to get people outside and exploring nature, and in celebration of Earth Day and National Arbor Day, we invite you to get outside and search for some big trees. While we are especially interested in large trees growing in the Township, we realize that the biggest examples of some species of trees, especially ornamental or uncommon trees might be found in the yard of someone living in one of the boroughs.

Can you find a really big example of a particular tree species? It might be growing in your back yard, a neighbor's yard, or a park, or along a fencerow, or in a nearby woodland.

How you can take part in the Search for the Biggest Trees in Hopewell Valley?: Get outside and look for trees that are *relatively large compared to others of the same species*. Keep in mind that some species of trees grow much larger than others. For example, the biggest white oak tree ever found in NJ was almost 22 feet in circumference, while the biggest flowering dogwood was about 5.5 feet in circumference.

How to measure a BIG tree: Because trees grow so much larger than people, people who study trees most often refer to the size of an individual tree by discussing its "diameter at breast height". The diameter at breast height, or DBH, is just what it sounds like: the diameter of the tree's trunk at the height of the archetypal forester's chest (4.5 feet, or 1.37 m). It is lucky for vegetation science that the most accessible part of the tree—the trunk—is also the best general indicator of tree size! However, diameter is difficult to measure directly, because the trunk gets in the way. Because tree trunks are usually almost circular in cross-section (lucky again!), vegetation scientists can calculate diameter indirectly by measuring circumference. This can be done with an ordinary flexible tape measure (like the ones used by carpenters and dressmakers). They can then calculate the diameter using the formula:

$$\text{Diameter} = \text{Circumference} / 3.14159$$

However, because really large trees are often not exactly circular in cross-section, when considering nominations for the biggest trees, the standards call for using the actual measurement of the circumference at 4.5 feet above the ground. Furthermore, when the tree is growing on a slope, then the 4.5 feet above the ground must be measured on the most uphill side of the tree before measuring the circumference. See Figures 1-3 for additional guidance.

Complete a Hopewell Valley Big Tree Nomination Form for each tree you nominate: After you measure the tree's circumference at 4.5 feet above the ground using a tape measure, fill out the "Hopewell Valley Big Tree Nomination Form" which asks for basic information about you and the location of the tree. Try to determine what species of tree you are nominating using a field guide to trees (available from either a library or bookstore). If possible, take a picture with either a camera or a cell phone of someone standing next to the tree. For each species, nominate just the one tree with the greatest circumference that you found. Nomination forms can be downloaded from http://www.hopewelltp.org/environmental_comm_main.html

FAX the completed forms and the photos to the HTEC at (609)737-2770, or BRING them to the Hopewell Valley Community Picnic at Rosedale Park on Saturday, April 24 before 3:00 p.m., or MAIL them to:

Hopewell Township Environmental Commission
201 Washington Crossing-Pennington Road
Titusville, NJ 08560

What will the HTEC do with the nominations? We will compile a record of the biggest trees in Hopewell Valley (i.e. in either of the Boroughs or the Township), where they are located and who nominated each one. In addition, we will compare this list with the official list of the biggest trees known to be growing in NJ. That list is maintained by the NJDEP – Division of Parks and Forestry. If someone finds a tree bigger than the largest known specimen in NJ, the HTEC will help you complete an official nomination form to send to the Division of Parks and Forestry. Whoever found the tree will be then given credit for finding the new New Jersey Record Tree.

Where to look for the biggest trees: Anywhere in Hopewell Valley – If you are looking somewhere other than in your yard or a park, ***just be sure you have the property owners' permission to trespass to look for big trees.***

Duration of activity: This activity can be done anytime, for as long as you want. However, if you FAX the completed nomination form to the HTEC **by noon on Friday, April 23, then a member of the HTEC will be able to meet you and check your nomination on Saturday morning, April 24.** A list of the largest trees found will be displayed at the Hopewell Valley Community Picnic that afternoon. **Additional nominations** will be accepted until National Arbor Day, April 30, 2010, and then checked at a later date.

Time of activity: Anytime of any day! (*It's easier during daylight hours*)

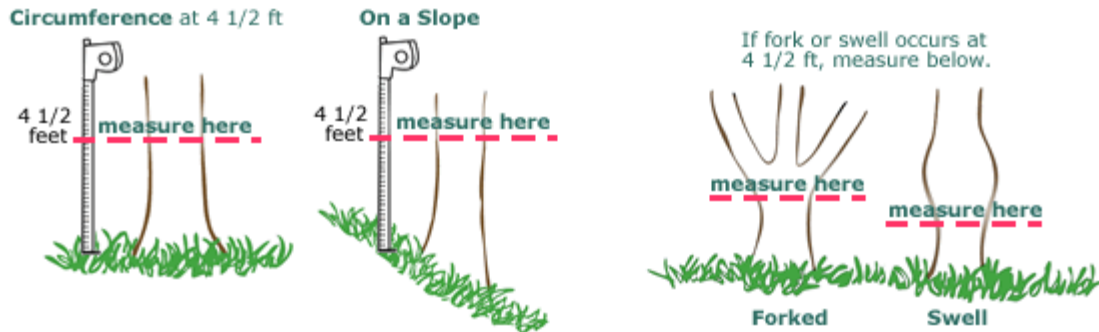
Appropriate ages: Anyone who can *reach* at least 4.5 feet above the ground! (*See how to measure*)

Equipment needed: Tape measure, pencil or pen, nomination forms, tree identification book, camera or cell phone w/ camera (optional)

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How to measure the circumference of a big tree

Measure the circumference of the tree at 4 1/2 feet off the ground, or if the tree sits on a slope, 4 1/2 feet from the uphill side. If the tree has a branch or abnormal swelling at 4 1/2 feet, take the measurement where the trunk returns to normal size. If you measure below 4 1/2 feet, make sure to include the actual height where the measurement was taken. For example: 182"circumference at 3 feet.



The first step is to calibrate "breast height" on your body. This will save you gobs of time in the field trying to measure 4.5 feet from the ground.



Figure 1

You might be wondering why measure at breast height and not at the tree's true base. There are two reasons. The bad, but understandable, reason is that it is a lot more convenient to look at arm height rather than foot height. The good reason is that some tree trunks flare outwards towards the base. Trees of about the same biomass could have quite different diameters at true base if one tree's trunk is flared and another's is not. Most flaring, at least in temperate zones, occurs below breast height. In other words, diameter and cross-sectional area are more reliable measures of a tree's abundance when measured at breast height, above any flaring.



Mountain hemlock
(*Tsuga mertensiana*)

Figure 2



Unless your arms can reach all around the tree, or your tape measure has a good hook on the end, you will need a helper to hold the end of the tape at 4.5 feet above the ground on the uphill side of the tree. Then stretch the tape around the trunk holding it at the same elevation as the end. You read diameter from the point that the tape overlaps zero on the tape. The photographs show the process, which is really very simple. The diameter of this tree is 55.6 inches. *(Note that this tape is calibrated in tenths of an inch)*

Figure 3

Some Examples of Former State Record Trees:

Species - Circumference

American Beech – 16'6"
 American Elm – 14'0"
 Bartlett Pear - 7'5"
 Eastern White Pine – 12'3"

Golden Rain tree – 6'7"
 Hackberry - 12'7"
 Norway Spruce - 13'10"
 Paper Birch - 5'7"

Red Oak- 18'3"
 Sugar Maple – 17'11"
 Sycamore – 23'3-1/2"
 White Ash – 20'5"

For Additional Information:

For a copy of the book *Trees of New Jersey* or the current list of all the State's Biggest Trees, contact:

NJ Forest Resource Education Center; 370 East Veterans Highway, Jackson, NJ 08527,
 phone: 732-928-0029 OR
 NJ Forest Service- Community Forestry Program, 501 E. State St., PO Box 404, Trenton, NJ
 08625-0404 phone: 609-292-2532

For addition information about the Hopewell Township Environmental Commission's Search for the Biggest Trees in Hopewell Valley, contact:

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