



## HULL SPRINGS

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# Solar Energy at Hull Springs

Dr. Charles D. Ross, Professor of Physics, recently prepared a preliminary study for the viability of using photovoltaic energy at both the Hull Springs “Camp Site,” where the new facilities are being constructed, and for a solar-powered gate at the property entrance on Mt. Holly Road.

Dave Love and Sherry Swinson enlisted the help of Dr. Ross in considering the installation of a solar-powered gate at the entrance of the Hull Springs property. It was during this discussion that he offered to test the Camp site.

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Construction of a new research lab at the Camp area is to begin this month, and with the success of future fundraising initiatives, plans are in place to build student and faculty residential units, along with an outdoor teaching space and dining facility. With the overall goal of making Hull Springs a model of conservation and sustainability, the potential use of alternative energy is key to the mission.

“The standard rule of thumb in the solar industry for viability is that the location be unshaded from 9 a.m. to 3 p.m.,” explained Ross. “If this rule is met, then the site will absorb about 80% of the solar resource possible. A site that is unshaded from dawn to dusk will absorb 100% of the available solar resource.”

Using a Solar Pathfinder, Ross was able to identify which sites would be viable and during which months. He noted that the analysis should be repeated from the roof of the completed structures for improved results.



Photo by Julie Ross

Using a Solar Pathfinder, Dr. Charles D. Ross, Professor of Physics, identifies which sites would be viable for solar energy at Hull Springs.

Ross concluded that the Camp area should be “favorable for using photovoltaic energy during most of the time of year when human activity is likely to be high (early spring to mid-fall).”





The towering Red Oak at Hull Springs was lost in a recent storm. We currently are in the planning stages of how best to memorialize this outstanding tree for the centuries it stood sentinel on the banks of Glebe Creek as a beloved Virginia landmark.



## Farewell Old Friend

**It is with great sadness that we share news that the centuries-old Southern red oak at Hull Springs was destroyed by storm on August 5.**

As most of you know, the tree suffered a direct lightning strike almost two years ago, and since, we have worked diligently with a tree specialist to save the ancient oak. After losing nearly 2/3 of its canopy from the strike, the tree's chance for survival was grim.

In an effort to defy nature and save our giant, we installed a lightning protection system, continued our scheduled fertilization program, treated for pests where fresh wounds were created from limb removals, and wired one of its remaining massive limbs to the trunk to provide support, especially in the event of high winds. Sadly, the August 5 storm proved more than the Hull Springs grand oak could withstand.

The good news, as was the case after the devastating lightning strike, is no one was injured.

We currently are in the planning stages of how best to memorialize this outstanding tree for its years of standing sentinel on the banks of Glebe Creek, shading the Big House and all its visitors, and acting as an unmistakable landmark to boaters navigating the Lower Machodoc into the Potomac River and Chesapeake Bay.

In the Fall 2017 *Longwood* magazine, Dr. James Jordan, retired professor of anthropology, paid tribute to the oak with an article tracing its history. He noted that Mary Farley Ames Lee '38, who bequeathed the 662-acre property to Longwood, asked him to determine the age of the Southern red oak. Jordan worked with students in his Archaeology Field School to dig

exploratory holes around the tree where a Colonial clay tobacco pipe was uncovered from the tree's root system. It was determined that this particular type of pipe was produced in England from 1590-1630.

In parallel to Jordan's work, Dr. Carolyn Wells and Thelma Dalmas, retired professors in the natural sciences, were issued the same request by Mrs. Lee, who according to Dalmas had a keen interest in the natural history of Hull Springs.

Wells and Dalmas, who taught a field ornithology course each summer at Hull Springs, inventoried the Northern Neck property for bird and plant life.

It was then that Mrs. Lee tasked the two with dating the oak through science. Dalmas used dendrochronology, transporting a boring of the tree's core back to campus, and meticulously counting as many growth rings as possible under a dissecting scope.

"This is a technique that gives a rough estimate of the tree's age," explained Dalmas by phone this week. In 1995 when the boring was taken, Dalmas estimated the tree to be between 350-400-years old.

Wells shared her memory of the process, giving partial credit to longtime farm manager, Eddie Carey, for assisting Dalmas and her students with the pencil-width boring as close to the center of the tree as possible.

Wells went on to recommend that a crosscut section of the tree, at its widest point, be saved and housed in Longwood's Biological and Environmental Sciences Department. At that point, a microscopic examination may provide a final, accurate dating of the beloved tree.