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VCU's Green Richmond Research

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By Nadia Rentia

The impact of urbanization on the dogwood tree was the VCU junior Kaitlyn Parkman's focus as she researched hundreds of trees in Richmond.

As a Biology major, Parkman found an opportunity to gain field research experience through her genetics class. Her professor, Dr. Rodney Dyer of the Department of Biology, performs many different studies on Virginia's state tree, the dogwood. After making an announcement in class, concerning one of his studies, Parkman contacted Dr. Dyer and within two weeks they had an initial meeting about the study. In spring 2013, Parkman began to help contribute to Dyer's research on urbanization. She has always enjoyed being out in the field, while conducting research, so this study was one that had piqued her interest.

From spring 2013 to early November, Parkman helped locate and map every dogwood in the Fan district of Richmond – a sample of about 400 specimens. Each tree was marked and its reproductive output was measured based on seed production.

Kaitlyn Parkman with one of the 400 dogwoods, located and mapped for a study on the impact of urbanization on the reproductive output of the tree.

She then transferred the data to Google Earth and used Global Information Systems (GIS) to determine the correlation between the health of the tree and environmental factors. Some of these factors under Parkman's investigation are the distance from the tree to city buildings, the buildings' functions, the location of the tree in relation to other trees, and the distance from the tree to green spaces such as parks.

"If we find that the fitness of our dogwoods depends on the connectivity of green spaces in the city, we could see the need for a future increase in protected green

spaces. These green spaces could improve the overall environmental and species health of the beautiful Richmond, Virginia," Parkman said.

Parkman has completed collecting and recording the data into the GIS and since February has been working on the statistical analysis. She says the data shows that any given tree's distance from the road does not affect its reproductive output. Trees that create a canopy over the shorter dogwood also do not affect the seed production.

Through her research, Parkman continues to look for factors related to urbanization that are harming the dogwoods. This way, proper steps can be taken in order to keep Virginia's trees healthy.

"…It is imperative that we continue to raise awareness about the importance of maintaining the plant diversity within the city as it continues to grow. We do not want to destroy our beautiful ecosystem as we grow as an urban epicenter," she said.

Each tree's reproductive output was measured based on seed production.