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Is Pictometry Useful in Tree, Shrub and Forest Landscape Ecological Analysis?

David Kulhavy, Daniel Unger, I-Kuai Hung, and David Creech

Pictometry 20 cm and 60 cm resolution image was acquired for leaf off coverage in February 2013. Pictometry provides 3D oblique imagery and quantification tools including heights, distances, slopes and locations and can be measured and transferred into an ArcGIS environment. Measurement of heights of baldcypress were accurate within 1.5 percent compared to a measuring pole. Pictometry was used to display stems of the endangered Neches River rose mallow, *Hibiscus dasycalyx*, on a hydric forest soil. This imagery was compared to 2 cm resolution imagery from a GoPro- Hero3 camera and an AR.Drone quadricopter for both plant size and number of blossoms. GPS points plotted on the Pictometry imagery provided a quantification of the stem clumps of the plants. Within a forest ecosystem, landscape ecological forest classification of the patch-corridor-matrix mosaic was quantified into patch and corridor types (remnant, disturbance, introduced, environmental resource, and regenerated); and the background matrix in an urban forest environment. The ease of the classification due to the both the resolution and clarity of the imagery is useful in analysis of the structure, function and change of the current and projected forest. The broad-scale measurements of vegetation within the forest point to the usefulness of Pictometry for landscape evaluation. The ease of the use of Pictometry tools for height, distance, slope, area and contours make this an important natural resource tool for quantification and classification. Learning outcomes include rapid assimilation of the quantification of the natural resource environment coupled with the ease of display of results. Data can be transferred to an ArcGIS environment and varied measurements displayed of the forest. Pictometry is rapidly gaining in use in natural resources.

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