



Monitoring of Reforestation Sites in the San Luis Valley & Data Collection in the Permanent Forest Plot at the University of Georgia in Costa Rica

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Carbon Offset Program

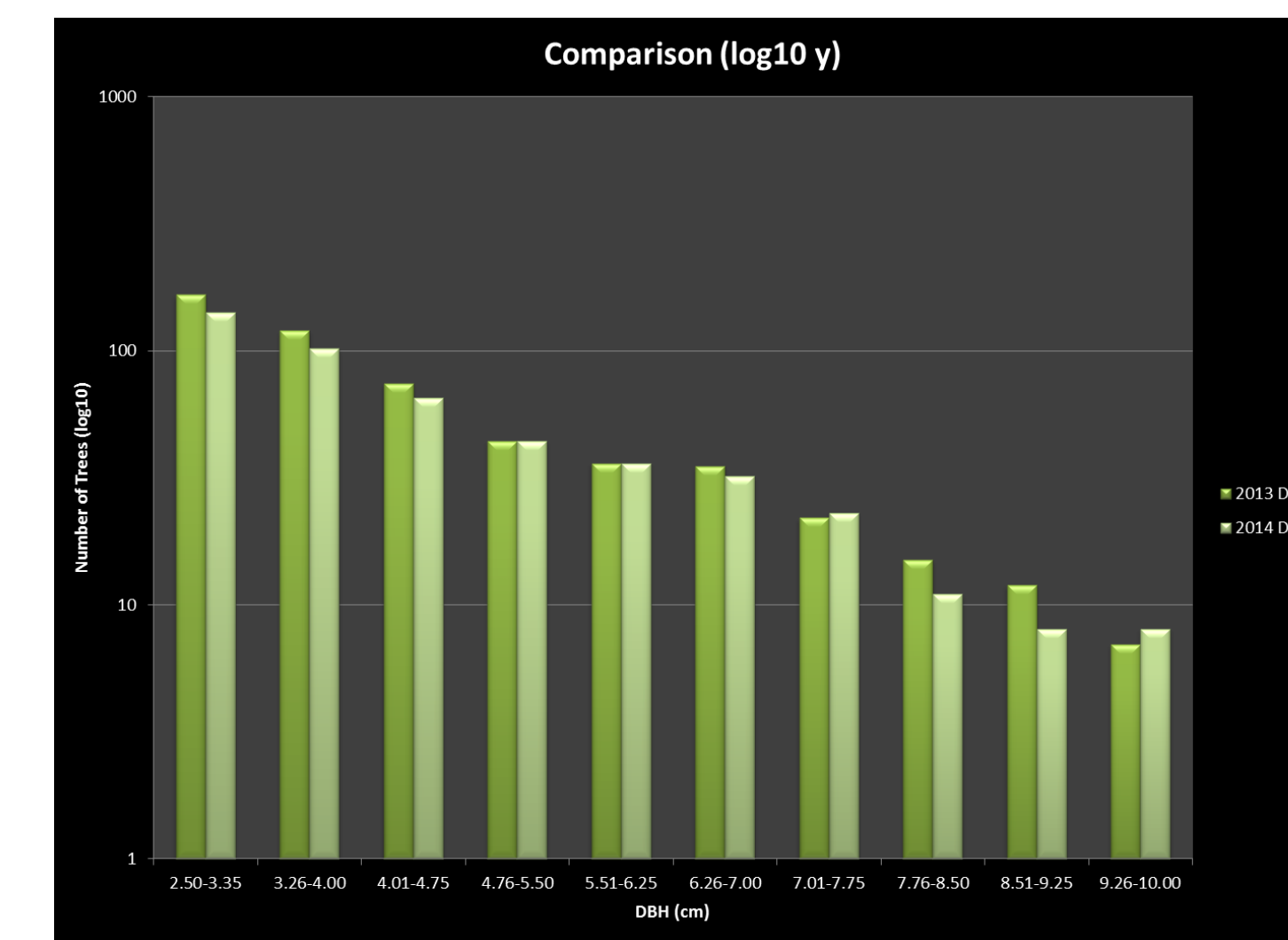
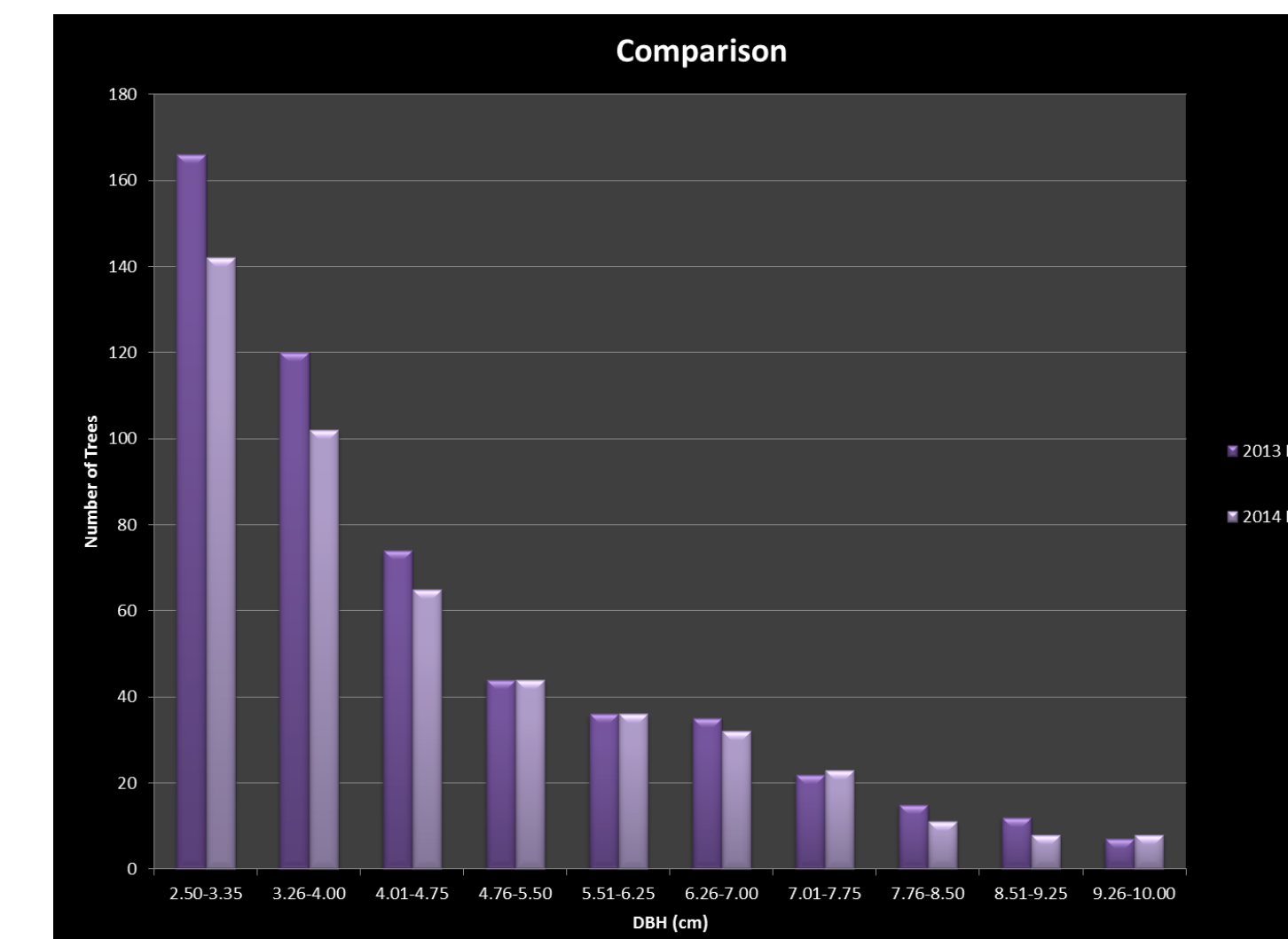
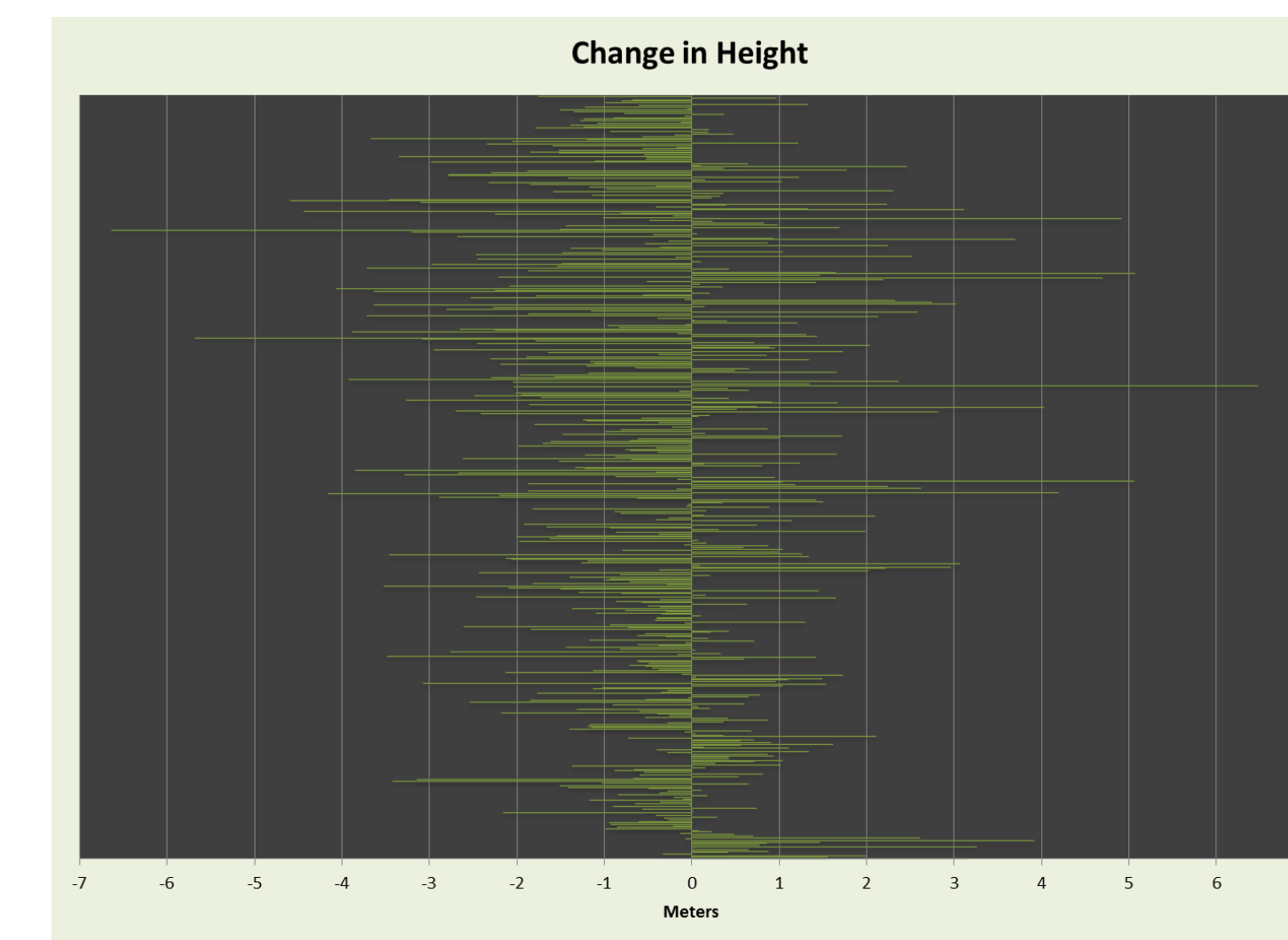
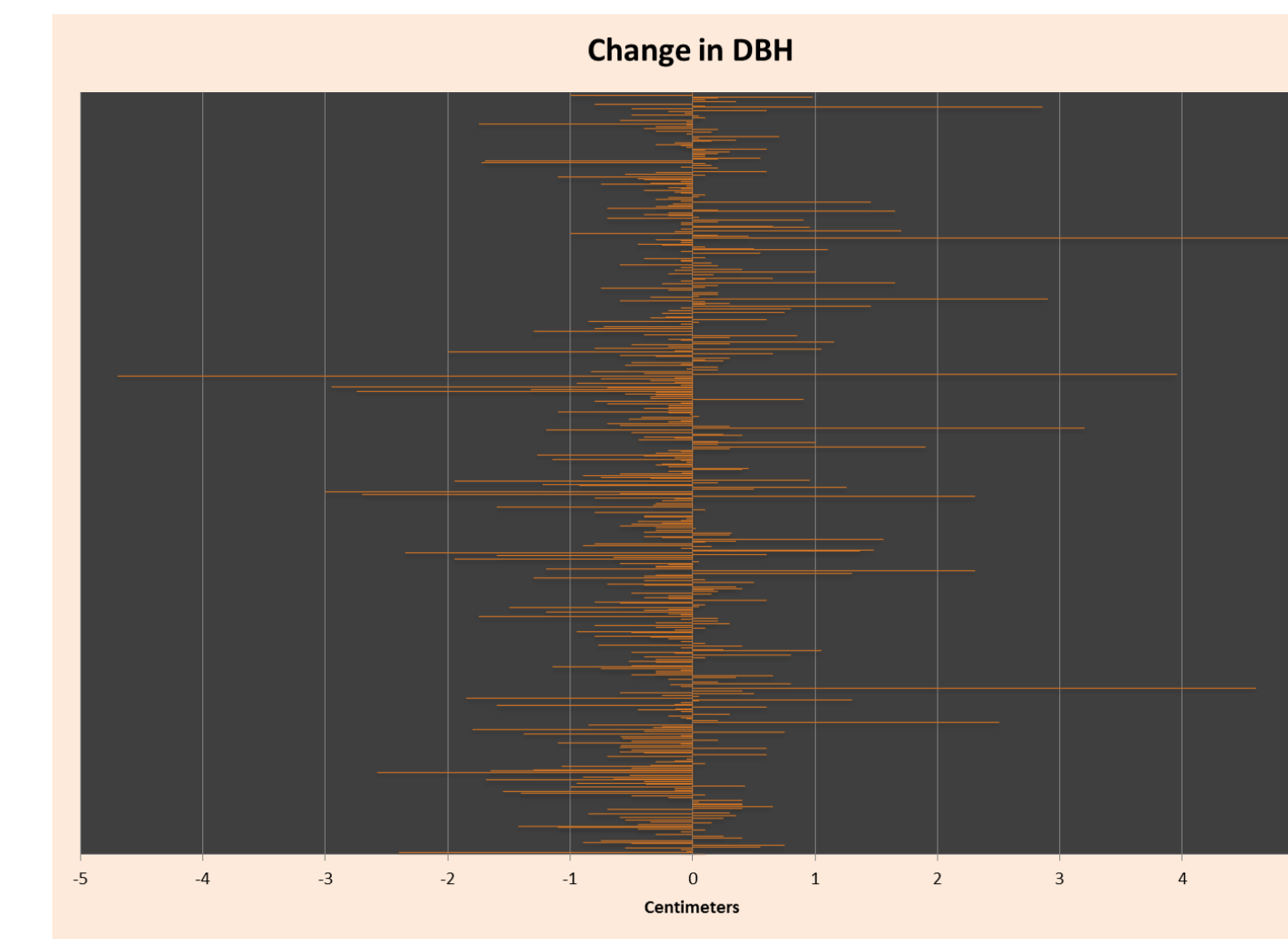
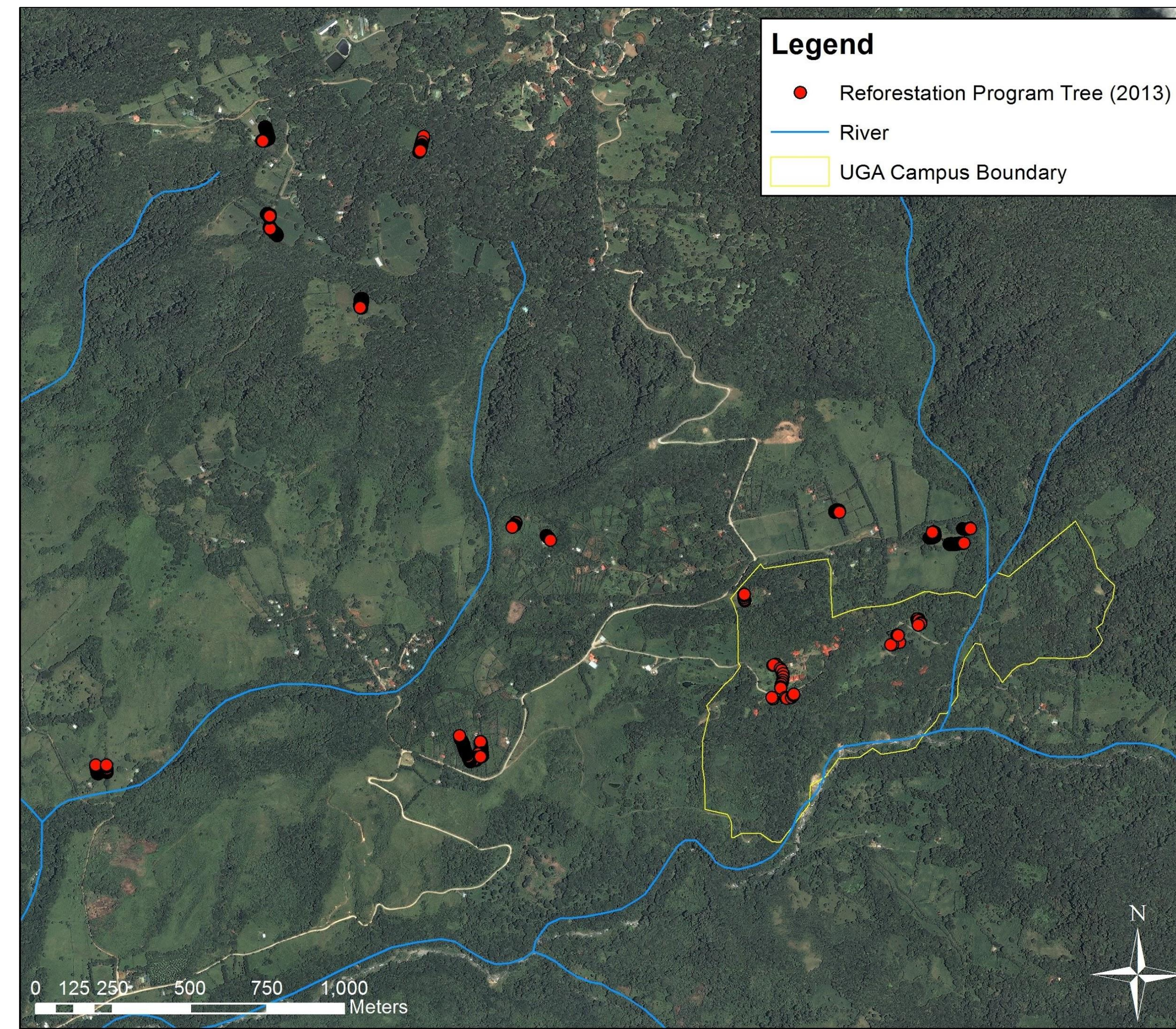
The University of Georgia in Costa Rica launched the Carbon Offset Program in January of 2008. The purpose of this program is to counterpoise carbon emissions created through travel by students, teachers and others associated with the university. In addition, the planted trees are also part of reforestation efforts in the area, with some clusters of saplings offering protection for farms against strong winds. The standard operating procedure included measuring the diameter at root crown or DBH of each planted tree, measuring height from root crown to dominant bud, tagging individual trees, recording data and plotting the GPS location of each individual tree.

To the right is a map of the majority of the reforestation sites we monitored and collected data at. We performed data analyses on our findings, predominantly using species as a factor in sorting data. Analyses were inconclusive because no species type had a large enough sample size to draw any conclusions or generalizations.

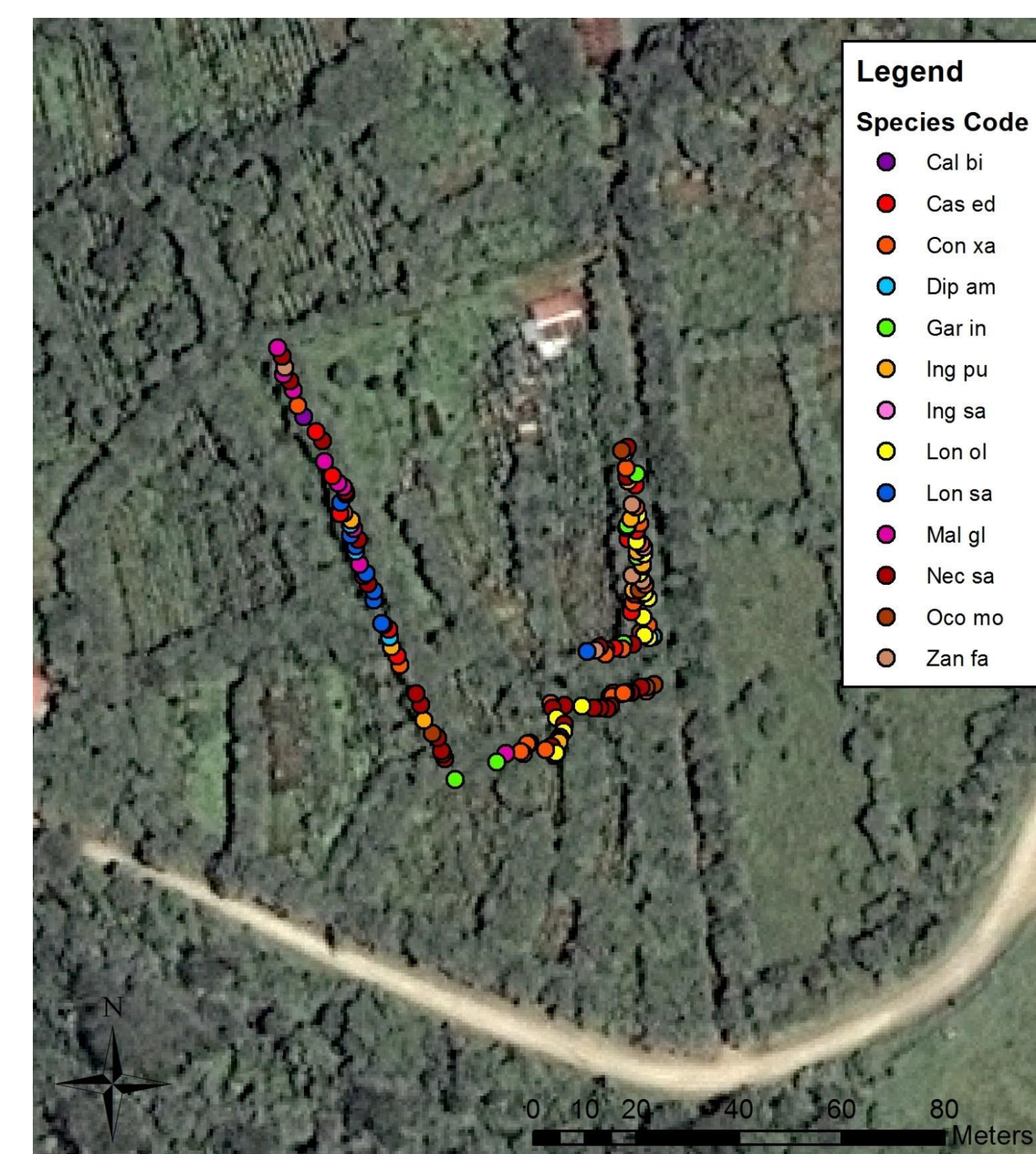
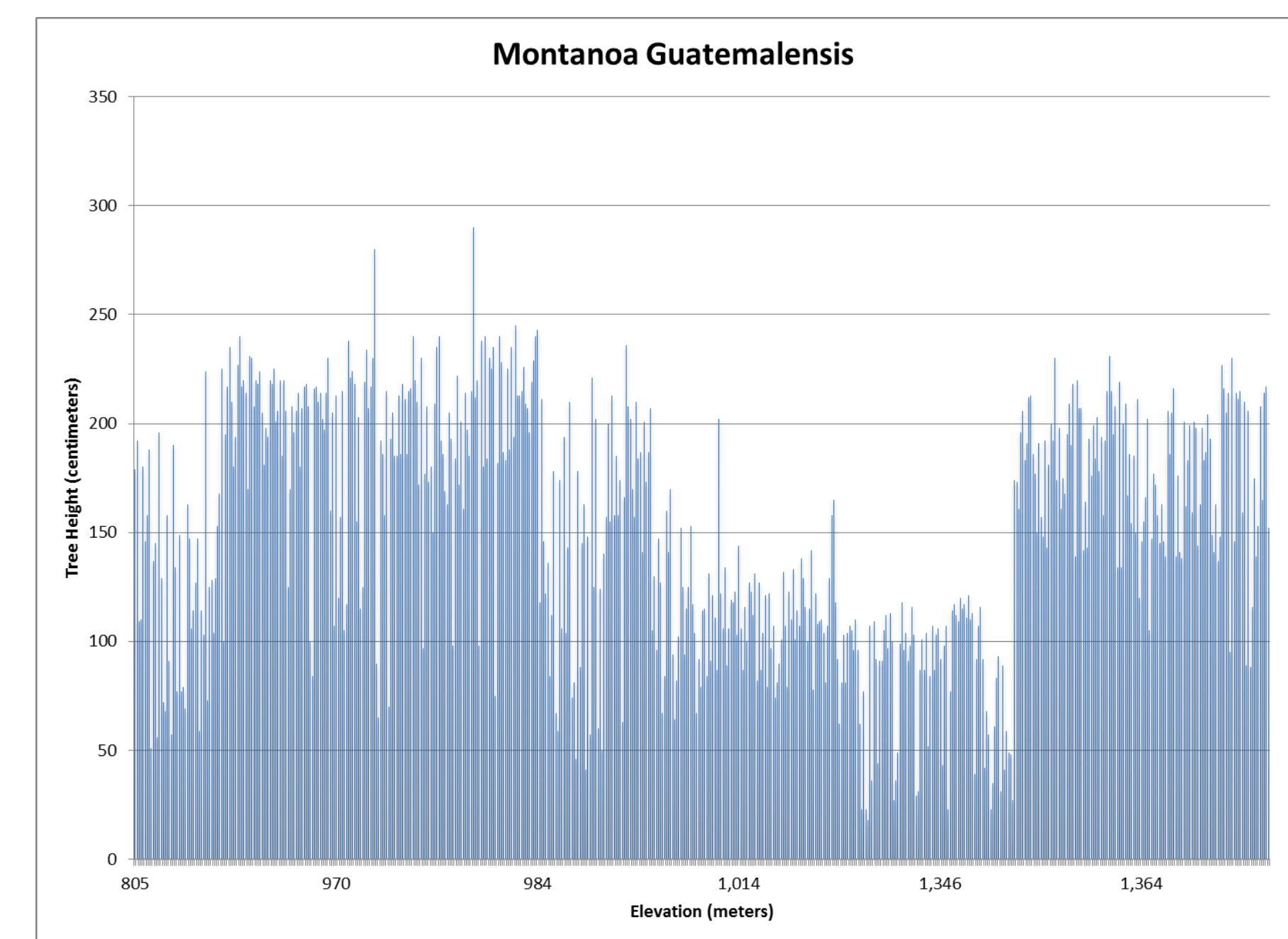


Above: A large snake we found while working in the San Luis Reserve

Below: Emily Sechrist records species data with the help of Lucas Ramirez, while Jenna Smalley determines the height of a sapling



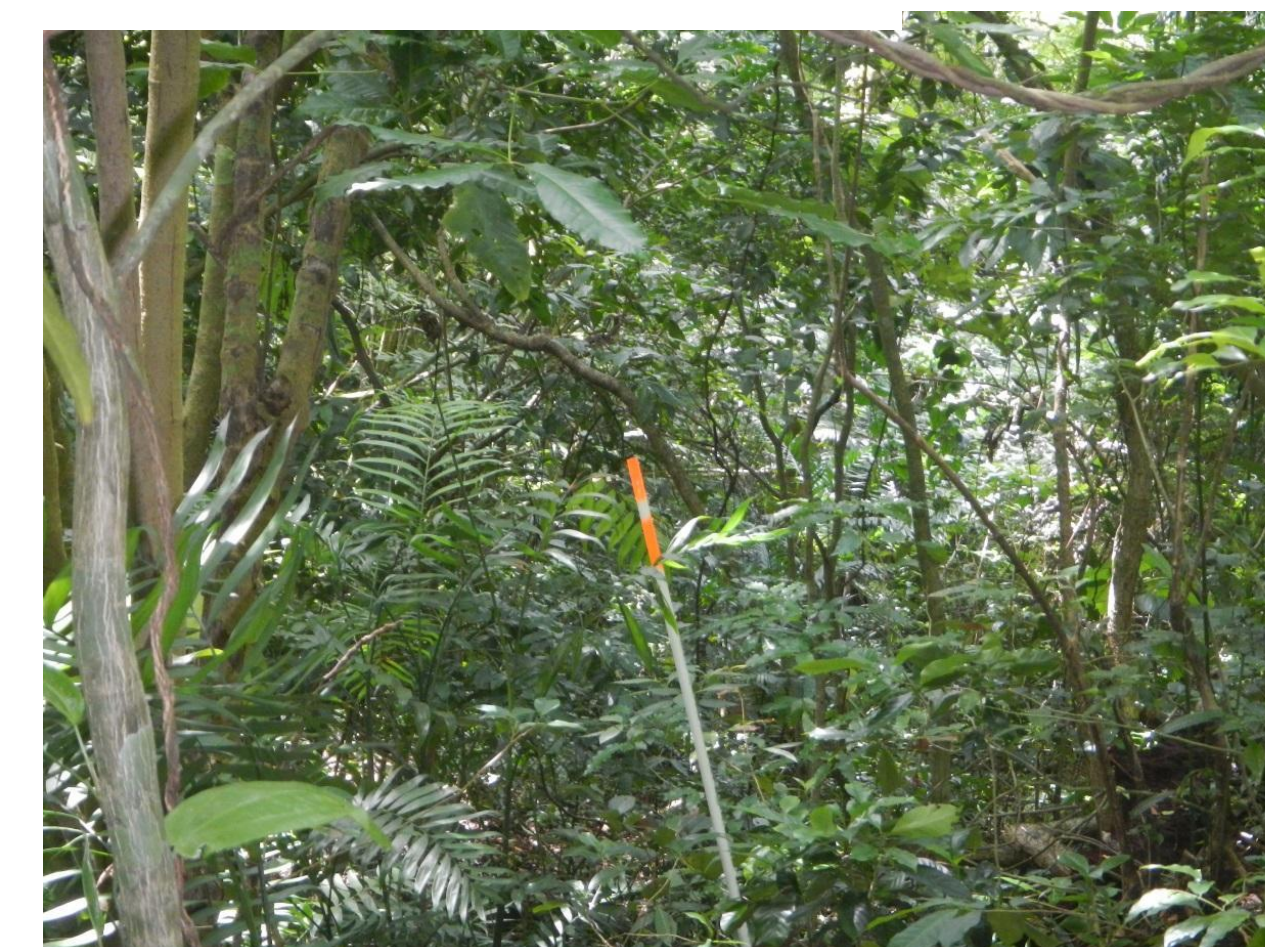
Average Change in DBH (cm) -0.142
 Average Change in Height (m) -0.386
 Number of trees found dead 35
 Number of new trees found 53
 Number of trees we could not locate 17
 Total trees measured in 2014 590



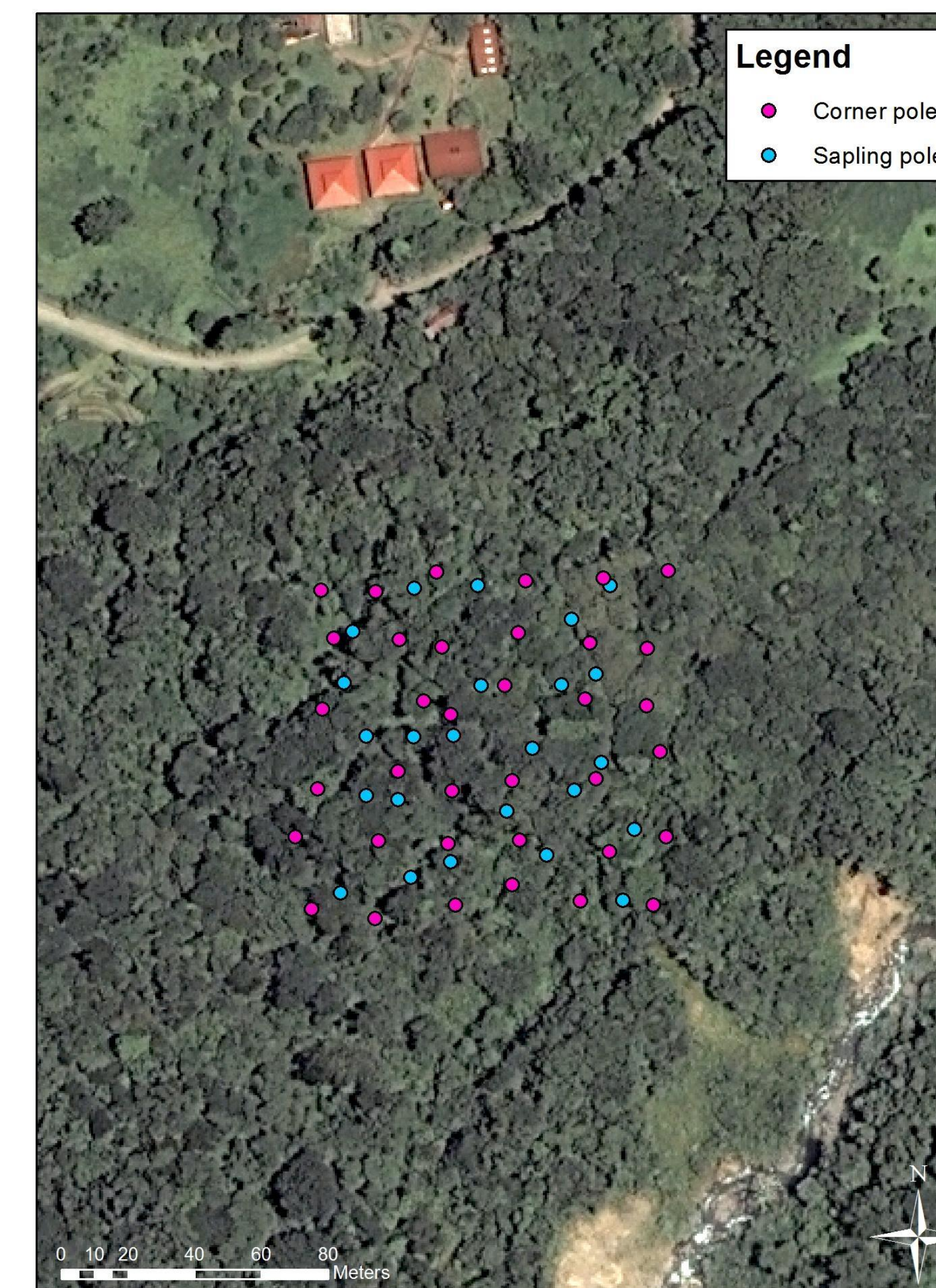
Above: Map representation of Costa Rica, with our relative position at UGACR campus & a graphical representation of height vs. elevation for a specific tree species

Right: GPS map of all plotted corner and center posts in the permanent plot & a visual of a subplot center pole, this year marked with two orange lines

Left: Example of an individual reforestation site



UGA Costa Rica Permanent Forest Plot



Permanent Forest Plot

Located at the University of Georgia campus in San Luis de Monteverde, Costa Rica, the permanent forest plot was first established in 2012 for the purposes of monitoring changes in tree composition, determining rates of carbon sequestration and to better understand forest dynamics. The permanent plot is a one hectare plot, consisting of 25 20 by 20 meter subplots marked with a PVC pipe in each corner. Within each subplot there is a randomly placed "center pole," and as 2014 interns, we tagged new saplings with a DBH between 2.50-10.00 cm within a 6 meter radius from that pole while also collecting data for all previously tagged trees. Among data collected were the following: tree ID, DBH, health, height, XY coordinates and species.

We note a negative change in both average DBH and average height of the trees, which may mean that a lack of rainfall caused some trees to shrink, or that one year is not a significant enough amount of time to take measurements. The histogram graphs support that chances of the trees dying are equal at all ages, and the plot is not a completely closed canopy. This would mean the trees are not yet in serious competition with one another, which suggests/supports that the forest is young.

References

Heldreth, Micheal. *Standard Operating Procedure for Carbon Offset Program*. Santa Elena de Monteverde: The University of Georgia Costa Rica, 2014. Print.

Morris, Don. *Instructions for Lehigh Interns: San Luis de Monteverde UGA Campus, Summer 2014*. Santa Elena de Monteverde, 2014. Print.

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