

## **Conclusion of Cartographic Data and Content for Costa Rica**

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Due to its status as a developing nation, Costa Rica does not have the abundance of geographic data available to the public that we, as Americans, enjoy. Therefore, when collecting data for a research project, accepting the second best option is necessary. This is the kind of dilemma that was encountered on our project. Our objective was to collect as many geographic data layers of Costa Rica as are available, with our main focus on two national parks: Carara and Corcovado. Both of these parks are located along the western coast of this lushly landscaped nation. It is here that as a team of 25 students, we will instruct our peers in the use of GPS and its ability to gather waypoints and tracks for species and trails.

### **GPS**

Since most of the GPS collection will be done in the rainforest, satellite reception may become an issue. We collected points and tracks in the Sehome Hill Arboretum under fairly dense canopy cover to see how much of an affect the trees had. At times we had reception from only two satellites and this still produced fairly accurate readings. To make sure that our points and tracks are as accurate as possible in Costa Rica, we will also be taking one or two Trimble GPS units which get much better satellite reception than the Garmin units.

## **DEM Resolution and Cartography**

Seeing as the GPS points will be layered over the DEM, the highest resolution possible will work the best. Finding a 90m resolution DEM was not tricky, we simply downloaded it from SRTM. However, we were not happy with this. While continuing our search for a 30m DEM, we stumbled across Mesostor and its 30m hillshade. We then knew that there was a 30m DEM out there and our search continued, only to come up empty handed. Apparently, the Inter-American Biodiversity Information Network (IABIN) took a 30m DEM created by SRTM to use for coffee growers and the Costa Rica coffee research institute (CICAPE). This data has been released to certain USGS officials for derivative production but will not be released to the public. The fact that there is a 30m DEM does help us with more accurate road and river layers. It also provided us with a higher quality hillshade than any we could produce ourselves.

## **Possible Improvements**

Now that we have most of the data available for download, the next step is to see if there is a way to improve the cartographic content. Possible options are to somehow include the 30m hillshade in our map with the hope that it will improve the resolution. This could be done by possibly draping the available semi-transparent 30m hillshade layer over our existing 90m DEM and hillshades. Also, since all the available data from Mesostor has been derived from the 30m DEM, if we were to download a roads and rivers layers, they might be more accurate than the data we received from the USACE. A comparison would be necessary before anything is decided. Another reason for comparing data is based on the quality of the initial data collector. Was the data as accurate as possible? Did someone

else do a better job? Or, is all the data available from the same source? If the answer to this final question is a yes, it will be important to make corrections on the data ourselves while we are out in the field.

The main emphasis of this project was to provide a solid base for the Costa Rica excursion this summer. We will be using our results to facilitate our research in the field. The cartographic aspects of the project have helped us gain a much better understanding of the geography of the country and the national parks. We will arrive in Costa Rica with a solid understanding of how to conduct the GPS portion of our research and how we will integrate that with GIS. We will be able to share this knowledge with the other members of our team which will make some of the academic aspects of our excursion much smoother.