Progress Report for The Rufford Foundation

Figure 1: *Quercus insignis* seed in Zongolica, Veracruz

Project name: Conservation of Endangered *Quercus insignis* Martens & Galeotti, 1843 (Fagaceae) Under Climate Change

Project ID: 29520-2

Project type: Second Rufford Small Grant

Report date: 2022-03-10

Project leader: Dr. Hernando Alonso Rodríguez Correa

The project "Conservation of the endangered oak *Quercus insignis* in a changing climate" aims to use a multidisciplinary approach to study the capacity of the species to survive the expected changes in the environment under the current global al regional climate change scenarios.

1. Our first two objectives where to identify valuable genotypes reflecting adaptation capacity throughout the species range to be used in future reforestation and restoration efforts, and to identify areas where future climatic conditions will not match the genetic capabilities of the current individuals.

With regard to these objectives the activities of this first period were the following:

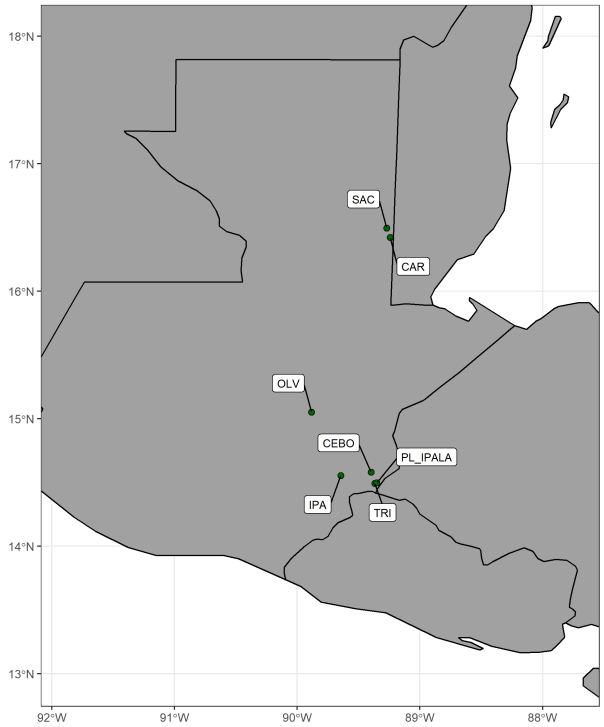

Figure 2: Location of sampling sites in Guatemala

i) We collected plant tissue from seven sampling sites in Guatemala.

ii) We standarized the extraction procedure and obtained high quality DNA from seven sampling sites in Mexico (previously collected), seven sampling sites in Guatemala and one from Costa Rica.

iii) We sent for sequencing the first lane (95 samples) with individuals from 10 populations located in Mexico and Guatemala.

Next steps: For the next time period we are planning to visit the sampling locations planned for Honduras and to send for sequencing all the remaining samples. Our data analysis will be standarized using the first batch of data and will be completed once the full dataset is obtained.

2. We also proposed as objectives to get a better understanding of the demographic processes of *Q. insignis* and a functional trait characterization of the populations. Furthermore we plan to communicate and disseminate all the obtained information across local communities, educational institutions and government agencies.

With regard to these objectives we performed the following activities:

i. Monitored survival and growth of 1211 *Q. insignis* individuals, located in six permanent plots we have in Mexico (Figure 4).

ii. Measured functional traits of leaves for individuals in sampling sites in México.

Next steps: Data analyisis will be performed and results will be presented in documents that can be disseminated across local communities and other interested parties.

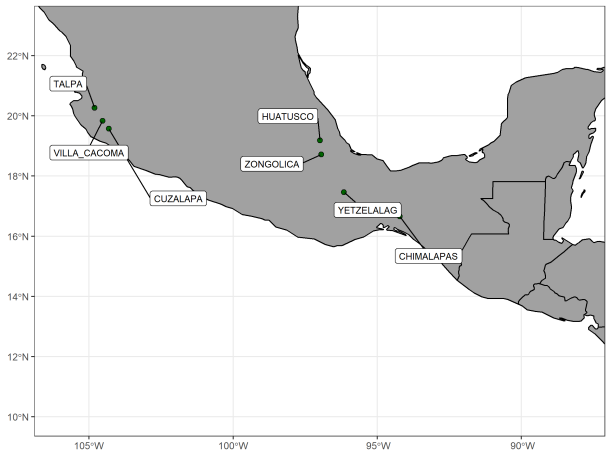

Figure 3: Locations of permanent plots

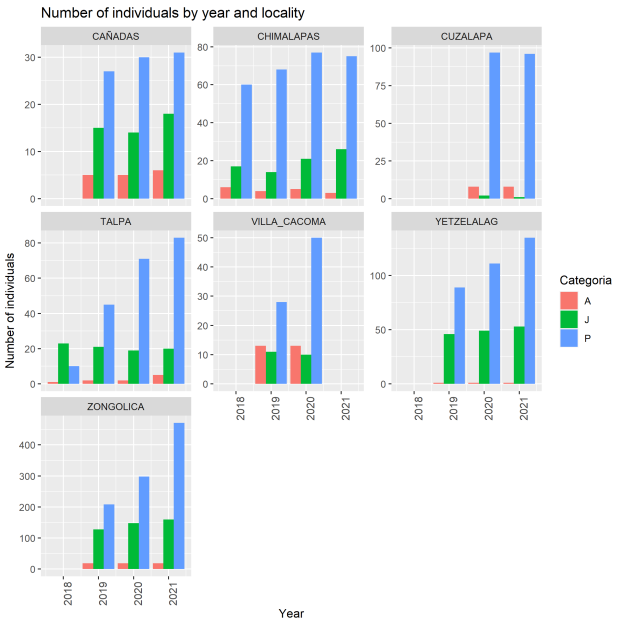

Figure 4: Number of individuals measured per site and per year

Figure 5: Tagging individual

Figure 6: Measuring height

Figure 7: Measuring DBH in *Q. insignis* adult tree

Figure 8: Pemanent plot in Talpa, Jalisco. Seedlings were tagged with a metal tag and a white flagging

Figure 9: *Q. insignis* acorns in Zongolica, Veracruz

Figure 10: *Quercus insignis* adult tree in Petén, Guatemala

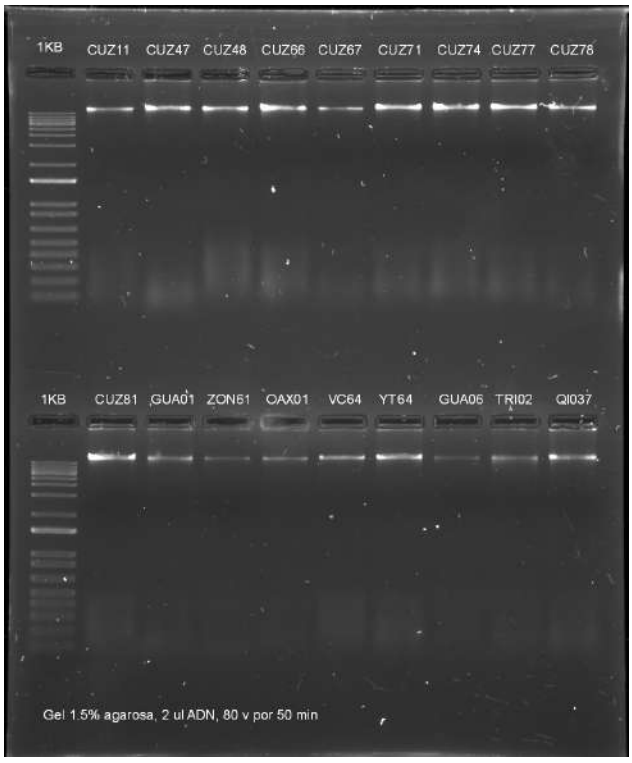

Figure 11: Example of visualization of agarose gel of high quality DNA extraction from samples