

Final Evaluation Report

Your Details	
Full Name	Elif Deniz Ülker
Project Title	Conservation of an endemic oak species (<i>Quercus vulcanica</i>) under environmental change: an integrated approach
Application ID	31511-1
Date of this Report	17.09.2023

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Determining all populations and the current threats of <i>Q. vulcanica</i>				Prior to the fieldwork, the Directorate of Forest Management at the General Directorate of Forestry was visited to obtain data on the stand layer and the areas where the species is distributed. During the fieldwork, it was observed that some of the areas specified in the database did not belong to the target species, and there were misidentified other oak species. Nevertheless, all populations of the target species were sampled within the intended timeframe.
Projecting the past, current and future suitable habitats, and predicting the possible LGM glacial refugia of the species by using ENM approach				Using samples collected from the field and relevant programmes, the distribution areas, suitable habitats, and potential refuges during the last glacial maximum of the species have been successfully predicted under different climatic scenarios. Furthermore, environmental threats faced by different populations of the species have also been identified.
Organising a workshop with local foresters and NGOs				Within the scope of the project, it was planned to share the findings about the population status of the species and current threats observed from fieldwork in a workshop in which the relevant operation directorates of the Forestry General Directorate would participate. However, due to the mega wildfires that occurred in our country in 2021 and 2022, all forestry units were redirected to firefighting areas, and as a result of subsequent staff changes, the planned workshop could not be held. Therefore, the sharing of findings and information regarding population status was conducted by visiting the relevant forest management

			<p>directorates and having one-on-one discussions with the unit chefs in the field. Furthermore, no relevant NGOs could be found in the area. Therefore, in the visited regions, information exchange regarding the species was conducted by visiting village headman's offices and coffeehouses, which are traditionally important gathering points for small settlements in our culture, in the residential areas.</p>
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2. Describe the three most important outcomes of your project.

- a).** All known populations of the endemic *Q. vulcanica* oak in Anatolia were visited, and the structure, health status, and potential threats to the populations were recorded.
- b).** Potential glacial refugia for the species during the Last Glacial Maximum were identified, and based on model results, it was predicted that the species' future potential distribution areas will significantly contract due to climate change and environmental changes, with many regions facing extinction.
- c).** Long-term institutional and academic collaborations have been established both at the local and international levels, such as the GDF and the IUCN, to better understand, conserve, and enhance forestry practices for the species.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

The mega forest fires that occurred in our country in 2021 and 2022 necessitated the urgent deployment of all forest management directorates to the fire-affected areas as an emergency requirement. Subsequently, due to staff changes in the management directorates, efforts to bring together the previously contacted management directors and unit chiefs with the newly appointed staff in a meeting proved unsuccessful. Therefore, information about the species was provided to each management directorate in the respective region through face-to-face meetings. Additionally, instead of an NGO meeting, meetings were held with the local residents near the areas where the species is distributed. Discussions were conducted with the local community, inquiries were made about the species, relevant populations were visited with knowledgeable individuals from the local community, and detailed information about the importance of the species was shared.

Furthermore, during fieldwork, it was discovered that some of the points identified as *Q. vulcanica* in the stand layers obtained from the Directorate of Forest Management were incorrect. This situation resulted in a loss of 2 days during the fieldwork. The information about these erroneous polygons has been shared with the

institution, and it is expected that these inaccurate areas will be updated in the next planning period.

4. Describe the involvement of local communities and how they have benefited from the project.

If there were settlements in the area where populations of the species were located, the first step was to visit the community gathering places actively used by the local residents, such as headman's offices and coffeehouses, during the day. Here, information about the study was given, and information about the species from the local people was obtained by showing a photograph of the species and describing it. During these visits, conversations were held with forest workers, shepherds, and forest villagers who seasonally use high-altitude pastures in many of the places visited during the study. Particularly, during conversations with elderly individuals who had worked as forest labourers in the past, it was learned that they were familiar with the species, and information was obtained about past logging and grazing activities on the species. During the discussions with the local community, individuals familiar with the species guided and took us to the places where they had seen the individuals of the species. In fact, during one of these visits, in an area guided by a former forester, we recorded the widest and possibly the second oldest *Q. vulcanica* individual ever identified in Turkey.

5. Are there any plans to continue this work?

When my project was accepted by The Rufford Foundation, I had announced a brief information note through my ResearchGate account. ResearchGate is a platform where scientists and researchers share their work and find fellow researchers with common research interests. Following this sharing, a valuable researcher from Portugal, who was working on similar topics related to oaks, contacted me, and we exchanged detailed information about our research areas. Later on, they invited me as a co-author for a publication they were preparing, providing me with the opportunity to share both the knowledge about *Q. vulcanica* I gained from this project and general information about Anatolian oaks. Additionally, during the collaboration, he shared with me different sources related to *Q. vulcanica* that I hadn't come across before. As a result, we have decided to continue our collaboration on a larger scale. In the coming period, we will continue our efforts to create a detailed genetic map of *Q. vulcanica* and identify key genetic diversity centres.

6. How do you plan to share the results of your work with others?

I have written an article containing the project results, including an important discussion section, and submitted it to an international scientific journal. It is currently under peer review. I also included the endemic species *Q. vulcanica*, which I worked on within the scope of the project, in my thesis, which I have completed and made available for sharing. Additionally, during the fieldwork, we identified the second-largest individual ever recorded in Turkey, and a brief informative note is being prepared for this discovery for the information of forest management directorate. Apart from this, I have contributed to the Plants Red List project

conducted in partnership with the IUCN at the Nature Conservation Center Foundation, where I currently work as a project manager, by sharing the project findings.

7. Looking ahead, what do you feel are the important next steps?

As a main result of the project findings, future distribution modelling of the species was predicted in response to climate change and environmental impacts. According to these models, under both best-case and worst-case scenarios, the species is at significant risk of losing a substantial portion of its current distribution range. When factors such as grazing pressure, illegal logging threats, the expected increase in forest fires due to climate change, and pressure from invasive species are added, the species faces a significant risk of extinction. When these results were evaluated, forestry management recommendations for the conservation and implications of the species were developed. These recommendations are provided in the submitted paper and the relevant section of the thesis. The next major goal is to ensure that these proposed implication recommendations are effectively shared with decision-makers and practitioners, and to prepare a national action plan for the species. Finally, efforts are underway, both individually and through collaborations, to update the information about the species on the IUCN platform. I aim to establish contact with the relevant representatives and aspire to become the focal point for the species in the country.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

The main outcomes of the project were prepared for publication in a scientific paper, and in the acknowledgments section, thanks were given to The Rufford Foundation. The logo was used in the presentations made about the project or any related presentations which includes *Q. vulcanica*. Additionally, the logo was added to the flyers prepared for distribution to the directorates of forest management.

9. Provide a full list of all the members of your team and their role in the project.

Metin Gediz Kocaeli – helping obtain GDF's stand database and helps communicate related forest management directorates.

Çağatay Tavşanoğlu – advisor and helping for the field studies.

Oğuz Ülker - Volunteer for the field studies and second driver.

Mehmet Göktuğ Öztürk - Volunteer for the field studies.

Melike Kuş - Volunteer for the field studies, and second driver.

Duygu Deniz Kazancı - Volunteer for the field studies.

Carlos Vila-Viçosa – helping to identify the species and providing additional literature information.

10. Any other comments?

Unfortunately, as committed in the project proposal, the interaction and sharing with the General Directorate of Forestry could not be carried out as originally planned. This was influenced by the ongoing pandemic conditions in the country at that time, as well as the significant forest fires that occurred in the same year. However, despite all these challenges, it enabled me to establish even more direct communication with the foresters and the local community in the area, allowing me to in-situ raise awareness and provide information about the species than I have planned. Furthermore, the project achieved significant success with the obtained outputs, delivering current and accurate information about the country's sole endemic oak species to both relevant institutions and making a substantial contribution to the literature.

























