

Final Evaluation Report

Your Details	
Full Name	Okan Urker
Project Title	Reviving Oriental (Anatolian) Sweetgum Forest by Implementing Action Plan in Southwestern Turkey
Application ID	33742-D
Grant Amount	£10,000
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Date of this Report	14 January 2022

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
Herpetofauna Research and Wildlife Monitoring				The research and monitoring was fully achieved and we are now in the process of scientific paper submissions. Also, related data was sent to the Sweetgum Action Plan while its activities and sub-activities were up-dating.
Checking the Survival Rates				This has been done and reported to the local forestry department.
Selecting New Plantation/Afforestation Sites				This has been done and prepared as a scientific report (now it is on the reviewed process in a scientific journal). After it has been accepted by the journal, it will be shared by the G.D. of Forestry and G.D. of Natural Assets.
Sweetgum Afforestation Events				We'd been tried to continue to these events during our 2 nd Booster Grant Project as previous Rufford projects. Unfortunately, Covid-19 restrictions have caused to be interrupted for those events. But we had the opportunity to realise the sweetgum afforestation events, which we could not successfully implement in the first quarter of the project due to the Covid-19 restrictions, within the scope of November 11 Tree Planting Day, organised after these mega fires.
Sweetgum Forest School				During the mega fires, which coincided with a time period in parallel with the sweetgum forest school activities that could not be realised due to the Covid-19 restrictions, the relevant budget had to be used for the purpose of raising awareness to the national public by the project team at the time provided information about the ecological effects of the fire during the extinguishing of the fires, its effects on

				the wildlife in our study area, and the post-fire restoration process, etc.
The Private Property Acquisition Campaign				While the real estate analysis report is being prepared on the one hand, the fluctuation due to the economic crisis in Turkey makes this budgeting very difficult. It is very difficult to determine the precedent and fair value at the moment. However, our real estate analysis report will be finalised by the end of January 2022.
Environmental History Studies				The environmental history studies were fully completed with the help of this 2 nd Booster Grant. The results will be used in a MSc thesis by our PR officer and Marmaris District's local project officer.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

Three major events (Covid-19, megafires and economic crisis in Turkey) played a major role in determining the course of our project this year.

Covid-19 restrictions have caused the sweetgum forest school and sweetgum afforestation, which we have been running successfully for years, to be interrupted. At the same time, it created an obstacle for the Sweetgum Working Group to meet regularly. We tried to overcome this problem mostly through online meetings. Although this situation hindered our face-to-face environmental history research in the region, we tried to obtain data via telephone or remote interviews.

The mega fires that took place in our work area this summer necessitated serious revisions in the short- and long-term setup of the project. During these fires, which coincided with a time period in parallel with the sweetgum forest school activities that could not be realised due to the Covid-19 restrictions, the relevant budget had to be used for the purpose of raising awareness to the national public by the project team at the time provided information about the ecological effects of the fire during the extinguishing of the fires, its effects on the wildlife in our study area, and the post-fire restoration process, etc. We had the opportunity to realise the sweetgum afforestation events, which we could not successfully implement in the first quarter of the project due to the Covid-19 restrictions, within the scope of November 11 Tree Planting Day, organised after these mega fires.

In order to implement the corridor methodology in the deed lands located in the fragmented forests and / or on the edges of our study area, a comprehensive real estate analysis report is continuing to be prepared in cooperation with our project assistant and local real estate agencies. While the real estate analysis report is being prepared on the one hand, but the fluctuation due to the economic crisis in Turkey makes this budgeting very difficult. It is very difficult to determine the precedent and

fair value at the moment. This leads us to alternative strategies, from the option of buying land with the government to plant sweetgum trees in burned areas, on forest edges and open areas, on field lines, etc., leads to sweetgum tree planting. We are developing a strategy that will focus on planting and plantation processes at these points, considering the potential distribution map of sweetgum (and the results of our articles now in peer reviewed process related with this topic) that we have created for 2022.

However, these limitations did not cause any serious problems in the wildlife (mammal, bird, bat, reptile, etc.) research studies we have conducted in the field for many years and checking the survival rates and selecting new plantation/afforestation sites. We have successfully completed these activities and our monitoring activities continue regularly.

3. Briefly describe the three most important outcomes of your project.

The findings of the *Checking the Survival Rate* study, in which we tested the results of sweetgum tree planting activities that we applied in almost every project, indicated that these afforestation activities are progressing on a successful path and can be repeated regularly by forest management directorates.

Results of the event of *Selecting New Plantation/Afforestation Sites* provide decision makers and practitioners with a roadmap for sweetgum afforestation that can be implemented in a very short time without causing concrete administrative, civil, ecological and anthropogenic problems.

Data from our many years of wildlife studies with the support of Rufford has received significant attention as it provides the strongest scientific evidence to local and national publics to compare changes in wildlife characteristics following this year's mega fires.

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

We created a Sweetgum Working Group 3 years ago on regional scale with different kind of stakeholders (other NGOs, forestry departments, local universities, local municipalities, district governors, city councils, etc.). We have published and started to implement a Sweetgum Conservation Action Plan with this working group last year. Within the scope of the project, we will be directly responsible for this working group in line with the action plan.

On the other hand, our cooperation with local NGOs working on nature conservation in the region and city councils belonging to municipalities at various levels before the mega fires has evolved to a different level after these fires.

5. Are there any plans to continue this work?

As of the point we have reached as a result of this project, we have already decided on some issues that we need to do in 2022. First of all, a cooperation

protocol will be signed with the officials of the General Directorate of Conservation of Natural Assets and the General Directorate of Forestry regarding the conversion of eucalyptus plantations, which are an invasive species, into sweetgum forests, as well as the afforestation of oriental sweetgum in suitable areas and openings in the forest, whose ecological assessments have been made by us.

Secondly, we will focus on more workshops, afforestation and social media activities in 2022 in order to make the Sweetgum Working Group more active and the Sweetgum Action Plan more functional.

While we will highlight the key species of sweetgum forest in awareness studies, we will put the main emphasis on bats. We will emphasise the importance of sweetgum forest in ecotourism, public health, forestry and agriculture sectors by focusing on activities such as building a bat hotel that will contribute to colony development, contributing to biological control through the analysis of bat faeces.

We are planning to draw attention to the opportunities to benefit from the oriental sweetgum forests in the restoration works, which are expected to be revised in the near future in response to the increasing mega fires in the region. We have already started a new project that will show through wildlife characteristics that these forests are riverine forest habitats that are highly resistant to fire in the region. Within the scope of the project, 12,000 ha of burned forest area in the Marmaris region and different unburned habitats in its vicinity will be followed for 12 months with 12 camera traps and wildlife elements. In addition, the use of these habitats of a wild cat and a caracal individual with a collar with two radio transmitters will be revealed. In the light of the data obtained, the use of sweetgum forests near this burned area by the relevant wildlife elements will also be examined, and it will be emphasised that these forests are not only a fire fighting element, but also an important structure that supports the wildlife in the region.

If we follow the planning path presented above and can have the desired effect in the public; We have also put on our agenda to call for donations at the end of 2022 for a comprehensive forestation campaign.

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

When we started to the 2nd Booster project, we aimed to publish the results of our new findings on "Herpetozoa" (researches of herpetofauna), Sumarski (researches of the assessments of potential plantation sites) and "Environment and History" (researches of environmental history).

We have submitted to the article of Identifying Priority Areas of an Endangered Sweetgum Tree Species (*Liquidambar orientalis* Mill.) for Potential Plantations as In-Situ Conservation Approach to the "EMAS (Environmental Monitoring and Assessment)" which is one of international peer-reviewed journals.

We have submitted to the article of "Historical and Current Biogeography Patterns of Oriental Sweetgum Forests (*Liquidambar orientalis* MILL. - ALTINGIACEAE)" to the

"Landscape and Ecological Engineering" which is one of international peer-reviewed journals.

We have also finished our herpetology studies in the field and related analyses (identification, mapping, modelling etc.). We have submitted the results to "Herpetozoa" which is an international peer-reviewed journal.

Dr. Gursel Koc who is our local project assistant live in Marmaris District, prepares her MSc thesis on the research of environmental history properties of the oriental sweetgum forests which have produced from our last project.

Moreover, we gave an interview on the subject of fire-sweetgum relations to a national radio called Açık Radyo (Open Radio), which broadcasts on the environmental awareness in Turkey. At the end of December 2021, we gave an online symposium to the City Council of Marmaris Municipality, open to the local public, to clarify the ecological concerns on the related subject and findings of our last project.

During the project, our web page was viewed approximately 5000 times and it is estimated that approximately one million people were reached through our social media pages.

7. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?

The project was implemented in scale and order in accordance with the planned work schedule, and there were no problems in terms of timing.

8. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Cargo	350	350		Routine expenses between project team
Stationery and Press	300	300		Routine expenses between project team
Communication	250	250		Routine expenses between project team
The Private Property Acquisition Campaign	750	750		Lobby costs such as inter-city travels, networking, real estate consulting and other legal fees

Environmental Studies	History	600	600		4 field trips to the elder locals, 4 visits to the archives of forestry, land registry, trade-treasure, history etc. have been done.
Sweetgum School Events	Forest	2,000	2,000		The relevant budget had to be used for the purpose of raising awareness to the national public by the project team at the time provided information about the ecological effects of the fire during the extinguishing of the fires, its effects on the wildlife in our study area, and the post-fire restoration process etc.
Sweetgum Afforestation Events		2,900	2,900		Organization, announcements, media, snacks and giveaways etc.
Selecting New Plantation/Afforestation Sites	New	500	500		2 field-control trips have been done
Checking the Survival Rates	Survival	500	500		4 field trips have been done
Wildlife Monitoring		2,200	2,200		4 field trips have been done
Herpetofauna Research		1,000	1,000		4 field trips have been done
Publications		350	350		Payment for some field guides and proofreading for scientific articles
Equipment		600	600		2 camera-traps for wildlife monitoring to replace broken or stolen ones in previous projects.
Assistant		600	600		Routine expenses
Coordinator		600	600		Routine expenses. This budget item was also used to control the impact of the project on exchange rate fluctuations.
TOTAL		10,000	10,000		

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

The Sweetgum Action Plan is the most important product of this project series, not only for oriental sweetgum forests, but also for the history of nature conservation in Turkey, is produced by the Sweetgum Working Group, which was created with the voluntary participation of different stakeholders, and which has been successfully carried out for many years, even though Covid-19 restrictions intervened. Therefore, we believe that ensuring the continuity of this working group will be the most important tool in the long-term protection of sweetgum forests.

While mega fires pose a risk as a new pressure factor on sweetgum forests as well as on other forest ecosystems in the region, they also create a new opportunity for the conservation and development of sweetgum forests. During summer period, we had to spend our time to help fire fighters and watch out the forests.

After fires, we have controlled all the sweetgum forest areas. Luckily, there are not any burned sweetgum forests, but we observed that sweetgum trees have been indirectly affected from the fires. We encountered eco-physiological effects such as yellowing of the leaves or shedding before the period.

When we examined the sweetgum trees and riparian habitats in the burned areas in the autumn period, it was observed that the burnt sweetgum trees started to shoot rapidly from the roots and stems. It has also been determined that sweetgum trees in riparian habitats in the red pine forest also play a major role in reducing the speed and severity of fire.

For this reason, as NATURA, we encourage and direct the authorised institutions to plant sweetgum afforestation on the edge of temporary and permanent streams in all relevant burned areas.

In order to implement the corridor methodology in the deed lands located in the fragmented forests and / or on the edges of our study area, a comprehensive real estate analysis report was continuing to be prepared in cooperation with our project assistant and local real estate agencies. While the real estate analysis report is being prepared on the one hand, but the fluctuation due to the economic crisis in Turkey makes this budgeting very difficult. It is very difficult to determine the precedent and fair value at the moment.

This led us to alternative strategies, from the option of buying land with the government to plant sweetgum trees in burned areas, on forest edges and open areas, on field lines, etc. leads to sweetgum tree planting.

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10. 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?

We regularly use the Rufford logo on our bat boxes and camera traps in our work area. At the same time, we would like to express our gratitude for Rufford's financial support in workshops, interviews, radio-TV interviews, as well as all scientific publications prepared based on the data produced from our project.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Okan URKER (Coordinator): Anatolian Sweetgum Forest Ecologist (Ph.D., Head of NATURA): He managed all team and the project. He supported the experts on the field studies. He established institutional communication between the corporations related to the project.

Ali KAYA (Project Assistant): Ali is a local expert on medicinal aromatic plants. Ali, who participated in the training and various volunteer activities in the projects of NATURA in the past years, later became the local officer of NATURA at Köyceğiz District where has nearly %70 of the sweetgum forests. He was the monitoring officer/project assistant. He communicated regularly with local forestry departments, monitored the wildlife monitoring equipment such as bat box, camera traps, etc., and planting sites regularly for checking the survival rate, land occupations, illegal using such as grazing, burning etc.

Yasin ILEMIN (Mammologist (Ph.D., Vice Chairman of NATURA and Mugla University)): He continued to wildlife monitoring of previous Rufford Project.

Gürsel KOÇ (PR Officer of NATURA): She managed the lobby issues such as networking with Sweetgum Working Group, following the Sweetgum Action Plan, campaign to purchase the occupied land, following the environmental history studies, etc. Now she is preparing her MSc thesis on the research of environmental history properties of the oriental sweetgum forests which have produced from our last project.

Alkan GUNLU (Forest Engineer (Ph.D., Cankiri Karatekin University)): He is an associated professor as Forest Engineer at Çankırı Karatekin University (TURKEY). He did GIS/Remote Sensing analyses and land control for the potential plantation sites. Then he investigated the habitat characteristics of them.

12. Any other comments?

We have already started the preparations for the update of the Sweetgum Action Plan for 2022 and the completion grant that we plan to apply for in 2023.

We care a lot about completion grant as a team. It has been very exciting to work with Rufford for many years, although we are sad that this relationship will end, the effects it leaves on us and the ways and networks it opened for the conservation of sweetgum forests alleviate our sadness a little.

Many thanks to your entire team.

PhD Okan URKER (The only sweetgum forest ecologist in the world -thanks to Rufford support-)

On behalf of project team