

Final Evaluation Report

Your Details	
Full Name	Deniz Mengüllüoğlu
Project Title	Determination of the impact of a major forest fire (30.08.2020 -03.09.2020) on the breeding lynx and wildlife populations in Nallıhan Mountains, Turkey
Application ID	32359-2
Grant Amount	5963
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Date of this Report	15.02.2022

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
Impact of forest fire on the breeding Eurasian lynx population				Please see project activities report.
Impact of forest fire on the lynx prey and other wildlife populations by comparison before and after fire densities				Please see project activities report.
Providing General Directorates of Forestry, and Nature Conservation and National Parks with reports to increase the protection status of the area				The PI organised meetings with the government congressman (responsible for Ankara/Nallihan), head of the Wildlife Department of the General Directorate of Nature Conservation and National Parks and largest foresters and forestry NGO to attract attention on the subject and increase the protection status of the study area. Results of the camera trapping survey, importance of the study area for Eurasian lynx and other wildlife have also been shared with both directorates together with an application for hunting ban and for increasing the protection status of the study area. Although all these stakeholders have shared our concerns and pledged that the management system of the forests will be changed and the protection status would be increased, unfortunately nothing has been implemented by both directorates yet. This was also partly due to high turnover rate in the related ministry staff during the project period.
Finalization of the Anatolian Lyn Project Documentary film				Please see project activities report.
Recording and production of short				In Summer-Autumn 2020 and Spring-Summer 2021 we filmed the burnt forests,

films on threats to wildlife in the study area				barbed wires around plantation areas at forest openings, wildlife roadkill and poaching records in and around the study area. The initial idea was to produce several 3-minute short films, however then we decided to create a single 10-minute film on the threats on lynx and wildlife. The short film is already produced and uploaded to YouTube and will be published on 19th February 2022.
Establishing an NGO				<p>By September 2021 wildfires were wiping out large areas in Turkey's Mediterranean forests and the PI was invited to join Forest Science Board established by the NGO of 11 Metropolitan City Municipalities. PI was invited as a board member among 12 other scientists from forestry and biology branches and presented the results of the fire survey (wildlife density and activity in burnt and intact areas and comparisons to previous years, wrong forest management practices and their effect on wildlife) in August 2021 at a 3-day workshop (https://en.rayhaber.com/2021/08/orman-bilim-kurulu-ilk-toplantisini-yapti/). This board held the second meeting in December 2021 with municipality representatives and created a draft declaration on fire management plan, and a biodiversity and wildlife friendly forest management.</p> <p>As the PI was attending non-governmental activities and efforts on maintaining forest and wildlife biodiversity, considering the current economic instability in Turkey and difficulty for finding funding and maintaining a new NGO, a separate new NGO was not established.</p>

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

Our efforts to increase the protection level of the study area could not prove to be successful yet, as wood production is one of the main economical sources of the General Directorate of Forestry during current economic crisis in Turkey. Although related ministry staff, local and parliamentarian politicians shared our concerns on the protection of the study area we could not take a step on this as it was conflicting with the strategic plan of the General Directorate of Forestry. During the

project time also many ministry staff we have held meetings with were rotated to other positions and therefore they could not follow up and push the implementation of protection status change. The rehabilitation of the burnt parts of the study area was not also done ecologically. The most common practice was cutting the burnt trees, earthing the roots, removing all plant material from soil and ploughing the soil like an agricultural field and planting a single tree species (black pine *Pinus nigra*). We will still bring this topic and make applications in 2022 with more and robust data on the influence of human activity and try to convince the General Directorate of Forestry to implement an ecological restoration and increase the plant and tree diversity in the burnt areas.

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

1. Project documentary and short film: Along with research papers published on lynx spatial ecology and density (<https://doi.org/10.1002/ece3.7846>), and evolutionary history (<https://doi.org/10.3390/genes12081216>) by the PI and his colleagues in 2021, the project documentary was published on lynx ecology, behaviour and genetics and raising awareness on Caucasian lynx not only in a national but also in international level (English subtitles). This is the only detailed documentary film in Turkey and range countries on this subspecies of the Eurasian lynx and its unique evolutionary adaptations (i.e., smaller size, lagomorph-based diet and high density like other lagomorph specialized lynx species, high genetic diversity etc.).

The short film is focusing on the threats on lynx and wildlife populations and management mistakes on restoration of forest habitats in the study area and will raised a lot of awareness on these topics. As soon as it is published, we are hoping that the short film will create a potential and pushing force to implement an ecological restoration and protection in the study area.

2. Post-fire biodiversity and wildlife research in Turkey during a catastrophic forest fire period: In 2020 after the large fire has taken place in Nallıhan Anatolian Lynx Project study site, we have started post-fire biodiversity and fire research. In Summer 2021, a series of catastrophic fires have taken place in the Mediterranean and Aegean coasts of Turkey wiping out vast portions of Mediterranean forests. The wildlife and biodiversity research we have conducted (influence of fire on the wildlife populations and community) was therefore very important to understand the influence of such fires on resident wildlife populations in natural habitats in Turkey. This fire research constitutes the base information now for fire and forest management planning also considering the wildlife populations. The information and data gathered will be used by the Forest Scientific Board formed by the 11 Metropolitan City Municipalities to form a biodiversity friendly forest and forest fire management and habitat restoration.

3. A model for wildlife research and highlighting importance of long-term wildlife population and community monitoring: Since its start in 2009 until today Anatolian Lynx Project has become a model wildlife monitoring and research project in Turkey. With the support of the first Rufford Projects in 2014-2015 and later on in 2020-2021 the PI was able to collect high amount of ecological, genetic and behavioural data on lynx and other wildlife populations in the study area and published five scientific

articles (please see under Section 10), joined several conferences and was also able to produce long and short documentary films to share information, raise awareness on lynx and other wildlife. Many biology, veterinary and wildlife management students got in contact with the PI and asked for directions to conduct similar studies on other felid and wildlife species, the project received a lot of good attention and appreciation and most importantly Turkish nationals learned about an important element of wildlife in Turkey. The long-term monitoring conducted in this project is now a database for all types of lynx related ecological, demographic, behavioural and genetic information, prey-predator interactions between different species, annual wildlife densities, and conservation requirements of several target species in the region.

4. An after-fire forest succession project in the study area has started by Dr. Okan Ürker from Cankiri Karatekin University after our discussions on the forest rehabilitation and restoration in Nallıhan and several other study sites.

4. What do you consider to be the most significant achievement of this work?

5. Briefly describe the involvement of local communities and how they have benefitted from the project.

During this project period (32359-2) the PI has trained two high school students (Fatih Inan & Efe Kocak) from the villages inside the study area on wildlife monitoring (tracks, signs and camera trapping, lynx individual identification, raptor identification etc.). Both students will take university entry exams in 2022 and are planning to become Wildlife Ecology and Management Department students next education year.

In July 2021, the documentary screening was first done in Nallıhan Culture Centre to school students, staff of local governmental agencies (Nallıhan Municipality, Nallıhan Wildlife and Forestry Directorates, Nallıhan Governor, etc.), local NGOs (Nallıhan Tourism Society, Nallıhan Photography Society) and all interested locals. We have received a lot of positive feedback and appreciation for doing such a research project and documentary on lynx and wildlife of Nallıhan and attracting attention to its nature. After the documentary we also had a discussion on negative human influence on the study area and how this could be mitigated. The Municipality and the Governor expressed that they would be very happy to provide any support to protect nature and wildlife of Nallıhan. After publishing the documentary on YouTube, it was also shared at all social media groups of Nallıhan.

6. Are there any plans to continue this work?

We are planning an alternative approach for ecological restoration and rehabilitation of the study area. A follow up project (Rufford 1st Booster Grant) is considered to make collaborative effort at a lower and local level (together with the local Municipality, Directorate of Forestry in Nallıhan, fire ecologists from multiple universities, university and local school students, villagers in the study area and Nallıhan) to form an ecological restoration of the burnt parts of the study area and increase the tree and plant biodiversity. This way forest and wildlife biodiversity

would also be maintained in long term in the study area. Such an approach would need to review and produce/buy local wild tree species other than pines (i.e., *Juniperus* sp., *Quercus* sp., *Crataegus* sp., *Pyrus* sp., *Prunus* sp., *Capsicum* sp., etc.) and plant them in between already planted black pines. These tree species are the main source of Autumn and Winter food for many wildlife species from pollinators, birds and small mammals to large mammals and support and sustain forest biodiversity.

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

Documentary screening, publication of the long documentary, Anatolian Lynx Project article on "Atlas" popular magazine, presenting the results of post-fire wildlife research to the Forest Scientific Board and governmental agencies has already been done.

Short documentary on threats to wildlife will soon be published and the results of the post-fire wildlife research is under preparation for submission. In addition to an international scientific journal paper the results will also be submitted to a Turkish language popular or scientific journal to share the results with everyone interested in Turkey.

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

We have used the project budget from December 2020 until January 2022 (13 months). In January 2022 the payments of documentary director for production, music, aerial recordings and promotion of the documentary films on social media were transferred and we finished the project budget although some social media promotion of the long and short documentaries will still be applied in coming months.

9. 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
Camera trapping survey	2220	2220		Multiple field travels and stays, per diems, camera trap batteries, securing cables, per diems for students controlling cameras.
Documentary and short film production.	2599	2599		Inclusive aerial filming, filming of the burned areas, car rentals,

				accommodation, long and short film music licenses, program and packages, and animation payments.
Project presentation and documentary screenings	400	219	-181	We could not do multiple documentary screenings due to Covid19 transmission risk. Another screening (open air) will be done for school students in Nallihan during summer 2022.
Documentary promotion on the web and social media	350	72	-278	We will continue to promote the long and short films monthly over next 4 months.
	5569	5110	-459	1 £ exchange rate has changed from 8.5 TRY to 18.5 TRY during the project period due to economic instability. All project related expenditures also increased accordingly (i.e., Diesel fuel oil from 6.69 TRY/Lt in 01.12.2020 to 11.56 TRY/Lt in 31.12.2021).

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

Previously the original project was planned for female Eurasian lynx translocation to Sundiken Mountain range to support lynx reproduction in this mountain range where only male lynx occurred. However, with the negative developments and human influence in the study area such as the forest fires, intensive and non-sustainable forestry, it is obvious that wildlife and biodiversity in the study area is in need of ecological restoration and protection. We will do our best to accomplish this.

11. 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?

Yes, we used the logo on the long and short documentary films, fire research presentations and produced Anatolian Lynx Project research results report 2016-2019 also covering fire threats and fire influence in 2020 (Submitted to the Wildlife Department in Autumn 2020 after Nallihan forest fire).

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

Dr. Deniz Mengüllüoglu (PI): Anatolian Lynx Project executor, designing the camera trap survey, installations, data collection and analysis, communication and reporting to governmental agencies and presentation of results to Forest Scientific Board, training students on animal tracking techniques and camera trapping.

Nurten Salikara: Documentary director (long and short films), filming, narration, directing and communication to the filming team.
<https://www.youtube.com/c/Nurten%C5%9Edal%C4%B1kara/videos>

Gökhan Ergan: Forest fire ecologist, investigation of the burnt forest areas, investigation of after fire forest management, information and interviews on fire ecology and after-fire forest restoration.

Fatih Inan: Local team member, camera trapping and animal tracking while PI was abroad.

Efe Kocak: Local team member, camera trapping and animal tracking while PI was abroad.

13. Any other comments?

We would like to thank The Rufford Foundation for supporting the PI and the Anatolian Lynx Project (ALP) and hope to continue further collaboration. ALP has become the longest term (2009-2021) and most detailed, successful carnivore monitoring and research project in Turkey.