Final Evaluation Report

Your Details	
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Project Title	Distribution and vulnerability assessment of North African Maghreb Magpies Pica mauritanica
Application ID	27923-1
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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
Mapping the spatial distribution of the Maghreb magpie in North Africa (Tunisia, Algeria, Morocco)				Perfectly done in the three countries.
Estimating populations sizes of the Maghreb magpie in North Africa (Tunisia, Algeria, Morocco)				Maghreb Magpie populations of western Algeria have been underestimated. This is due to the prevailing weather conditions (windy and rainy weather) which have seriously affected the delectability and the censuses precision of some populations.
Provide first data on breeding performance of the Maghreb Magpie in North Africa				Reproduction monitoring in Tunisia was partially carried out through exceptional authorisations, missing a few visits following the displacement restriction applied because of the Covid-19 pandemic. In Algeria, all visits have been suspended because of the Covid-19 pandemic without exceptional permissions. In Morocco authorisations were granted late in the breeding season to only two persons by refusing the participation of volunteers. This reduced the ability to find active nest. Only nine nests in three sites were inventoried among them only two were active.
Suggesting an action plan for the Maghreb Magpie conservation in the most threatened sites.				The conservation action will target the unique Tunisian relict population that appears to be on the verge of extinction.

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

Bad weather between October 24th and 27th 2019 (precipitation and wind) handicapped the relevance of observations in western Algeria, which underestimated the population size. For this, additional days were carried out to collect as much data as possible.

The major difficulty was the Covid-19 pandemic which coincided with the start of surveys of the species' breeding sites (March 2019). This upset our site visits schedule, leading to a suspension of surveys in the three countries. In fact, in Tunisia, researchers have reached an agreement with officials allowing them to obtain an exceptional authorisation to carry out no more than 10 visits throughout the compulsory confinement period (instead of 20 anticipated).

In Algeria, the Algerian authorities have strictly prohibited all field visits. We only have data from the first two visits (two visits to Tazoult and two to Zamoura) which allowed us to identify eight nests still under construction.

In Morocco, where the species is most abundant, monitoring was scheduled in several regions. General displacement restriction due to Covid-19 has prevented all scheduled visits. Fortunately, two members of our project have already been authorised to conduct field visits as part of a wind turbine installation project. This allowed us to conduct only 21 visits to three sites (eight in Fes, eight in Essaouira and five in Midelt) and missing visits at Mehdia were eight nests were detected and sizes recorded. We maximised the number of sites visited on Moroccan territory to compensate for canceled visits in Algeria. However, the absence of volunteers and the rest of the team (not authorised) during the surveys was crucial for leading a relevant detection of Maghreb magpie breeding pairs.

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

This project allowed us to:

- Define the distribution area of *Pica mauritanica* in North Africa and show its distribution model. A detailed map of the species' home range was provided showing the clear east-west gradient abundance increase of the Maghreb magpie.

- Determine the spatial affinities of the species during and outside the breeding season. The species was highly linked to rural and natural area and avoided urban site. During breeding phase this species essentially colonised the bush forest.

- Provide details on the reproduction of the species. This was realised for the Tunisian population. We determined the breeding pair numbers, breeding habitat selection, and estimated the clutch size, hatching size and fledging size. We also provided data on nests characteristics and size.

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

We have actively collaborated during this project with locally based NGOs (Explorais and ATVS in Tunisia; Algerian Falconry in Algeria; GREPOM in Morocco), local park rangers and landowners.

Additionally, local people participated in prospection visits to investigated areas.

5. Are there any plans to continue this work?

Yes, of course. We have succeeded in our project. We believe that this work should continue to conserve this vulnerable species that have not yet been considered or registered by IUCN (Red List of Threatened Species) which is considered as Critically Endangered species in Tunisia (based on our evaluation).

Firstly, we claim to re-study the reproduction of Maghreb magpie in Algeria and Morocco to fill the gaps present in our results due to the disturbances linked to the Covid-19 pandemic.

Secondly, we target to undertake a phylogenetic analysis in order to measure the genetic divergence between the western populations and the Tunisian relict one. We advance that this later was a different sub-species compared to western specimens.

Therefore, we wish would know whether this orientation of our next project is in line or not with vision of your honourable foundation.

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

We have already shared part of our missions' reports using the website and social media of the NGO Exploralis and ATVS. We are also preparing a scientific manuscript focusing on spatial distribution and landscape affinity of the Maghreb magpie in North Africa to share results of this project with the scientific international community.

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

All our activities were carried out on time excepting the study of reproduction in Algeria and Morocco due to Covid-19. The grant was used over the period originally planned (August 2019 to July 2020).

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
Batteries	46	75	+29	During surveys in Tunisia our faulty vehicle battery was replaced.
Accommodation	600	738	+138	Prices increased exceptionally during our work period which coincided with the high tourist season in Morocco. Accommodations were much more expensive than originally calculated.
Fuel	785	754	-31	
Daily allowance	1039	775	-264	
Renting cars	1606	1851	+245	Three days have been added in Algeria to replace the rainy days. An additional vehicle was used in Algeria to cover the large territory.
Inter countries travels	921	826	-95	
Total	**4997**	**5019**	**+22**	

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

We have to continue focusing on this threatened species. We have a lot to work on this endemic species to conserve it and create a large-scale social awareness through workshops, talks, information and links with institutions.

We first aim to complete the partially missed breeding study during this project. Then we suggest launching an action to reintroduce nesting pairs in Tunisia within national parks where the species existed, based on the traces and certificates collected during this project. We therefore recommend strengthening the occurrence and stability of the existing population in Tunisia through actions of adding additional food during the different phases of the biological cycle. Finally, it is essential to carry out a phylogenetic study in order to measure the genetic divergence of the Tunisian relict population and the western ones.

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?

The Rufford Foundation logo was only used in field support. This is an informative document containing information on species features, project objectives, schedule of work and the data collection pattern (field file to fill during prospection). This document was distributed to all involved people in the project.

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

Pr. Said Nouira, Dr. Aymen Nefla and **Mr. Ridha Ouni** have overseen the project by coordinating all actions. Pr. Said Nouira ensured the smooth running of the missions by preparing the necessary logistics as well as authorizations for access to Tunisian parks and nature reserves. Dr. Aymen Nefla and Mr. Ridha Ouni were the leaders of all carried out missions. They were responsible for programming, expenditure controlling and missions monitoring.

In Morocco:

The 1st Team was formed by **Dr. Aymen Nefla**, Pr. **Abdesslam Rihane**, **Mohamed Hilmi** (PhD student), **Ismail Mansouri** (PhD student) and **Wafa Squalli** (PhD student). They crossed the entire northern itinerary covering 2606 km in 9 days. They left Casablanca to cross a predefined route searching the Maghreb magpies. They passed respectively by Mohamedia, Maiziz, Khmisset, Oulmes and Khnifra. Subsequently, they left for Ain Leuh, Azrou, Ait Omghar, Jbel Ayachi and Zaida-Midelt respectively. Then they crossed Outat El Hadj, Taourirt, Jerada, Oujda, Ahfir and Triffa. After visiting the Taza-Tazekka National Park, they prospected respectively Fes, Taounet, Sidi Kacem, Kenitra, Mahdia, Boughaba, Aarjate village and then Rabat to finally return to Casablanca on August 25th.

The 2nd Team, consisting of **Mr. Ridha Ouni**, **Mr. Hakim Benmokhtar**, **Pr. Abdeljabbar Qninba** and Pr. **Mohamed Radi**. They travelled 4500 kilometres spread over 11 days via the southern itinerary. Departure, on August 17th, and return were also from and to Casablanca. The path covered the following stations: Loutay, Settat, Chaouia-Ouardigha, Azilal, High Atlas, Asselda, Amizmiz, Tata, Tafraut, Jbel Bani, Andja, Guelmim, Tan-Tan, Laayoun, Tarfaya, Ifni, Tiznit, Agadir, Essaouira, Chichaoua, Marrakech, Sidi Bou Othman, Abda and finally Casablanca on August 27th.

The study of Maghreb Magpie reproduction was conducted by **Mohamed Hilmi** (only two visits before Covid-19), **Ismail Mansouri** and **Wafa Squalli** (all the rest of missions).

In Algeria:

The 1st Team was formed by **Dr. Aymen Nefla, Mr. Ridha Ouni** and **Laalmi Benmokhtar**. They crossed the entire eastern itinerary covering 3140 km in 7 days. They left Tunis to Tabarka where they crossed the land border and accessed the

Algerian territory. They passed respectively by Annaba, Constantine, Batna, Bou Sâada, Djelfa, Hassi Rmal, Laghouat and Tiaret respectively. After visiting the Theniet El Had National Park, they prospected respectively Ksar El Bokhari, Barika, Batna and finally return to Tunis via Souk Ahrass on August 24th.

The 2nd Team included **Pr. Salah Telailia**, **Dr. Aimen Boulaoued**, **Dr. Adel Bezzala**, **Dr. Mourad Harzallah** and **Hassen Sâadna**. They began their tour on September 23rd. In fact, they crossed the entire western itinerary covering 2360 km in 9 days using two cars. They left Batna to Borj Bouariridj crossing Dar El Beida at Alger. Then they passed respectively by Saïda (Hassasna), Marhoum, Bir El Hmam, Dhaya, Sidi Djillali, Tlemcen, Maghnia - Sidi Ali Ben Ayoub, Sidi Bel Abbas, Oran and finally return to Batna via Borj Bouariridj on 1st October.

The study of Maghreb Magpie reproduction was conducted by **Dr. Adel Bezzala** and **Dr. Aimene Boulaoued** (only two visits before Covid-19).

In Tunisia:

The fieldwork began on October 17th the Team was formed by **Dr. Aymen Nefla**, **Mr. Ridha Ouni**, **Mr. Mohamed Hilmi**, **Mr. Wael Ben Abâa** and **Mr. Slim Alilech**. They crossed the entire predefined itinerary covering 1833 km in 6 days. They left Tunis to Ennfidha, Kondar, Sidi Neji, Sbikha and Kairouan respectively. Then they crossed Cherichira, Zaghdoud, Ain Jloula, Haffouz, El Ala and Nasrallah. Subsequently, they left for Meknassy, Bouhedma National Park, El Guettar, Metlaoui and Tozeur respectively. After visiting the Dghroumess National Park, they prospected respectively Gafsa, BirLahfey, Sidi Bouzid, Lassouda, Essouassi, Sidi El Heni and then El Kalbia to finally return to Tunis on October 22nd.

The study of Maghreb Magpie reproduction was conducted by **Dr. Aymen Nefla** and **Mr. Ridha Ouni**.

12. Any other comments?

My team and I extend our sincere thanks to The Rufford Foundation for all the support provided to our project which, without its funding, would never have been successful. We are very grateful to Tunisian General Directorate of Forests, Algerian General Directorate of Forests and the Moroccan general directorate of water and forests and their officers and guards for supporting and helping us by providing authorisations and field accompaniment. I also express my deep gratitude to the NGO Exploralis for its seriousness and professionalism throughout the project. I also thank the NGO ATVS which contributed enormously to the success of the field missions. My most distinguished respects go to all researchers and volunteers who have effectively contributed, with their considerable time and effort, to achieving our goals. I can't pass without greeting the Moroccan, Algerian and Tunisian families, who warmly welcomed us among them, for their hospitality and generosity, their excellent kindness and for their valuable information and attestation about the local occurrence history of the Maghreb magpie.

This project has been an amazing journey that will not stop soon; there is much more to do for the conservation of this amazing species! We are sure that the objectives achieved will have an impact on ecological and scientific sectors. We will continue working in the same species to generate more knowledge that benefits the conservation of our natural resources. We remain at your disposal for any other additional information. No doubt new objectives and continuity of this project will be elaborated and shared with the honourable Rufford Foundation.