

Final Evaluation Report

| Your Details | |
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| Full Name | Ece KILIÇ |
| Project Title | First step of conservation of endemic Anatolian fish (<i>Orontes nose</i>): determination of potential threats and creation of conservation framework |
| Application ID | 37556-1 |
| Date of this Report | 03/06/2024 |

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 |
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| Bio-ecological investigation | | | | Five different field surveys were conducted in September and October 2022, November 2023, and February and April 2024. Results of field study showed the variations in physical and chemical water quality parameters as well as microplastic content in surface water and sediment. Also, field studies showed us the severity of plastic pollution in the study area. In almost every station, plastic bags, disposable bags and residuals of fishing material were found. |
| Building information network and awareness | | | | Four different trips were conducted to introduce the species to local communities and fisherman. Also, during these trips project results were shared with local authorities. To create awareness, brochures introducing the endemic endangered species <i>Orontes nose</i> were distributed during the meetings with fisherman, NGOs, head men and local communities. Social media accounts and a |

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| | | | <p>project web page were prepared to promote the project and announce the results. Project results and possible ways to protect <i>Orontes nose</i> were discussed in scientific meetings to catch the attention of scientific community. For this reason, we participated in a scientific symposium held in Bakü to share the preliminary results of the project. However, the awareness campaign could not reach the level we planned due to an earthquake. Migration caused by the earthquake made it difficult to maintain relationships.</p> |
| Establishment of protection framework | | | <p>Several news items about the project were planned in the local press to promote the project and increase awareness towards <i>Orontes nose</i>. In this way, the attention of a large audience was achieved. One of the project members used to be an employee in the Environment Department of Hatay Municipality. She took the active role in the sharing of project purposes and project results until the 6 February 2023 earthquakes. Unfortunately, the earthquakes impacted</p> |

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| | | | | <p>11 cities of Türkiye, and severely damaged the project area and caused the death of hundreds of people only in Hatay. Due to this natural disaster, all the attention of both the national and local communities was drawn into establishing liveable temporary settlements for the earthquake victims and rebuilding of the city. For this reason, we could not conduct meetings with Hatay Governorate as we planned. However, we conducted an introductory meeting with the participation of Nature Conservation and National Parks Hatay Branch Manager Nuri Akin. At the meeting, potential ways to protect <i>Orontes nose</i> were discussed in addition to the general description of project results.</p> |
| Reporting project results | | | | <p>Project results were shared with local managers of Hatay (Hatay Branch Manager of Nature Conservation and National Parks and Hatay Provincial Director of the Ministry of Agriculture and Forestry). Also, results were shared through social media and the project web page. We also participated in the scientific symposium and</p> |

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| | | | | shared the preliminary results of the study. Now, we are preparing a scientific paper to share the results with international scientific community. |
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2. Describe the three most important outcomes of your project.

a) *Orontes nose* was categorised as endangered in the IUCN Red List of Threatened Species in 2013. The main idea behind this project was to fill the information gap about the main issues threatening *Orontes nose* and creating a framework to protect this species. Yet, information regarding the biology and ecology of this endemic species is very limited. Results of this study not only helped us to understand the ecology of this species, also made us realise the danger of plastic pollution in the habitat of this species.

Some settlements within the project area are relatively less affected by the earthquake. Environmental stress caused by anthropogenic activities in those regions (i.e. around the Gölbaşı Lake) have increased due to the migration from other regions. In those areas, we observed increased macro size plastic pollution due to recklessness of local community. Even though results we obtained so far did not indicate a drastic difference between pre- and post-earthquake level of microplastics, there has not been sufficient time to fragment from these macro-size plastics into micro size. Therefore, microplastic pollution might get worse in upcoming years if necessary precautions are not taken. Now, we are preparing an article which shows the microplastic pollution in the natural habitat of this species which will increase attention towards this species.

Scientific analysis we carried out showing that both surface water and sediment of studied region were highly contaminated with microplastics. Characteristics of extracted microplastics were dominated by fiber type particles which were smaller than 1 mm in length. These conditions are more alarming because it increases the microplastic ingestion possibility by *Orontes nose*. These types of particles have higher toxicity risk compared to larger ones. Therefore, scientific study showed that microplastics are important threats for the survival of this species.



Figure 1. Some examples of plastic pollution (car tire, fishing net, disposable plastics) in the project area

b) When we talked to local people in the region, they said that they knew about this species, but they did not know that it was endangered. Therefore, intense meetings we conducted in the region, creating some awareness of *Orontes nose*.

Fishing activities in the Gölbaşı Lake (which is one of the main habitats of *Orontes nose*) was banned by the law. Yet, we saw many illegal fishermen during our field trips. Also, during the interviews with local head men, they mentioned that outsider fishermen come and hunt using electricity which ends up with massive fish kills in the region. Both local administrative and local people are disturbed by this situation. Even though hunting with electricity is a serious crime in Türkiye, people try to get advantage from the chaos experienced after the earthquake. For that reason, more comprehensive awareness studies are required in the region.



Figure 2. Pictures taken during the interviews with local people from Gölbaşı Lake and Karaçay River.

c). Unfortunately, the 6 February 2023 earthquakes impacted 11 cities of Türkiye and severely damaged the project area and caused the death of hundreds of people

only in Hatay. Due to this natural disaster, all the attention of both national and local communities was drawn into establishing liveable temporary settlements for the earthquake victims and rebuilding of the city. Yet, we try to reach out to local managers (Hatay Branch Manager of Nature Conservation and National Parks and Hatay Provincial Director of the Ministry of Agriculture and Forestry) to form a protection framework for *Orontes nose*.

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

The major difficulty we experienced was the earthquakes on 6 February 2023. The earthquakes destroyed 13,889 buildings in Hatay city including our faculty building. Also, thousands of buildings were severely damaged and required long term renovation, including the home of our study members. The housing problem after the earthquakes led to the postponement of the project for 1 year to overcome these difficulties. Once we solved our housing problems, we realised that most of the laboratory devices were damaged. Thanks to the help of The Rufford Foundation, we could reallocate the funds to purchase equipment that were essential to complete the project.

As expected, after the earthquake, local and national authorities concentrated on providing basic human needs of the earthquake victims, such as shelter, access to clean food and water. Following this, in order not to risk social security, work on the demolition and renovation of the damaged buildings was started and this process is still continuing in the region. Since the needs of the local people had to be prioritised, we could not hold some of the meetings we had previously planned with local governments.

The inflation problem in Türkiye also led unseen problems in the expenses. In addition, fuel prices were increased in a way that we could not foresee.

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

We held interviews with the local people and local head men in the project area especially with the ones living in the villages around the Gölbaşı Lake. During our interviews, we realised that local people are familiar with *Orontes nose*. Most of them recognise this species. On the other hand, a majority of them were surprised when they learned the endangered status of this species and mentioned that they were unaware of its declining population.

We also visited popular fishing points in the Karasu and Orontes rivers. We interviewed amateur fisherman. Different from Gölbaşı Lake, amateur fisherman hunting in the river did not recognise *Orontes nose*. Therefore, interviews were beneficial for the amateur

fisherman and increased the recognition of *Orontes nose*. Unfortunately, the awareness campaign could not reach the level we planned to due to the earthquakes. Migrations caused by the earthquakes made it difficult to maintain relationships. Besides, the psychological difficulties experienced by people after the earthquake also made it difficult to establish new relationships.

During field trips, graduate and undergraduate students attended both field trips and interviews. They learnt much information including, but not limited to, ecology in lake and river ecosystems, importance of preserving biodiversity in water bodies, and potential polluters in the surrounding environment. They learnt about the importance of catching local people's attention and support to get success in protection studies. We created a communication network with local NGOs and informed that regarding the project progress continuously.

5. Are there any plans to continue this work?

Yes, we have. During our field trips, we realised that even though people are recognising the species, they are not aware that they have potential to cause its extinction. Therefore, a more comprehensive approach with local authorities is required.

Local communities in the region are resistant to enforcing a hunting ban in the region despite all efforts made by authorities. For this reason, it is important to raise new generations who are willing to protect endangered species.

In addition, we realised that plastic pollution in the region is worse than we expected. This condition is expected to become worse because of the damaged or insufficient infrastructure after the earthquakes. Also, overpopulation in the less impacted areas causes additional pollution load in the aquatic ecosystems. Therefore, more comprehensive awareness studies are required to overcome this problems

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

We undertook interviews with the local managers and head men of the villages to create protection framework for *Orontes nose*.



Figure 4. Picture taken during the interview with Ufuk Sakallı - Hatay Provincial Director of the Ministry of Agriculture and Forestry



Figure 5. Picture taken with the Hatay Branch Manager of Nature Conservation and National Parks during project results introductory meeting



Figure 6. Picture taken during the interview with Aleattin Umut - Headman of Kamberlikaya Village of Kırkhan/Hatay

We also organised a project results informative meeting with the participation the Hatay Branch Manager of Nature Conservation and National Parks and dean of faculty of Marine Science and Technology of İskenderun Technical University. Potential methods to protect this species were discussed at the meeting. Scientists from our and other institutions (Mustafa Kemal University) also attended the meeting. In the end of the meeting, it was suggested to use drone technology to end illegal hunting. Also, a training programme for school children was proposed to raise a generation who are conscious of the species.



Figure 7. Picture taken during project results introductory meeting

We have already shared important results of the project results through our social media and website.

Several news items about the project were planned in the local press to promote the project and increase the awareness towards *Orontes nose*. In this way, the attention of a large audience was achieved.

<https://www.aydinlik.com.tr/haber/asi-karaburun-baligi-icin-proje-baslatildi-341374>

<https://www.hataybuyuksehirgazetesi.com/iste-projesine-bir-destek-daha/>

<https://sozgazetesi.com.tr/2022/09/24/iskenderunu-bilimin-isigiyla-aydinlatan-hocalara-alkis/>

http://www.iskenderunes.net/haber/asi_karaburun_baliginin_korunmasina_destek-17338.html

[https://www.sehrihatay.com/desteklenen-](https://www.sehrihatay.com/desteklenen-bir-proje-daha-36735)

[bir-proje-daha-36735](https://www.iskenderungazetesi.com/desteklenen-bir-proje-daha/)

<https://iste.edu.tr/haber-merkezi/2022/09/23/1836>

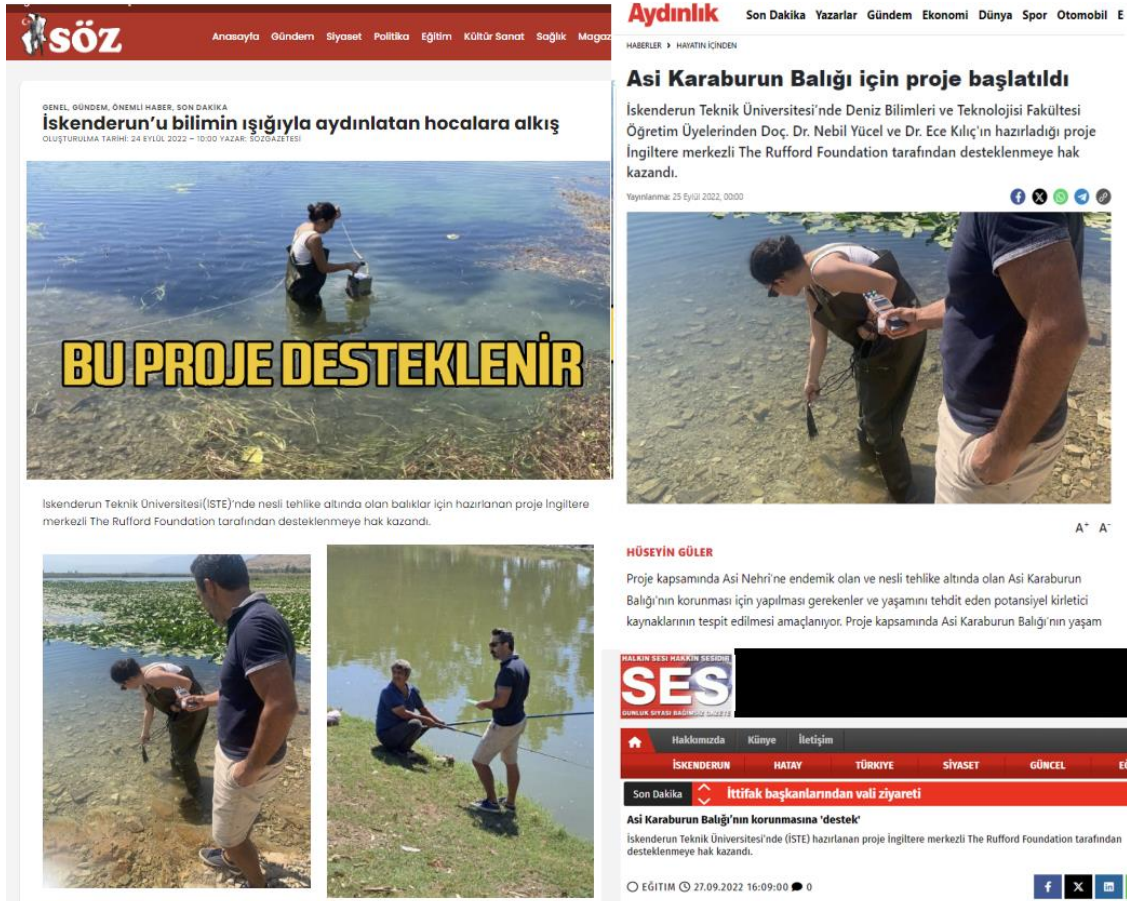


Figure 4. Some of the examples of news in local press

Furthermore, a scientific paper summarising the project results is being prepared and it will be published in a international peer reviewed journal.

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

1. The results of this study showed that anthropogenic influences, especially pollution and hunting pressure, are important obstacles in the conservation of endangered species.
2. Social, economic, human and ecological alterations caused by the earthquakes need to be evaluated to determine protection framework which is suitable to the current conditions of the region.
3. Future studies require motivation to develop protection sense in the local community which increases the willingness to obey protection measures.
4. Information regarding the current stock of *Orontes nose* is still unknown and it needs to be determined.
5. A management plan which forms a collaboration line between scientists, conservation specialist, local authorities, NGOs and local authorities needs to be activated.
6. Continuous monitoring studies are required to establish required measures which are specific to this region.

7. Even though we accomplished awareness towards *Orontes nose*, other endangered species are still under threat of human pressure such as overfishing and illegal hunting.

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?

We used the Rufford Foundation logo in our brochures and other promotional materials. The foundation was acknowledged in all the news in the local press which increased publicity of the foundation. In all the news, the name of the foundation was acknowledged even though in some cases the logo was not seen. We acknowledged The Rufford Foundation in the abstract we submitted in the scientific symposium. Also, we will acknowledge The Rufford Foundation in the paper we are planning to submit.

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

Ece Kılıç: I was the project leader. I was actively participated in all work packages.

Nebil Yücel: He is a marine microbiologist and interested in water quality and eutrophication. He was actively attended work packages one, two and three. He provided valuable contribution in the data analysis, data evaluation and interpretation of results.

Fethi Bengil: He is marine scientist and interested in increase utilization of technology on marine science and, especially in biology. He led or contributed many of conservation projects of marine biology in Türkiye. He guided us with his expertise and activity participated in work packages.

Elizabeth Grace Tunka Bengil: She is expert on fish biology and has experience on conservation based projects in Türkiye and Europe countries. She has strong network with fishers in Türkiye and she was responsible to set up information network with local community and stakeholders.

Seycan Mübarek Şahutoğlu: She was working in the Hatay Municipality Environmental Protection and Control Department. She is a member of several local NGOs. She took the active role in the sharing of project results with Hatay Municipality.

Volunteer students

Erkan Uğurlu

Gülşen Akbulut

Zehra Orhan

10. Any other comments?

We would like to thank The Rufford Foundation for their contribution in conserving Turkish endemic endangered species. We also really appreciated the support they provided during the earthquakes. They allowed us to pause to project for 1 year to rebuild our lives. They also allow us to reallocate the funds to purchase equipment that were essential to complete the project.