# Project Update February 2022

Installing camera traps, investigation of fire locations and forestry activities



Camera trap instalments and first investigations.



Camera trap data collection and investigations after forestry activities in the study area together with the fire ecologist team member Gökhan Ergan.



There was a contrasting vegetation regeneration between unploughed (left) and ploughed soil (right) after burned forest was cut by the forestry directorate.

# Impact of forest fire on the breeding Eurasian lynx population

Juvenile lynx recruitment rate decreased sharply!

Between December 2020 and July 2021, the PI conducted a camera trapping survey to monitor the resident lynx individuals and their young of the year. After July 2021 we left some camera trap stations to continue monitoring until January 2022. This survey has revealed that the male (Ardic) and female Eurasian lynx (Eylül) that were resident in the fire location have left this part of the study area. They were only recorded three times (female once, male twice) at other parts of the study area and the female did not have any kittens.



Only two out of seven resident adult female lynx were registered with kittens in 2020-2021 breeding year, with one kitten each. One of the adult females (left) and her kitten following her (right) in one of the camera stations at an area not influenced by the fire.

Throughout the survey period there were only two kittens registered from 2 out of 7 resident female individuals and both females were resident at the unburnt locations. Even if the forest fire did not influence the female lynx and their kittens directly, the sharp decrease in the prey population densities might have indirectly caused minimum number of kittens observed in 2020-2021 throughout research monitoring period. Unfortunately, this breeding year breeding success was only 0.3 kittens/female which was in average four times higher in 2013-2019 period. For prey densities please see below.

### Impact of forest fire on the lynx prey and other wildlife populations by comparison before and after fire densities

Wildlife abundance and activity alarmingly dropped in the study area!

The camera trapping survey has revealed a sharp decrease at the main lynx prey population (brown hare) at burnt parts of the study area (2016 and 2020 forest fires). Hare population density in the whole study area has reached to its minimum throughout the monitoring period (2009-2021) and dropped from 88 ind/km2 in 2014 to 27 ind/km2 in 2020-2021. The hare density was only 6 ind/km2 in the area burnt in 2020 and 5 ind/km2 in the area burnt in 2016. Density much higher and 36 ind/km2 in the unburnt parts of the study area, however, even this was much lower than the density before any forest fire was experienced.



Wildlife capture rates in unburnt and burned parts of the study area in 2016 and in 2020



Wildlife capture rates in unburnt and burned parts of the study area in 2016 and in 2020, excluding brown hare.

Besides the brown hare, red deer and wild boar abundance in the study area dropped by 20% and 56%, respectively. For other species such as large carnivores and meso-predators we did not calculate densities yet, however, camera capture rates dropped 50% for wolf, 75% for brown bear, 97% for badger, 98% for stone marten.

The only three species that had higher activity in the study area were lynx, red fox

and golden jackal. New lynx individuals were registered in the burnt areas which was an indication of territory abandonment by the residents. We are not sure yet if these individuals are settled in the study area or they were just checking the empty habitats.

Red fox and golden jackal increased their activity (30% and 15% respectively) and distribution, and started to be registered at camera stations at higher altitudes, which could be correlated with increased human activity and human waste on the mountain. Many tents were constructed for forestry workers to cut the burnt trees at multiple locations of the study area. This might also be an indication of wildlife community change due to human caused habitat loss (fire) and high human activity in the study area. While resident large carnivore activity and breeding dropped the study area generalist meso-predator distribution and activity increased.



Wildlife capture rates in the whole study area before (2014) and after (2021) forest fires.



Wildlife capture rates in the whole study area before (2014) and after (2021) forest fires, excluding brown hare. All wildlife capture rates except for lynx, jackal and fox, dropped after the two forest fires.

Results of this survey together with fire and human influence on the resident lynx individuals are being prepared for a publication.

# Finalization of the Anatolian Lynx Project documentary film

In July 2021 the first version of the long documentary film was produced without English subtitles and this was screened in Nallihan Culture Centre to the local students and residents.



A picture of the PI and the documentary director together with the staff of the local

governmental agencies and NGOs after the documentary screening in Nallihan, Ayhan Sümer Culture Centre.

"Lynx of Anatolia", the final version of the documentary film of the Anatolian Lynx Project has been published with English subtitles on January 8th 2022. "Lynx of Anatolia" is now featuring the most comprehensive research that has been done on a large mammal population in Turkey, with the results of ecological, behavioural and genetic research that the PI has been conducting since 2009. Through the results obtained the PI is explaining lynx biology, ecology, behaviour and genetic diversity in Anatolia. Although it has been only one month since the film was published, it has been watched 14.250 times and received 160 very positive comments. Link here.



A scene from "Lynx of Anatolia" the documentary film of the Anatolian Lynx Project.

# Recording and production of short films on threats to wildlife in the study area

In Summer-Autumn 2020 and Spring-Summer 2021 we filmed the burnt forests, barbed wires around plantation areas at forest openings, wildlife roadkills and poaching records in and around the study area. The initial idea was to produce several 3 minutes short films, however then we decided to create a single 10 minutes film on the threats on lynx and wildlife. The short film is already produced and uploaded to YouTube and will be published on 19<sup>th</sup> February 2022.



The short film on the threats to lynx and wildlife is uploaded on YouTube and will be published at 19.02.2022.

# Establishing an NGO

By September 2021 wildfires wiping out large areas in Turkey's Mediterranean forests 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-days workshop (https://en.rayhaber.com/2021/08/orman-bilimkurulu-ilk-toplantisini-yapti/). This board held the second meeting in December 2021 with municipality representatives and created draft declaration on fire management plan, and a biodiversity and wildlife friendly forest management.



The PI while presenting the results of the forest fire research to the Forest Science Board.

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 in finding funding and maintaining a new NGO, a new NGO was not established.

# Project related publications in 2021



"Lynx of Anatolia" a 12-pages article on Anatolian LYnmx Project in Atlas popular magazine in Turkey.





#### Article

# Mitogenome Phylogeny Including Data from Additional Subspecies Provides New Insights into the Historical Biogeography of the Eurasian lynx *Lynx lynx*

Deniz Mengüllüoğlu <sup>1,\*</sup>, Hüseyin Ambarlı <sup>2</sup>, Axel Barlow <sup>3</sup>, Johanna L. A. Paijmans <sup>4,5</sup>, Ali Onur Sayar <sup>6</sup>, Hasan Emir <sup>7</sup>, İrfan Kandemir <sup>8</sup>, Heribert Hofer <sup>1,9,10</sup>, Jörns Fickel <sup>1,4</sup> and Daniel W. Förster <sup>1</sup>

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- hofer@izw-berlin.de (H.H.); Fickel@IZW-Berlin.de (J.F.); foerster@izw-berlin.de (D.W.F.)
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<sup>3</sup> School of Science and Technology, Nottingham Trent University, Clifton Lane, Nottingham NG11 8NS, UK;

Scientific paper on phylogeny and evolutionary history of Eurasian lynx populations in Turkey. New finding on Balkan lynx in Turkey!

Mengüllüoğlu, D.; Ambarlı, H.; Barlow, A.; Paijmans, J.L.A.; Sayar, A.O.; Emir, H.; Kandemir, İ.; Hofer, H.; Fickel, J.; Förster, D.W. Mitogenome Phylogeny Including Data from Additional Subspecies Provides New Insights into the Historical Biogeography of the Eurasian lynx Lynx lynx. Genes 2021, 12, 1216. https://doi.org/10.3390/genes12081216



Spatial ecology and density of lynx in ALP study area.

Mengüllüoğlu, D., Edwards, S., Hofer, H., & Berger, A. (2021). Female and male Eurasian lynx have distinct spatial tactics at different life-history stages in a highdensity population. Ecology and Evolution, 11, 10432– 10445. https://doi.org/10.1002/ece3.7846

# Project related podcasts in 2020-2021

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# Türkiye'nin Yaban Hayatı

JANUARY 12TH, 2021 | 39:41 | E47

#### EPISODE SUMMARY

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Nereden Başlasam'ın bu bölümünde konu Türkiye'nin Yaban Hayatı. Mirgün Cabas ve Can Kozanoğlu'nun konuğu Araştırmacı Dr. Deniz Mengüllüoğlu.

#### EPISODE NOTES

Nereden Başlasam'ın bu bölümünde konu Türkiye'nin Yaban Hayatı. Mirgün Cabas ve Can Kozanoğlu'nun konuğu Araştırmacı Dr. Deniz Mengüllüoğlu.

SHOW CONTRIBUTORS Can Kozanoğlu Storytel Dr. Deniz Mengüllüoğlu Mirgün Cabas

January 2021, "Wildlife of Turkey" a podcast with Mirgün Cabas (journalist) and Can Kozanoglu (sociologist, journalist and writer) on wildlife and cat species in Turkey and the lynx project.

https://nereden-baslasam.simplecast.com/episodes/turkiyenin-yaban-hayatfQUdzz4w

https://www.storytel.com/tr/tr/books/t%C3%BCrkiye-nin-yaban-hayat%C4%B1-neredenba%C5%9Flasam-s02b13-1305079

# BIR KEDI HİKAYESİ Podcastimiz Yayında!



"A Cat Story" podcast on the cat species in Turkey and the Anatolian Lynx Project with Nature Society (Doga Dernegi, Birdlife Turkey) Spotify: <u>https://open.spotify.com/episode/6ZiGZytYgRWAVNCMFi2Q6R</u>...

YouTube: <a href="https://youtu.be/myJwZnYNYLA">https://youtu.be/myJwZnYNYLA</a>