

## Distribution update

### The comeback of wolves in mid-western Anatolia

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#### Abstract

The grey wolf (*Canis lupus*) has the widest distribution among large carnivores existing in the Anatolian part of Turkey. The species was known to be extirpated from the western part of its historical distribution in Anatolia. During a camera trapping inventory of the mammalian fauna around the İzmir Megapol City, at a single event, we recorded two individual wolves in the Yamanlar Key Biodiversity Area. This is the first robust record of wolf occurrence in mid-western Anatolia, and it might provide clues for an established wolf pack in İzmir province in the last several decades. Due to the long-term absence of wolves and other large carnivores in this region, and the subsequent abandonment of the traditional livestock herding practices with livestock guarding dogs and shepherds, this raises concerns about the possible human-wolf conflict that may occur soon. To mitigate this, we suggest that the relevant institutions and wildlife authorities prepare a local action plan and take all the necessary measures.

#### Article

The grey wolf (*Canis lupus*) is known as the largest wild species of the Canidae family (Mech and Boitani 2003). At the beginning of the last century, human mediated extirpation led to the almost complete extinction of natural populations in western and central Europe (Chapron et al. 2014) which also took place in western and southern Anatolia. Despite regional extirpations, populations remained in Eastern Europe and Asia (Boitani et al. 2018). The grey wolf in Turkey often occurs away from coastal areas, at altitudes above 900 m a.s.l., in central, north, and eastern Anatolia and distributed over 500,000 km<sup>2</sup> (Ambarlı et al. 2016). Wolf presence in western Anatolia was shaped mostly by anthropogenic activities and past extirpation events due to intensive herding by nomadic pastoralists (Ambarlı et al. 2016). The species is not known to exist in mid-western Anatolia by the locals and shepherds, however, it is slowly making a comeback in south-western Anatolia (İlemin 2014).

Medium and large sized ungulates form the main diet of wolves globally (Zlatanova et al. 2014). In Anatolia, wild prey forms the bulk of the wolf diet where available (Mengüllüoğlu et al. 2019) and, in the absence of wild prey, domestic livestock and other anthropogenic food sources can contribute to its diet at high percentages (Capitani et al. 2016). Therefore, in the areas with low wild ungulate densities and without traditional livestock herding practices such as the use of livestock guarding dogs (LGD) and shepherds, human-wolf conflict continues to be a serious reason for wolf mortalities (Ambarlı et al. 2016).

In 2020, we conducted a preliminary camera trapping survey which aimed to determine the wild mammalian fauna living in the urban periphery of İzmir Megapol City. The main habitat was a mixture of Mediterranean maquis vegetation and Turkish pine (*Pinus brutia*) forests (Eken et al. 2006).

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Four pilot areas were determined for the inventory of the wild mammal fauna around the city periphery. A total of twelve camera traps were installed on 1<sup>st</sup> November 2020 in the Yamanlar Mountain Key Biodiversity Area (KBA), Kızıldağ KBA, and Menemen region (Figure 1) on the trailways and near flowing water courses used by wild mammalian fauna. We set up three camera traps per site. The total area surveyed at the four sites was 0.17 km<sup>2</sup>.

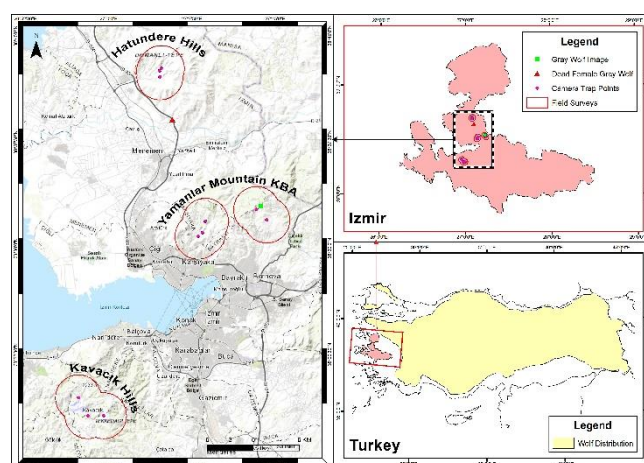


Figure 1. (a) Camera trap locations in İzmir, Anatolia, Turkey, (b) study region in İzmir, Anatolia, Turkey, and (c) grey wolf distribution in Turkey.

We obtained camera trap records of Eurasian badgers (*Meles meles*), beech martens (*Martes foina*), European hares (*Lepus europaeus*), wild boars (*Sus scrofa*), golden jackals (*Canis aureus*), red foxes (*Vulpes vulpes*), and grey wolves. On 13<sup>th</sup> November 2020, two individual wolves were photographed at a single camera trap station (WGS84 38.5493, 27.2282) in the Yamanlar KBA (Figure 2). This camera trap station was located at an altitude of 1050 m and in a Turkish pine and wild pear (*Pyrus spp.*) forest. This is the first robust wolf record obtained in İzmir province in several decades and might be indicative of an established wolf pack in the study area. The area where the wolf image was taken is 180 km away from the closest wolf population (Ambarlı et al. 2016). Following our wolf camera trap record in this area, on 20<sup>th</sup> May 2021, a lactating female wolf was found dead by locals near Menemen Doga Village, 16 km from the camera trap station, assumed to have been killed in a road collision (Figures 1, 2). At the same time, interviews were held with shepherds in the area where the dead grey wolf was found, and it was mentioned that there were recent livestock depredation events by wolves.

The presence of goat herds without shepherds or LGD in the Yamanlar Mountain KBA indicates that wolves have not been present in this location for a long time, as traditional livestock guarding is not practiced anymore (Ambarlı 2019, Mengüllüoğlu et al. 2019). This recent record of wolves in the Yamanlar Mountain KBA could indicate that wolves are recolonizing the area, but the lack of livestock guarding practices raises concerns about human-wolf conflict. Additional surveys are needed to gather further information on the presence of wolves in the area, reveal numbers, and verify if the individuals are dispersers or part of a breeding pack. Therefore, we invite local municipalities, NGOs, and the Wildlife Department of Ministry of Agriculture and Forestry to cooperatively work on a local action plan to prevent conflict and enable wolf-human co-existence in the study area. The individuals recorded in this preliminary survey and the lactating female wolf roadkill in close vicinity might prove to be very important for the re-establishment of wolves in the western Anatolia.

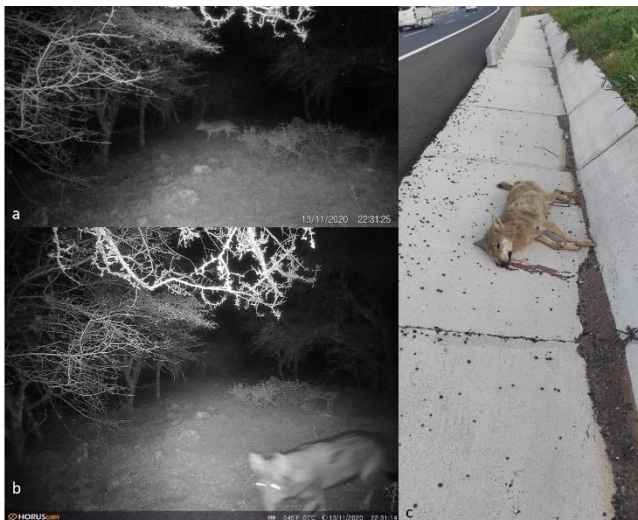


Figure 2. (a, b) First camera trap records of grey wolves and (c) a lactating female grey wolf roadkill in the study area: İzmir, Anatolia, Turkey.

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## Biographical sketch

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