

## First report of feral cat predation on sea turtle hatchlings in Turkey

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**Abstract.** Prior to this study, feral cat predation on sea turtle hatchlings has never been reported from any nesting season or from any nesting beach in Turkey. During our field surveys on Davultepe beach in Mersin, feral cat predation on green and loggerhead sea turtles has been observed since 2015. This study reports on cats preying on sea turtle hatchlings in Turkey for the first time. We also discuss whether or not feral cats dig up sea turtle nests to predate on eggs, taking into account both our own observations and previously published sources.

**Keywords:** feral cat, predation, *Chelonia mydas*, *Caretta caretta*, hatchlings, Turkey

Most cats that prey on turtle hatchlings are not domestic pets and instead are categorized in different countries as feral, stray, or free-roaming cats (Phillott 2020). Feral cats (*Felis catus*) preying on hatchlings have been documented in green turtles (*Chelonia mydas*) on Aldabra Atoll, Seychelles (Seabrook 1989) and loggerhead turtles (*Caretta caretta*) at Turtle Bay on Dirk Hartog Island, Western Australia (Hilmer et al. 2010). Additionally, several radio-collared feral cats were implicated in the predation of loggerhead turtle hatchlings on Dirk Hartog Island, evidenced by cat footprints around turtle nest excavations and regurgitated stomach contents (Johnston et al. 2009). In Beymelek in Turkey, Türkecan (2004) reported that loggerhead turtle eggs had been destroyed by feral cats. However, until the present study on Davultepe 100<sup>th</sup> Yıl beach in Mersin province (henceforth “Davultepe”), feral cat predation on sea turtle hatchlings had never been reported from any other

nesting beaches in Turkey. After the first observation in 2015, in our field surveys at Davultepe during other sea turtle nesting seasons, feral cat predation on sea turtle hatchlings has been observed.

Davultepe beach was found to be one of the most important nesting sites in Turkey for green turtles, and a small number of loggerhead turtle nests are laid there annually as well (Ergene et al. 2010, Ergene 2014, Ergene et al. 2016) (Figure 1). Davultepe is located in Mersin between Kandak Stream (36°43.446' N, 34°30.336' E) to the northeast and Onur Resort (36°42.535' N, 34°28.410' E) to the southwest, totaling 2.8 km in length; it includes Davultepe public beach, a picnic area, and Gümüşkum (100<sup>th</sup> Yıl) Natural Park. This park is 1.8 km long and located between Kandak Stream to the northeast and Kuğu Resort (36°43.008' N, 34°29.290' E) to the southwest (Ergene et al. 2016).

Studies on the monitoring and conservation of sea turtles

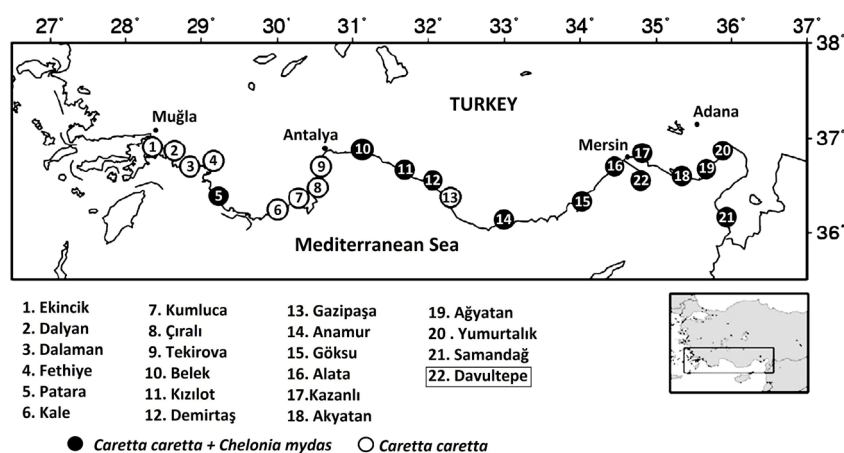


Figure 1. The important nesting beaches for marine turtles in Turkey (modified from Türkozan & Kaska 2010).

have been conducted continuously on Davultepe beach since 2009. The first cat predation of hatchlings on this beach was determined in the 2015 nesting season. During an evening patrol of the 2015 hatchling emergence on the eastern part of the beach, a cat running into some maquis vegetation was encountered carrying a green turtle hatchling in its mouth at approximately 17:00. No similar events were observed in the

following days of this season. Later, on patrols during other nesting seasons, cat predation on sea turtle hatchlings (Figure 2) has continued on this beach, and feral cats have been seen carrying green turtle hatchlings in their mouths several times early in the morning every year, both inside and outside the natural park at Davultepe. Furthermore, on August 28, 2020, during the morning patrol outside

Gümüşkum Natural Park, a feral cat, spotted about 1 m away from a loggerhead turtle nest, was seen carrying a hatchling in its mouth. The tracks of all hatchlings from this particular nest, located in front of the walking path, turned towards the walking path instead of the sea because of the artificial light sources from the holiday houses. Additionally, the two sides of this sand-covered walking path were surrounded by concrete sidewalks, so when the hatchlings reached the path, they could not get back to the sea. On the walking path, the tracks of loggerhead turtle hatchlings were interrupted by cat tracks, so it was determined that the hatchlings had been hunted by cats. Also on the walking path, some hatchling tracks were interrupted by human tracks. Local people said that a lot of hatchlings had turned towards the walking path instead of the sea and that they had captured them in their hands and released them into the sea. They also claimed that cats were seen carrying sea turtle

hatchlings in their mouths. In both the 2019 and 2020 nesting seasons, field observations indicated that the frequency of cat tracks in the sandy area had increased both inside and outside the natural park.

Türkecan (2004) mentioned that loggerhead turtle eggs in Turkey were being destroyed by cats. The study area in Türkiye's (2004) report covers Beymelek Directorate of Fisheries beach and Beymelek public beach. The amount of terrestrial predation in this region was very low. A total of two terrestrial predation events were identified, one in each region. The predators on Beymelek public beach were identified as dogs (*Canis familiaris*), which had destroyed two loggerhead turtle eggs. In some parts of the beach, digging marks were found in places close to the nests. These marks were left by dogs and were usually found far from nest locations. The gravel ground cover also prevented the dogs from digging.



Figure 2. The photograph of the cat searching to prey turtle hatchlings near the turtle nest during the hatchling emergence period in the Gümüşkum (100<sup>th</sup> Yıl) Natural Park at Davultepe beach (on August 2, 2017; 18:22).

On Beymelek Fisheries Directorate beach, the predators were determined to be cats, which destroyed three loggerhead turtle eggs. Apart from Türkiye's (2004) study, cat predation on sea turtle eggs has not been reported in any other study from any nesting beach in Turkey. Ficaretola (2008) mentioned that in most cases of predation in Qatar, he did not directly observe predators destroying a hawksbill turtle (*Eretmochelys imbricata*) nest; therefore, it was not possible to attribute each nest destruction to a given predator. However, only two species of carnivores are present in that area: feral cats and Rüppell's foxes (*Vulpes rueppellii*). Rüppell's foxes were the predators most frequently observed approaching and excavating nests, and thus were likely to be responsible for most nest destruction (Ficaretola 2008). Despite the presence of feral cats on that beach, the researchers found no visible signs or conclusive

evidence indicating that feral cats feed on sea turtle eggs. As another example, Hamann et al. (2006) did not observe any predation of turtle eggs despite the presence of wild dogs and feral cats on the northern beach of West Island, a part of the Sir Edward Pellew Islands in the Gulf of Carpentaria in Australia. Although there was no indication whatsoever of feral cats digging up nests, this potential predator was common on the nesting beaches (Frazier 1971), and some of the cat spoor patterns suggested that cats had scavenged eggs from damaged and exposed nests (Seabrook 1989). In addition, no remains of turtle eggs were found in cat scat or guts, and cats were not observed eating the eggs. It is possible, however, that if the eggs are eaten, the soft shell may not be ingested or may be completely digested, leaving no recognizable remains in cat scat or gut contents (Seabrook 1989).

On Davultepe beach, dogs are the main nest predator, and cats have not been observed attempting to dig up sea turtle nests or predating on eggs, either during or after incubation. Therefore, we consider it unlikely that cats dig up nests themselves, but we believe that if a nest were excavated and partially predated by other animals and if eggs were present within or close to a destroyed nest, cats would probably eat the eggs from that nest. Since the relevant literature has not provided any data about cats preying on sea turtle hatchlings in Turkey, this report provides the first confirmed findings of the impacts of cats on hatchlings in this country.

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