Over 50 adult loggerheads mauled to death by stray dogs in Cyprus

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Understanding the causes of sea turtle mortality is critical to inform the mitigation of anthropogenic threats (Hays et al. 2025, Wallace et al. 2025). Predation is widely recognised as a driver of mortality in sea turtles and, in adults, may disproportionately affect females that become vulnerable when ascending land to nest (Almeida et al. 2024). In some areas, nesting females are consumed by natural predators such as jaguars (*Panthera onca*) in Costa Rica (Veríssimo et al. 2012, Chopin-Rodriguez et al. 2022). Species introduced by humans, such as domestic dogs, have also been recorded predating nesting female turtles, and while these cases have historically been infrequent (Margaritoulis et al. 2019; Rojas-Cañizales et al. 2022), current levels in (North) Cyprus may present a serious emerging anthropogenic threat.

In North Cyprus, cases of dead and injured green (*Chelonia mydas*) and loggerhead (*Carretta caretta*) turtles were opportunistically documented from 1992–2009 and have been regularly recorded in a national stranding database since the national strandings network was established by SPOT Marine Life in 2009 (Snape et al. 2013). Most stranded turtles are considered to have died as a result of bycatch in local artisanal fisheries, and programmes have since been developed to understand this threat in more detail (Snape et al. 2013, Palmer et al. 2021, 2024, Duncan et al. 2025) and address it (Snape et al. 2024). The stranding network has additionally encountered cases of gravid adult female loggerhead turtles with injuries consistent to those inflicted by a carnivorous predator. These injuries include deep puncture wounds and lacerations to the neck and shoulders exposing bone and musculature, consumption of skin and muscle, bite marks and scratches to flippers, soft tissues, head, and carapace (Fig. 1; Snape et al. 2022). These cases sparked particular concern because, in Cyprus, adult nesting turtles have no native land predators

The first recorded predation event on a nesting turtle occurred in 2018, when a pack of dogs was directly observed mauling a nesting loggerhead to death on Akdeniz beach (Snape et al. 2018). Snape et al (2022) have since reported 2 additional spates of nesting female loggerhead strandings at Boğaz beach, in the Iskele Municipality, in 2020 and 2021. The authors speculated that the deaths of the 23 loggerhead turtles were caused by predation at sea by the Mediterranean monk seal (*Monachus monachus*). This was because, in most cases, the turtles were found stranded on the coast away from recent loggerhead nesting attempts. Five additional nesting female deaths were reported at Güzelyalı beach in 2022 and were attributed to predation by stray dogs (Knazovicka & Türkozan 2024). Here, we review these previously reported instances of adult loggerhead predation at nesting sites and present a further 25 cases encountered by the stranding network between 2022–2025 (Table 1). This includes a novel body of evidence that highlights the previously underestimated magnitude of stray dog predation on nesting female loggerheads in North Cyprus.



Figure 1. Injuries obtained to the shoulders of a loggerhead turtle attacked and killed by dogs found on 29 June 2025. These injuries are very similar to those reported by Snape et al (2022).

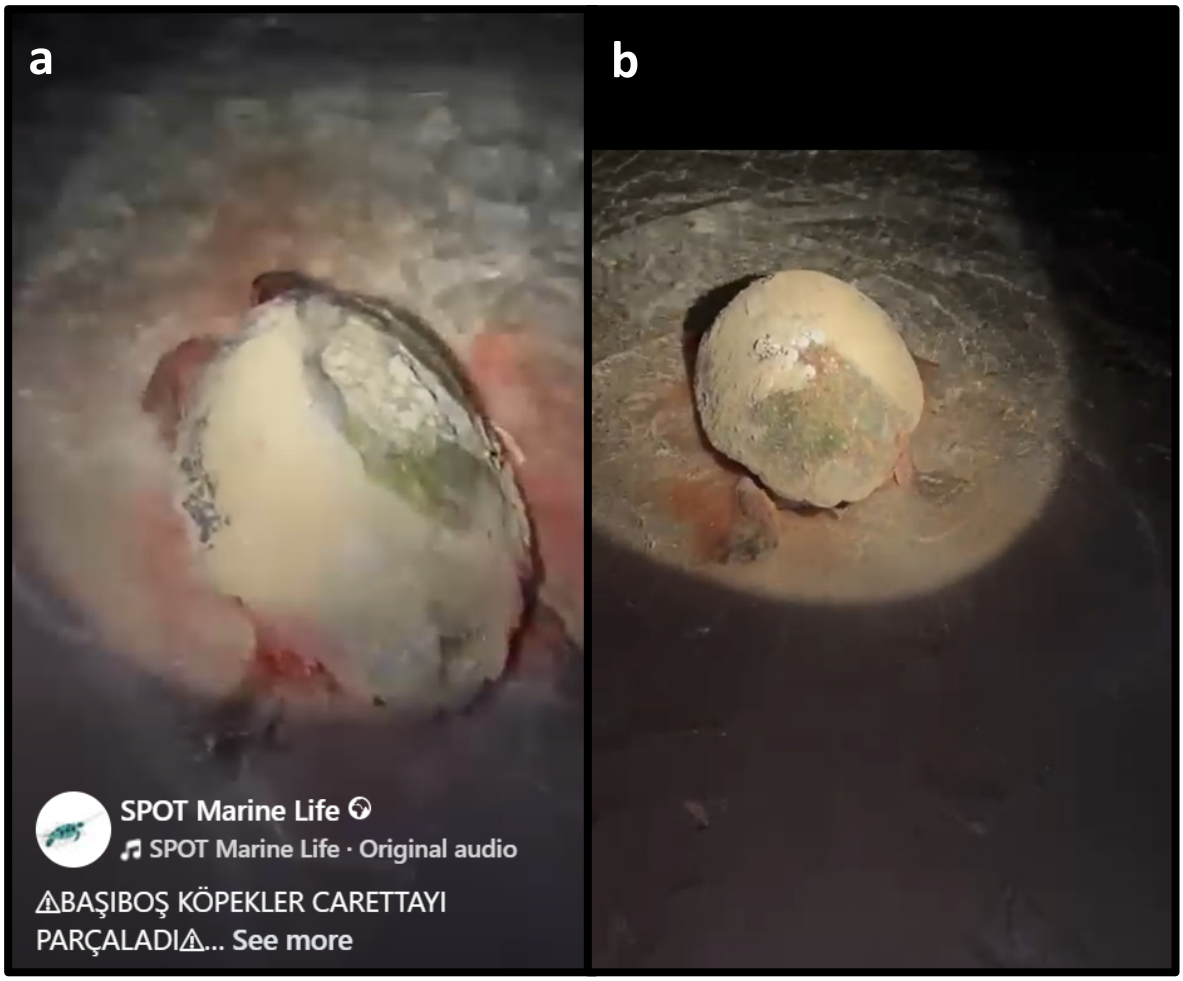

Figure 2. Screenshots from video footage provided by a local bystander when nesting female loggerhead turtles were mauled by stray dogs at Boğaz beach on a) 30 May 2025 (video viewable at: https://www.facebook.com/reel/1902712903823953). and b) 6 June 2025. Plumes of blood from the neck and hind quarters, suggest the turtles suffered life- threatening injuries.

Table 1. Summary of previously unreported loggerhead turtles predated on by stray dogs in Northern Cyprus 2022 – 2025. CCLmin: minimum curved carapace length (Bolton 1999). NA = undetermined.

Strand date	Strand location	Sex	Maturity status	CCLmin (cm)	Decomposition status	Injury description
01/06/2022	Zaradise Gardens (Iskele)	F	Mature, breeding	72.8	Alive – died before receiving rehabilitation	Left humerus and shoulder musculature completely removed causing near amputation of front left flipper, puncture wounds to neck and head, deep abrasion to carapace.
04/06/2022	Zaradise Gardens (Iskele)	F	Mature, breeding	74.5	Fresh Dead	Left humerus exposed, oesophagus and trachea ripped through wound in left shoulder, puncture wounds to right shoulder and neck
09/06/2022	Bogaz (Iskele)	F	Mature, breeding	63.8	Fresh Dead	Left humerus exposed, puncture wounds to right shoulder and neck, bite marks to head and both front flippers
13/06/2022	Bogaz (Iskele)	F	Mature, breeding	72.4	Fresh Dead	Left humerus exposed, musculature of right shoulder exposed, puncture wounds to neck and front right flipper, abrasion to carapace
17/06/2022	Zaradise Gardens (Iskele)	NA	NA	66.6	Moderately Decomposed	Left humerus and shoulder musculature removed causing near amputation of left flipper, deep puncture wound to right shoulder
17/06/2022	Iskele	F	Mature, breeding	69.3	Severely Decomposed	Right and left humerus and exposed, GI tract and shelled eggs pulled out of the turtle. Advanced decomposition potentially advanced the severity of injuries
26/06/2022	Famagusta	F	Mature, breeding	69	Fresh Dead	Left shoulder musculature removed causing near amputation of left flipper, oesophagus and trachea ripped through wound to left shoulder, deep puncture wound to right shoulder
28/06/2022	Bogaz (Iskele)	F	Mature, breeding	68.1	Fresh Dead	Left humerus and musculature of right shoulder exposed, bite marks on head, neck and front right flipper
01/07/2022	Cyprus Gardens (Iskele)	NA	NA	69.3	Moderately Decomposed	Left humerus exposed, puncture wounds to right shoulder
14/07/2022	Zaradise Gardens (Iskele)	F	Mature, breeding	73.9	Fresh Dead	Left humerus and musculature of right shoulder exposed.
18/07/2022	Zaradise Gardens (Iskele)	F	Mature, breeding	66	Moderately Decomposed	Left humerus exposed, puncture wounds to right shoulder
14/07/2024	Avtepe (Karpaz)	F	Mature, breeding	60.9	Fresh Dead	Cervical vertebrae exposed, puncture wounds to both shoulders, large chunk removed from rear of carapace exposing viscera
30/05/2025	Bogaz (Iskele)	F	Mature, breeding	NA	Alive	Wounds to head, neck, shoulders and all flippers and major blood loss (Fig 3a)

Table 1. continued.

Strand date	Strand location	Sex	Maturity status	CCLmin (cm)	Decomposition status	Injury description
03/06/2025	Bogaz (Iskele)	F	Mature, breeding	78	Alive – died before receiving rehabilitation	Deep puncture wounds around the neck and shoulders, bite marks to head and both front flippers.
06/06/2025	Bogaz (Iskele)	F	Mature, breeding	NA	Alive	Wounds to neck, shoulders and all flippers and major blood loss (Fig. 3b)
07/06/2025	Iskele	F	Mature, breeding	71.2	Fresh Dead	Right humerus exposed, puncture wounds to neck, bite marks to head and all flippers with both back flippers severely bitten and chewed
20/06/2025	Iskele	F	Mature, breeding	70.9	Fresh Dead	Bite marks to neck and head, right humerus exposed, bone and musculature surrounding back right flipper exposed, deep abrasion to plastron indicative of being dragged over rocks.
29/06/2025	Iskele	F	Mature, breeding	69.2	Fresh Dead	Right humerus and musculature of left shoulder exposed, oesophagus ripped out of wound in right side of neck, puncture wound creating hole through back left flipper
30/06/2025	Iskele	F	Mature, breeding	NA	Severely Decomposed	Cervical vertebrae exposed by deep wound to neck, advanced decomposition prevented accurate identification of other injuries
05/07/2025	Iskele	F	Mature, breeding	69.6	Fresh Dead	Right and left humerus exposed, puncture wound on ventral side of neck penetrating to pectoral musculature, near-amputation of back right flipper, bite marks to all flippers
07/07/2025	Iskele	F	Mature, breeding	65.6	Severely Decomposed	Right humerus, left humerus and cervical vertebrae exposed, GI tract and oviduct full of shelled eggs pulled through wound in right shoulder. Advanced decomposition potentially advanced the severity of injuries
07/07/2025	Iskele	F	Mature, breeding	66.6	Moderately Decomposed	Musculature on right side of neck and right shoulder exposed, bite marks to head and both front flippers
12/07/2025	Iskele	F	Mature, breeding	69.5	Moderately Decomposed	Right humerus, left humerus and cervical vertebrae exposed, near-amputation of head, oesophagus ripped out from wound in left shoulder, bite marks to both front flippers
18/07/2025	Iskele	F	Mature, breeding	72.6	Moderately Decomposed	Right and left humerus exposed, near-amputation of front left flipper
21/07/2025	Iskele	F	Mature, breeding	69.6	Moderately Decomposed	Musculature of both shoulders exposed, bite marks to head, neck and both front flippers

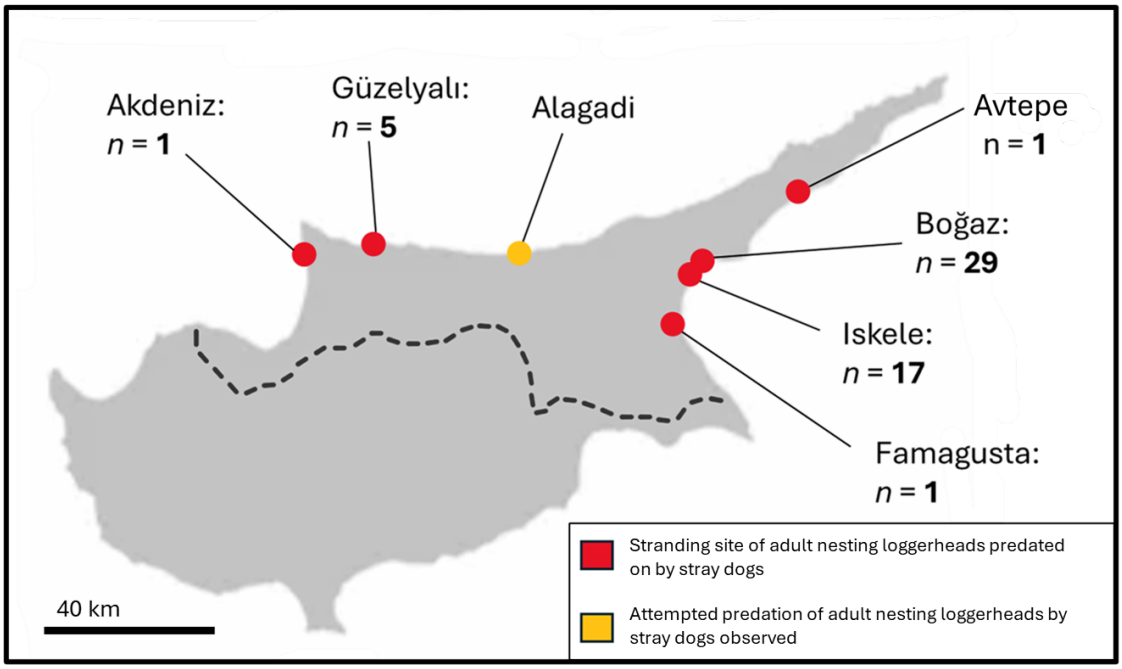

Figure 3. Sites in North Cyprus where adult female nesting loggerhead turtles were predated by stray dogs (red circle) and where attempted predation was observed and intervened upon by nighttime research teams monitoring nesting activity (Alagadi; yellow circle). *n* denotes the number of recorded predation cases since 2018 (Snape et al 2018, 2022, Knazovicka & Türkozan 2024; Table 1). Dotted line shows the boarder of the Turkish Republic of North Cyprus. Note that Boğaz beach is within he Iskele Municipality. Güzelyalı and Akdeniz are in the Lapta, Alsancak Çamlibel Municipality.

On 30 May 2025, a member of the public directly observed a group of stray dogs attacking a female loggerhead turtle during a nesting attempt on Boğaz beach. The witness dispersed the dogs and the turtle returned to the sea with untreated injuries. Video footage shared by the witness through social media shows the turtle had sustained serious wounds and was bleeding heavily upon its re-entry, emitting plumes of blood into the sea (Fig. 2a).The same witness observed a second loggerhead being attacked by dogs during a nesting attempt on Boğaz beach on 6 June 2025 and again filmed the individual returning to the sea with severe bleeding (Fig. 2b). It is likely that the injuries sustained and blood loss caused these two individuals to die at sea and, similarly to the strandings reported by Snape et al (2022), wash up to shore away from their nesting attempts.

In addition to the two observed dog attacks, five dead nesting females have been found in proximity to loggerhead nesting attempts since 2022. Two of these turtles were still alive when found but died before they could be transported to a rehabilitation facility (Table 1). Circumstantial evidence is also provided by a stranding recorded on 18 July 2025. The turtle was found at the waterline with severe wounds that had prolonged exposure to salt-water. Necropsy revealed only a small number of shelled eggs in the right oviduct, suggesting a nesting attempt had been abandoned before oviposition was complete. Considering all evidence, the most likely explanation of this stranding is that the turtle was attacked by dogs during oviposition and consequently abandoned the nesting attempt before later dying at sea.

The new cases reported here, combined with the obvious and sustained presence of stray dogs in North Cyprus, suggests the 23 strandings reported by Snape et al (2022), and the 25 previously unreported strands of a similar nature, may in fact all be caused by stray dog predation

during nesting attempts. With the addition of the five cases reported at Güzelyalı, this brings the total number of known dog attacks on nesting female loggerhead turtles in North Cyprus to 54 (Fig. 3; Table 1), 53 of which have occurred since 2020.

Pallardy (2024) recently reviewed dog predation on adult nesting sea turtles and considered dogs to be a global threat. While one study found a larger number of stray dog predation events in Brazil (55 adults of three species; de Almeida et al. 2024), the study area and duration were far greater (>250 km and 10-years respectively) than has been found in the Iskele area of Cyprus presented here, which is the highest recorded rate of adult turtle predation by stray dogs per unit of coast globally. This intensity and regularity may suggest that animals in the Iskele area have become habituated to feeding on loggerhead turtles and that the same individuals may be involved across multiple seasons.

The number of loggerhead turtles affected by stray dog predation in North Cyprus is likely to far exceed the reported 54. Turtles that die at sea may drift offshore never to be recorded. Furthermore, it is impossible to know the number of turtles that survived dog attacks but faced significant fitness loss as a result through reduced nesting success and injuries. Stray dogs were also observed disrupting nesting attempts on Alagadi beach for the first time in 2025 (Fig. 3). Injury and mortality were fortunately prevented in these instances as nesting turtles are intensively monitored by night-time research teams. Without swift intervention, dog attacks will certainly continue to kill, injure and disrupt loggerhead turtles nesting along the North Cyprus coastline.

While both green and loggerhead turtles nest in North Cyprus, stray dogs have only been recorded predating on nesting loggerheads and nesting green turtles have not been affected (although nests and hatchlings of both are regularly predated by stray dogs). Eighty five percent of predation events were localised to sites in the Iskele Municipality (Fig. 3), which contains important nesting beaches for loggerheads but not green turtles (Broderick & Godley 1996). This suggests stray dog populations in this region are particularly poorly controlled. Nesting loggerhead turtles in North Cyprus are additionally smaller on average than nesting green turtles. The average minimum curved carapace length (CCLmin; Bolton 1999) of predated loggerheads between 2022–2025 was 69.5 cm (±SD: 3.7; range: 60.9–78.0; Table 1), which is similar to that of loggerheads (71.5 cm ±3.4, 64.7–78.3), but significantly smaller than that of green turtles (89.5 cm ±5.4, 73.6–108.6) that nested on Alagadi in 2025 (Snape et al. 2025). Loggerheads may therefore also be easier prey for dogs to target compared to larger green turtles.

Adult mortality is considered a major factor limiting the population growth and recovery of loggerhead turtles in North Cyprus (Omeyer et al. 2021). It is clear that stray dog predation may contribute considerably to these adult mortality rates, especially on a local scale such as in the Iskele Municipality (which includes Boğaz beach), where most stray dog predation has been observed (Fig. 3). And since nesting females have the highest reproductive value (Walace et al. 2008), the overall population-level impacts of stray dog predation could pose a significant threat to population persistence, especially at such a local level as the Iskele coast of Famagusta Bay (Margaritoulis & Touliatou 2011, Almeida et al. 2024).

In North Cyprus, stray dog populations are poorly controlled and have been a longstanding source of socioeconomic concern (Mrva-Montoya 2015). Shelters are insufficient in number and capacity to accommodate the large population of stray dogs and, despite the clear mandate for their removal, current legislation defers the responsibility of euthanasia to private vets which is rarely authorised for fear of public backlash. The 54 predation events discussed here therefore add to a highly compelling body of evidence that supports

the need for local and national authorities to intervene and remove the stray animals by whatever means necessary. It is imperative that the Iskele and Lapta, Alsancak Çamlibel Municipalities work with conservation groups in their region to remove stray dogs from nesting beaches before the nesting season begins in May. We remind these Municipalities that sea turtles are an important public icon for Cypriot people and that their protection is mandated by law.

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