

The First Leatherback Sea Turtle Observed During a Nesting Attempt in the Mediterranean

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ABSTRACT. – Only loggerhead (*Caretta caretta*) and green (*Chelonia mydas*) sea turtles regularly nest on the sandy beaches of the Mediterranean Sea. We report the first ever observation of a leatherback sea turtle (*Dermochelys coriacea*) on a Mediterranean beach during a nesting attempt from July 2024. The turtle did not attempt to dig an egg chamber or lay eggs but returned to the sea because it was disturbed by people, lights, and beach furniture.

The leatherback sea turtle (*Dermochelys coriacea*) is a species with circum-global distribution that is divided into 7 population segments or regional management units (RMUs) covering the Indian, Pacific, and Atlantic Oceans (Wallace et al. 2023). The Atlantic Ocean hosts 3 RMUs; 2 in the south (Southwest Atlantic and Southeast Atlantic) with the SEA one extending into the Indian Ocean, and one to the north (Northwest Atlantic). Leatherback turtles are the third most abundant sea turtle species in the Mediterranean, after loggerhead (*Caretta caretta*) and green (*Chelonia mydas*) turtles that both nest there (Casale et al. 2018) and are designated into their own Mediterranean RMUs (Wallace et al. 2023). The leatherback's presence in the marine habitat of the Mediterranean is well established (Delaugerre 1987; Groombridge 1990; Casale et al. 2003), and, based on genetic analyses of a small number of individuals, all are included in the Northwest Atlantic RMU for the species (Wallace et al. 2023).

At least 2 reports of leatherback turtles with highly developed eggs have been recorded in the Mediterranean (Lescure et al. 1989), suggesting the possibility that the species does nest in the region. In their reviews of potential leatherback nesting records in the Mediterranean, both Delaugerre (1987) and Lescure et al. (1989) caution the acceptance of some of the records presented by Bruno (1978), where 2 young leatherback turtles and even a

leatherback nest with eggs were stated to have been found on the southern coast of Sicily in the 1960s, and also to some degree they question the report of Sella (1982) that a leatherback turtle track was found in Israel in 1963 but the turtle did not lay eggs at that time. Delaugerre (1987) considered the capture of a post-hatchling leatherback with carapace length of 7 cm in Mediterranean in the early 1800s as the best evidence of nesting by this species in the region.

A further review (Groombridge 1990) indicated a leatherback emergence was recorded by Gramentz on the Italian island of Lampedusa. The only publication that possibly contains that observation is Gramentz (1989), where he writes “a leatherback was observed, at 0310hr, during a patrol. It was 2–3m from the beach, heading towards the land. . . . It then turned south-east and swam or drifted in the direction of Isola dei Conigli, where it disappeared at 0325hr. I estimated that the turtle was 180–200cm in total length.” There was therefore no evidence on the beach of the presence of that leatherback, and it might be considered quite fortuitous that the author was on the beach at potentially the only time that a leatherback was preparing to emerge to nest on the island.

Based on the evidence available to support all previous leatherback nesting records Groombridge (1990) concludes that “no female *Dermochelys* has ever been observed on a nesting emergence, or actually nesting, on any beach in the Mediterranean; no adequate documentation of any supposed emergence or nest has ever been produced.” Subsequent to this review, published 35 years ago, no further publications have documented leatherback nesting attempts within the Mediterranean, as established by omission of any such records appearing in the IUCN Marine Turtle Specialist Group Mediterranean Regional Report from 2020 (Casale et al. 2020) and the absence of any such subsequent reports (authors' personal observations). Leatherbacks are therefore not thought to currently breed in the Mediterranean, but they enter the region as large juveniles and adults from Atlantic populations simply to feed (Casale et al. 2003).

Leatherbacks have been reported in Syrian waters since 2004, when a large individual was brought to port alive after getting entangled in rope (Rees et al. 2004). Several other records, since 2000, have been uncovered and subsequently reported. These included another large turtle entangled in fishing gear brought to port and released alive and 2 carcasses of stranded individuals well over 1 m in carapace length (Jony and Rees 2022). Like other Mediterranean countries, with turtle nesting monitoring projects for green and loggerhead turtles, no leatherback nesting had been recorded on Syria's beaches. This paper reports on the first ever observation of a leatherback turtle during a nesting attempt on a Mediterranean beach, which was witnessed in Syria in 2024.

Nesting Attempt Observation. — The leatherback turtle was encountered opportunistically by residents and tourists at Wadi Kandil beach (lat 35.7301°N, long 35.8335°E), on the northern coast of Syria, soon after midnight during the night of 3 July 2024. In his words, Ahmad



Figure 1. The leatherback turtle (*Dermochelys coriacea*) on the beach in Syria during a nighttime emergence in July 2024. Images show the overall appearance of the animal (a–c), its short tail indicating it is female (b), the scars around its shoulders and neck from some kind of previous entanglement and constriction (c–e), the injured or deformed right side of its lower jaw (d–e), and the notched hind left flipper (f). Photographers: Ahmad Hassan and Ali Hassan.

Hassan was sitting alone on his terrace above the beach when he heard the sound of chairs and tables being overturned. His first thought was that it was a thief, so he was shocked to see such a huge creature, the likes of which he had previously seen only on television. The turtle was making loud, strange sounds and was breathing loudly. This information and visual documentation of the encounter were later shared with the first author (MJ). Ahmad also confirmed that the turtle had not been beaten or harmed, and it had not occurred to him it had come onto the beach to nest until later. After a short while, several people gathered to watch and photograph the turtle. Despite the noise and disturbance, the turtle kept turning around to stay on the beach, but people in attendance persisted in twisting it and forced it back into the sea. As proven in photographic and video evidence (Fig. 1) the turtle was unmistakably a leatherback because of its overall size and physical appearance, lacking scaly skin and a carapace covered in keratinous scutes, but instead having rubbery black skin that extended over the carapace that presented 7 prominent longitudinal ridges. The carapace was estimated to be at least 160 cm long.

The apparently healthy turtle, based on observed overall good body condition and activity levels, emerged onto the beach at night. The turtle did not have an extended muscular tail that is characteristic of adult male turtles, therefore we concluded it was an adult female that had emerged onto the

beach to attempt to nest (Fig. 1a, b, c). Several minutes of video footage and multiple photographs of the turtle under artificial illumination were recorded as the turtle crawled between tables that were on the beach. The movement of people and lights and the presence of beach obstructions would have all contributed to disturbing the turtle, and it returned to the sea at around 0040 hrs without attempting to construct an egg chamber or lay any eggs. We have no evidence there was any subsequent emergence by a leatherback turtle on the same or another beach in Syria.

Despite being visually assessed to be in overall good condition the turtle exhibited several healing constriction wounds, around both shoulders and neck (Fig. 1c, d, e), suggesting it had been previously entangled in some type of fishing gear but had managed to escape. The turtle's oddest characteristic, however, was its injured or deformed lower jaw with the right side being misshapen and unable to close (Fig. 1d, e), which, given the turtle's apparently good body condition, evidently did not impact its feeding ability. Lastly, the turtle's hind left flipper was seen to have a notch cut out of it along one side (Fig. 1f), the cause of this being unknown.

Discussion. — Leatherback nesting attempts in the Mediterranean are exceedingly rare, with none reported in the last 40 years (Casale et al. 2020), and doubts exist on

the veracity of several of the previous potential occurrences (Delaugerre 1987; Lescure et al. 1989; Groombridge 1990). The observation reported herein, with strong visual documentary evidence, is the first incontrovertible record of such behavior in the region, but unfortunately the animal failed to make a nest and lay its eggs. Without the anthropogenic disturbance, the leatherback may have been able to nest on Wai Kandil beach as it is a known minor green turtle nesting beach (Rees et al. 2008), hence the beach sand is relatively deep and conducive to nest formation.

The leatherback's nesting activity may be a result of the climate change-induced warming of the Mediterranean Sea (Pastor et al. 2020). Altered nesting distributions are being observed for the 2 species with established breeding populations in the Mediterranean. The more widespread loggerhead is experiencing an expansion to the west and north of its traditional core range (Hochscheid et al. 2022), and sporadic green turtle nests are likewise being recorded outside their previously restricted range (Ben Ismail et al. 2022; Panagopoulou et al. 2025).

With beach monitoring becoming more widespread in both established nesting regions and emerging nesting areas, it is increasingly likely that any future leatherback nesting activity will be observed. Given the raised awareness of the possibility of this species nesting, suitable sampling and record keeping are likely to be completed and will provide definitive proof that is acceptable to the scientific community. We suggest that tissue samples are taken from any leatherback turtles encountered on the beach, be they nesting females, hatchlings, or embryos in unhatched eggs, so that genetic and other biochemical analyses may be carried out.

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