

Sooty Falcon (*Falco concolor*) population trends in Hawar, Bahrain 1998–2023

Howard KING



Received: January 29, 2026 – Revised: March 15, 2026 – Accepted: March 19, 2026

Kink, H. 2026. Sooty Falcon (*Falco concolor*) population trends in Hawar, Bahrain 1998–2023. – Ornis Hungarica 34(1): 138–143. DOI: 10.2478/orhu-2026-0012

Abstract The Hawar Islands, located near Bahrain, were designated a Ramsar Site in 1997, and a survey of Sooty Falcons (*Falco concolor*) began in 1998, documenting 15 breeding pairs. By 2006, numbers had declined to 10 pairs, with chick ringing efforts conducted to monitor the population. After a 15-year gap, surveys resumed in 2021 and 2023, identifying only 6 occupied nests in 2021 and a possible 5–7 pairs in 2023. The breeding season occurs in August, coinciding with extreme heat and the arrival of migratory birds, which serve as prey. Despite abundant nesting sites, Sooty Falcon numbers have declined, possibly due to changes in prey availability rather than human disturbance. Observations suggest a connection between Hawar and Oman populations, evidenced by a recovered ringed bird from Oman. Urgent conservation efforts, including better funding, advanced technology, and further ecological studies, are necessary to ensure the species' survival on Hawar.

Keywords: *Falco concolor*, Ramsar site, breeding pairs, population decline, conservation efforts

Összefoglalás A Bahrein közelében található Hawar-szigeteket 1997-ben Ramsari területté nyilvánították, és 1998-ban megkezdődött a hamvas sólymok (*Falco concolor*) felmérése, amelynek során 15 költőpárt dokumentáltak. 2006-ra a számuk 10 párra csökkent. A fiókák gyűrűzésével a populáció monitorozását tűzték ki célul. Egy 15 éves kihagyás után a felmérések 2021-ben és 2023-ban folytatódtak. 2021-ben mindössze 6, 2023-ban 5–7 párt azonosítottak. A költési időszak augusztusban van, egybeesve a rendkívüli hőséggel és a zsákmányul szolgáló vonuló madarak érkezésével. A bőséges fészkelőhelyek ellenére a hamvas sólymok száma csökkent, valószínűleg a zsákmány elérhetőségének változásai, nem pedig az emberi zavarás miatt. A megfigyelések a hawari és ománi populációk közötti kapcsolatra utalnak, amit egy ománi gyűrűs madár is bizonyít. Sürgős védelmi erőfeszítésekre – beleértve a jobb finanszírozást, a fejlett technológiát és a további ökológiai vizsgálatokat – van szükség a faj hawari túlélésének biztosításához.

Kulcsszavak: Ramsari terület, költőpárok, populációcsökkenés, természetvédelmi erőfeszítések

PMC, Kingdom of Bahrain, e-mail: mking.pmc@gmail.com

Introduction

The Islands of Hawar, are an archipelago, 27 kms from the main Island of Bahrain lying close, west of the peninsular of Qatar. They were declared a Ramsar Site in 1997, the first breeding survey of Sooty Falcons followed in 1998 as part of a complete avian breeding survey of the entire archipelago (King 1999). The number of pairs of breeding Sooty Falcon documented at that time was 15. Regular quantitative surveys for the species continued until 2006, when observations indicated a decline to 10 pairs. That year several chicks were ringed on Hazwarah by Dr Brendan Kavanagh (BTO rings) (Kavanagh & King 2008).

This included a chick from the archipelagos' most accessible nest, situated close to an Osprey (*Pandion haliaetus*) nest at the NW corner of the Hazwarah Island. After a lapse of 15 years the Islands were not visited until 2021 and 2023 (Table 1).

Study area

On Hawar, eggs are normally laid in early August and hatch by the month's end. August is also the hottest and most humid month of the year. Daily temperatures exceed 40 °C with humidity approaching 100%, consequently apparent temperatures often exceed 50 °C. Chicks fledge well before the end of September. The timing of the breeding season reflects the availability of food, with September being the start of the peak period for returning passerines from northern clines heading south across Hawar during migration.

To overcome this intense heat, Sooty Falcons select nest sites that avoid and exclude direct sunlight from reaching any eggs laid within. Consequently, all nests are located in the north-western facing cliffs on the rocky flat-topped uninhabited islands of Umm Hazwarah, Jazur al Hajiyat and Jazur al Wakur. Sadly, the wealth of potential nesting sites of these uninhabited islands, is not reflected in the number of breeding pairs (Figure 1). Seldom completely vertical, except on Wakur, cliff faces are generally a combination of numerous small vertical sections separated by slopes at variable angles; all surfaces are also friable and covered in loose debris. On Umm Hazwarah, cliff reach a max height of 15 metres, on Jazur al Hajiyat 10, while on Jazur al Wakur 12 meters.

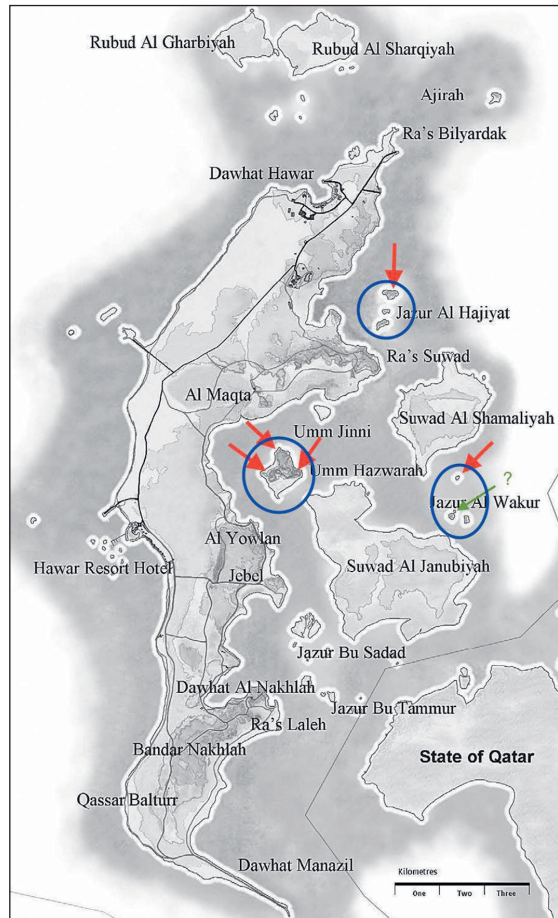


Figure 1. Indicative map of Sooty Falcon nests around the Hawar Islands. Red arrows indicate confirmed nests, while the green arrow marks the location of an observed pair

1. ábra

A Hawar-szigetek körüli hamvas sólyom fészkek térképe. A piros nyilak a biztos fészkeket, a zöld nyíl a megfigyelt pár helyét jelzi

Methods and Results

Finding an occupied yet accessible nest on arrival at any individual island remains the main challenge on any visit. Across the islands, there is no correlation between nest locations and the locations where pairs were observed. Distant observation of hawking birds will only locate a general area, where nesting is probable. Extended observations and numerous visits, between May and August are needed to determine the precise location of any active nest site. Each nest visit presents its own hazards. Reaching the site by boat can be difficult, as extensive shallow algal beds and rocky reefs often prevent a direct approach. The nature of the cliff face containing the nest must also be considered in relation to the safety and climbing ability of the field team.

The original quantitative surveys (1998–2005) were largely solitary efforts and involved numerous preliminary pre-breeding visits in a small, shallow-draft but seaworthy boat based on Hawar, conducted to record the number of birds and breeding pairs present (*Table 1*). All accessible nests that could be identified were visited at least once in September to check egg or brood numbers. The number of active nests visited each season varied with a maximum of eight achieved in 2004. Seasonal totals were based on observational records of individuals recorded during continuous field visits conducted after the breeding season, between mid-September and mid-October each year. During the 2006 season a special day trip was organised to ring nestlings on Umm Hazwarah accompanied by Dr Bredon Kavanagh and Juhani Kyrro. Two nests were visited and three nestlings ringed.

Following a 15-year gap, the Hawar population was resurveyed in 2021, with four reconnaissance visits conducted between June and October (*Table 1*). A single nestling was ringed once again on Hazwarah during a dedicated ringing visit in September, this time by Abdullah Kaabi, similarly using a BTO ring. Interestingly, one of the adults seen above the nest also wore a ring. In total, only six occupied nesting sites were identified across the entire archipelago during this quantitative survey. This included a nest containing three eggs on the northern face of the north Island of Jazur Al Hajiyat, which was found to have been abandoned with no adults present, during a post breeding visit in early October. The three addled eggs were collected so as not to impact on any future occupation of that nest.

In 2023, a further quantitative survey was undertaken, including initial reconnaissance visits in June and August. Based on observations of distinct pairs and free-flying adults, approximately 5–7 pairs were estimated to be present around the Hawar Islands: two pairs on Jazur al Wakur, two on Jazur al Hajiyat, and possibly two or three pairs on Umm Hazwarah (*Table 1*). However, during a visit on 13 September with a team from the Supreme Council for Environment (SCE) to ring chicks, a cruise through the islands towards Umm Hazwarah – the most productive island and the easiest nest to access – initially produced no sightings. After arrival, a single adult was eventually observed circling overhead. The ringing team then went ashore to approach the nest site from above.

The first site inspected was the long-known and best-documented nest, located near the Osprey nest, but it was found to be inactive. However, a dead adult was discovered approximately 30 m south of this location along the cliff top. The bird carried a ring on its left leg similar to that seen on the attending adult at this nest in 2021. Given the rarity

of ringed individuals, it was assumed that the two records referred to the same bird. The carcass was recovered and later identified as an individual ringed by Mike McGrady as a nestling in a brood of three on Al Jun Island in the Daymaniyat Islands, Oman, on 23 September 2013. Although unfortunate, this recovery provides valuable evidence of interchange and dispersal among Gulf populations of Sooty Falcons between Oman and the Hawar Islands. The behaviour of the circling adult suggested the presence of another active nest nearby. An extensive search from the cliff top was therefore conducted. A new nest was located on a ledge directly below the site where the dead adult had been found. The nest contained two chicks, both of which were then ringed by Abdulla Kaabi.

A cavity used for caching prey was also found nearby, which was full of prey remains. The remains included Isabelline Wheatear (*Oenanthe isabellina*), Hoopoe (*Upupa epops*), Little Terns (*Sternula albifrons*), and a Little Stint (*Calidris minuta*). When found in the nest, the nestlings had been foraging on a small tern. Once the adult was seen to have returned to the nest, the boat was moved to the other end of the island, where another pair had been seen. After an exhaustive search, which included three previously known disused nesting sites, the team failed to identify a precise nesting location.

After Umm Hazwarah, the team moved to the three small islands collectively called Jazur al Hajiyat. Once again, extensive distant searches initially failed to locate any breeding pairs, but on closer approach above the largest, most northerly island, a pair was finally seen flying. One nest site was found with two empty eggshells and the scattered wing remains of small passerine-type birds, but no nestlings could be seen or heard. The ledge was deep and extensive, but only partially accessible because a large overhanging section of jagged rock prevented safe access from above. Given the presence of the adults and the recently discarded eggshells, it was assumed that the nestlings were concealed within the deepest recesses of the cavity and had probably hatched only recently. The nest

Table 1. The number of breeding pairs and additional sightings of single birds on the Hawar Islands

1. táblázat A költőpárok száma és a magányos madarak megfigyelései a Hawar-szigeteken

Year	Pairs	Hazwarah	Jazur Al Hajiyat	Jazur Al Wakur	Additional observations
1998	15	11	2	2	+1 (seen)
1999	14	11	1	2	None
2000	11	7	2	2	None
2001	12	8	2	2	None
2003	11	7	2	2	None
2004	13	10	2	1	+1 (Wakur)
2005	12	9	1	2	None
2006	10	7	2	1	+1 (Wakur)
2021	6	3	1	2	+4 (seen)
2023	5	2	1	2	+3 (seen)

location was documented, and the remainder of the island group was searched extensively without further success. During the return journey from Hawar, one additional free-flying adult was observed near the southern end of the main island heading toward the breeding islands.

Conclusions

The decline in breeding numbers observed over the past 25 years has now reached a critical point and may be approaching local extinction. Human pressure on the breeding pairs during this period appears to have been minimal, and no other local environmental changes or deficiencies in conservation effort have been identified that might explain the decline. Likewise, there appears to be no shortage of nesting sites on the rocky islands currently used by the species. In contrast, the cliffs on the main island of Hawar are far more extensive but largely face southeast, making them less suitable for nesting Sooty Falcons because they are more exposed to direct sunlight. Historically, other potential sites on the main island have long been exposed to human disturbance from local inhabitants, a pressure that has recently increased with expanding tourism and development.

Historically, Bahrain functioned as an important oasis along the Arabian Gulf coastal flyway, attracting disproportionately high numbers of passerine migrants during autumn. However, with the recent ‘greening’ of parts of Arabia and the Qatar Peninsula, it has been noted that the number of migrants passing through Bahrain has declined, paralleling the reduction in Sooty Falcon numbers observed on Hawar.

During surveys in 2021 and 2023, small waders and terns constituted the majority of prey items observed in food caches. Such prey types only began to appear regularly from around 2005 onwards. Although wader and tern numbers remain relatively constant, it is notable that most local breeding terns – White-cheeked Tern (*Sterna repressa*), Lesser Crested Tern (*Thalasseus bengalensis*), and Bridled Tern (*Onychoprion anaethetus*) – complete their breeding cycle before the hatching of Sooty Falcon chicks. Kentish Plovers (*Anarhynchus alexandrinus*) also occur in relatively small breeding numbers on the outer islands, being largely restricted to the west coast of the main island of Hawar.

Historically, adult Sooty Falcons were frequently observed patrolling their island territories and capturing passerine migrants in aerial pursuit. In contrast, waders must typically be located on the ground or shoreline before being taken. Whether the decline in breeding pairs on Hawar is related to changes in prey availability or composition therefore remains an open question and warrants further investigation.

Today, the islands of the Hawar archipelago are protected and fall under the responsibility of the SCE. However, programmes specifically aimed at monitoring the biodiversity of the islands require further development. Additional funding is currently needed to support the training of specialist field staff and the acquisition of appropriate modern equipment, including drones and satellite-tagging technology. Monitoring Sooty Falcons remains particularly challenging because they are a migratory summer-breeding species. Fieldwork is further constrained by the lack of equipment that would enable

staff to operate safely and effectively during the extreme summer heat. Because Hawar lies at the northern limit of the species' breeding range, the persistence of Sooty Falcons on the islands will depend on the urgent implementation of further targeted research and monitoring by those responsible for their conservation.

References

- Kavanagh, B. & King, H. 2008. Observations from 1998–2006 on the breeding population of Sooty Falcons *Falco concolor* on the Hawar Islands, Kingdom of Bahrain. – Sandgrouse 30(1): 70–76.
- King, H. M. 1999. Breeding Birds of Hawar. – Ministry of Housing, Bahrain

