



# **Slender-horned gazelle conservation in Tunisia: 2024 progress report.**

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**Cover photographs:** Slender-horned gazelle at El Gonna National Reserve, Tunisia. Photograph by Marie Petretto, Marwell Wildlife.



## Background

The slender-horned gazelle *Gazella leptoceros* is an Endangered desert-adapted gazelle that inhabited the dunes (ergs) and interdunal depressions of Algeria, Tunisia, Libya and Egypt (IUCN, 2016). Large numbers were reported at the beginning of the 20<sup>th</sup> century, at least in the Grand Ergs of Algeria and Tunisia (CMS, 2023). In the last 10-years, the wild population has substantially declined (SSIG, *pers comm.*, 2025) and slender-horned gazelles have only been confirmed in the Grand Erg Occidental, the Great Western Erg in Algeria, and the Grand Erg Oriental, the Great Eastern Erg, that stretches between Algeria and Tunisia extending into the Fezzan region of Libya. The wild population of 300-600 mature individuals ranges widely in search of ephemeral vegetation but is declining due to uncontrolled hunting, disturbance, and habitat degradation (IUCN, 2016).

Marwell's recent surveys (Meliane *et al.*, 2023; Petretto, 2021) in the Tunisian Grand Erg Oriental revealed that whilst the gazelles are still present in the area, very few now remain in the wild (Figure 1). Recent social media reports indicate that slender-horned gazelles may persist in Libya, but some sightings are likely dorcas gazelles. The Algerian population persists in both the Grand Erg Occidental and Grand Erg Oriental. The gazelles in the northern part of the Grand Erg Occidental may be partially protected by the difficulty in accessing their habitat compared to the Grand Erg Oriental, whose landscape is more open and easier to access with vehicles. Despite this, the population only numbers in the low to mid hundreds at best (IUCN SSC ASG & RZSS, 2020).



**Figure 1.** Marwell Wildlife team carrying out a ground survey for slender-horned gazelles in the Grand Erg Oriental in Tunisia in 2020.

A 2024 gazelle survey (slender-horned gazelles and dorcas gazelles) in and around the Siwa Protected Area, Egypt found that gazelle presence was very scant with very few indirect spoor detections and no gazelles photographed by the camera traps (ElAlqamy & Hameed, 2024). The authors concluded that slender-horned gazelles are unlikely to remain in the Siwa Protected Area, but systematic surveys are needed in the rest of their Egyptian range to determine if they persist elsewhere (ElAlqamy & Hameed, 2024). The last confirmed records of slender-horned gazelles in Egypt were in 2004 from sites to the west of the Siwa oasis, close to the border with Libya (IUCN, 2016).

The habitats around the Siwa Range were still in good condition and should be able to sustain a gazelle population, consequently, the current decline is probably due to human factors including poaching. It is highly unlikely that the slender-horned gazelle population, if still present in Egypt, can recover naturally and the report authors recommend *ex situ* conservation measures including population reinforcements (ElAlqamy & Hameed, 2024).

### *Ex situ* population

Species360's Zoological Information Management System (ZIMS) records a global *ex situ* population of only 68 slender-horned gazelles in 13 global institutions, with Cairo Zoo being the only range-state institution on ZIMS to hold the species (N=4) (Species360, 2025). The remaining gazelles are managed within zoos in the USA (N=40) and two institutions in West Asia, Emirates Park Zoo (N=11) and Riyadh Zoological Gardens (N=13). There are an additional ~100 slender-horned gazelles in the USA not recorded on ZIMS putting the total USA population at around 140 individuals. The ZIMS-registered USA population is descended from just three founders (1.2.0) (IUCN SSC ASG & RZSS, 2020), and % pedigree known across the whole ZIMS populations is 2.86% (Species360, 2025). Whilst ZIMS does not hold data on all slender-horned gazelle *ex situ* individuals, including those in Tunisia and Algeria, the global population is likely to be extremely small with limited genetic diversity.

The Algerian *ex situ* population has been maintained in the Brezina Gazelle Breeding Centre since 2000. The population was originally founded on 1.3 wild-caught individuals, although it is not known if additional founders have been added to the population since then. The population had grown to 37 animals in May 2019 (IUCN SSC ASG & RZSS, 2020).

#### *Tunisian ex situ population*

In 1999, Tunisia established a small *ex situ* population of slender-horned gazelles in Sidi Toui National Park (NP) founded with confiscated gazelles from illegal wild captures and supplemented with two individuals from Planckendael Zoo, Belgium. The current population of ~25 gazelles are managed within a large enclosure in the NP by the statutory authority, the Direction Générale des Forêts (DGF). In November 2020, four gazelles were translocated to an *ex situ* facility in El Gonna National Reserve (NR). A few additional female slender-horned gazelles are held in a private facility in Tunisia.

The gazelles in Sidi Toui NP are managed in one group but the enclosure infrastructure degraded over time and substantial improvements to the facilities were required to ensure the long-term sustainability and welfare of the gazelle population. Improvements were previously made to the enclosures in El Gonna NR to assist animal management, but some modifications are needed to improve infrastructure, and additional enclosures are required to support management.

The Tunisian *ex situ* population is critical to conservation efforts as it is possibly the most genetically diverse population, and therefore the best source for possible future reintroductions into Jbil and Senghar-Jabbes NPs, both of which sit within the species' indigenous range in Tunisia. Managing the Tunisian *ex situ* population, and modifying the facilities to improve infrastructure, husbandry, animal welfare, and population management were, and still are, a priority. The purpose of this *ex situ* population is to: a) provide an insurance against species extinction if the species is lost from the wild; b) to provide animals for reintroduction to the wild, if threats are acceptably mitigated and the wild population requires it; c) be a source for further *ex situ* populations in protected areas within the species indigenous range, and d) be a holding facility for rescued or confiscated slender-horned gazelles.

## Slender-horned gazelle *ex situ* project in Tunisia

The slender-horned gazelle *ex situ* project in Tunisia is informed by the CMS Sahelo-Saharan Megafauna Action Initiative's 'Concerted Action for Sahelo-Saharan Megafauna' (CMS, 2023) and the Slender-horned Gazelle *Gazella leptoceros* Conservation Strategy 2020-2029 (IUCN SSC ASG & RZSS, 2020).

### Aim

To establish a sustainable *ex situ* population of slender-horned gazelles in Tunisia that optimises husbandry, animal welfare, and opportunities for reintroduction to the wild.

### Objectives

1. Improve the facilities and management of slender-horned gazelles in Sidi Toui NP and El Gonna NR to increase animal management standards and welfare.
2. Increase capacity for animal management, veterinary care, and conservation by delivering training.
3. Improve population sustainability by developing a population management plan and guidance on implementation.
4. Support the *ex situ* centres financially to maintain animal welfare and husbandry standards.
5. Evaluate Jbil and Senghar-Jabbes NPs as reintroduction sites.
6. Connect protected areas and park staff to each other in a network to enhance project sustainability.



**Figure 2.** Slender-horned gazelle in El Gonna NR, Tunisia.



## Project Objectives and Achievements in 2024

**Objective 1: Improve the facilities and management of slender-horned gazelles in Sidi Toui NP and El Gonna NR to increase animal management standards and welfare.**

### *Achievements:*

- In 2024, we successfully constructed four breeding enclosures within the existing facility at Sidi Toui NP to accommodate small breeding groups (Figure 3), and one enclosure for an all-male group.
- Enclosures were equipped with a water network and screened to reduce potential aggressive interactions between males in different enclosures.
- The gazelles were not moved into the enclosures as it was evident that some were pregnant and we didn't want to increase stress to the animals. The animals will be moved into the enclosures in 2025 once the calves are a few months old.



**Figure 3.** *Four new enclosures for breeding groups inside the larger acclimatisation pen at Sidi Toui NP.*

## **Objective 2: Increase capacity for animal management, veterinary care, and conservation by delivering training.**

### *Achievements:*

- In October 2024, we sent a team of experienced hoofstock keepers and a veterinarian from Marwell Wildlife to work alongside the team at El Gonna NR and team members from Sidi Toui NP to exchange knowledge and increase confidence in animal management (Figure 4).
- We conducted practical training sessions for keepers from El Gonna NR and Sidi Toui NP on gazelle handling, health monitoring, and best-practice husbandry.
- Two Tunisian veterinarians, Dr Aya Hanous and Dr Mawaked Hannachi, worked alongside the Marwell team to build confidence and exchange knowledge on gazelle veterinary medicine.
- We individually identified, health checked, and recorded all gazelles at El Gonna NR using unique markers (ear tags and microchips).
- Together with the keepers from El Gonna NR and Sidi Toui NP, we sorted both dorcas gazelle and slender-horned gazelles into new enclosures.
- We made recommendations for improvements to the facilities at El Gonna NR to assist animal management.



**Figure 4.** *The teams from Marwell Wildlife, the Tunisian veterinarians, Sidi Toui NP, and El Gonna NR at El Gonna NR in October 2024.*



**Objective 3. Improve population sustainability by developing a population management plan and guidance on implementation.**

*Achievements:*

- We collected genetic samples from the *ex situ* population at El Gonna NR as a preliminary to evaluating genetic diversity to inform population management (Figure 5).
- All gazelles were individually identified and records made for population management.



**Figure 5.** *Blood samples were collected from each gazelle during health checks in El Gonna NR to enable future genetic analyses to inform a population management plan.*

**Objective 4. Support the *ex situ* centres financially to maintain animal welfare and husbandry standards.**

*Achievements:*

- We helped screen for diseases and diagnose causes of death for gazelles that died in the Sidi Toui NP *ex situ* centre to inform veterinary care and understand the wider disease landscape
- We purchased materials and equipment to improve the management of the gazelles in the *ex situ* centre in El Gonna NR (Figures 6 & 7).



**Figure 6.** From left to right: Dan Simon (Fossil Rim Wildlife Center), Noomen Belhouli (Conservateur of El Gonna NR), Adam Eyres (Fossil Rim Wildlife Center), Marie Petretto (Marwell Wildlife), and Lotfi Sghaier (Head of Guards at El Gonna NR) with a poster detailing the management objectives for gazelles at El Gonna NR.



**Figure 7.** Guards at El Gonna NR fitting water points in the slender-horned gazelle enclosures.



## **Objective 5: Evaluate Jbil and Senghar-Jabbes NPs as reintroduction sites.**

### *Achievements:*

- We strengthened collaboration with conservation partners and local communities to evaluate and mitigate threats in the wild.
- We are developing follow-up project plans and grant proposals to continue improving facilities in Jbil and Senghar-Jabbes NPs and assess wild populations for potential reintroductions (Figure 8).



**Figure 8.** Oasis at the Rejeb lake, one of the desert hubs for humans and wildlife

## **Objective 6: Connect protected areas and park staff to each other in a network to enhance project sustainability.**

### *Achievements:*

- We brought staff from Sidi Toui NP to work alongside the team from Marwell and the El Gonna NR team to help build connections and share experiences.
- We invited Tunisian veterinarians Dr Aya Handous from Marsa Saada and Dr Mawaked Hannachi from La Soukra to work alongside the Marwell Wildlife, El

Gonna NR and Sidi Toui NP teams to help develop a network for gazelle conservation in Tunisia (Figures 9 and 10).



**Figure 9.** Teams from Marwell, El Gonna NR, and Sidi Toui NP collaborating on gazelle conservation.



**Figure 10.** The practical nature of the training enabled all participants to develop skills and enhance expertise whilst working alongside each other, leading to a positive shared experience.



## Impact and Outcomes

- **Improved *Ex Situ* Facilities:** The upgraded enclosures will lead to improved animal welfare and management for the gazelle population in Tunisia.
- **Enhanced Conservation Expertise:** Training programmes have empowered Tunisian keepers, veterinarians, and conservationists with skills needed for long-term species management.
- **Increased Collaboration and Awareness:** Partnerships with local authorities and conservation groups have strengthened efforts to protect the species.

## Challenges and Lessons Learned

Despite the project's success to date, several challenges were encountered:

- **Logistical Constraints:** Transporting materials and constructing enclosures in remote areas required careful coordination. The first set of enclosures were completed on schedule but plans to construct additional enclosures have been delayed due to logistical constraints. Construction on additional enclosures at Sidi Toui NP and improvement of the facilities in El Gonna NR will begin in the second half of 2025.
- **Financial Considerations:** Ensuring adequate funding for all planned activities remained a challenge and donor support was critically important to enable the project to go ahead.
- **Adapting to Field Conditions:** Unpredictable environmental factors occasionally impacted timelines but were managed effectively through adaptive planning.

*Lessons learned include the importance of:*

- Maintaining strong partnerships with local stakeholders from the outset.
- Incorporating flexibility into project plans to accommodate unforeseen challenges.
- Maintaining long-term monitoring and support for sustained conservation success.

## Conclusion and Next Steps

This project has strengthened Tunisia's *ex situ* conservation efforts for the slender-horned gazelle. With improved facilities and trained personnel, the foundation has been laid for more sustainable management of slender-horned gazelles. Moving forward, Marwell Wildlife, the Tunisian DGF, and the CRDA of Medenine aim to:

1. Construct additional enclosures in Sidi Toui NP. We aim to build at least four more enclosures, pending full funding.
2. Build at least an additional four enclosures in El Gonna NR and modify the existing facilities, pending full funding.
3. Conduct additional training sessions to continue to build skills, expertise, and confidence in managing *ex situ* populations of slender-horned gazelle.
4. Conduct peer-to-peer training to encourage knowledge exchange and build a network of animal management professionals in Tunisia.
5. Work with our Tunisian partners to develop an implementable population management plan for slender-horned gazelles.
6. Continue to augment the population of slender-horned gazelles with rescued and confiscated gazelles.
7. Continue to provide the *ex situ* population with veterinary and animal management care, when needed.
8. Support the Tunisian authorities in moving gazelles between El Gonna NR and Sidi Toui NP as part of an animal management plan.
9. Evaluate Jbil and Senghar-Jabbes NP as potential release sites for slender-horned gazelle reintroductions.

The success of this project so far highlights the value of collaborative conservation efforts and provides a model for future initiatives aimed at safeguarding endangered species in aridland ecosystems. We are particularly grateful to the donors and partners who have supported this project and made the work possible.



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