



محمية دبي الصحراوية
DUBAI DESERT CONSERVATION RESERVE

Annual Report 2022-23



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Chairman's Message

The Dubai Desert Conservation Reserve (DDCR) is a significant success story and an invaluable gem in Dubai's ecosystem. It's a story of intent, inspiration and implementation as the reserve conserves the unique wildlife and natural habitat of a city expanding and developing at an incredible pace.

Last year, the Emirates Group renewed its commitment by signing a new, 3-year management agreement with Dubai Municipality to manage the reserve on behalf of the government. We have mobilised support for DDCR across departments and roles within our organisation.

DDCR is part of Dubai Government's vision to protect and develop the environment by preserving biodiversity and supporting clean and renewable energy projects, among other initiatives. The reserve occupies 5% of Dubai's land and continues to successfully reintroduce native desert animals back to the area.

Throughout the year, DDCR invested in building on its existing programmes, and partnerships, and maintained a laser sharp focus on its 2019-2024 strategic management goals.

By January 2023, DDCR had recruited and constituted a strong, new management team with a wealth of experience in wildlife conservation to ensure the reserve will continue to thrive and remain committed to its goals.

This report outlines the key milestones at the DDCR for 2022-2023, including the major projects, highlights, research and efforts made to reintroduce and conserve the indigenous fauna and flora in the reserve.

As our planet tackles the challenges of the future, wildlife conservation and research are critical in maintaining biodiversity and fostering coexistence. We are proud to be playing our part.



HH Sheikh Ahmed bin Saeed Al-Maktoum
Chairman, Dubai Desert Conservation Reserve

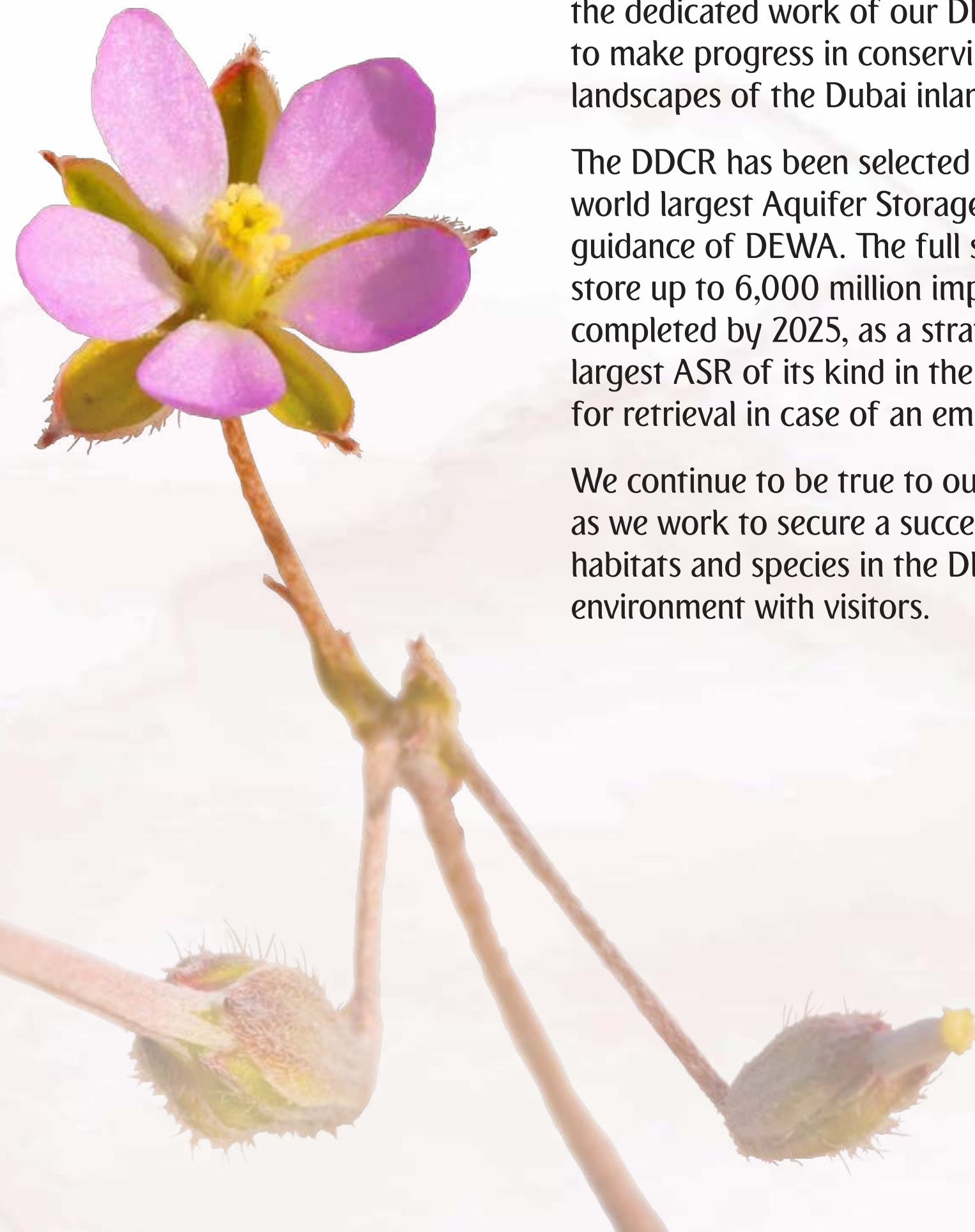


1. Introduction

Over the past year, the Dubai Desert Conservation Reserve (DDCR) has continued its recovery from the challenges posed by the global pandemic, which impacted our finances, research work and tourism. In doing so, through the dedicated work of our DDCR team, we have continued to make progress in conserving the incredible species and landscapes of the Dubai inland desert ecosystem.

The DDCR has been selected as the allocated site for the world largest Aquifer Storage and Recovery site under the guidance of DEWA. The full scale of the ASR project will store up to 6,000 million imperial gallons of water, once completed by 2025, as a strategic reserve. This makes it the largest ASR of its kind in the world to store potable water, for retrieval in case of an emergency.

We continue to be true to our vision, purpose and goals as we work to secure a successful future for the natural habitats and species in the DDCR, and share the amazing environment with visitors.



The reserve covers an area of
225km²
which makes up 5% of the
Emirate of Dubai



Vision

'A desert haven for nature A living heritage for people'

DDCR's overall purpose

Conserve a representation of Dubai's Inland Desert original landscapes and indigenous fauna and flora, through careful and effective management that promotes natural processes for optimum conservation outcomes, leading to rewilding of the desert habitat.

Provide an authentic desert experience, which showcases the beauty and marvel of the natural environment and educates on the intricacies of nature and the living heritage of Dubai.

Strategic management goals

Our strategic management goals for the 2019 – 2024 planning period are:

- Embark and progress on a new rewilding paradigm for regional desert conservation fostering thriving habitats and a diversity of indigenous species
- All species populations, particularly ungulates, are in balance with the natural regenerative properties of the available vegetation
- All management interventions and practices are sustainable and orientated towards natural habitat rehabilitation
- The reserve is an IUCN Green List protected area with effective management, good governance and planning that realises optimum conservation outcomes
- The DDCR is a regional leader in biodiversity conservation and building resilience to climate change in arid land ecosystems
- The reserve is promoted and recognised as the premier destination for authentic, nature-based experiences in the UAE



2. DDCR Governance and Management

The DDCR's governance is in accordance with the Rulers Decree 11-2003 on the establishment of Protected Areas in the Emirate of Dubai. A Memorandum of Understanding has been signed between the Government Authority (Dubai Municipality) and Emirates airline, as the designated Management authority.

Underscoring its commitment to supporting conservation efforts, Emirates spent AED 8 million on the DDCR over the last six years. Cumulative sponsorship support of Emirates now exceeds AED 28 million since the establishment of the reserve.

The Dubai Conservation Board (DCB) is chaired by His Highness Sheikh Ahmed bin Saeed Al Maktoum.

Emirates Airline Executive Management is represented by

Ali Mubarak Al Soori - General Secretary DCB and Executive Vice President Chairman's Office, Facilities & Project Management and Non-Aircraft P&L

Devarajan Srinivasan - Vice President Facilities (Asset Management), Emirates Group

Rahul Sawhney - Manager Facilities (Asset Management), Emirates Group

Key responsibilities:

- Work with operational management to formulate and approve a strategic direction for the DDCR (DDCR Management Plan 2019 - 2024)
- Due diligence on the induction of new tour operators
- Revenue management strategies
- Approval of annual operational budgets and monitoring of expenses
- Funds management



Unlike rabbits, Arabian Hares do not live in burrows but spend the day motionless in shallows scrapings under bushes or in the open with ears folded back, relying totally on camouflage for protection.



The Operational Management team



Gerhard Erasmus – CONSERVATION MANAGER

After receiving training in the world renowned Kruger National Park, Gerhard continued his studies in Nature Conservation through the University of South Africa. During this period, he worked as a Game Ranger in both private game reserves and national parks within South Africa.

Before swapping lions and elephants for camels and sand in 2011, Gerhard worked in the Pilanesberg National Park. He joined Al Maha Desert Resort and Spa in 2011 as a field guide, responsible for the daily desert safari tours for his guests and taking them around the DDCR highlighting the various fauna and flora found on the reserve.

In 2013, Gerhard was promoted to Senior Field Guide where his responsibilities expanded to the entire Leisure department, consisting of a fleet of 15 vehicles, 22 camels, 16 Arabian horses, 15 birds of prey and 10 field guides. He was responsible for the husbandry, training, administration, operational and financial aspects of the department.

During his tenure as Senior Field Guide, Gerhard was also appointed as Sustainability Champion of the resort. He ensured compliance with the sustainability requirements of Dubai Municipality, ranging from recycling, water and energy management, sustainable procurement, biodiesel conversion and environmental awareness among 160 associates. Gerhard also helped Al Maha achieve Green Key certification for consecutive years from 2013 until 2017.

Between the years of 2013 and 2019, Gerhard completed diplomas in Operations Management, Project Management and Business Administration.

Gerhard held the position of Senior Field Guide until 2020, when he was promoted to Director of Operations, where he assisted in translating the resort strategy into practical milestones, supporting the General Manager and managing a team of over 10 department heads.

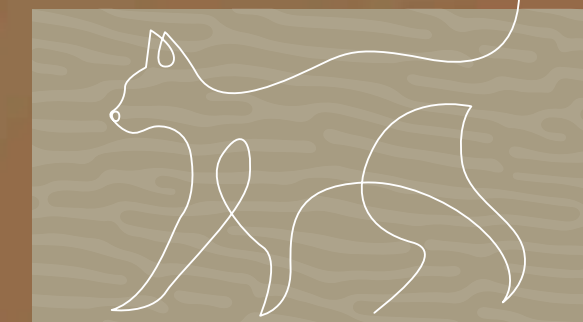
In 2023, Gerhard took on his current role and was appointed Conservation Manager for the DDCR. He is responsible for the overall management of the reserve. Gerhard will also play a major role in implementing the long-term strategy for the DDCR's conservation programmes, sustainable tourism and species management, including the re-introduction programmes for the Arabian Oryx, MacQueen's Bustard, Arabian and Sand Gazelles. Gerhard will also aim to promote the DDCR as a public entity for all visitors to Dubai through the newly built Visitor Centre.



Basil Roy – CONSERVATION OFFICER

Basil has lived most of his life in the Arabian Peninsula and is attached to its people and natural environment. During his Masters of Environment Studies from the Sorbonne University Abu Dhabi between 2017 and 2019, Basil was involved in monitoring the DDCR's Spiny-tailed Lizard population and surveying the reintroduction of the Asian Houbara into the reserve. Prior to joining the DDCR team in 2022, Basil was an Environmental Consultant at Nautica Environmental Associates LLC, an environmental consultancy based in Abu Dhabi.

Currently, Basil's primary role is to plan, control, develop and regularly monitor the conservation practices and environmental work within the DDCR. As part of his work, he conducts new research and plans and implements long-term monitoring programmes, including the one for Arabian Oryx .



The biggest threat to the survival of the Gordon's Wildcat as a species is the interbreeding with feral or domestic cats, which could lead to its extinction as a distinct species.





Aline Witte Delatorre – Conservation Officer

Aline is originally from Mexico and holds a Bsc in Biology from the Universidad Autonoma de Nuevo Leon. She started her conservation career with ARCAS Wildlife Rescue and Rehabilitation Centre in Guatemala, working on the rehabilitation and release of birds, mammals and reptiles. She then worked at Chipinque Ecological Park in Mexico, implementing conservation projects, monitoring large and medium carnivores,

birds, mammals and insects. Aline joined the DDCR in September 2022.

Currently, her role is to provide support for the completion of the Visitor Centre, manage and update GIS data, conduct new research and implement long-term monitoring programmes.



Maria Jose Martin – Conservation Officer

Maria is a biologist and studied for her Masters in Biology and Biodiversity Conservation at the University of Salamanca (Spain). She worked in several conservation projects in Latin America as a researcher with sea turtles and in animal husbandry in a rescue centre. Following her dream of travelling and gaining expertise in other areas of biology, she came to UAE three years ago. Prior to joining the DDCR, Maria

worked in projects attached to the mangroves in protected areas, on both coasts of the country, mainly doing environmental education.

Her current role in the DDCR involves planning, implementing and conducting several research programmes to ensure the biodiversity of the reserve is preserved, thanks to all the effort the DDCR has been putting since its foundation. This includes monthly and annually surveys to monitor different species of plants and animals, such as the Ghaf tree or the Spiny-tailed Lizard.



Pubudu Madurapperuma – Conservation Ranger

Pubudu Madurapperuma is a conservationist and environmentalist and is originally from Sri Lanka. He obtained a Diploma in Biodiversity Conservation and Management from the University of Colombo in Sri Lanka.

Pubudu started his career as conservationist at the Young Zoologists Association of Sri Lanka, located in National Zoological Gardens Colombo, one of the leading organisations working on biodiversity education and conservation. He fell in love with reptiles, specifically snakes, and has done many research projects on different types of reptiles including new, endemic and endangered species. In 2005, Pubudu got an opportunity to study more about reptile husbandry, management, handling, feeding, research and captive breeding at The Madras Crocodile Bank in Tamil Nadu, India.

During his career, Pubudu has served as a school and community lecturer for many government and non-government organisations to educate children and communities in rural areas that were affected by human-elephant conflict. He was also the Project Coordinator for the Biodiversity conservation project of the United Nations Environment Programme (founded & monitored by UNDP/GEF, SGP) in 2004/2005.

Prior to joining the DDCR team, Pubudu worked as a Field Guide in Al Maha The Luxury Collection Desert Resort and Spa located in the DDCR. He volunteered in research projects conducted by the DDCR such as Spiny-tailed Lizard survey and Gazelles survey.

As a Conservation Ranger, Pubudu's role is to protect the flora and fauna and ensure the safety of visitor to the reserve. He also ensures that visitors comply with the rules and regulations that have been implemented by DDCR.



Meena Arun – Administrator

Meena is a detail-oriented and quality-focused professional with over 19 years of UAE experience in managing office operations in fast-paced, deadline driven environments. She had spent most of her life in the UAE and is well acquainted with the Arabian traditions and diverse society.

Before joining the DDCR, she was working as an administrator and HR Coordinator with an advertising firm. Her current role is focussed on providing comprehensive administration support to ensure the smooth day-to-day operation of the DDCR. She is adept in handling customer and employee requests and actions transactions and queries in a timely manner to provide a high level of service. Her role at the DDCR mainly focusses on consolidating the tour operators' daily visitor statements with the visitor management system, generating invoices and financial statements, supervising attendance records, recording transactional data and producing reports.

The Operational Management team have the following key responsibilities:

- Work with executive management to formulate a strategic direction for the DDCR. (DDCR Management Plan 2019 – 2024)
- Implement all conservation programmes
- Implement all research and monitoring activities
- Manage sustainable tourism within the DDCR

3. Significant Events in 2022-2023



May 2022

34 Arabian Oryx were relocated from the DDCR to the Oryx enclosures.

- 31 March 2022 – the DDCR participated in the Key Biodiversity Areas (KBA) workshop organised by the Ministry of Climate Change and Environment.
- 31 March and 1 April 2022 – a BBC documentarian visited the DDCR as part of plans to produce a documentary on the Pharaoh Eagle-Owl, *Bubo ascalaphus*.
- 30 May to 2 June 2022 – a professor and students from Sorbonne University Abu Dhabi conducted archaeological surveys.
- April to July 2022 – on behalf of the Dubai Government, BGP, a branch of the China National Petroleum Corporation, conducted a 3D seismic data acquisition survey in several areas of the DDCR.
- May 2022 – 34 Arabian Oryx were relocated from the DDCR to the Oryx enclosures.
- 26 May 2022 – a delegation from NEOM visited the DDCR in order to learn about the reserve's management.
- 2 to 3 June 2022 – a group of professors and students from New York University Abu Dhabi visited the DDCR to learn about UAE's biodiversity and conservation.
- 3 to 17 September 2022 – two boreholes were created in order to extract sediment samples from two archaeological sites and obtain paleo environmental records.
- September 2022 – Aline joined as Conservation Officer.
- November 2022 – Construction work continued for the DDCR Visitor Centre with a planned soft opening for summer 2023.
- January 2023 – Gerhard joined as new Conservation Manager.
- January 2023 – 10th Biosphere expedition was held over a period of two weeks.

- January and February 2023 – presentations about conservation and the DDCR were held for 140 children from the Royal Grammar School in Dubai. This was done in collaboration with Sand Sherpa.
- February 2023 – a new MOU was signed between Emirates and Dubai Municipality for the management of the reserve for the next three years.
- February 2023 – Basil and Aline represented the DDCR at GEMS legacy school symposium and highlighted sustainability in the region.
- February 2023 – Aline conducted an interview for Spanish TV about the DDCR and the work we do.
- February 2023 – bat trapping took place, resulting in the capture of 9 Kuhl's Pipistrelles.
- March 2023 – Maria joined as Conservation Officer and Pubudu joined as Conservation Ranger.
- March 2023 – released two Arabian Red Foxes with the assistance of Dubai Municipality.
- March 2023 – Moved 30 Oryx from the DDCR to the Oryx enclosures.
- 30 March 2023 – Annual Vegetation Monitoring Survey started.
- February 2023 – The DEWA ASR Project intensified with the deployment of Syed Contracting. Completion date is aimed for 2025.
- March 2023 – Sharjah geophysics research completed.





Representation of
Dubai's Inland Desert
original landscapes
and indigenous fauna
and flora.

Research Committee Meetings

The DDCR experienced a total employee turnover in 2022, thus no research committee meetings were held during the year. The committee is currently in the process of being reestablished and the first meeting for 2023 will be held in July or August.



Workshop Participation

Basil and Aline represented the DDCR at GEMS Legacy School symposium and highlighted sustainability in the region.



Presentations

Over January and February, the DDCR held 5 presentations for Royal Grammar School, reaching 140 kids. The DDCR highlighted the importance of conserving the desert inland ecosystem and inspired children to make a change and protect the desert through sustainable tourism.

Other Activities

Sorbonne University Abu Dhabi students conducted an archaeology survey in the DDCR from 31 January to 11 March, 2022. The many artefacts found are currently in the process of being classified and studied. Some of the artefacts found indicate that there has been human presence in the area since the Neolithic period. Seismic geophysical surveys and core soil sampling studies have been concluded at several prime archaeological sites. The data collected from these surveys is currently being analysed.



4. Conservation and Environmental Research Work

Research Policy, DDCR Management Plan 2019-2024

Research conducted within the DDCR should assist in applying sound scientific ecological principles to the decision-making process and add new knowledge about the species and habitats of the DDCR. The DDCR will be promoted as a destination for applied research in arid land ecosystems by national and international academic institutions. The DDCR Research Committee will evaluate all research proposals based on relevance to the reserve, ethical, and practical implications.

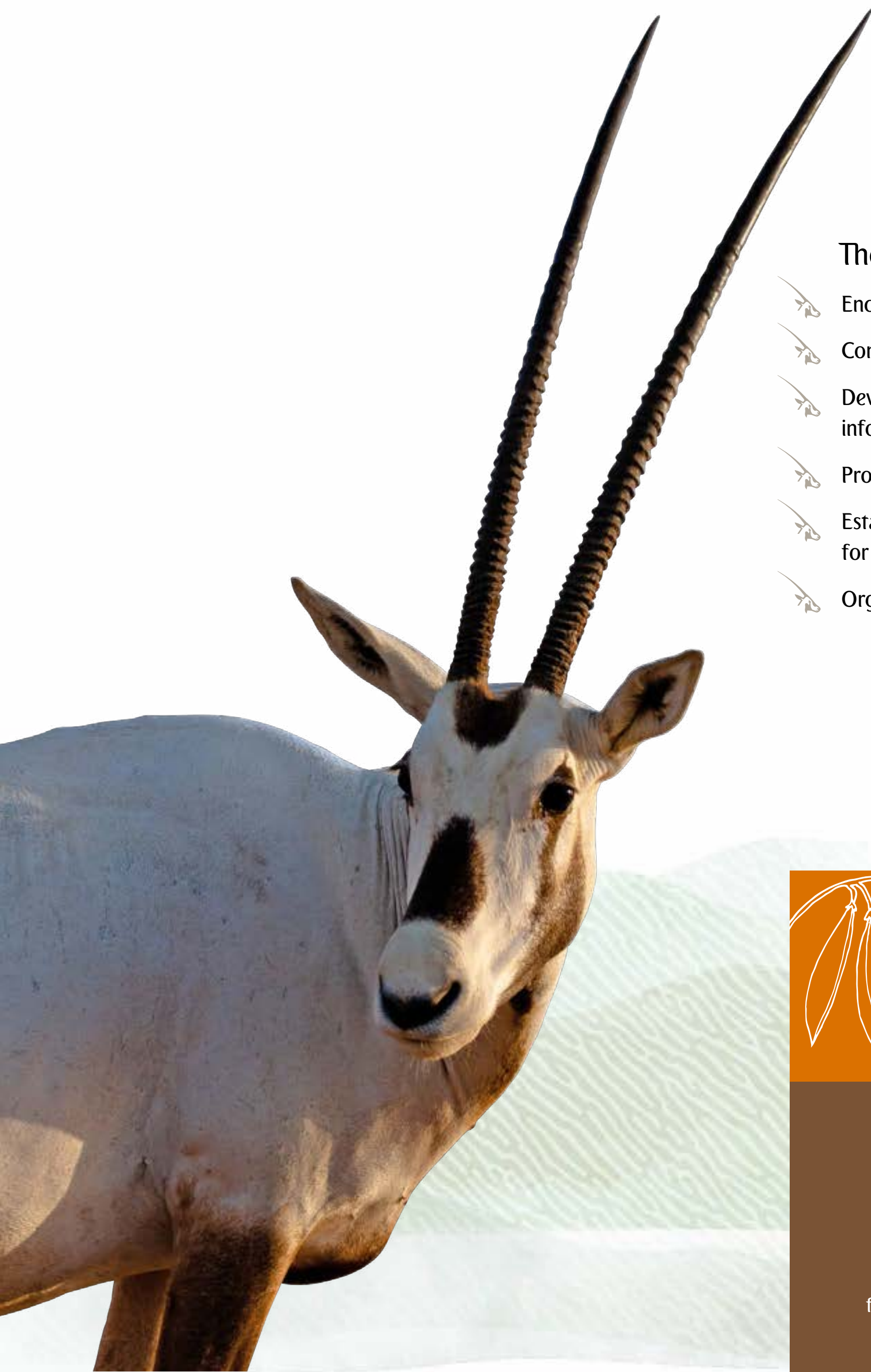
Research is vital for the effective management of the DDCR, to make informed management decisions and in the mitigation of climate change and desertification.

4.1 Desert Research Centre

The vision of the research centre is to promote and facilitate scientific studies that help solve environmental challenges. This will be achieved through undertaking collaborative research on the impact of natural, human, social and ecological aspects on developmental progress. The DDCR aims to become a source of authority and a centre of excellence in biodiversity research by building a robust scientific community connected with local, regional and international stakeholders. We aim to prioritise the integrity of the ecological and social systems, values and resources, by facilitating research and providing study opportunities, logistical and field support within a research-friendly environment. This will allow students, researchers and volunteers to address essential questions and gain experience and networking skills.



Representation of Dubai's Inland Desert original landscapes and indigenous fauna and flora.

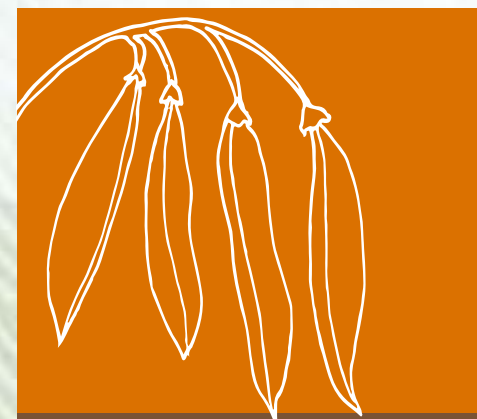


The objectives of the Desert Research Centre are:

- 🦎 Encourage and undertake high-quality research
- 🦎 Conduct research addressing environmental policy objectives
- 🦎 Develop research projects that provide practical evidence to inform policy
- 🦎 Promote and facilitate collaborative and multidisciplinary research
- 🦎 Establish links with both international and national research bodies for cooperation and sharing of research information
- 🦎 Organise meetings, seminars and forums

The DDCR aims to utilise research collaboration for the following purposes:

- 🦎 Grow functional capacity for effective management and governance of protected areas in the UAE and West Asian Region
- 🦎 Draw on local and international universities' strengths, expertise, and technical capabilities to offer the highest quality research products
- 🦎 Build on regional opportunities and enhance the chances to demonstrate, guide and support quality research in protected areas
- 🦎 Adapt, facilitate and coordinate protected area research and spread research results
- 🦎 Recognise, adapt, develop and promote excellence and model practice in protected areas research
- 🦎 Encourage and assist researchers willing to improve their knowledge and skills in research on protected areas, find research ideas and opportunities relevant to their needs, and facilitate ongoing learning and sharing through professional networks and communities of practice



74
floral species



4.2 DDCR Research Committee

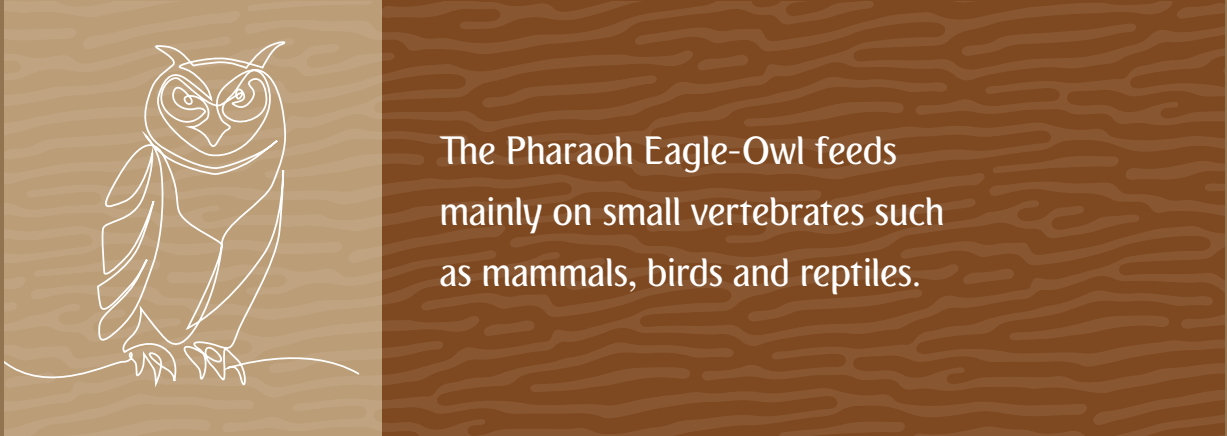
Following the establishment of the DDCR Research Centre, the reserve initiated a Research Committee to evaluate all research proposals based on relevance to the reserve, ethical and practical implications with a defined Terms of Reference (ToR) and regular (biannual) meetings to propose, evaluate and guide research activities within the DDCR.

The Research Committee members will be from diverse backgrounds and well regarded in their respective fields.



The Ghaf tree (*Prosopis cineraria*) is extremely drought resistant and its roots can go down to 30 metres, enabling it to reach the water table in the DDCR





4.3 Research Reports

Monitoring of Pharaoh Eagle-Owl in the DDCR

The DDCR is one of the few reserves in the UAE where Pharaoh Eagle-Owl breeding has been recorded. Globally the Pharaoh Eagle-Owl is classified as ‘Least Concern’, but in the UAE it is classified as ‘Critically Endangered’, so it is considered as one of the Major Site Values for the DDCR. Their monitoring is part of an annual and continuous study to record the Pharaoh Eagle-Owl population and breeding status in the DDCR.

A one-week survey to find Pharaoh Eagle-Owls was conducted inside the DDCR between 10 and 18 January 2022. The primary aim of the survey was to locate adult roosting owls or nests and identify potential sites for breeding. Once these sites were identified, they were then resurveyed in the last months of winter. On 4 March 2022, an owl nest containing three eggs was found inside a broom bush, *Leptadenia pyrotechnica*, near the southeast fence of the reserve. The nest site was then continuously monitored by both camera trap and regular visits, using binoculars and long-range cameras, until 19 May 2022 when the nest was no longer in use.

During the survey, three adult Pharaoh Eagle-Owls were sighted roosting in the DDCR. The owls were recorded in three different habitats, including a mountain slope with crevices, a Ghaf tree grove, and a sand dune with Broom Bush shrub cover.



After reviewing the camera trap footage, several observations were made on the owl’s behaviour and eating habits.

Behaviour	Time	Date	Comments
Male owl regularly brings prey to the nest site, going inside the broom bush shrub	6 pm to 6 am	10 to 22 March	Prey are all rodents
The first appearance of an owl chick on camera trap	06:06 pm	23 March	The date does not correspond to hatching dates, inside shrub is not visible by the camera trap
Chicks stay at the entrance of the nest and are active	6 pm to 6 am	23 March to 16 May	Chicks' activity includes being fed and moving around in close vicinity to the nest
Male owl regularly brings prey to three chicks in front of the entrance of the nest	7 pm to 6 am	7 to 19 April	Prey are primarily rodents and one hare, lizard, and snake
Adult owls leave the nest site	-	19 of April to 16 May	Dates correspond to when adult owls were last seen on camera trap
Owl chicks leave the nest site	-	16 to 19 May	Dates correspond to when chicks were last seen on camera trap

The primary prey brought back to the nest site by adult owls were rodents, including gerbils and jerboas. Other prey recorded on the camera trap were a hare, a lizard, and a snake.

Arabian and Sand Gazelle in the Dubai Desert Conservation Reserve.

Part of the DDCR Monitoring Programme involves observing and managing the overall gazelle population inside the reserve.

This year’s count of Gazelle in the DDCR was done by weekly counts and camera traps. Weekly counts are conducted by visiting all feeding stations and driving on all existing tracks allowing observers to physically see the Gazelle population inside the reserve. Camera traps were used for recording Gazelle movements by having permanent installations in front of 7 waterholes, which are evenly distributed throughout the entire reserve. A total of 590 Arabian Gazelles, *Gazella arabica*, were counted. They were mostly recorded around farms, plantation areas and feeding points. A total of 180 Sand Gazelles, *Gazella marica*, were recorded and they were also found mainly around farms, plantation areas and feeding points. The total numbers calculated for both these gazelle species are probably less than the actual count. Gazelles in the reserve are widespread and can be found in remote areas, away from human activity, and are difficult to record. An intensive survey with additional resources is planned for next year for a more accurate count of gazelles inside the DDCR.



Camera Trap Monitoring Report 2021/2022

A camera trap (CT) survey was included in the long-term monitoring programme to target the following major site value species: Lappet-faced Vulture, Pharaoh Eagle-Owl, Asian Houbara and Arabian Wildcat. In addition, the Arabian Red Fox and Arabian Hare, as nocturnal species of interest in the DDCR, were also included as target species for the survey. The survey also collected data on the remaining major site value faunal species: Arabian Oryx, Arabian Gazelle and Sand Gazelle. Camera traps have the advantage of efficiently detecting nocturnal and diurnal activities while having minimal environmental disturbance. In addition to animal detection, camera traps can provide additional information about patterns of activity and habitat use.

Over the deployment period, from 1 September 2021 until 31 December 2022, the seven camera traps had a combined total of 811 live camera days and captured 87,194 images. In total 41 species were recorded: 7 mammalian species and 34 avian species. The highest biodiversity richness was at Tawi Fawi and Faqah CT sites with 28 and 18 species recorded at each site respectively. The lowest richness was recorded at Nazwa and Margham CT sites. There were no recordings of Arabian Hare and Asian Houbara in 2020.

Arabian Oryx, Arabian Gazelle, Laughing Dove, Eurasian Collared Dove and the Arabian Red Fox were both the most common species in CT images and the most widely recorded (most locations) species within the DDCR (Appendix 1).

Other Species: The camera traps located on waterholes proved good for recording birds, with 31 avian species recorded. Of particular interest were the recordings of Cinereous Vulture (3 events), Eurasian Griffon Vulture (1 event) and Barn Owl (6 events) - all rare sightings in the DDCR. The vulture species were always detected together with Lappet-faced Vultures.

Other raptors included: Bonelli’s Eagle (4 events), Eastern Imperial Eagle (3 events), Shikra (3 events), Pallid Harrier (2 events), Long-legged Buzzard and Crested Honey Buzzard (1 event each).

As would be expected, doves were some of the most regularly recorded species: Laughing Dove (276 events) and Eurasian Collared Dove (271 events). However, 2 species of doves were recorded on rare occasion - European Turtle Dove (34 events) and Namaqua Dove (1 event).

Order	Scientific Name	Common Name	IUCN Status	No. of Images	No. of Events	No. of Locations	Occurrence	Occasion length
Mammalia								
Carnivora	<i>Felis lybica</i>	Arabian Wildcat	VU	38	5	2	5	24.2
Carnivora	<i>Vulpes vulpes</i>	Arabian Red Fox	LC	3,374	805	6	120	1.01
Lagomorpha	<i>Lepus capensis</i>	Arabian Hare	LC	0	0	0	0	0
Cetartiodactyla	<i>Gazella arabica</i>	Arabian Gazelle	VU	6,677	534	5	114	1.06
Cetartiodactyla	<i>Oryx leucOryx</i>	Arabian Oryx	VU	22,707	891	7	118	1.03
Cetartiodactyla	<i>Gazella marica</i>	Arabian Sand Gazelle	VU	2,785	141	4	61	1.98
Aves								
Accipitriformes	<i>Torgos tracheliotos</i>	Lappet-faced Vulture	EN	1,129	47	3	41	2.95
Strigiformes	<i>Bubo ascalaphus</i>	Pharaoh Eagle-Owl	LC	178	40	5	28	4.32
Oridiformes	<i>Chlamydotis macqueenii</i>	Asian Houbara	VU	0	0	0	0	0



Crimean-congo haemorrhagic fever virus endemicity in United Arab Emirates, 2019

A cross-sectional survey of Crimean-Congo haemorrhagic fever virus (CCHFV) was conducted in dromedary camels and attached ticks at 3 locations in the United Arab Emirates. Results revealed a high prevalence of CCHFV-reactive antibodies in camels and viral RNA in ticks and camel serum, suggesting the virus is endemic in this country.

Full report can be viewed here https://www.researchgate.net/publication/340087837_Crimean-Congo_Hemorrhagic_Fever_Virus_Endemicity_in_United_Arab_Emirates_2019

Potentially zoonotic viruses in wild rodents, United Arab Emirates, 2019 – a pilot study.

The majority of emerging viral infectious diseases in humans originate from wildlife reservoirs, such as rodents and bats. We investigated a possible reservoir, namely wild gerbils and mice trapped in a desert reserve within Dubai. In total, 52 gerbils and 1 jird (Gerbillinae), 10 house mice (*Mus musculus*), and 1 Arabian spiny mouse (*Acomys dimidiatus*) were sampled. Oro-pharyngeal swabs, faecal samples, attached ticks, and organ samples (where available) were screened by (RT-q) PCR for the following viruses: Middle East respiratory syndrome-related coronavirus, Crimean-Congo haemorrhagic fever orthonairovirus, Alkhumra haemorrhagic fever virus, hantaviruses, Lymphocytic choriomeningitis mammarenavirus, Rustrel virus, poxviruses, flaviviruses, and herpesviruses. All of the samples were negative for all investigated viruses, except for herpesviruses: 19 gerbils (35.8%) and 7 house mice (70.0%) were positive.

Full report can be viewed here https://www.researchgate.net/publication/369066576_viruses-15-006955

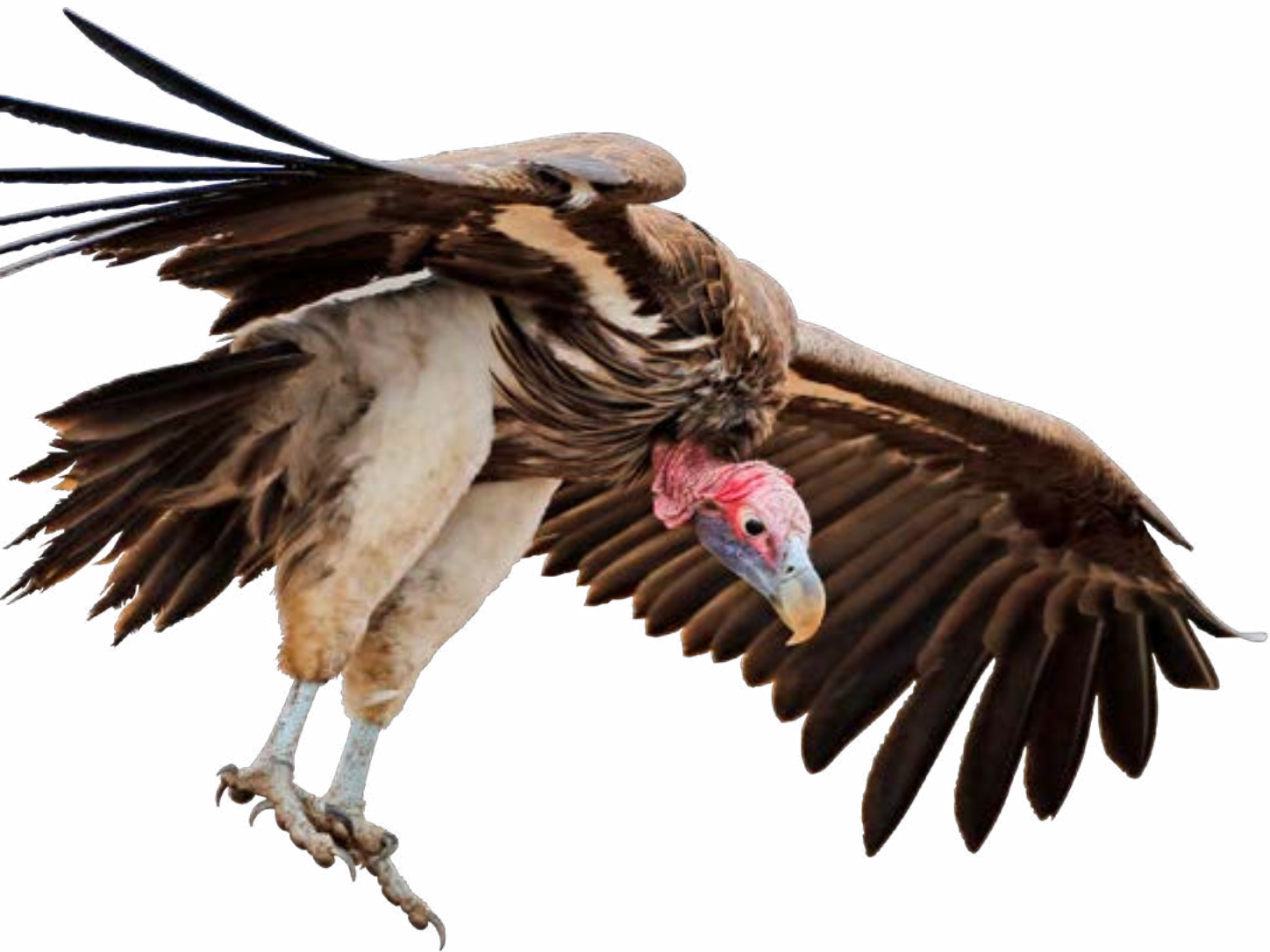


The Red Potter Wasp build ceramic nests out of sand or mud mixed with their saliva which are often seen on rocks and between tree stumps

4.4 Current Research

Monitoring Programme for the Major Site Values of the DDCR

This programme includes the objectives, methodology and expected outcomes of monitoring each of the Major Site Values (MSV) identified in the DDCR Management Plan. The results of this programme will provide us with performance measures for each of these MSV and will be used to evaluate our success in achieving successful conservation outcomes.



DDCR Monitoring Plan							
	Major Site Values	Monitoring Study	Aim	Methods	Timelines	Performance Measures	Thresholds
1	Fauna						
1.1	Arabian Oryx <i>Oryx leucoryx</i>	Monitoring of Arabian Oryx in the DDCR	Maintain a healthy, optimum and self-sustaining population of Arabian Oryx in the reserve. To achieve this aim it is imperative to implement a long-term monitoring programme in order to have a better understanding of the Arabian Oryx population and their requirements and subsequently to use this understanding to make better management decisions for the DDCR.	Species Weekly Counts	Weekly (Tuesday)	Population Size	200 - 300
				Distribution Assessment	Annual (Winter)	Breeding Effort	Min. replacement
1.2	Arabian Gazelle <i>Gazella arabica</i>	Monitoring of Arabian Gazelle in the DDCR	Maintain a healthy, optimum and self-sustaining population of Arabian gazelle in the reserve. To achieve this aim it is imperative to implement a long-term monitoring programme in order to have a better understanding of the Arabian gazelle population and their requirements and subsequently to use this understanding to make better management decisions for the DDCR.	Species Weekly Counts	Weekly (Tuesday)	Population Size	200 - 300
				Distribution Assessment	Annual (Winter)		
1.3	Sand Gazelle <i>Gazella marica</i>	Monitoring of Sand Gazelle in the DDCR	Maintain a healthy, optimum and self-sustaining population of Sand Gazelle in the reserve. To achieve this aim it is imperative to implement a long-term monitoring programme in order to have a better understanding of the Sand Gazelle population and their requirements and subsequently to use this understanding to make better management decisions for the DDCR.	Species Weekly Counts	Weekly (Tuesdays)	Population size	100-200
				Distribution assessment	Annual (Winter)	Breeding Effort	Incr. population
1.4	Lappet-Faced Vulture <i>Torgos tracheliotus</i>	Monitoring of Lappet-faced Vulture in the DDCR	Gain a better understanding of the status of the Lappet-faced vulture population visiting the reserve and identify their home-range, breeding and roosting sites.	Observations	Continuous	Population Size	20 - 40 individuals
				Camera Trapping (Water points)	Continuous	Roosting	Roosting site identified
				Camera Trapping (Vulture Resturant)	Continuous	Breeding	Breeding site identified
1.5	Pharaoh Eagle-Owl <i>Bubo ascalaphus</i>	Monitoring of Pharaoh Eagle-Owl in the DDCR	Gain a better understanding of the population status of the Pharaoh Eagle-Owl within the DDCR and to learn more about their diet and breeding ecology.	Nest survey	Annual (Feb-May)	Breeding effort	2-5 nests
				Camera trapping (Waterpoints)	Continuous		
1.6	MacQueen's bustard <i>Chlamydotis macqueenii</i>	Monitoring of the Macqueen's Bustard in the DDCR	To have an established breeding population of MacQueen's bustard in the DDCR and surrounding area	Species weekly counts	Weekly (Tuesdays)	Breeding effort	1-5 nests
				Distribution assessment	Annual (Winter)		
1.7	Arabian Wildcat <i>Felis lybica lybica</i>	Monitoring of Arabian Wildcat in the DDCR	To have a better understanding of the population status of the Arabian Wildcat in the DDCR. As they are a main threat to the Arabian Wildcat, feral cats will be eradicated from the reserve.	Camera trapping (Waterpoints)	Continuous		
				Trapping feral cats	Continuous		
2	Habitats						
2.1	Sand Sheet with Perennial Herbs	Vegetation survey for sand sheets with perenial herbs	To implement the continuous practical and efficient vegetation monitoring with the application of appropriate functional analysis for valid data interpretation that will lead to adaptive management plans for the reserve with sets of priorities and objectives.	Vegetation monitoring	Annual (Winter)	Cover and species distribution	5-10%
2.2	Interdunal Plains and Gravel Plains	Vegetation survey for interdunal and gravel plains	To implement the continuous practical and efficient vegetation monitoring with the application of appropriate functional analysis for valid data interpretation that will lead to adaptive management plans for the reserve with sets of priorities and object.	Vegetation monitoring	Annual (Winter)	Cover and species distribution	7-14%

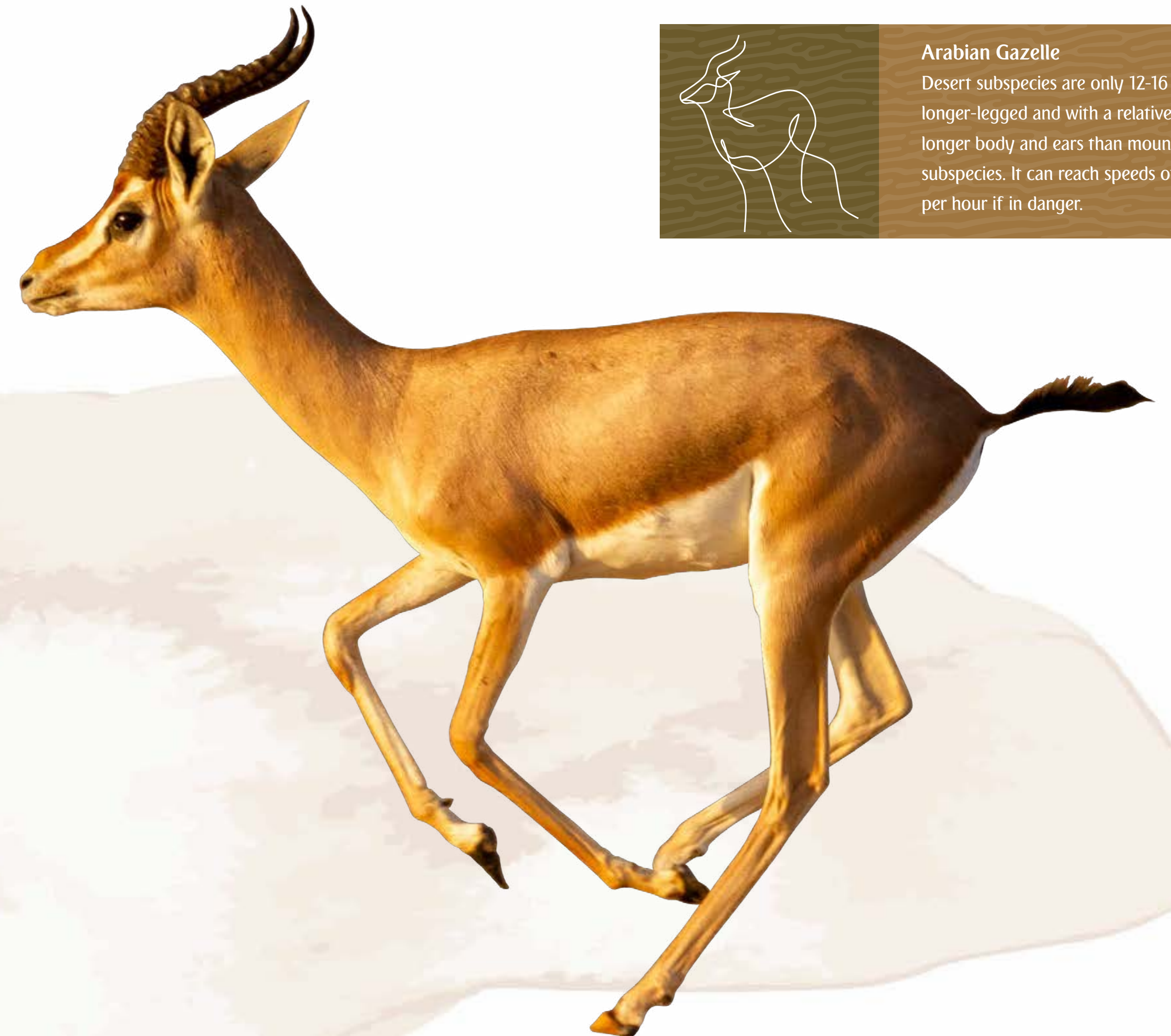
Intern, Undergrad student & Volunteers Projects

Biosphere Expeditions, a citizen scientist non-profit organisation, stayed at the DDCR from 8 to 22 January, 2022. During that time, the volunteers assisted scientists of the DDCR to gather scientific data on the Arabian Oryx, sand and Arabian gazelle, lappet-faced vultures, McQueen's Bustard, Pharaoh Eagle-Owls, and all other wildlife sighted during Biosphere Expeditions' two week stay in the reserve.

Between 4 September and 15 October, 2022, the DDCR hosted a long-term volunteer who contributed to the day-to-day operations of the reserve. Youssouf Belaid had been a park ranger in Algeria for several years, working in desert protected areas in different parts of the country. As a DDCR volunteer, Youssouf conducted scientific research, collected and sorted field data, and monitored human activity inside the reserve.



Arabian Gazelle
Desert subspecies are only 12-16 kg, longer-legged and with a relatively longer body and ears than mountainous subspecies. It can reach speeds of 65 km per hour if in danger.

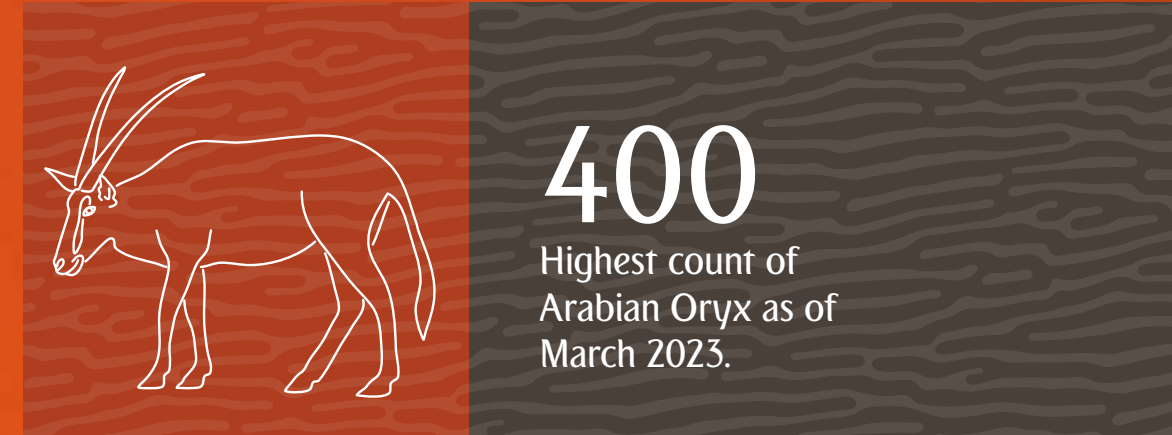


5. Research Reports

Ungulate population policy:

In line with the DDCR's purpose and as an ecological imperative, the policy is to significantly reduce and then regulate ungulate populations to restore the natural balance and aid the recovery of the desert ecosystem.

This will be accomplished by a tested, phased and carefully monitored programme of reducing and subsequently regulating the ungulate populations that will involve a combination of translocation, controlled eradication and natural predation of the Oryx and two gazelle species, with consequent adjustments to their supplementary feeding.



Arabian Oryx

The population of Arabian Oryx in the reserve had reached unsustainable numbers that exceeded the reserve's capacity with evidence of overgrazing having damaging impacts on the natural vegetation. The situation arose as a result of the Arabian Oryx having no natural population regulators such as food restrictions (supplementary feed is provided), migration or predators. Excess population creates a risk of disease transmission, mortality from aggression and abnormal behaviours due to stress, such as pacing along the fence. Moreover, everything is connected and an ecosystem with overpopulation of any one species can lead to the overall loss of biodiversity, as other species are displaced through habitat loss or change, and over utilization of resources.

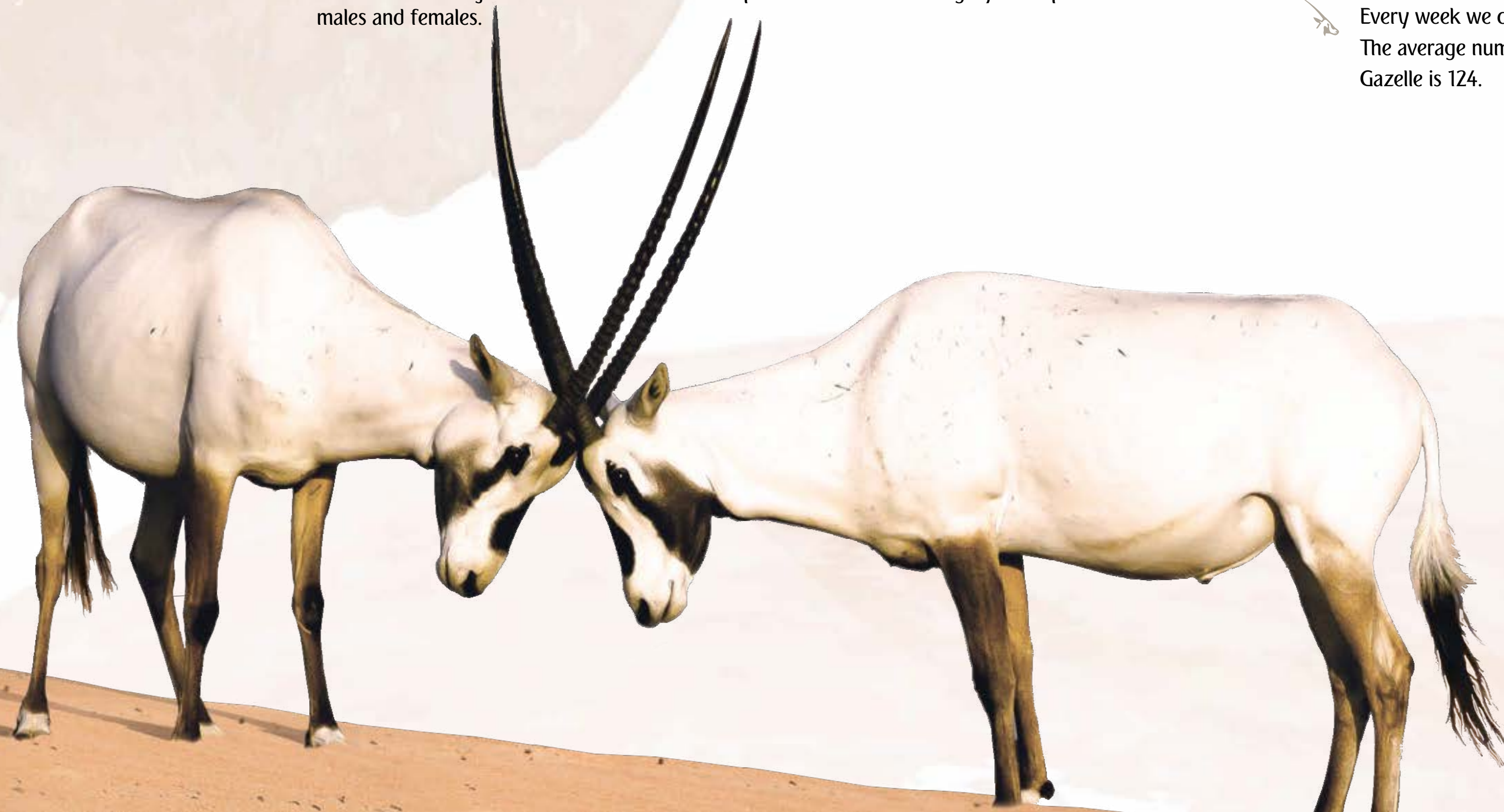
Therefore, it has been necessary to implement a project to move some Arabian Oryx from the DDCR into two adjacent enclosures and then stop the continued breeding by the separation of males and females.

From April 2022 to March 2023, a total of 88 Arabian Oryx were moved to the enclosures. These animals were weighed and tagged and males and females were separated before being released into the enclosures. During this period there were no Oryx translocated from the enclosures to private reserves in the UAE. As of the end of March 2023 we had 237 females in the south enclosure and 225 males in the north enclosure. Further relocations from the enclosures to private reserves are planned in May (to UAQ) and after the summer to Angola and Philippines.

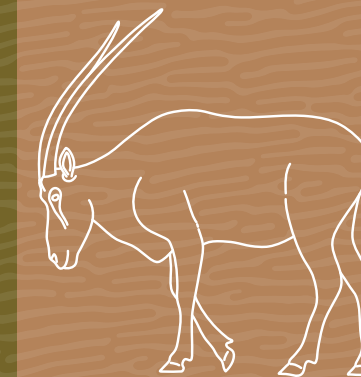
Due to the relocation of 88 Oryx to the enclosures, the Arabian Oryx population in the DDCR has decreased to an estimated population of 233 as of March 2023.

Population thresholds have been established of 200 to 300 Arabian Oryx for the DDCR.

Every week we count the number of Arabian Gazelle and Sand Gazelle spotted in the reserve. The average number from April 2022 – March 2023 for Arabian Gazelle is 437 and for Sand Gazelle is 124.



In good grazing conditions Oryx may live to 20 years.



Arabian Red Fox

In collaboration with Dubai Municipality, we have released 4 Arabian red foxes in the past year into the DDCR. We believe these foxes were captured due to new developments that are extending into the desert. The DDCR has a healthy population of Arabian red foxes, with over 50 active dens recorded each year.

An Ethiopian hedgehog was also released onto the DDCR in early 2023. This specimen was captured at a local farm and then brought to the DDCR for release.



MacQueen's Bustard

This project is done in conjunction with the National Avian Research Centre (NARC) and the office of HH Sheikh Mohammed bin Saeed al Maktoum. Since the first release in 2010, a total of 3,101 individuals have been released into the DDCR. Due to logistical complications caused by Covid-19, no MacQueen's bustards were released over the past three years but occasional sightings of birds without satellite tags are reported by the DDCR employees. Future releases are planned for 2024.

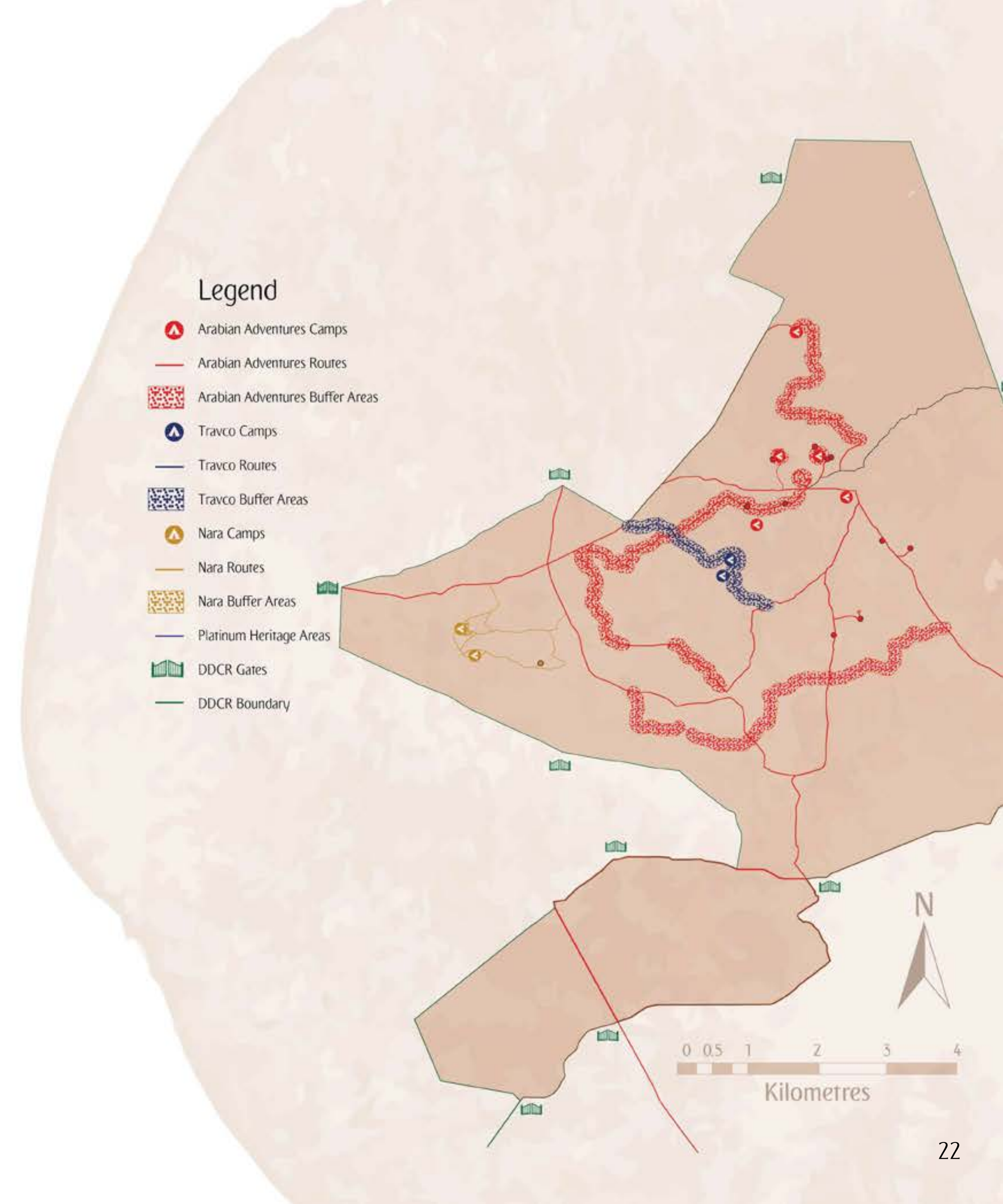


6. DDCR Visitors

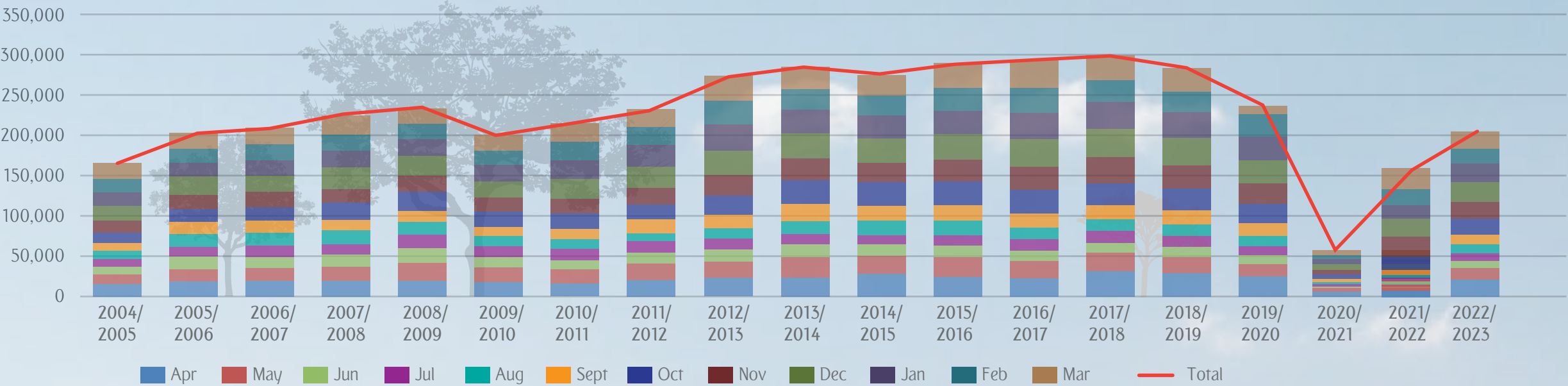
Visitor Management Policy, DDCR Management Plan 2019-2024

As a premium tourism destination, the DDCR will continue to deliver a range of authentic and quality experiences for visitors by enforcing regulations and limiting visitor numbers to levels that do not undermine the Reserve's inherent values. In line with the DDCR's stated purpose, high impact visitor activities will be strictly restricted to existing designated areas while low impact nature-based visits and activities will be promoted and encouraged with greater access to the Reserve.

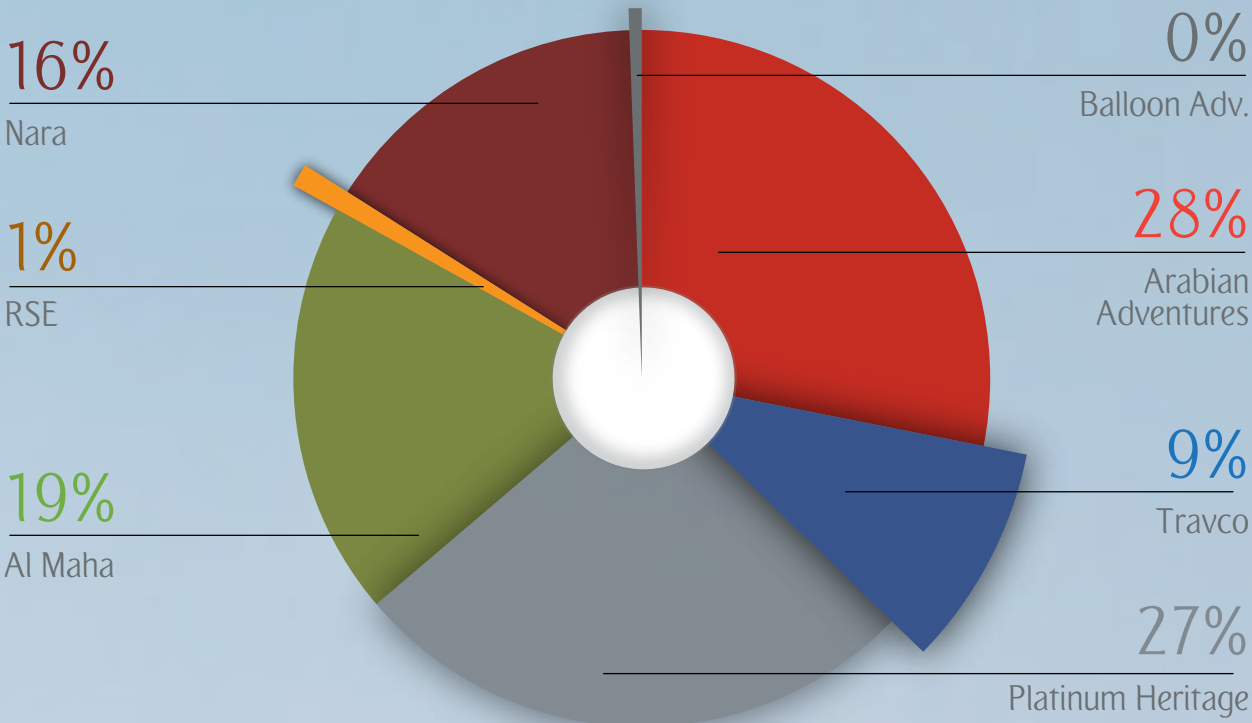
Visitors to the DDCR are all through tour operators that hold a concession agreement with the Reserve or as guests of the Al Maha Desert Resort.



Since the Covid-19 pandemic, the number of visitors to the DDCR has significantly increased from the previous year (2021-2022). The DDCR has finished the year with a 33% increase from the previous year, but is still short of pre-Covid visitor numbers.



A total of 210,444 visitors came to the DDCR in 2022-2023, with Platinum Heritage and Arabian Adventures providing the bulk of visitors.



7. Major Projects in 2022 – 2023

Outreach and Public Awareness Policy, DDCR Management Plan 2019-2024

Concerted efforts will be made and resources mobilised to raise local, national and international awareness of the DDCR's natural and heritage significance, its conservation purpose and social values. The aim is to build wide public understanding and support for the Reserve's conservation by designing and implementing awareness, outreach programmes and marketing campaigns. The target audiences will be local and international visitors, tour operators, local communities and senior decision-makers.

The Visitor Centre will be a place for people to enhance their environmental awareness and connect with the unique desert habitat of the DDCR. Visitor centres are facilities that prepare visitors physically, mentally and emotionally to experience special places.

Better visitor experience leads to better word of mouth which leads to the success of the DDCR's visitor activities. The Visitor Centre will aim to achieve the following;

- Enhance the visitor experience by adding new activities they can experience before or after touring the reserve.
- Connect DDCR visitors with an authentic desert experience
- Be used as a platform to develop an educational programme for schools and higher education
- Better understand DDCR visitors' motivations and needs and identify opportunities to provide a better experience
- Raise visitors' awareness of desert values and to elicit support for its conservation

Update: The Visitor Centre project is in the final phase of completion with an anticipated grand opening in October 2023.



At the Visitor Centre, guests can enjoy an immersive introduction to the UAE's indigenous flora and fauna and learn about the DDCR.

8. DDCR Affiliations



IUCN Green List of Protected Areas

The IUCN Green List of Protected and Conserved Areas is the first global standard of best practice for area-based conservation. It is a programme of certification for protected and conserved areas that are effectively managed and fairly governed. The DDCR is a Candidate Site for the IUCN Green List.





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