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# ***BODY CONDITION SCORING FOR THE ARABIAN ORYX OF THE DUBAI DESERT CONSERVATION RESERVE***

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## Table of Contents

|                                |   |
|--------------------------------|---|
| 1. Introduction.....           | 3 |
| 2. Methodology .....           | 4 |
| 3. Results and Discussion..... | 5 |
| 4. Conclusions.....            | 7 |
| 5. Recommendations.....        | 7 |
| Bibliography.....              | 8 |



## 1. Introduction

Arabian Oryx (*Oryx leucoryx*) is the biggest native species of ungulate from the desert habitat of the Arabian Peninsula. It is listed as Vulnerable in the IUCN Red List of Threatened Species. Continuous conservation efforts have been made to reach this status since this species reached the level of “Extinct in the Wild” in the early 1970s.

One of the Conservation actions in the country carried out was to introduce a group of 70 Arabian Oryx in 1999 in an area of 27 km<sup>2</sup> in the Al Maha Hotel complex. This protected area was situated 60 km South East of Dubai. Later, in 2003, this area was extended to its current size of 225 km<sup>2</sup> and received the name of the “Dubai Desert Conservation Reserve (DDCR)”. It was declared the first National Park of United Arab Emirates (Figure 1 & 2)

Arabian Oryx numbers rapidly increased and researchers could notice that the body condition of the individuals deteriorated, naturally explained by a larger population and with a result of a lack of food. A new strategy to control their health would be to assess and measure it yearly through the Body Condition Scoring (BCS). This evaluation system uses different morphological measurements such as the fat cover of the animal, its back posture and the appearance of the musculature and the spine. The scores go from 0 – 5, 0 being emaciated and 5 being obese. The ideal score would be 3 (Flach, 2004).

The maximum carrying capacity of Arabian Oryx inside the DDCR was assessed as 250 – 300 individuals. Back in 2013, the numbers of the species were over 400, therefore a new feeding program was implemented to support this high numbers.

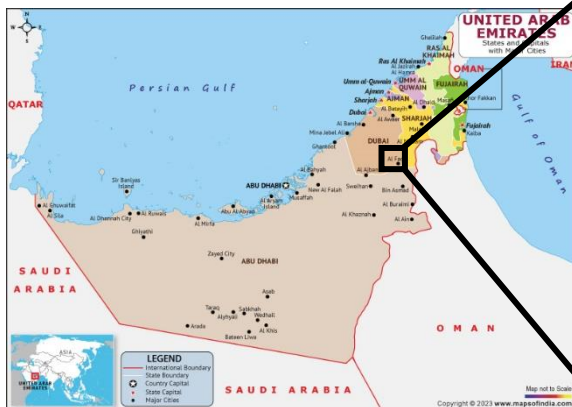


Figure 1 Location of DDCR in UAE

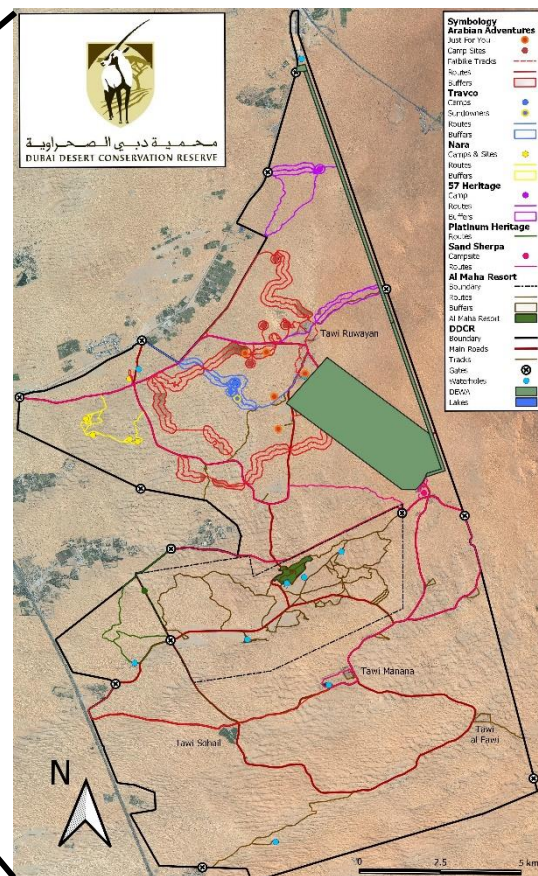


Figure 2 Map of the DDCR



## 2. Methodology

The survey took place in the Dubai Desert Conservation Reserve (DDCR) the 12<sup>th</sup> October 2023. In this moment of the year there were only 4 feeding stations active – N2, N9, S4, S10 (figure 4). During warmer months, when the vegetation is lower, the amount of feeding stations is increased. Pictures of the Arabian Oryx were taken at each one of the sites, identified by gender and age (Figure 3). A latter assessment of their body condition scoring (BCS) was done and analysed through excel (Table 1).

The assessment of their BCS was as followed: body condition scoring can go from 0 to 5, depending on their fat coverage, the visible appearance of spine and/or musculature:

0 = Emaciate Condition

1 = Thin Animal

2 = Malnutrition

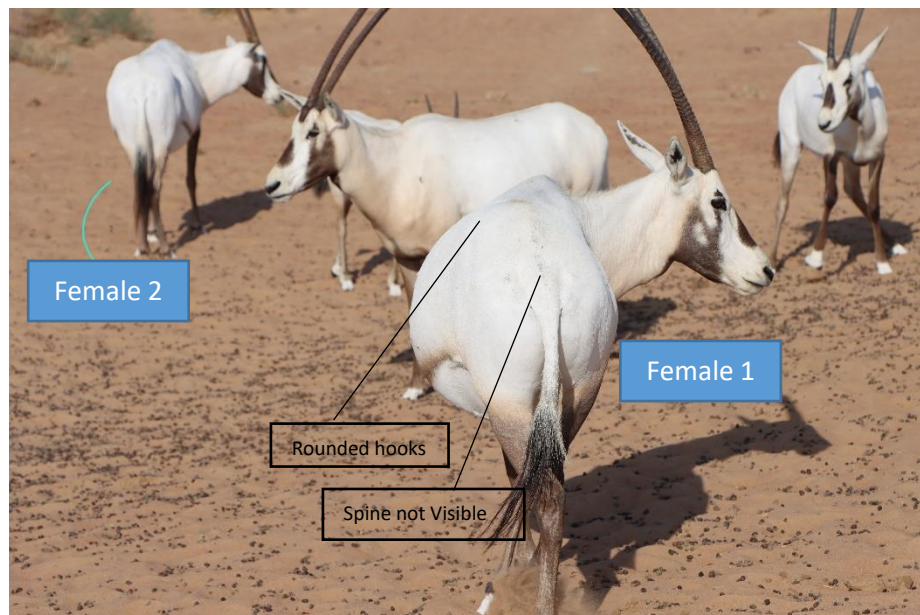
3 = Fit & Healthy

4 = Fattened Animal

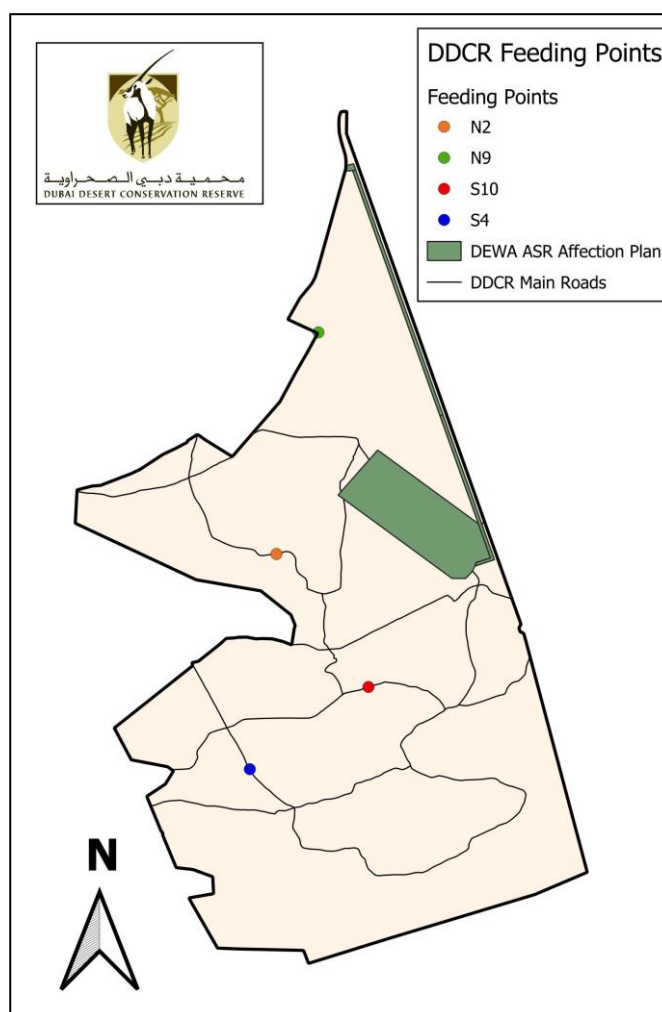
5 = Obese Animal

| Arabian Oryx BCS Report |                    |        |        |          |     |
|-------------------------|--------------------|--------|--------|----------|-----|
| Date                    | Location           | # Oryx | Sex    | Age      | BCS |
| 12-Oct-23               | North Site 2       | 1      | Male   | Adult    | 4   |
|                         |                    | 2      | Female | Adult    | 4   |
|                         |                    | 3      | Male   | Juvenile | 3   |
|                         |                    | 4      | Female | Adult    | 3   |
|                         |                    | 5      | Female | Juvenile | 3   |
|                         |                    | 6      | Female | Adult    | 3   |
|                         |                    | 7      | Female | Adult    | 4   |
|                         |                    | 8      | Male   | Juvenile | 3   |
|                         |                    | 9      | Male   | Juvenile | 2   |
|                         |                    | 10     | Female | Adult    | 1   |
|                         |                    | 11     | Female | Adult    | 3   |
|                         |                    | 12     | Male   | Adult    | 3   |
|                         |                    | 13     | Male   | Adult    | 3   |
|                         | Female Average BCS |        |        |          | 3   |
|                         | Male Average BCS   |        |        |          | 3   |
|                         | Average BCS        |        |        |          | 3   |

**Table 1** Arabian Oryx BCS N2



**Figure 3** Picture taken in feeding station S4 - example of assessment



**Figure 4** Feeding points location in the DDCR – October 2023

### 3. Results and Discussion

A total of 128 Arabian Oryx were evaluated – 86 females and 42 males. The overall BCS is 3.04 during the month of October, which shows a healthy and fit population of Arabian Oryx in the DDCR (table 2). This proves that the feeding program is well developed and it is working.

| Site              | Female | Male | Total |
|-------------------|--------|------|-------|
| N2                | 3      | 3    | 3     |
| N9                | 3.23   | 3    | 3.11  |
| S4                | 3.125  | 3.1  | 3.11  |
| S10               | 3.12   | 2.87 | 2.99  |
| Random encounters | 3      | 3    | 3     |
| Average           | 3.09   | 2.99 | 3.04  |

**Table 2** Overall results of BCS in the DDCR.



Regarding sex, there are slight differences between females and males. Females scored higher than males. This could be explained by the fact that most births occur in the non-drought season (November-May) (Ismail, Kamal, Plath, & Wronski, 2011). Since the day of the survey could be still considered as drought period, females might be already pregnant or in oestrus to start the reproductive season (figure 5).

However, both females and males scored very close to 3 which is the target value for the body condition scoring. There are some differences in the BCS between feeding stations, which can be explained by the natural dynamism occurring in the reserve (figure 5).

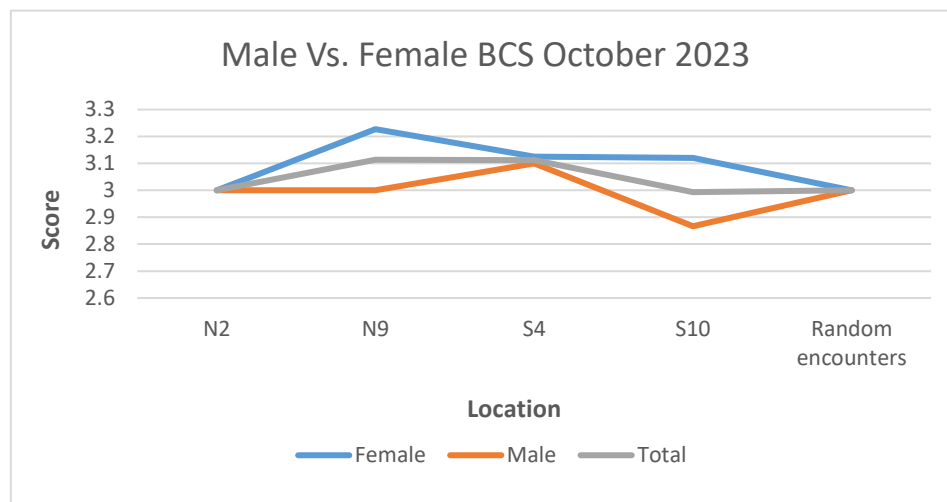


Figure 5 Male Vs. Female BCS October 2023

Another way to see the results from this feeding program in the health of the Arabian Oryx is to compare the scores with previous surveys (figure 6). Last survey was done in 2018 (Guidot, 2018).

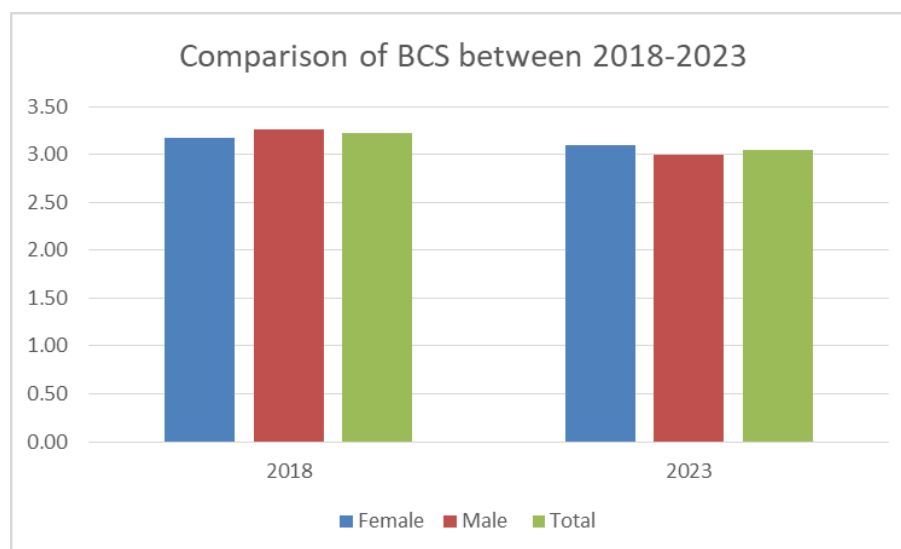


Figure 6 BCS comparison between results from 2018-2023





Guidot already observed positive results in 2018 after implementing the feeding program compared to 2013 (Guidot, 2018). In 2018, the BCS from Arabian Oryx was higher than in 2013 – scores were actually higher for both females and males than the ideal of 3. This is better than the previous results where the scores were closer to 2, what indicated malnutrition and therefore, the feeding program started.

In the current survey done in 2023, we can see that the population of Arabian Oryx scores are even closer to 3 (figure 6) – which is the ideal. This proves that the management measures established are working – not only adding extra feeding as support but also modifying it along the year depending on the requirements (winter month when there is more vegetation, the number of feeding points is less than in summer).

#### 4. Conclusions

The data collected during the survey shows a total score, for both females and males, of 3.04, which is the ideal in terms of level of nutrition for the Arabian Oryx. We can conclude that the feeding management strategy that was implemented in 2013 remains successful. From the original strategy, some adjustments have been done such as moving periodically the feeding points to allow natural movements of the herds and to avoid diseases for accumulations of faeces and other residual components. As well, the number of feeding points changes along the year, having less during winter months due to the presence of more vegetation and, having more feeding points during summer. The quantity of food changes as well along the year.

All these changes and modifications result in the presence of a fit and healthy population of Arabian Oryx inside the DDCR.

#### 5. Recommendations

All the BCS surveys done in the DDCR took place at different times of the year. We recommend that, to have more accurate comparisons between different years, the surveys need to take place in similar conditions. This survey was done in October while the previous one was done in July. Some factors can contribute to the difference between both surveys.



## Bibliography

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