Diet of Leopard and Caracal in the Northern United Arab Emirates and Adjoining Oman Territory

Chris and Mathilde Stuart[1]

Nothing has been recorded on the diet of the leopard *Panthera pardus* and caracal *Caracal caracal* in south-eastern Arabia, more specifically the United Arab Emirates and the Musandam territory of the Sultanate of Oman. Muir-Wright (1999) studied the diet of Leopard in the Dhofar region of southern Oman in close proximity to the Yemeni border.

Given the precarious state of these two cats in the Arabian Peninsula it is important to record any new information. Only one other carnivore diet study has been undertaken in the United Arab Emirates, and that on Blanford's and Red foxes (Stuart & Stuart 2003).

Methods

During the course of biodiversity surveys in this region (1995 – 1999) we collected the scats of all carnivores encountered for later analysis. In addition the opportunity was taken to assess the abundance and availability of potential prey. All leopard scats were collected in Wadi Zeebat (25° 46' N / 056° 09' E) but caracal scats were collected at six different locations, as given in Table 1.

Results

Caracal

Goat *Capra* remains were found in nine out of the 12 scats collected, Sheep *Ovis* in two of the scats (Table 1). The presence of these two domestic animals was established by comparing scalation on the hairs. The only other mammal remains identified were of the Egyptian Spiny Mouse *Acomys cahirinus* in one scat. Unidentified bird remains, feathers and bone fragments, were only found in two scats. Invertebrate fragments were only identified from one scat, and these were the distinctive jaws of a sun spider, or solifugid (Arachnidae).

Leopard

Goat remains made up all, or the bulk of, all scats (Table 2). Seven of these scats only contained the remains of goat kids, established by the presence of hoofs, teeth and unossified bones. The only other mammal remains were of Cape Hare *Lepus capensis* in three scats. Of the bird remains in three scats, two were identified as originating from the Sand Partridge *Ammoperdix heyi*, a relatively common game bird in the region.

Natural prey species

During the course of the biodiversity survey of the southernmost Musandam Peninsula and adjoining areas of the United Arab Emirates no evidence was found of the continued occurrence of any wild ungulates. Although local residents (through translation by Moaz Sawaf to the authors) knew of the Mountain Gazelle *Gazella gazella* from the past all stated that it was now extinct. This antelope was probably an important component of the diet, especially of the leopard but probably also of the caracal in the past. Numbers of the Cape hare were very low throughout the area, being absent from the mountains but present in the broad wadis leading to the coastal plain.

Table 1. Analysis of 12 caracal scats from the United Arab Emirates and the Omani Musandam territory. Locations and date of scat collection: Al Fay, Oman, 03.04.1995, 24° 35.60‘ N / 56° 01.07‘ E (1 scat); Wadi Qada‘a, , 10.05.1995, 25° 45.35‘ N / 56° 07.48‘ E (1 scat); Wadi Wureyah, 17.04.1995, 25° 24.60‘ N / 56° 14.75‘ E (2 scats); Between Ras-Al-Khaimah and Dibbah, 30.06.1995, 25° 44.62‘ N / 56° 13.07‘ E (1 scat); Ru‘us al Jibal, Oman, Feb. 1999 (7 scats).

Contents	Absolute Occurrence	Relative Occurrence %
Mammals	12	100.0
Ungulates	11	91.7
Goat hair + bones	9	75.0
Sheep hair + bone	2	16.7
Rodents		
Spiny mouse teeth, bones, hair	1	8.3
Birds		
Bird bone fragments + feathers	2	16.7
Invertebrates		
Arachnids: Solifugid jaws	1	8.3

Caracal (Photo A. Sliwa).

Table 2. Analysis of 21 leopard scats from Ru'us al Jibal, United Arab Emirates (05.04.1996 - Wadi Zeebat 25° 46' N / 056° 09' E).

Contents	Absolute Occurrence	Relative Occurrence %
Mammals	20	95.24
Ungulates: Goat hair and bone	19	90.48
Lagomorphs		
Lepus hair, claws, bone pieces	6	28.57
Birds	6	28.57
Bone fragments (sand partridge)	5	23.81
Quill feather, small bird	4	19.05
Plant material		
Dry grass	4	19.05

Arabian leopard (Photo Ch. Breitenmoser-Würsten).

Discussion

Wild ungulates have been decimated by hunting and probably by competition with domestic livestock, especially Goats. Particularly Arabian Tahr *Hemitragus jayakari* and Mountain Gazelle *Gazella gazella* are on the verge of extinction in the study area. Tahr were rediscovered in the northern Emirates in the 1990's (Stuart & Stuart 1995) and further sightings were reported by Edmonds *et al.* (2006). These two species in the past probably formed the basis of the diet of Leopard and possibly Caracal. Numbers are now so low as a result of direct hunting and land degradation, disturbance as well as competition with domestic livestock that these ungulates are of little, or no, value in the diet of either of the two cat species.

Muir-Wrights' (1999) study of leopard diet in Jabel Samhan Nature Reserve in the Dhofar of southern Oman has shown that the natural prey base, although under human pressure, is probably the healthiest in the Arabian Peninsula. He found that there were no domestic stock remains in the 74 scats he examined. It is no coincidence that this area has what is probably the last remaining leopard population in the Peninsula that has any hope of surviving. Spalton *et al.* (2006) noted that camels were taken by Leopard in the hill country of Dhofar.

Breitenmoser *et al.* (2006) believe that the depletion of wild prey is a major reason for the decline of the Arabian Leopard, and this can be confirmed by Stuart & Stuart (pers. obs.). The authors travelled extensively in the United Arab Emirates, Oman and Yemen between 1995 and 1998 and with the exception of the Dhofar region of Oman, potential non-domestic leopard prey was absent or at extremely low levels.

In the present limited study, the fact that 20 out of the 21 leopard droppings contained goat remains and 11 out of 12 caracal scats contained goat or sheep remains gives a strong indication of the unhealthy state of that ecosystem. Natural prey numbers and densities are either absent, or so low that they are left with no choice but to hunt and feed on feral and domestic goats, the principal livestock species. Stuart & Stuart (2003) also found relatively high incidences (69 %) of goat remains in red fox scats from Wadi Galilah and Wadi Barun in the Northern Emirates. Whether this was a result of scavenging or direct hunting was not established.

In conclusion the authors feel that the only way to save the leopard and caracal in the Northern Emirates is to establish suitable conservation areas (Stuart & Stuart 1996), in which the natural prey base can be allowed to rebuild and / or be re-established.

Feral goat (Photo C & T. Stuart).

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[1] African-Arabian Wildlife Research Centre <aawrc@yebo.co.za>