Canid News

 ISSN 1478-2677

The following is the established format for referencing this article:
Stuart, C.T. and Stuart, T.D. 2003. Notes on the diet of red fox (*Vulpes vulpes*) and Blanford's fox (*Vulpes cana*) in the montane area of the United Arab Emirates. Canid News 6:4 [online]
URL: http://www.canids.org/canidnews/6/Red_and_blanfords_fox_diet_in_UAE.pdf

Field Report

Notes on the diet of red fox (*Vulpes vulpes*) and Blanford's fox (*Vulpes cana*) in the montane area of the United Arab Emirates

Chris T. Stuart and Tilde D. Stuart

African-Arabian Wildlife Research Centre, P O Box 6, Loxton 6985, South Africa.
Email: aawrc@yebo.co.za

Keywords: Blanford's fox; diet; red fox; scat analysis; United Arab Emirates; *Vulpes cana*; *Vulpes vulpes*

Introduction

Nothing has been recorded in the scientific literature on the diet of any canid species occurring within the United Arab Emirates (UAE). Although the red fox (*Vulpes vulpes*) occurs throughout the country it appears to reach its highest densities along the coastal plain and the montane areas of the north-east. The smaller Blanford's fox (*Vulpes cana*) is restricted entirely to the rugged mountain country and was only added to the faunal list of south-eastern Arabia in 1995 (Stuart and Stuart 1995). During the course of faunal surveys in the period 1995 to 1998 this small fox was found to occur throughout the Shimayliyyah Mountains (sometimes referred to as the northern Al Hajar) in the north-east, the Ru'us al Jebal and into the Musandam Peninsula of Oman, as well as the isolated inselberg within Abu Dhabi emirate known as Jebel Hafeet (Stuart and Stuart 1998).

Apart from a short note on the diet of leopards (*Panthera pardus*) and caracals (*Caracal caracal*) (Stuart and Stuart, in press), this short study is the first attempt to describe the food taken by any of the carnivores occurring in the UAE. Scat samples were collected in order to determine the diet of these two foxes in the montane areas, as well as to see what, if any, competitive factors are involved.

Study areas

Red fox scats were collected at three locations, namely Wadi Galilah, Wadi Barun (both in the Ru'us al Jebal/Musandam range) and Jebel Hafeet, an inselberg that straddles the border of the Abu Dhabi Emirate and the Sultanate of Oman. Blanford's fox scats were collected in Wadi Galilah, Wadi Ziqt (Shimayliyyah) and Jebel Hafeet. All of the collection locations can be classified as rugged desert to semi-desert terrain with very low rainfall and sparse vegetation cover.

Methods

Scats were collected on a random basis, along footpaths, trails and jeep tracks. Only fresh scats were collected and only those of certain origin. This was determined by comparing scats from known den sites of both species. Each scat was kept in a plastic bag and later broken apart with fingers and forceps. Prey remains were set aside and wherever possible immediately identified, otherwise compared with a reference collection that included hair, bone, tooth and other samples.

Results

Red fox

A total of 85 red fox samples were collected. The samples from Wadi Galilah and Wadi Barun were combined, as all fall within the northern montane block, and compared with those of Jebel Hafeet (Figure 1). Rodents were of most importance at the Jebel Hafeet site, particularly sand and gravel plains dwelling gerbils *Gerbillus* spp. that do not occur on the massif itself but on the surrounding plains. The only montane dwelling rodent identified from all samples were the remains of a single Egyptian spiny mouse *Acomys caharinus* in a scat from Jebel Hafeet. Hare *Lepus capensis* remains were detected in two scats from the massif, but were likely taken on the surrounding gravel plains where this hare is fairly common. The remains of domestic goats *Capra hircus* occurred in scats from all localities, ranging from 19.6% at Jebel Hafeet up to 100% in samples from the mountains of the north-east.

Bird remains, feathers and bone fragments, were present in just over 14% of all samples. None of the bird material was identified to species level. Reptile remains were found in less than 6% of all scats. Insects, especially beetles and grasshoppers, were well represented in all samples but occurrence of scorpion and solifugid fragments were only present in 9% of the scats from Jebel Hafeet. Plant material in the scats was dominated by the pips and fruit skins of the date palm *Phoenix dactylifera*. In the Ru'us al Jebal mountains along wadis isolated plantations of date palms are frequented by red foxes but no such groves are present in Jebel Hafeet. There are number of plantations on the surrounding gravel plains that are visited by red foxes that den up in the massif, this being determined by trails radiating from it on to the plains.

Blanford's fox

A total of 39 Blanford's fox scats were collected from three locations (Figure 2), one in the Ru'us al Jebal mountains (Wadi Galilah) , one in the Shimayliyyah range (Wadi Ziqt) and the third on Jebel Hafeet.

Rodent remains were present in a third of all scats with eight being identified as Wagner's gerbil *Gerbillus dasyurus*. This gerbil only occurred in the Jebel Hafeet sample, where it was found to be fairly common along raised rock ledges and in soft substrate amongst boulder clusters. Domestic goat hair was present in just four scats and was almost certainly scavenged whilst feeding on insects attracted to carcasses. In one of the three scats containing bird feathers and bones, the presence of common quail *Coturnix coturnix* remains results from the fox having eaten one of these birds used as bait in a cage-trap. Reptiles, in the form of unidentified lizards and a small snake were only found in the sample from Jebel Hafeet. Invertebrates were important in the small Wadi Galilah sample, with over an 80% occurrence in the larger Jebel Hafeet sample. Beetles were by far the most frequently occurring of any invertebrate group, with scorpions being only present in the Jebel Hafeet sample. Plant food, especially wild fruits seem to be of importance but whether this is of a seasonal nature is not known. Fruit pips and skin of the crown-of-thorns *Ziziphus spina-christi* were present in quantity in the three scats collected in Wadi Ziqt. Large quantities of the fruit of this tree were ripe and falling to the ground at the time of collection. The tiny seeds, as well as fruit skin, of *Ficus salicifolia* were present in scats from Wadi Galilah, and those of possibly the mountain fig *Ficus carica* from Jebel Hafeet.

Comparison of the diet of red fox and Blanford's fox based on the scat samples analysed from Jebel Hafeet are shown in Figure 3. The largest scat samples for both species were collected at this isolated massif. The diets of the two foxes was found to be similar although mammal prey, especially rodents and domestic ungulates, featured more strongly in that of the red fox. Most of the rodents identified in the scats of the red fox were gravel plains and sand dwellers occurring only around and not within

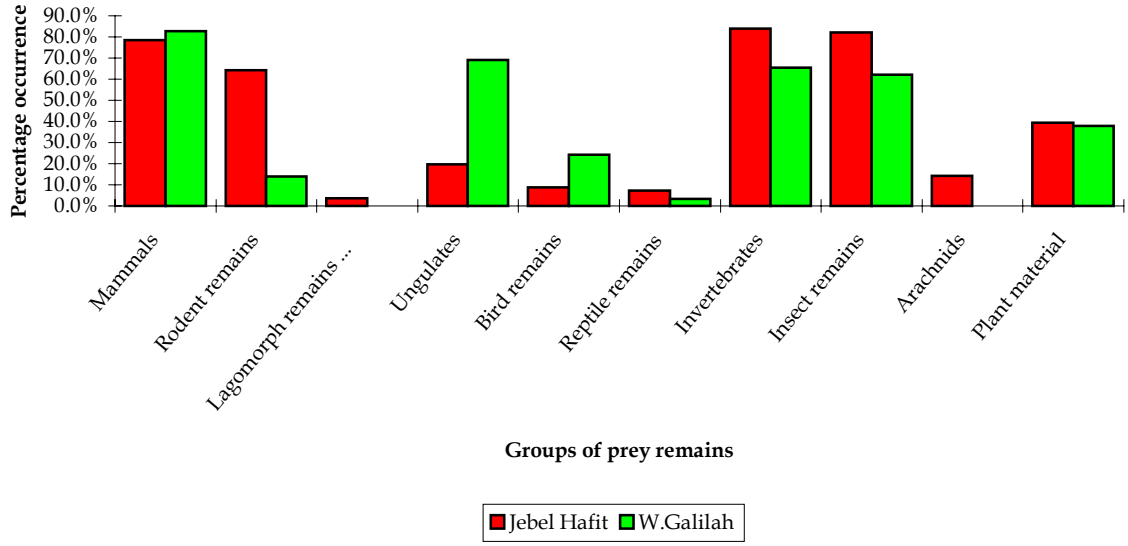

Figure 1. Red fox scat analysis – regional comparison – UAE.

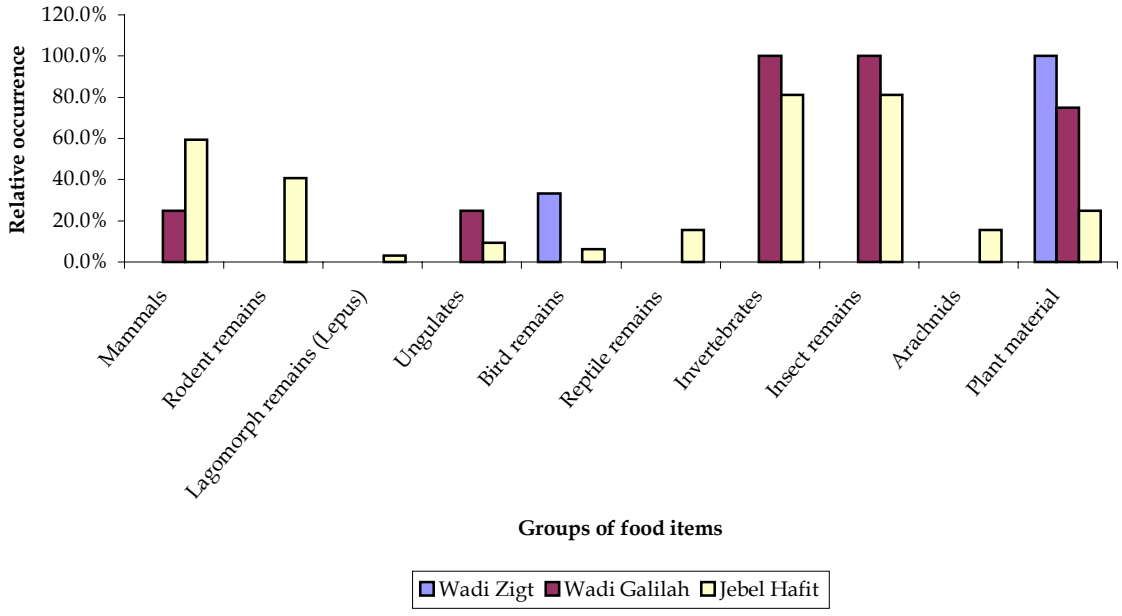

Figure 2. Blanford's fox scat analysis by region.

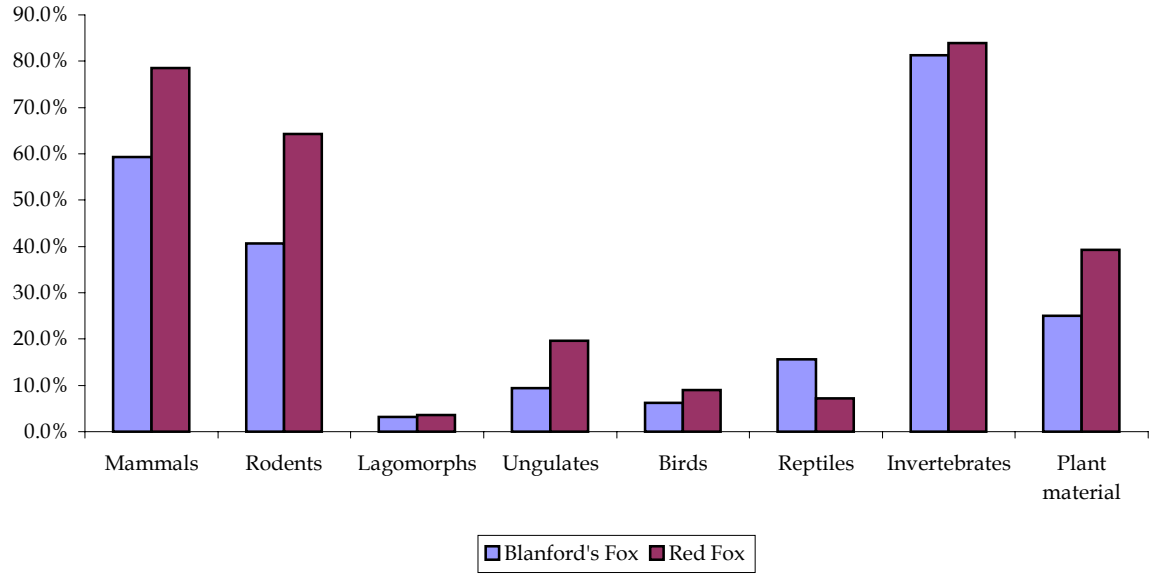

Figure 3. Comparison of diet of Blanford's fox and red fox at Jebel Hafeet.

the massif. In the case of Blanford's fox the identified rodent prey were rock dwellers. The higher incidence of plant food in the sample of red fox scats is explained by the presence of seeds and fruit skins of the date palm that can only have been foraged away from the Jebel.

Discussion

In some cases active hunting of goat kids may have been involved but scavenging almost certainly explains the majority. Goat carcasses in various states of decomposition were found by the authors on a regular basis, many of which had Red Fox tracks in their vicinity. The particularly high occurrence of goat remains (almost 69%) in the Wadi Galilah area can be ascribed to a) a very low natural prey base and b) a relatively high number of goat carcasses present at the time of the study. Based on the analyses of the red and Blanford's fox scats collected from Jebel Hafeet there does appear to be some overlap in their dietary preferences. Competition does appear to be reduced here by the fact that although both canids lie up during the day on the inselberg, red foxes forage in the surrounding plains, whereas Blanford's foxes appear to restrict their foraging to the Jebel. The much smaller scat samples collected for both species at sites within the Ru'us al Jebal mountains do not allow for any analyses of competition that may, or may not, be at play there. However, given the nature of the mountain range and greater distances from the surrounding plains it may well be found that competition for limited food resources is greater for the two foxes, than may be the case at Jebel Hafeet. Certainly in parts of the two study areas (Ru'us al Jebal) and Jebel Hafeet) the two foxes do den down in close proximity to each other but in the high and more rugged areas usually only Blanford's foxes are found.

Geffen et al. (1992) and Ilany (1983) found Blanford's foxes in Israel/Palestine to be primarily insectivorous and frugivorous, whereas Roberts (1977) found this small fox to be largely frugivorous in Pakistan. Geffen *et al.* (1992) also found that their diet differed significantly between their two study sites.

With the limited information from the present study it would seem that both foxes are opportunistic in their foraging, but red foxes tend to range further and are not restricted to the mountain county and therefore can access a greater food base. Observations of red foxes during the course of this study showed them to readily forage edible items in and around human settlements, whereas this was not found to be the case with Blanford's foxes.

Acknowledgements

The Arabian Leopard Trust supplied financial and logistical support for our research; we would especially like to thank Marijcke Jongbloed and Moaz Sawaf. The Emirates Natural History Group funded a faunal survey of Jebel Hafeet during which time fox scats were collected. The Dubai Military Command provided helicopter transport into mountainous areas lacking road access.

References

Geffen, E., Hefner, R., Macdonald, D.W. and Ucko, M. 1992. Diet and foraging behaviour of the Blanford's fox, *Vulpes cana*, in Israel. *Journal of Mammalogy* 73:395-402.

Ilany, G. 1983. Blanford's fox, *Vulpes cana,* Blanford, 1877, a new species to Israel. *Israel Journal of Zoology* 32: 150.

Roberts, T.J. 1977. *The Mammals of Pakistan*. Ernest Benn Ltd., London.

Stuart, C. and Stuart, T. 1995. Canids in the southeastern Arabian Peninsula. *Canid News* 3: 30-32.

Stuart, C. and Stuart, T. 1998. The mammal fauna of Jebel Hafeet (43-50); In: *The natural history, geology and archaeology of Jebel Hafeet.* Emirates Natural History Group, Abu Dhabi, United Arab Emirates.

Stuart, C. and Stuart, T. (in press). A short note on the diet of the leopard (*Panthera pardus*) and caracal (*Caracal caracal*) in the northern United Arab Emirates and adjoining Omani territory. *Cat News.*

Chris and Tilde Stuart, founders of the African-Arabian Wildlife Research Centre, have been involved, collectively, in wildlife research for more than 30 years. Although emphasis is placed on mammalian carnivores, increasingly, biodiversity surveys take up much of their time. Tied in with their conservation work they have written a number of books, especially field guides, as well as producing educational and instructional videos with conservation and wildlife themes. They are involved with five IUCN/SSC specialist groups.