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Abstract: The book chapter gives a description of seven felid species of Arabia and of their former distribution. Last, cheetahs occurred in low numbers in Ash Shamiyah, Al Widyah and Qurayyat in the north and the Al Mahrah/Dhofar region in the south of Saudi Arabia.

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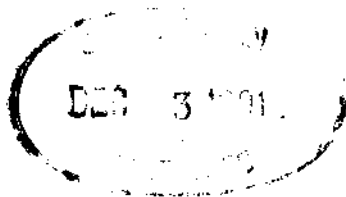
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# ARABIAN MAMMALS

*A Natural History*

1990

*Jonathan Kingdon*



**ACADEMIC PRESS**

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# Cats

## Felidae

Efficient killing is the cats' speciality. Cats detect their prey by sight or hearing and then use stealth to stalk or ambush their victim. Hooked claws and sharp-toothed clamp-like jaws then catch and dispatch their prey.

The former existence of seven very variably-sized wild cats was a measure of Arabia's former wealth in antelopes, rodents, birds and other wildlife.



## Wild Cat

### *Felis silvestris*

Wild cats are widely distributed through the peninsula but are not naturally found in the more extensive areas of true desert. They favour rocky areas but also occur on flat open plains where they have been seen to take refuge in acacia trees and down fox-holes.

Although human refuse may provide suburban populations with some of their food it is rats and mice that are the real attraction and rodents are probably essential to their survival everywhere but hares, hyraxes, birds, lizards and snakes, grasshoppers, beetles and scorpions may all be major foods from time to time and place to place. They are able to meet their water needs from their own food; nocturnal hunting also avoids excessive loss of moisture.

A wild cat hunts by creeping along slowly and silently ~ mostly finding prey by listening. It makes a fast ground-hugging run towards its objective and then stalks very slowly to within pouncing distance, killing vertebrates with a deep bite in the neck. In open country cats may be obliged to flee from enemies and they can run appreciable distances at speeds of over 30 kph.



*silvestris*

Cats spend much time (especially during the day) on sheltered but elevated perches, on rocks or trees. These may assist in detecting prey but are primarily watching posts to maintain the territory. Both sexes maintain territories but the males tend to be bigger and overlap one or more females. In moist habitats the territories are marked out with urine squirts and deep scoring of branches with the claws. Females are temporarily transformed by oestrus, seeking out and being sought out by a male or males. At this time she miaows a lot, rubs her head and rolls very frequently. Although breeding takes place throughout the year in many habitats, it is likely that peaks of activity take place in areas where there are large seasonal cycles in the abundance of food.



Once a she-cat is ready to give birth and over the entire period of caring for her young she will not permit any other cat near her, certainly males, but especially other females. Likewise when the young mature at about a year, the mother and young siblings all become mutually intolerant of one another. Up to three, occasionally up to five, helpless young are born in a rocky crevice. Opening their eyes at two weeks they only become active at about one month. The mother then begins to bring prey back to her kittens. At three months they begin to hunt with the mother, gradually becoming more and more independent. Cats can live up to 15 years.

The cat became a domestic animal at a very late date, although it would have been a familiar and welcome animal around all early agricultural settlements. Cats were very slow to be adopted in northern Europe and were still unknown as a domestic animal in Germany less than a thousand years ago.

Unlike other domestic animals functional usefulness was not the incentive for their domestication. Instead the Egyptians reared cats as sacred sacrificial animals for over a thousand years. Eventually neighbouring peoples began to keep cats as rat-catchers and they began their diffusion into other cultures about 2,000 — 2,500 years ago.

The cat cult began with a symbolism in which the cat may have been a substitute for the mongoose. In the Nile Valley the snake had long been the incarnation of darkness, night and the mysteries of existence.

The triumph of day over night, of the Sub-god Re over Seth, the god of darkness was symbolised by a cat or mongoose killing a snake. The cat began as a mere symbol of positive qualities in opposition to negative powers, which were felt to threaten health, order and prosperity. Later cats came to be regarded as actual gods, the male cat became one manifestation of the sun-god, while the she-cat took the form of the sky's right eye.

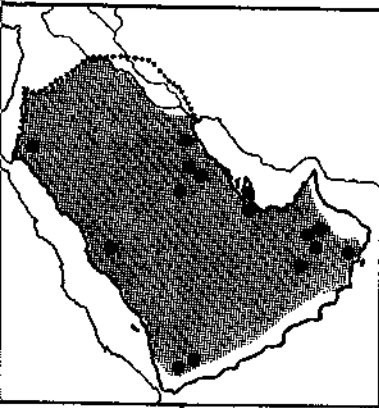
When Egyptians began to think that they could ward off illness and ensure good harvests or prosperity by cherishing and eventually giving elaborate funerals to these sacred animals, cats began to be reared and buried in vast numbers; cemeteries filled with tons of embalmed cats have been

found. It was during the thousand years' duration of this cult that the more docile, small-brained domestic cat developed.

In bringing a wild cat into the home the ancient Egyptians have bequeathed the world a miniature sample of wilderness. As for modern symbolism, there is a danger that if we fail to recognise our custodianship over larger, wilder cats together with their prey and their habitats, we shall be left with a symbolic measure of our shrunken universe in a house cat's pursuit of a house mouse.

## Sand Cat

### *Felis margarita*



*Felis margarita*

Arabia is the centre of the sand cat's range, to the north-east it extends as far as Turkestan and Pakistan, to the west right across the Sahara. As it is primarily adapted to hot dry sand desert it is most likely to be of African or Arabian origin.

Its principal food is rodents and most particularly gerbils but it may supplement these with birds and lizards. Both cricetids and cats have non-desert beginnings, so both have had to adapt to live in such a demanding environment but both, once they had made these adaptations gained, among other benefits, less competition. Competitors drop away as resources get scarcer but access to those resources is also increasingly restricted to those animals that are able to do without water and withstand the heat.

As the gerbils progressively invaded drier and drier habitats it could be said, metaphorically, that they drew their most specialised predators along in their footsteps, until today cats and gerbils play out their nightly contest in the lonely desolation of the sand desert. Most people are familiar with the miniature drama of a house cat patiently waiting hour after hour, for a mouse to emerge; the sudden pounce, play and then the meal. Both cat and mouse are idle during the day and come alive at night. In the desert this contrast between life at night, oblivion by day has become critical to the sand cat's survival. The gerbils get their moisture from residues or absorbed dew in the vegetation they eat. Sand cats must get most of their moisture from their prey. The minute quantities of moisture that pass from one organism to the other are so precious that none can be wasted. So great is the heat during the day that any activity will cost some fraction of that moisture, so the sand cat literally "switches off" and becomes torpid. Many other mammals do this but it is certainly unusual in cats. Torpor is probably made more affordable by the fact that disturbances are unlikely and infrequent in the emptiness of the desert.

Sand cats are vulnerable in other ways too. Being so small they are potentially food for larger carnivores or birds of prey so they are extremely shy. Their coats match their surroundings very well and when they press

themselves flat to the ground are extremely difficult to see. By following the contours of the ground their naturally flattened ears enhance the camouflage. This must help in escaping the attention of both prey and predators, but the main purpose for this horizontal setting of the ears is probably to help the cat pick up the subterranean sounds of their prey.

Being exclusively nocturnal as well as difficult to see they have been assumed to be very rare. What can be predicted is that they are unlikely to tolerate sustained disturbance from human beings. Wherever Beduin nomads settle for any length of time or introduce their cats and dogs sand cats are unlikely to survive. Dogs and cats are dangerous in very many respects: as 'disturbers', competitors and predators but above all as vectors of diseases and parasites to which the sand cats' lonely life in the sterile sands must make them particularly susceptible.

Half-grown kittens have been brought to Riyadh's market in February, so early winter births seem likely. Very young kittens have boldly marked bands and blotches but these are rapidly replaced by faded sandy tints. The pattern resembles that of other felids (notably the black-footed cat of the Kalahari) and is one more suggestion that the cats' ancestry belonged to wooded habitats where bold blotching was the best of camouflages.

Much remains to be learnt about the natural history and physiology of this beautiful little cat.

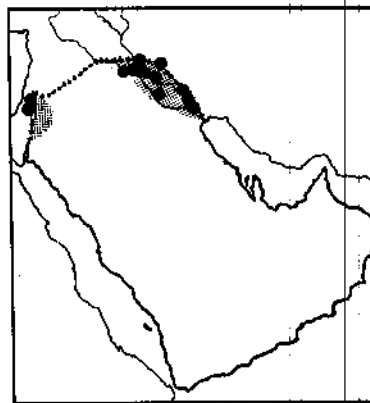
## Swamp Cat *Felis chaus*

Also known as the Jungle cat this is an animal that inhabits low-lying grassy valleys from the forests of South-east Asia and India through to wetlands within the arid Middle East and Central Asia.

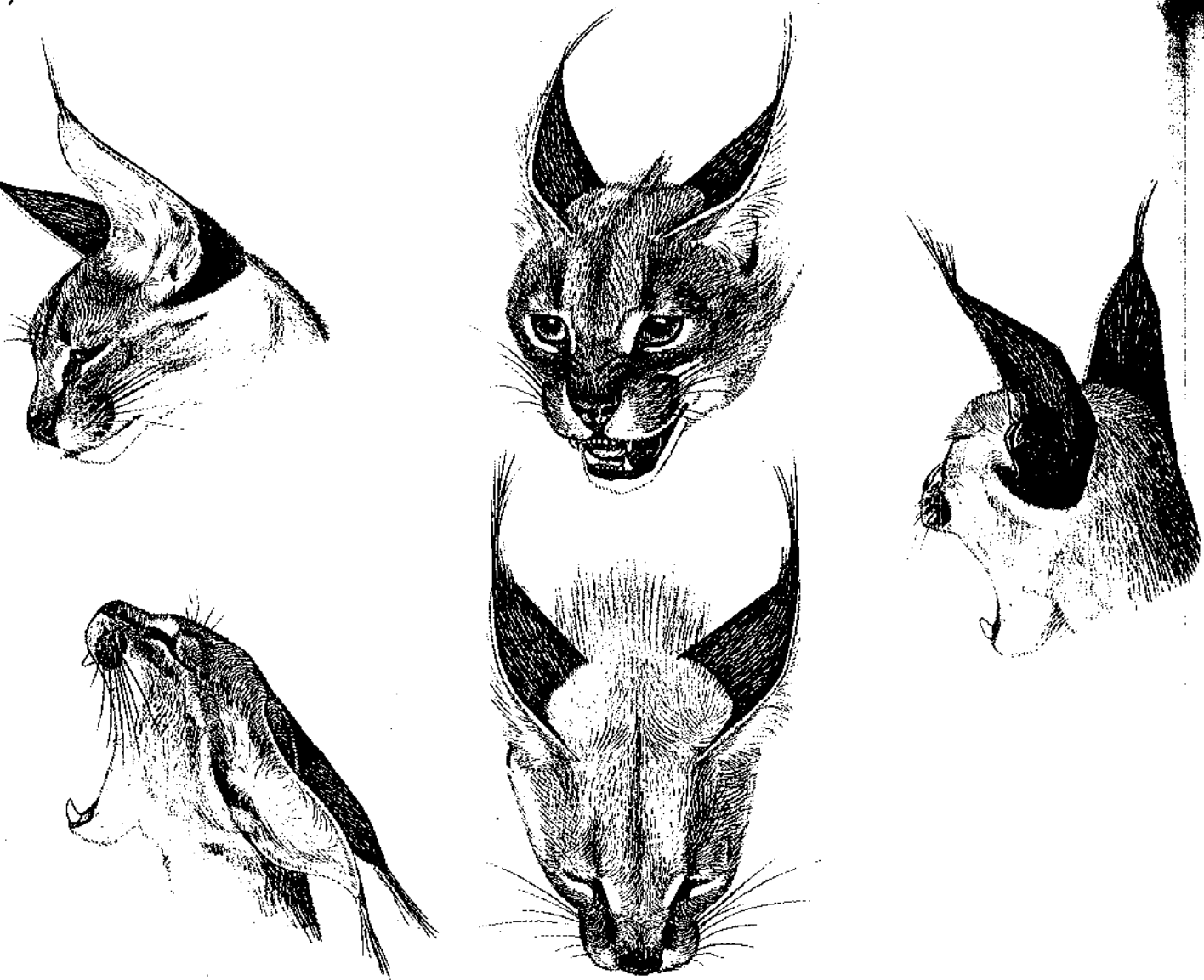
They lie up within long grass and reeds and have their young in these exposed and vulnerable habitats. They are therefore exceptionally hardy, robust and capable of sustained bursts of speed, running at 32 km per hour.

Their diet must vary with the seasons; migratory birds are likely to be taken in spring and autumn, more rodents and frogs when the grass is green and reptiles when the ground is more exposed. Domestic poultry is also taken. Burning of reedbeds and grasslands must represent a major hazard for these cats and render both hunting and shelter more difficult.

They need water and will not travel very far into desert or other very exposed areas.



*Felis chaus*



## **Caracal**

### **Felis caracal**

Caracals range over all the deserts and arid areas of Africa and South-western Asia from Central India, Turkmenia and Karakorum to Morocco in the west and Namibia in the south.

They inhabit a variety of habitats but are dependent on adequate shelter, and their Arabic name Anag al ardh reflects the frequency with which they are found in the crevices and stone mazes of jebels.

There are local and seasonal variations in the tone and shade of colour but very little in basic conformation. The reddish-fawn coat is variably frosted with grey as are the black backs of the ears. The muzzle is exceptionally short and small for such a tall cat but powerful jaw muscles give the animal its broad cheeks and round face.

These face proportions reflect the fact that most of its prey animals are distinguished by being more difficult to catch than to kill. Birds, hares, rodents, hyraxes, young gazelles and other small mammals make up the bulk of its diet. Most of its prey are caught at night and a high proportion is roosting birds. It has even been known to kill eagles while they rested at night in trees. Pigeons and sand grouse may be caught at dusk or during the day when the birds come to water. The caracal will either leap with extraordinary force and agility from a concealed ambush or race out from cover. It has the ability to climb trees at great speed and to strike with widely splayed claws.

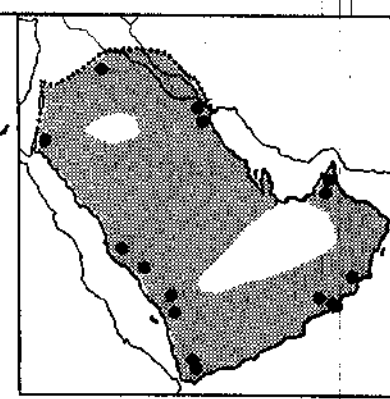
Caracals cover a lot of territory every night, walking or trotting in a long fast lope. Mostly solitary they form pairs or small mother-young groups for the period of mating and rearing. They have the usual cat repertoire of growls, spits, hisses and miaows and make a peculiar coughing call during courtship.

They can probably manage on very little or no water if their activity is nocturnal and their prey gives them adequate moisture (reports of them eating fruit may be a response to thirst). However I have seen an aged female from the Jidda al Harasis which had clearly died of desiccation soon after capture. Another caracal in this area was killed by a wounded oryx it had attacked.

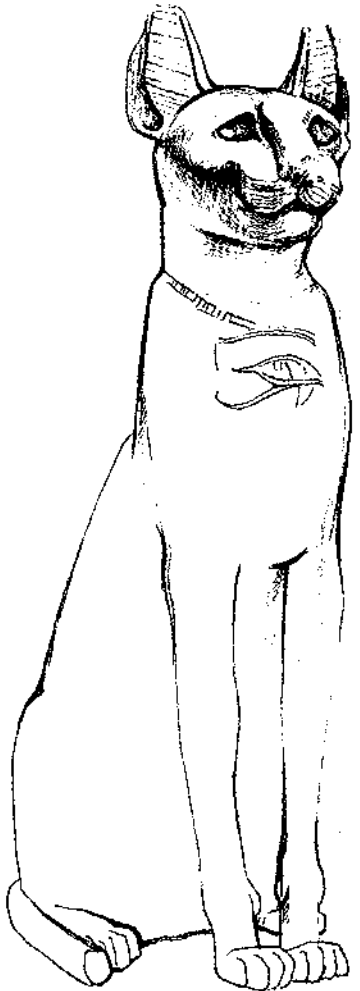
It has been suggested that there might be a breeding season or peak; in South Arabia births have been recorded in August. Gestation is 73 days and one to six kittens are born. Captives have lived 17 years,

In India and Iran caracals were kept for controlled coursing after hares and other small game. They were also released among domestic pigeons for the spectacle in 18th century India.

Although they are scarce caracals are widespread in Arabia and are probably less vulnerable than many other carnivores.



*Felis caracal*

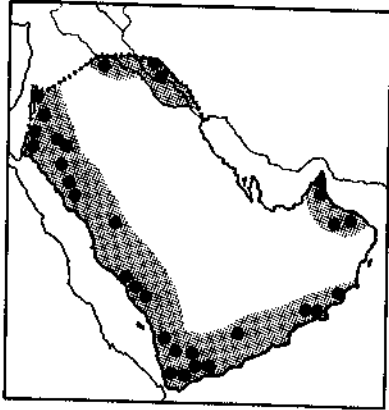


Egyptian sculpture of a caracal lynx.



# Leopard

## *Panthera pardus*



*Panthera pardus*

The leopard was originally distributed over the whole of Africa and southern Asia, living in near-deserts through every type of intermediate habitat to dense forest.

Adapting to such a wide range of possibilities has led to great variation in body size and in the pattern of spots, however these regional types tend to blend into one another and it is only in islands or similarly isolated regions that consistent races of leopard can be recognised. One of these is the southern Arabian leopard, *P. pardus nimr*, which is distinguished by very pale ground colour and small widely spaced rosettes (see colour plate). It is also notable for its small size (a head and body length limit of 1.3 metres compared to African leopards measuring up to 1.8 m). Its small size and versatile feeding habits, extreme caution and inaccessible habitats are all reasons for the Arabian leopard's continued survival, albeit very rare and localised.

Although leopards will kill antelopes and baboons if they get them, rodents, hares, hyraxes and birds are a large part of their diet (even in those areas of Africa where antelopes are common). In Arabia insects may play a larger part and foxes, feral dogs and wandering livestock are likely to be important in some localities.

One reason for their continued survival is their ability to go with very little or no water and an unusually economic energy budget. It has been found that an adult leopard can sustain itself on an average of 3 kgs of food per day in spite of travelling about 25 km each night.

The slow but sustained patrol of a leopard carries it all over its home range within a few days so it gets to know the distribution of prey within its territory very well. Natural features such as rocks, gullies, ditches and vegetation are used as screens, both to approach prey and escape enemies. The final rush at a prey animal is made at very close quarters. Very occasionally leopards may drop down off a rock or tree on to the back of their victim. Leopards tend to use their very powerful forearm in a first strike with widely spread and unsheathed claws; this is followed by a deep bite into the neck or larger prey may have its neck broken in a vigorous wrenching embrace. Leopards are extremely intolerant of other leopards and sometimes other species are killed less as prey than as competitors or even "interrupters". Thus hyaenas, jackals, genet cats, even storks have been killed by leopards and then left uneaten.

In Africa observers have trapped leopards and attached radio collars to them. This has revealed that each leopard, male or female, has a territory of 10 to 63 sq. km which is marked out with squirts of urine, raking of trees or ground with the claws and rubbing of the cheeks, chest or genital area. A female's territory may overlap that of one or more males and vice-versa but there is very little tolerance of the same sex. This is shown up in the scarred faces of old leopards.

When a female comes into season she may be sought out by several males but she soon associates with only one male. Her oestrus is marked by frequent urine squirts and much calling. The most typical call being a rasp like a handsaw cutting a log. Individuals can sometimes be recognised by the number of rasps they utter. Neighbouring leopards would soon get one another's measure by finding scratches, scent marks and hearing their rasps. There is evidence that calls help leopards to avoid sudden and dangerous confrontations with each other; prudent avoidance is more usual than meetings and this is also assisted by the habit of sitting in elevated "sentry posts". These are scattered throughout the territory and also serve as sleeping places in the leopards' regular tours of their territories. In Africa trees and bushes are used more in the wet season, rocks in the dry season. Biting flies, other insects and mobbing birds may all influence where a leopard lies up.

Disease could exert important controls on leopard populations, it is possible that a disease could easily tip the balance from survival into extinction for small, isolated populations.

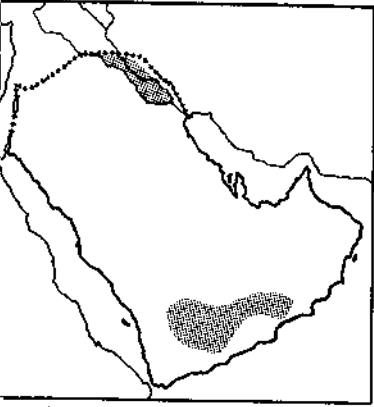
The fierce intolerance of adult leopards ensures that maturing animals constantly filter out from those (increasingly rare) areas where animals can breed in an undisturbed state. Sooner or later such inexperienced youngsters attack sheep, goats, donkeys, dogs or poultry and so come to the attention of the local farmers. In parts of Yemen the response is an organised hunt. In Dhofar the 1977 Flora and Fauna Survey team were shown several fresh skins some of which were of subadult animals.

Leopards are fecund animals and, given a fair measure of protection, should survive in many rocky mountainous localities in southern and western Arabia and on the Musandam peninsula. Gestation is about 100 days, two to six young are born, blind and helpless. Their eyes open at 10 days, they begin to eat solids at six weeks and are weaned by three months becoming independent at over one year and mature sexually at about two and a half years. They have been known to live in captivity for 21 years.



# Lion

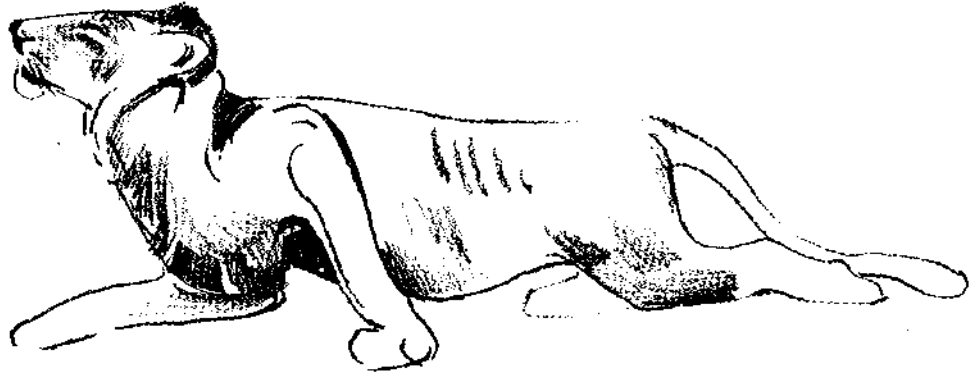
## Panthera leo



*Panthera leo*

Maneless lionesses may look less impressive than the bigger maned lions but they are more effective killers as well as being more prone to attack, with great ferocity, any lion that is a stranger to them. Such female xenophobia means that when lionesses *are* social it is only with their own family or with male lions that succeed in intimidating them. Strange lionesses are always killed.

This is what gives a special meaning to the lion's mane. It both protects the vulnerable neck and makes the male look larger and more impressive. It helps the wandering male intimidate females (or other males) thus imposing himself and his progeny on females that, left to themselves, would be endlessly incestuous. In this way in-breeding is avoided. So the mane can be described as an armour, an enlargement device and an anti-incest mechanism.



This is just one of many fascinating details about lion behaviour that recent research on wild lions in Africa has revealed. It is only detailed studies of the life-histories of wild animals that can ultimately answer apparently simple questions like what is the lion's mane for? Why are zebras striped? And why are there so many shapes of antelope horns? These are the questions we tend to ask when the animals are so remote they are merely exhibits in a zoo or pictures in a book but they often turn out to be a part of more fundamental questions such as "why Lions?"

Lions are so loaded with human symbolism it is easy to forget that they were merely the largest of seven cat species once found in Arabia. They were the largest, the "top predator" in what was originally a pyramid of interacting animals and plants.

There is no longer any part of Arabia where we can hope to see the working of nature on a large scale (except, perhaps, in the sea). Today we can only listen to the echo of the lion's roar in the yowling of a caracal or imagine a lioness throttling a gazelle when a feral cat pounces on a mouse. Thus are the

scale and proportions of Nature reduced, but we, once an occasional prey, can suppose that we feel safer.

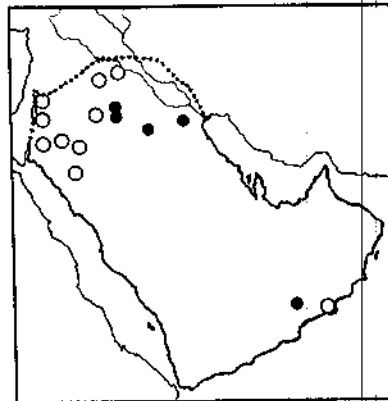
The decline of lions in Arabia was probably greatly assisted by climate. Lions need water regularly and they survived longest in Mesopotamia, because it is humid. Southern Arabs that met the traveller Doughty in the 1880's told him that lions still occurred in a province of Yemen but their extinction is likely to have been at about that time as there are no more recent reports.

It is only conceivable that the lion could ever be reintroduced into Arabia if very large areas of National Park were established without any settlement or pastoral activity. The Park would have to have woodland and grazing as well as water to support abundant and varied large animals for the lions to feed on. No such areas exist today and the will to regenerate them would require a total change in human perceptions of their own relationship with nature.



## Cheetah *Acinonyx jubatus*

In spite of its superficial resemblance to a leopard the cheetah is built on very different lines. It has very long legs, deep, narrow chest, small head and prominent orange-brown eyes. Once found all over the savannas, steppes and semi-deserts of Africa and South-western Asia it has declined everywhere except in the few localities (mostly Parks or Reserves) where antelopes are still abundant. Its last strongholds in Arabia were thinly populated parts of Ash Shamiyah, Al Widyan and Qurayyat in the north and the Al Mahrah/Dhofar region in the south.



*Acinonyx jubatus*

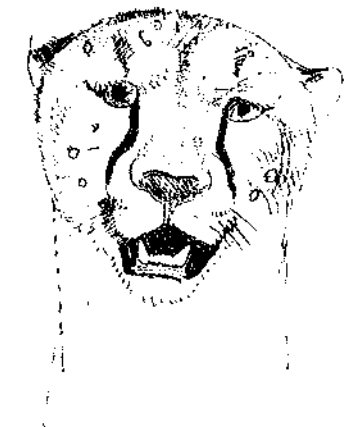
The cheetah catches its prey by stalking in the open and making a very fast, last-minute sprint in which it tries to trip the antelope, seize its throat and suffocate it with a tight clamp on the wind-pipe, which can be maintained for up to twenty minutes. This specialised use of the jaws as clamp involves a rather different shape of head to other cats.

Although it runs fast to catch its prey, day to day travel proceeds at a leisurely walk. At its fastest the cheetah may attain 112 km per hour but they are exhausted within a few hundred metres. Once the cheetah has recovered from its sprint and kill it wastes no time in swallowing up to 15 kg of meat and leaving. Cheetahs are timid animals and, in Africa, they are commonly driven off their kills by other carnivores, hyaenas, lions and wild dogs. Hunting takes place in the early morning and evening and sometimes on moonlit nights. All activity is avoided during the heat of the day.

Cheetahs have a varied vocabulary in spite of being very solitary animals for the greater part of their life.

Gestation lasts three months and three or four young are born in well concealed thickets, often under dense thorn bushes. Blind and helpless at first the young cheetahs have extraordinary coat colouring with long blond hair over the back and shorter mottled slate colouring below. They do not become independent until over one year of age. Captives are known to have lived over fifteen years but this is thought to be much longer than would be normal in the wild.

If gazelles were ever permitted to regain their numbers over a really extensive area it might be realistic to re-introduce cheetahs into Arabia but only in co-operation with neighbouring pastoralists who could be expected to loose stock and would have to learn tolerance in return for compensation.



Cheetah kitten.

