

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

## 1

---

Turning the other cheek

## CONUNDRUM

1

This is a story about competition, about predation, and about fear and attraction and beauty. It is the tale of our relationship with carnivores, both wild and tame, as hunters and pets, killers and scavengers. The book is about our own behaviour as well as about theirs. I will be discussing the ramifications of a simple question: why do we like carnivores so much, and why are we so totally fascinated by animals that are designed to be our enemies?

An early morning breaks over the huge, open grassland plain of the Serengeti, in East Africa. I am driving well away from any road, and my world is a vast expanse even beyond the horizon. The earth is just beginning to breathe in the sunlight, and small birds are stirring. Black dots appear ahead of me, some turning into ostriches, some into wildebeest. I stop, and I listen to the soft and distant grunts from the herd. It is a scene of total peace and expectation.

Beyond the wildebeest something stirs. Gazelles are running, and the wildebeest stop grunting. Lithe sinuous forms appear from the distance, a pack of sixteen African wild dogs, silent and fast. They create chaos all around them, and the wildebeest wheel and flee, bunching up with whisking tails. The dogs are criss-crossing in the turmoil.

One wildebeest cow separates from the herd, with her a calf next to her like a small motorcycle sidecar, both going as fast as their legs can carry them. One dog is behind them, then several. I drive alongside some 20 m away, but none of the animals take any notice of me and my Land-Rover. The first dog nips at the flank of the calf, then at the mother. The cow wheels, and there is menace all around her. Dogs bite the calf,

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

2 Turning the other cheek

the mother attacks, she is bitten but she can defend herself. The calf has no chance. Later, the lone wildebeest cow stands at a distance, watching the steaming heap of ravenous dogs tearing at the small body that so recently ran beside her.

It was just one, single incident. There were thousands of wildebeest, gazelles and other animals, they were grazing, socializing, defending territories and playing the mating game. But in all this it was the predator and its kill that drew every ounce of my attention. It was a compulsion stronger than myself, and I had to admit to a distinct quiver of excitement whilst making my notes.

I have spent most of my life studying animals, and especially carnivores. I studied predation by foxes and stoats on gulls in Britain, I lived for many years in Africa where I spent most of my time watching hyaenas, lions, wild dogs and many other predators. Over many years I watched badgers at night and otters in the daytime, and it is no overstatement when I describe myself as a carnivore addict.

I may be involved with these animals more than an average person, but some of the same addiction throbs in the veins of many of us. Visitors to African national parks want lions, leopards and cheetahs, and when you see a huddle of cars in the Serengeti there will be a big cat in the centre. Take children to a zoo and they will make a beeline for the tigers, lions and wolves. Many a natural history programme on TV will have a predator in its climax. Our fairy tales and coats of arms bristle with carnivore violence, and pandas and tigers head the conservation urge.

Many of these animals are lethal. They kill many people in developing countries and they would kill people in developed countries if they had a chance. They murder our livestock, they take our game and they give us diseases. Yet those of us from developed countries think carnivores are wonderful, magnificent and almost unbelievably attractive, and we spend millions on their conservation. Even in the developing world many people are fascinated, and maybe even proud of them.

There is an inherent contradiction in this, which I want to explore. The questions of the why and how of our relationship with carnivores are valid ones, because they seek to understand our own instinctive fears and our nightmares, and our preoccupation with the issue of violence. At the same time, the answers are relevant to some of the species that face imminent extinction.

This is the *raison d'être* for this book, which is different from others that have described carnivores and their behaviour or ecology, or the

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

damage done to us by predators. I want to look here at the relationships between them and us in the same way as I would study the predator-prey relationships between wild animals. I want to see the ecological aspects, the actual and potential influence of carnivores over humankind and of humankind over carnivores, including predation as well as competition and beneficial effects. Against that background we need to evaluate behaviour – our own anti-predator reactions to these animals – in order to study how effective this behaviour is, and what it does to the animals.

In the following pages I want to approach this from several different angles. I will start from a vantage point, surveying the multitude of carnivore species, and I will describe some of the order and uniformity in the variety. Such order is not confined to appearances: it is also there in their behaviour, in social life and hunting. This point is important for the perception of carnivores by our own species, because we tend to lump like with like. Similarities, whether real or perceived, are the basis for our prejudices.

I will then move on to what affects us directly, to the mechanism of the relationship and aspects of carnivore behaviour that are involved in causing damage to the human race. Several carnivores are maneaters, and I will present the case against them in detail. Many of them also cause substantial damage to our livestock and to the game we covet, and substantial financial resources have to be used against them, adding to a long list of other charges. It is not difficult to demonstrate that this damaging relationship between the animals and our own species goes back right to the beginning of our very first steps on this planet.

However, carnivores also have another side. Their story is a litany of contrasts, because in our present-day society we need them. We derive many benefits from pets and working animals, we even refer to ‘man’s best friend’. There is a worldwide trade in furs, and carnivores provide medicine, food and ‘sport’. Also, their mere presence can be seen as a benefit to us: we find them beautiful, exciting, the epitome of everything that is wild.

Against such a background of debits and credits, I describe in some detail in the following chapters how we, as a species, react to the animals. At its most basic level, human behaviour towards carnivores often contains clear elements of fear and of aggression, and of strong curiosity. In this, people are not alone, for these same elements come back in birds, in gulls mobbing a fox, and in the many other mammals that share their living space with predators that have designs on their lives or those of their offspring. It is sometimes easier to get an objective

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

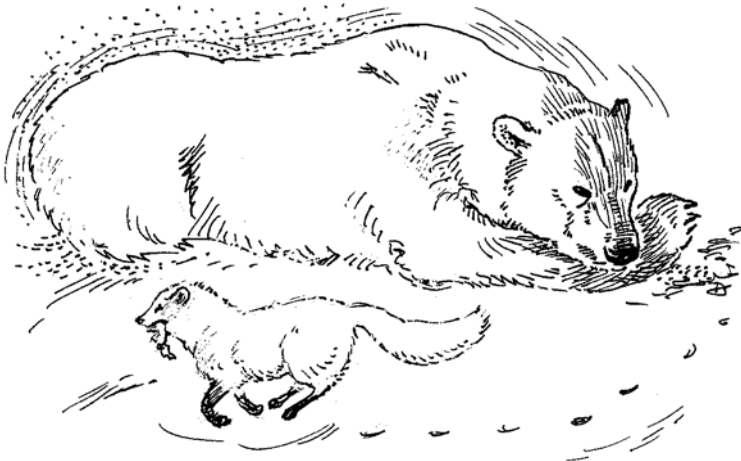
## 4 Turning the other cheek

insight into the behaviour of wild animals than to rationalize our own reactions, so I will describe the anti-predator behaviour of birds and others, to arrive at an understanding which can then make a small contribution to our knowledge of ourselves. Our own anti-predator behaviour has much in common with that of others – of wild birds and mammals.

However, there is more in our reactions to carnivores than just basic, instinctive anti-predator behaviour. We experience appreciation of a carnivore hunt, often followed by a kill, because deep down we are hunters ourselves. I do not think that anyone can resist the lure of watching the incredibly crafty stalk of a cat, the images of the lightning-fast chase by a cheetah, or the long gallop of a dog after a hare. We identify with hunter and hunted, and by merely looking at such predation, whether in the wild or on our TV screens, we satisfy deep urges by proxy.

Finally, I want to illustrate the extensive impact on our culture of these objects of our admiration, and of our anti-predator actions. We celebrate them in literature, in art, in heraldry, in mythology and in witchcraft. Mothers have told stories about the big bad wolf and other predators to their children from early history until today. Artful accounts of such danger come from everywhere around the globe, from African villages to the teeming cities of the modern world.

The instinctive awe and the conflicting emotions associated with carnivores have also invaded our sense of aesthetics, and the images of these animals have become touch-stones. To most of us, the sight of



*Polar bear and Arctic fox*

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

What is a carnivore?

5

a wild leopard is, despite its danger, a breathtakingly beautiful experience, and the silhouette and music of a howling wolf will be forever engraved on the mind of a spectator. Pictures of a polar bear on an ice cliff win prizes in photographic competitions, and the view of a lone fox at the edge of a field somewhere will forever colour the memory of a walk in the countryside. We use the images of these wild animals to describe people, such as a bear of a man, the sinuous, cat-like movements of a girl, or even a foxy politician.

Underlying this appreciation is a biological relationship, between us and them. It needs to be explored, to be understood and admired, and in the end I want our relationship with carnivores to be exploited. This may sound contradictory, but I am seeking to extract every bit of support that we can muster for the conservation and long-term survival of what many of us see as some of the most beautiful creatures on earth. We need them, never mind the fact that some are maneaters and that we are competing with them to secure an existence on our overcrowded planet. If exploitation is the way to sustain their populations, then so be it.

#### WHAT IS A CARNIVORE?

Carnivore is an ambiguous word, the literal meaning being 'meat eater'. As such, it could describe us people, at least the non-vegetarians amongst us. The word is also sometimes used for predatory animals, even for snakes that kill frogs, or hawks that take sparrows. We and they are all to greater or lesser degree carnivorous. But I suggest that we forget about those more general meanings: there is one group of mammals to which science has actually attached the official label 'Carnivora', and that is the group which claims the title from all others. These are the carnivores that I am writing about: exclusively, the members of the mammalian Order Carnivora.

I will be even more restrictive than that, because I will not be concerned with the seals, sea lions and walrus. These are also often taken to belong to the order Carnivora, as they have evolved from the more terrestrial species, and they are closely related to bears and martens (Bininda-Emonds *et al.* 1999). However, seals and their relatives have become very specialized and adapted to their aquatic habitat, and the story of their relationship with people is a totally different one. Usually students of ecology and life history consider them quite separately, and also, many taxonomists put the seals and their relatives in a separate Order, the Pinnipedia. Here, therefore, we will recognize the Order

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

## 6 Turning the other cheek

Carnivora in the restrictive sense, next to another Order Pinnipedia (Flynn 1996). In this book it is only the terrestrial carnivores that matter, and it is the members of the Order Carnivora that I will address as carnivores.

Many carnivores are predators, but not all of them. A predator is an animal that kills another one for food, an animal that hunts and preys on others. We will see later that belonging to the Carnivora does not predestine a species to be carnivorous: a panda is a carnivore, despite its diet of bamboo. Nevertheless, our typical image of a carnivore is that of a predator.

Who then are these Carnivora? They may be conspicuous, but compared with other mammalian groups there certainly are not that many of them. Count the numbers of species, or count the number of individuals of each species; whichever way you set about it the score for Carnivora is low. There are well over 8000 species of birds, and fewer than half that number of mammal species, but only 237 of those are carnivores (Bininda-Emonds *et al.* 1999). Moreover, we can state as a generalization that of each carnivore species there are usually fewer individuals around than for most other mammalian orders that live in the same places. Carnivores are often referred to as animals at the top of the feeding pyramid, an image that aptly describes their numerical inferiority.

There may be only relatively few of them, but their effect on others is quite out of proportion to their numbers. Much of their impact is direct, because any effect could hardly be more immediate and final than that of predation. Carnivores kill, and they can extinguish populations. Nevertheless, the *indirect* effects of carnivores may be even more pervasive.

Most animals, whether they are mammals, birds, reptiles, amphibians, fish or invertebrates, are a potential prey for carnivores, and all had to evolve defences, just to protect themselves and their offspring against Carnivora. I will argue later that this affected many aspects of the behaviour and appearance of all land vertebrates (including ourselves) and many of the terrestrial invertebrates. This is evident in such behaviours as foraging, which animals cannot always do with optimal efficiency because of threats from carnivores, or even in mating, which has to happen fast in order to escape predatory intentions at a vulnerable moment. Also, in many other ways animal performance is affected by the need to look over the shoulder, to be aware of predators. Even the colour of many animals is determined at least partly by the need for crypsis, providing protection against predation.

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

What is a carnivore?

7

There are spectacular differences between species of Carnivora, but they also have many things in common. To appreciate this contradiction one does not have to be a taxonomist, because for most people there is never any doubt as to whether any one species is a carnivore or not. It may live on a diet of buffalo, beetles or bamboo, but its set of teeth and its overall shape reveal what it is, unmistakably. Not surprisingly, therefore, carnivores are a 'monophyletic' order, i.e. they are species that are presumably descended from a single ancestor. For understanding the human relationship with carnivores this similarity between species is an important point, because our experience with one carnivore is likely to affect our behaviour towards others. If one has escaped an attack from a bear, this is likely to affect future responses not just towards bears, but also towards tigers and wolves.

Over some 54 million years, carnivore evolution produced the present-day rainbow of 237 species from their one ancestor (Bininda-Emonds *et al.* 1999). Their range of sizes alone is telling of their huge variation: species range from a least weasel of 45 g to the brown bear of 700 kg (more than 15 000 times larger), a spread of sizes that is greater than in any other order of mammals, despite the fact that the Order Carnivora is relatively small. Not only are their sizes highly diverse, but shapes also vary between the almost eel-like weasel and the rotund panda. Some species live in groups, others on their own. There are arboreal, swimming, coursing, stalking and digging carnivores, some live in the Arctic, others in tropical rainforests or deserts or the watery depths of rivers, lakes and seas (Macdonald 2001). They are distributed naturally over all continents except for Antarctica and Australia (where some have been introduced, wild or domesticated). There is evidence that this diversity was even greater a million years ago and earlier.

The evolution of this wonderfully diverse order has been particularly well studied, and the phylogenetic relationships of the Carnivora are at the moment probably better understood than those for any other group of mammals. Evidence for their family trees has been collected by many different methods, including various kinds of morphological information from living species and fossils, serum protein, immunological, karyotype and DNA analyses. We now think that the carnivore family tree looks something like Figure 1.1.

Immediately striking in this family tree is, firstly, a large-scale division into four families of dog-like species, and four families of cat-like species. These are two 'clades' that have their origin right at the beginning of carnivore evolution. Interestingly, mankind has taken one classical representative of each of these main groupings into our homes

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

## 8 Turning the other cheek

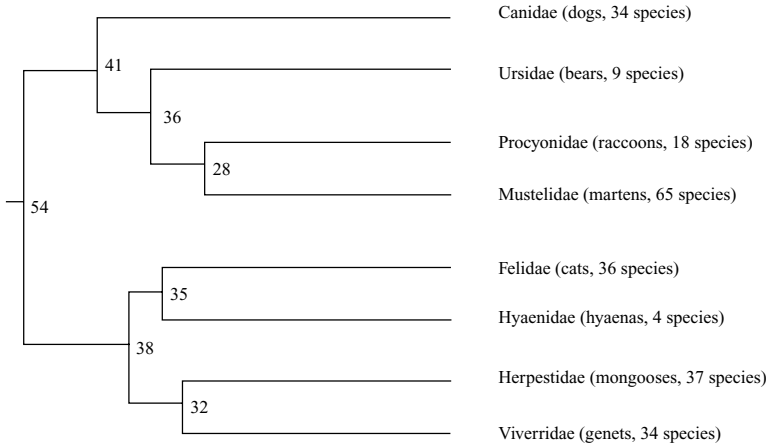


Figure 1.1. Family tree of the carnivores. Dates of branches when the families separated from each other in evolution are given in millions of years before present (Bininda-Emonds et al. 1999).

and domesticated it, and this will be described in Chapter 8. Apart from these main divisions, the family tree also shows, for instance, that dogs are equally close to bears and martens, but cats are closer to hyaenas than to the genets or mongooses. The most recent major family evolution was the split between raccoons and martens, some 28 million years ago.

I should add that there are those who have reservations about the fairly simple family tree as presented in Figure 1.1, and the last word certainly has not been said about it. For instance, there are suggestions that there should be a separate family of skunks, *Memphitidae* (instead of them being lumped with the *Mustelidae*) (Dragoo & Honeycutt 1997), and the number of raccoon species is disputed (Pons *et al.* 1999). Presumably, there will always be some variation in the number of carnivore species that are recognized by different authors.

In Chapter 6, I will discuss further details of the evolution of the carnivores, and especially their history in the last few million years, at the time when *Homo sapiens* or its predecessors were also present. Here, I will briefly describe the carnivores in the world of today, in a survey that has to be short from necessity. It is a mere outline of the marvellous richness of this order, giving us some idea of the variety of carnivore predators, of the animals that people admire so much, of the species that threaten us and our livestock, and of what is at stake in conservation.



Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

## CARNIVORE GROUPS IN THE MODERN WORLD

**The dog family (Canidae)**

One of the two best-known families of the carnivore order is that of the Canidae, the dogs and foxes (the other being that of the cats). Their sizes vary between that of a large grey wolf (up to 80 kg) to the tiny fennec fox of the African deserts, weighing in at little more than 1 kg. Canids occur on all continents, and with the dingo they even fielded an early introduction in Australia. The wolf, of course, is the epitome of a canid, spectacular, somewhat threatening, with a beautiful large body and a magnificent sound, and the immediate ancestor of our domestic dog. It is one of the animals we associate with wilderness, and significantly, the image of the wolf also features large in the relationship between carnivores and our own species, as we will see later in this book. Several other canids have featured prominently in my own life. For instance, when I lived in Africa in the Serengeti (Tanzania), I was fascinated to be able to watch three species of jackals around my house, with large packs of up to 40 African wild dogs occasionally passing through when chasing gazelles, and from my window I could often see families of bat-eared foxes catching their termites in the distance.

*Red fox*

Cambridge University Press

0521814103 - Hunter and Hunted: Relationships between Carnivores and People

Hans Kruuk

Excerpt

[More information](#)

## 10 Turning the other cheek

All canids look strikingly dog-like (i.e. wolf-like), even the brightly coloured red fox, slinking along an old stone wall in the pasture landscape close to my home here in Scotland. There are several different foxes on the various continents, the red one being the most ubiquitous, and all are typically canid.

As well as having a large proportion of their looks in common, all species of canids (for example the coyote, jackals, more than a dozen foxes, the African wild dog, the Asian dhole, the South American bush dog, the maned wolf, the raccoon dog) also share basic elements in their ecology and social behaviour. This appears counter-intuitive, because they vary from pair-bonded individuals to gregarious pack animals (see Chapter 2). However, even the pack-living species have an organization derived from a single *pair*: the canid family is the only one where a pair bond is the norm, and where males regularly help with rearing of the offspring. All other families have an organization based on the mother-offspring unit, and males rarely help. Also, canid sounds, as well as their scent marking, visual displays, hunting, prey caching and many other behaviour patterns show striking similarities in all species.

### The marten family (Mustelidae)

For some reason I have a special soft spot for the marten family (sometimes called the weasel family) or Mustelidae, and I have spent many years of my life studying them, especially the various badgers, otters and mink. I fell for them after watching badgers in Britain, which toppled one of my prejudices: I thought that I had understood in Africa that predators live in groups in order to cooperate with hunting, but these badgers lived in large clans of non-cooperating individuals, eating earthworms. It just did not fit, and in the process of finding out what was going on I became fascinated by the animals (Kruuk 1989). Subsequently I became attached to otters when I found them sharing a den with badgers along the west coast of Scotland, which led to a long study (Kruuk 1995), and otters brought me in contact with mink, one of my present interests. Those curious, expressionless mustelid faces became an addiction: nothing to do with science, just a bit of an obsession.

The mustelids, with 65 species, are by far the largest family of the Carnivora, and they have shown more recent evolution in numbers of species than any other (Bininda-Emonds *et al.* 1999). They occur in both the New and the Old World, dominating the carnivore scene in numbers of species, and including weasels, martens, mink, polecats, skunks, otters, badgers, wolverine and many others. There are relatively few of