Laurence Frank has studied spotted hyaenas for over three decades and cannot understand the persistent misconceptions and stereotypes that dog one of Africa’s most successful predators. No, they are not primarily scavengers and no, for the last time, the female’s distinctive anatomy does not mean that she is both male and female. As for what this unusual anatomy does mean, well, Frank has a few ideas...
but they are so ugly – why would you want to study spotted hyaenas? ‘So are you, but I’ll try to be nice anyway.’

When I was younger, I was more polite and would answer graciously, ‘simply because they are the most interesting animals in the world’. But after some 30 years of defending them, I am weary of ignorant people slandering these marvellous beasts.

What is so interesting about spotted hyaenas? Try this: the female has essentially the same private parts as a male – she urinates, mates and gives birth through a fully erectile clitoris that is the same size and shape as a penis. And within minutes of giving birth, her twin offspring fight like little demons for dominance, savaging each other with sharp teeth that erupted during their unusually long 110-day gestation.

Their social system is highly complex, very similar to the matrilineal organisation of baboons. Numbering up to 100 individuals in prey-rich ecosystems, the social group (called a clan) comprises several matrilines or extended female families. Like baboons, females acquire their mothers’ social rank in the clan, so dominance relationships between the clans’ matrilines remain remarkably stable over many generations.

Unlike baboons, though (and most other mammals), females are far more aggressive than males and are absolutely dominant over them. As an American male, I find this depressingly familiar, but rather more endearing in hyaenas.

Where food is abundant, a single clan can number up to 100 individuals; in deserts, clans are much smaller. Clans develop around a hierarchy of related females and their offspring, males disperse at around puberty and join new clans. They are social, uttering a range of whistles, chatters, growls and screams. Socialising intensifies in the evenings before a hunt.

Almost maligned as scavengers, spotted hyaenas are actually very successful predators of big game. (In fact, I have never understood why people look down on scavengers – what are our trips to the supermarket if not scavenging?) As the most abundant predator in the majority of intact African ecosystems, hyaenas play a crucial ecological role through their influence on herbivore populations. But, as with other large African predators, they are disappearing rapidly under an assault of increasing human and livestock populations.

Like the lion, the modern spotted hyaena was once widespread, occurring across Europe and much of Asia. With the extinction of the great mammals of the Eurasian Pleistocene, the lion and hyaena disappeared as well, but remained ubiquitous in sub-Saharan Africa, with its one-abundant prey and sparse human population.

He peculiar anatomy of female spotted hyaenas has been known from ancient times and has given rise to every conceivable variant of the hermaphroditic myth. They have been variously described as simultaneously male and female, changing back and forth at will and turning from male to female as they mature. In 1938 the young British biologist Leonard Harrison Matthews collected over 100 hyaenas in the Ngorongoro area of what was then Tanganyika. He published a definitive article on hyaena reproductive anatomy, describing the female’s remarkably male-like organs and lack of external female organs, showing that the female’s ‘penis’ is in fact a greatly enlarged clitoris, and that in place of a vagina she has a scrotum-like pouch. Internally, she is a perfectly normal female, with ovaries and a uterus. Her birth canal, instead of exiting under the tail as in other mammals, makes a 180-degree turn in the pelvis and passes through the clitoris, which protrudes beneath the abdomen as does the penis in male mammals. That should have put the myths to rest but, as recently as 1962, a South African nature magazine stated matter-of-factly that each individual comprises both sexes.

How can you tell males from females in the wild? First of all, sporting an erection tells you nothing, as hyaenas of both sexes get erections in a number of social situations that have nothing to do with mating. Rather, it is a sign of appeasement or subordinate status, displayed by a lower-ranking individual toward its social superior. One of the most common social behaviours is the ‘meeting ceremony’, when two familiar individuals encounter one another
Male and female genitalia, however, are not quite identical. Although much the same size and shape, the end of the male organ is wedge-shaped, whereas the female’s is blunt and symmetrical. It’s an obvious difference if you know what to look for. Furthermore, from behind, the clitoris of a female who has given birth is partly pink, the result of tearing that occurred during her first labour. A mature female also has prominent nipples. The body shape is slightly different, too. Older females become noticeably fat, but even young ones have a profile that differs from that of a male. The belly profile of a standing male curves upward at the hind legs, but a female’s belly is flat, owing to the development of a small udder at the rear of her abdomen.

Although a few other mammal species display some degree of genital masculinisation, it is most extreme in spotted hyaenas. Female European moles, some lemurs, spider monkeys and hares have an enlarged clitoris, but it is not erectile and all have fully functional vaginas. And it is well that they do, because the peculiar apparatus of female hyaenas makes labour a dangerous undertaking for a first-time mother.

During the prolonged gestation period, the foetuses, usually twins, grow unusually large (an adaptation towards winning the neonatal fight). During birth, they must travel an entire 60 centimetres from the uterus to reach the outside world and air (the umbilical cord is a mere 12 centimetres long and breaks long before they are born). Once through the pelvis, they enter the narrow tube-like clitoris, which in a first-time mother is too tight to allow the large foetuses to pass through it and there is a 70 per cent chance that the cubs will die of asphyxiation. We have also documented an increase in the death rate of females at the age at which they first give birth, apparently due to such complications. Because the tears do not heal shut (visible as the pink patch), subsequent litters are born quickly, with no unusually high death rate in either cubs or mothers. Why has this species developed such bizarre and costly anatomy?

Many hypotheses have been suggested, but only one seems to fit all the facts of spotted hyaena life. They are remarkably abundant in prey-rich ecosystems: in the Ngorongoro Crater, Hans Kruuk estimated a density of 1.7 hyaenas per square kilometre, while my studies indicated a density of up to one per square kilometre in the...
A hyaena is a bone-digesting machine, from its massive teeth and jaw musculature to its specialised digestive tract.
Although a group of hyaenas is quite capable of killing a bull buffalo, a single one is no match for an angry ostrich. Hyaenas will, however, eat ostrich eggs. They cannot get their jaws around them, so they break them by knocking one into another, much as a mongoose breaks smaller eggs.

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the bush overnight, then poisoning the predators that take them. In some countries, cattle are no longer herded at all. Spears and poison (especially effective on hyaenas) are always cheaper and easier than the hard work required to herd diligently and maintain bomas.

Encouragingly, we have also found that all the large predators much prefer to take wild prey rather than risk human retaliation for taking livestock. Areas with abundant game suffer less livestock loss to predators than do regions where goats and cattle are the only food option. However, in much of Africa, wild prey is becoming rare outside protected areas as livestock herds increase and overgrazing destroys the rangeland for indigenous animals.

Perhaps most disappointing is the attitude of some game departments and national conservation authorities, who still poison hyaenas to protect livestock or in the 19th-century notion that predators are ‘bad for the game’. In an echo of Dick the Butcher in Shakespeare’s Henry VI (‘The first thing we do, let’s kill all the lawyers’) the wholesale slaughter mentality has not disappeared; one African wildlife department planning to eliminate 80 per cent of the hyaenas from a park, just in case they eat a rhino calf. (Would all those snares have a greater influence on the rhino’s survival, I wonder?) In the mid-1970s, experiments in the Kruger National Park showed that, because females are reluctant to leave their home territory and female kin, spotted hyaenas are remarkably slow to recolonise areas from which they have been exterminated.

What can we do to help the hyaena? Go and look for them! Next time you are on safari, tell the guide that you are tired of boring old lions and want to see hyaenas instead. Ask to be taken to a den in the late afternoon and watch as the females mosey in to nurse their young and socialise. See how dominant females harass lower-ranking ones, teaching cubs their place in the clan hierarchy. Watch while they fondly greet each other and try to tell males from females. Admire the rare, brave male who dares to approach a female for a fleeting sniff. If you are lucky, you may see them gather for the evening hunt before melting into the bush. If wildlife authorities thought that people were interested in hyaenas, perhaps they would make a greater effort to understand and conserve them. Oh, and above all, boycott The Lion King.

Laurence Frank has a BA from Reed College, an MSc from the University of Aberdeen and a PhD from the University of California at Berkeley. He has been a research associate at Berkeley since 1984, first as part of the Berkeley Hyena Project and currently in the Museum of Vertebrate Zoology. He spent 20 years studying the behavioural ecology and behavioural endocrinology of spotted hyaenas before turning to conservation research. He currently directs the Laikipia Predator and Kilimanjaro Lion Conservation projects.