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WILD TIGERS

Many tribes in India worship it by many names-Waghdeo, Vyagreshwar and Huliveerappa among others. The subcontinent's Hindus revere it as the celestial carrier of the Mother Goddess Durga while in the Sundarbans, it is the dreaded 'Dokhin Rai', pillager of human lives. "It is the spirit of the Mountain," said the Korean of yore while the Taoist believed that the wind was formed from its breath. Once the favourite quarry of nearly all those who ruled the subcontinent, it was E.P. Stebbing's "abject cur" but also Jim Corbett's beloved "gentleman." The biologist pronounced that it is the largest surviving member of the cat family, '*Panthera'*, and the taxonomist named it for the ancient Greek word for arrow, '*tigris'*. To put it simply, it is the tiger.

Evolution

The tiger, it seems, was ordained to be nature's predator par excellence. Its evolution was both the cause and consequence of its innate ability to prey on ungulates (hoofed animals) its own size or larger. Paleontological digs indicate that the earliest tigers first colonized East Asia about two million years ago. Its range would later extend from the Caspian Sea in Eastern Europe all the way across Central, Southern and South-East Asia to Korea and even parts of Japan. The tiger seems to have had little trouble adapting to the varying weather and land patterns all across its range- its habitat includes the cold, temperate forests of the Russian taiga, dry-deciduous and tropical forests, grasslands and mangrove swamps across the rest of its range. Based on these adaptations that reflected in the form of size, colour etc, tigers were classified into eight sub-species. However, recent molecular studies now recognize six existing subspecies-tigris (Bengal tiger), altaica (Amur tiger), corbetti (South China tiger), amoyensis (Indochinese tiger), sumatrae (Sumatran tiger) and jacksoni (Malayan tiger). The Amur tiger is the largest among them while the Malayan tiger is the smallest. Of all the sub-species, the Bengal tiger is the most numerous.

Physical Structure and Hunting

To hunt the prey that lives in its forests, the tiger has be a master of stealth. And yet, it must be able to employ brute force to bring down its quarry, some of which weigh up to 1000 kg. Tigers are classified as 'obligate carnivores', which means that meat constitutes a majority of their diet. In India, wild animals such as spotted deer (chital), sambar, gaur and wild boar usually make up much of the tiger's diet. However, they aren't averse to taking domestic cattle too. Harmony in contradiction is therefore best illustrated in the physical make-up of this most powerful among predators. In South Asia, male tigers measure 2.7 to 3 m in length and weigh anywhere between 175-260 kg while females measure 2.4 to 2.6 m in length and weigh between 100-175 kg. The tiger's pelage varies from reddish-orange to deep, burnt ochre; its throat, belly, cheeks and the inside of its ears and legs are white. The coat is marked by stripes that are dark-brown or black. These stripes are unique to each tiger and are used to identify individual animals. In what is called 'reverse camouflage', this combination of colours and patterns breaks the tiger's outline, enabling it to hide in vegetation. The tiger hunts by moving around its range and seeking its prey out. With padded feet and claws retracted, it moves noiselessly even in the most dense vegetation. Yet, it prefers to travel along sandy trails (like river beds) as they afford the animal a quieter approach. In fact, in India, tigers are known to walk through the sandy tracks used by the Forest Department for vehicular patrolling. It's not for nothing that lore and literature often liken

the tiger to a phantom!

A Royal Bengal Tiger (Panthera tigris tigris) in a dry deciduous forest in India.

The tiger uses its senses of sight and hearing to identify potential targets. Its period of activity coincides with that of its prey, which is usually between dusk and dawn. Therefore, the tiger's eyes contain numerous cells called 'rods', which help it see in the dark. Behind the retina is another layer called 'tapetum lucidum', which reflects lights back onto the retina, thus enhancing its ability to see at night. Like most predators, tigers too have 'binocular vision', wherein both eyes form overlapping images of the same object, giving it a wider field of view and enabling it to gauge distances accurately. The tiger's sensory abilities are augmented by its whiskers. For example, they can detect the presence of overhanging branches or bramble, which may injure it or give its presence away.

Once the potential meal has been identified, the tiger begins to stalk-it crouches and even flattens itself on its belly, so as to remain hidden. At this point, the tiger is the epitome of concentration. Its ears are erect and forward-facing, alert to the slightest of sounds. When the quarry isn't looking, it creeps up to within 30-100 feet of it, inch by inch if necessary. At the opportune moment, the tiger breaks cover and charges towards its prey. It unsheathes its claws and lunges onto the back or side of the animal, using the combined power of its forelegs and bodyweight to bring the victim down. Then, the tiger clamps its jaw firmly upon the victim's throat or nape in a death grip, either breaking its spine or strangling it.

A tiger surveys his turf in a Protected Area in India.

When the animal has been killed, the tiger drags the carcass into shade, away from scavengers and other predators. It feeds continuously, sometimes for an hour or more, devouring 20-30 kg at a stretch. Beginning from the rump, it uses its incisors to scrape the hair off the skin while the carnassial teeth shear through the meat. The powerful canines will have been used to deliver the lethal throat bite. Depending on the animal killed, the entire carcass except the hair, hooves, stomach etc. may be devoured within 3-7 days. During this period, it rests close to the kill, often taking time out to clean itself thoroughly. If there is a waterhole nearby, the tiger will take a dip, displaying complete disregard for the feline aversion to water. Interestingly, tigers always enter a pool with their hind legs first.

Based on the average weight of prey killed in the subcontinent, (where a chital weighs approximately 50 kg and a sambar 150 kg) and the live weight of prey that a tiger must kill (around 3000-3600 kg annually), conservation biologist, Dr. Ullas Karanth has determined that per year, a tiger must kill 45-50 deer-sized prey whereas a tigress with cubs would have to kill 60-70 such animals. Given the number of kills it has to make and the fact that when hunting, one in ten attempts are successful, the tiger tends to show a preference for larger prey like sambar and even gaur (wild cattle that weigh between 650-1000 kg), in spite of the dangers posed by them. As such, they are opportunistic feeders, often eating carrion and even stealing the kills of tigers or other carnivores. Tigers seldom prey on human beings. Those that do are usually old and/or injured tigers that can no longer hunt. Sometimes lack of suitable prey may turn them into man-eaters. For the most part, tigers are very shy animals and tend to avoid interactions with humans.

Chasing its quarry.

Furthermore, Dr. Karanth cites studies within the subcontinent, which state that following reproduction, the prey population exhibits a “surplus” of 10-20% annually. He also says that for a single tiger to fulfill its dietary needs by killing 50 such animals without adversely affecting the total prey population, the latter should amount to at least 500 animals. Thus, a healthy predator-prey population stands at 1:500 in an undisturbed forest. While areas with abundant prey populations are known to be able to support high densities of tigers, their numbers are intrinsically dependant on their biology and social dynamics.

Territory and Communication Between Tigers

Tigers are *solitary* animals that form and occupy *individual* territories, the size of which depends primarily on the availability of food, shelter and water. The territories of males are larger than that of females and encompass the ranges of one or more females. When patrolling their own territories or traveling through another’s range, tigers leave certain signs to indicate their presence. These signals include scent-marks, scat and scrapes. Tigers spray a mixture of urine and scent from their anal glands onto the barks of trees and undergrowth. This whitish deposit emits a musky odour, which usually lingers for at least three weeks in the dry weather. Tigers squirt narrow jets while tigresses emit wide sprays. They also rub themselves against trees, bushes and even the ground to leave their traces behind. After depositing their scat, tigers scrape the soil around it and even urinate there. While the scat and urine act as scent-markers, the scrape offers a visual clue indicating the animal’s presence. These clues may be used:

· by cubs to find their mother

- by individual tigers to indicate the extent of their territory
- by a female in oestrous(heat) to indicate her presence to males in that area

Having caught its prey, it delivers the fatal 'throat-bite'.

Tigers also mark their territories by scratching the barks of trees. Apart from this, they may use a number of vocalisations to communicate such as roars, growls, grunts, miaows and other sounds to signal to cubs as well as potential rivals/mates. During periods of direct contact with other tigers, they may nuzzle one another-this behaviour is usually observed between a mother and cubs or a courting pair. In case of rivals, depending on the level of aggression, the ears are drawn flat and the tail swishes in anger; they may snarl or growl at each other, and even swat each other with their forepaws!

These signals also indicate the presence of females that are in oestrous as well as receptive breeding males. Tigers have no specific mating season and a female without cubs may go into oestrous every three weeks. During the courting period, which lasts a few days, they copulate up to 50 times a day, for stretches of 15-20 seconds. Before mating, the female tries to get the attention of the male by walking ahead of him and/or rubbing herself against him. Then she crouches on the ground, with her head and back outstretched. The male mounts her from behind and grips the back of her neck with his teeth, roaring continuously. As soon as he dismounts, she turns around to swipe him with her forepaws.

The gestation period varies between 90-110 days. The tigress usually gives birth to a litter of 2-

4 cubs in a secluded area. The cubs are born blind and are fed entirely on milk for 6-8 weeks, after which they begin to eat meat. However, they are suckled till they are about six months old. The cubs are almost exclusively reared by their mothers; nevertheless, accounts do exist of entire 'families' (including the father) being seen together!

A tiger spraying his scent, thus indicating his presence to other animals.

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Here, a tiger displays the biological response of flehmen, where it tries to smell the scent left by another animal

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When the tigress is out hunting, she keeps her cubs well hidden, as they are extremely vulnerable to danger at this stage and also moves them constantly. Infanticide is a persistent

threat to the cubs, wherein a tiger that has not sired the cubs may kill them so as to bring their mother into oestrous and propagate his own lineage. It is therefore natural that the tigress is very protective about her cubs, to the point of being aggressive!

Cubs begin to accompany their mother to the kill from the age of two months.

From the age of two months, the cubs accompany their mother to the kill. As they grow older, they learn how to hunt through observation. They are believed to follow their mother from prominent white spots (flashes or ocelli) that all tigers have behind their ears as well as her scent trails. When not eating or sleeping, they indulge in a lot of horseplay, which helps them develop the strength and agility that they will need to be able to hunt and survive. They have often been seen stalking birds, insects and even each other! When the cubs are around 12 months old, the tigress will make them participate in the hunt, slowly curtailing her own involvement. By the time they reach the age of 24 months, both mother and cubs begin to become more aloof. The cubs are then slowly pushed out of their mother's range and have to form their own territories. This behavioural tendency is ecologically very important because it prevents inbreeding, thus ensuring a healthy gene pool.

Females usually tend to occupy areas close to, or even within their mother's range while males are usually pushed further. Such tigers are often referred to as 'transients' looking for space or an opportunity to establish their territories and may intrude into the areas of others. Owing to their size and relative lack of experience, 'transients' find it difficult to oust other older, bigger tigers from their ranges. Any attempts to do so may result in 'in-fighting' or territorial skirmishes, which may wound one or both tigers, sometimes fatally! As is often the case now, transients are forced into the non-productive margins of good habitat or degraded forests.

When forests were dense and prey was in plenty, these transients and tigers in general, had a greater chance of survival. However, the increasing demands for space and energy by a growing population have resulted in the destruction of its habitat. This has led to frequent interactions with humans, which are increasingly conflict-ridden. Moreover, tigers are also poached for their skin and organs, which are greatly valued in China and South-east Asia. In fact, so grave is the danger to the tiger that international laws ban the trade in tiger parts while many countries including India have strict laws protecting it. And protect it we must, for it would be a shame to watch and be responsible for the decimation and extinction of this most charismatic cat!

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