The Sensory System

Smell - The Super Sense

The Sambar has developed faculties and instincts to a degree not attained by any other deer in the plains of India… Like most animals which live in thick jungle, the eyesight of the sambar is only moderate, but to compensate for this they possess most excellent powers of hearing and smell. Both theses powers are constantly used for purposes of self-protection, and as sambar form one of the chief foods of the tiger and the wild dog, as well as having been hunted by man from time immemorial, they are largely dependent on the high developmentof these senses for their very existence…
Dunbar Brander - Conservator of Forests - India and author *Wild Animals in Central India*

Like their sense of hearing, the scenting ability of sambar is nothing short of legendary and hunters and scientists all agree that they are the sambar's most acute senses. Research has found that the olfactory brain of a deer is 1,000 times larger than man's, and a deer's nose is estimated at being one hundred times more efficient than man's. A deer's nasal interior is lined with specialised skin called epithelium, which is covered by mucus membrane. The larger the deer, the greater the epithelium surface area and the more acute its sense of smell. It is believed, therefore, that larger, older deer are able to detect odours better than younger, smaller ones (Ozoga 1996b).

A practical way for hunters to appreciate the acuteness of the sambar's sense of smell is to regard it as being at least equal to the scenting ability of their best scent trailing hound or gundog. Sambar use their sense of smell not only to detect predators, but to locate and select food, recognise their own bedding sites and track others. A hind identifies her calf by its tail odor and sambar communicate with and identify other group members via glandular odors and secretions such as those exuded from the pre-orbital, metatarsal and tail glands and possibly glands at the rear of the hoof. Perhaps the most important function of scent is its role in communication with other deer. Through smell, deer learn about the other deer's sex, dominance status, reproductive state, and so on (Putman 2000).

The significant role that scent plays in the life of a sambar is best illustrated by the various types and number of signposts or signal-markers(after Downes 1983) which they create and maintain throughout their home range. Rub trees, wallows, scrapes, preaching trees and tree roots are marked with scent. See chapter *Signposting*, Volume 1.

When studying and photographing sambar I have noticed countless times that when they initially suspect something, but are upwind or cross wind of the object of suspicion, they use their ears and eyes to try and identify it, only appearing to use their nose when these other senses fail to identify the object. When experiencing difficulty in smelling an object, sambar will poke their nose into the air in an obvious attempt to detect its scent. When within 50m of an object of suspicion, occasionally they have been seen to exhibit a flehmen type response in which they curl the top lip up. This probably enables them to inhale considerably more air for analysis.

Right: *As hearing and vision have failed to identify the predator, this stag switches to scent. He lifts his nose allowing air with scent molecules attached to blow directly into the moist nostrils.*