

# Sambar Deer Identification



**Sambar (*Rusa unicolor* – previously *Cervus unicolor*)** inhabit eastern Victoria and New South Wales and comprise the most important herd in the world outside of their native countries where the available habitat is diminishing outside of protected areas and where their IUCN status is listed as Vulnerable.

## History

Sambar Deer were introduced to Australia from India, Ceylon and Malaysia in the 1860s.

Populations have declined substantially due to hunting, insurgency, and industrial exploitation of habitat.

## Identification

Sambar are Australia's largest feral deer species. Males may grow to 2.4m long, 130cm high and weigh 300kg. Females may more delicate with a narrow neck and thinner legs.

Their coat is coarse and uniform in colour, varying from red-brown to almost black, but predominately dark brown. The tail is relatively long, black with the under-tail and inner sides of the legs paler in colour. When alarmed the tail is raised.

The hair around the neck is coarse and mane-like, particularly on mature males.

The antlers of mature males usually have three tines however the number of tines is influenced by animal condition. Antlers may grow up to 75cm.

They have a distinctive honking/ barking when alarmed.



## Distinctive characteristics

Sambar deer have very prominent large rounded bat-like ears.

They have a very large body size compared with other feral deer species.

## Biology

Sambar are solitary by nature or live in small groups, and are extremely wary. Outside breeding season stags remain segregated from hinds and their offspring.

During the breeding cycle, adult stags attract multiple hinds by the use of an elaborate array of 'signposts' – including wallows, scrapes and preaching trees that are routinely scent-marked.



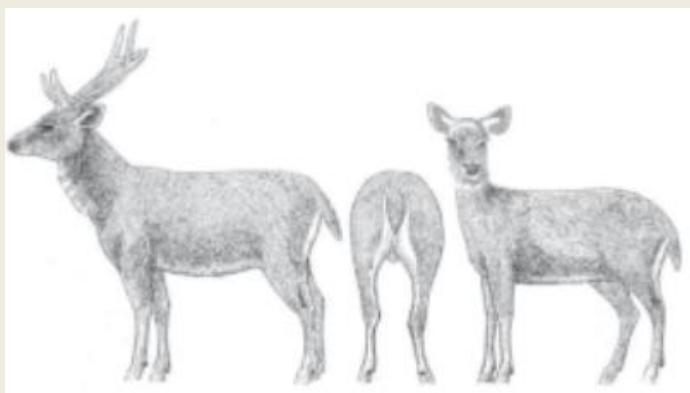
Calving may occur throughout the year, with peaks in the winter (July-August) and summer (January-March), after a gestation period of around eight months. Adult hinds may produce up to three young every two years if conditions are favourable.

They are herbivores that browse a wide range of grasses, shrubs and trees, depending on the season and food availability.

Sambar deer are crepuscular (active at dusk and dawn) or nocturnal (active during the night) animals. They prefer to remain hidden during the day.

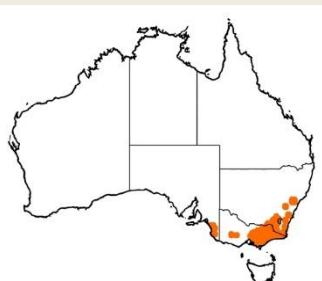
Home ranges are unclear in our peri-urban areas, but in India have been reported as 1,500ha (15km<sup>2</sup>) for males and 300ha (3km<sup>2</sup>) for females.

They can also easily swim with their bodies fully submerged and only their head above water.

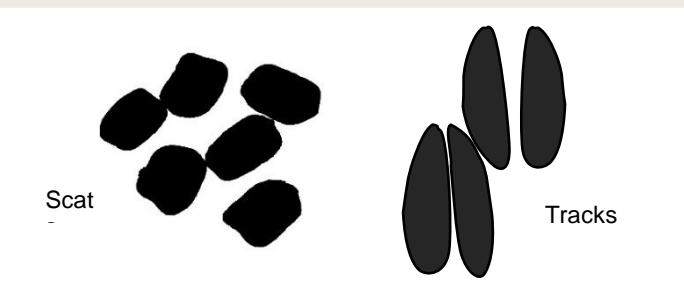


## Habitat

Sambar Deer are a widespread and adaptable species and inhabit difficult and complex terrain.



Though often associated with tall wet eucalypt forest, they often occur at the edges of farmland, and are known to inhabit heathland, woodland, dry forest and rainforest.



## Damage

Feral sambar are a growing pest threat.

They can cause damage to forestry plantations, ornamental gardens and can damage farm fences and gates. They can compete with livestock for pasture, are a major motorway hazard due to the size and semi-nocturnal behaviour.

They also damage native vegetation and sensitive habitats through browsing, grazing, rubbing and wallowing.



## Control Options

Control options for Sambar Deer are similar to other deer species, and include ground and aerial shooting, trapping and exclusion fencing.

# Red Deer Identification



**Red Deer (*Cervus elaphus*) range from Queensland down to Victoria and across to South Australia, with numbers increasing. The eastern strains can still be traced to the early releases, but South Australia's population is now largely recent farm escapees. This is creating more and larger wild herds due to the superior genetics attained by selective breeding.**

## History

The first Red Deer to reach Australia were probably the six that Prince Albert sent in 1860 from Windsor Great Park to Thomas Chirnside, who was starting a herd at Werribee Park, south west of Melbourne. European acclimatisation societies sent more in 1874 to enhance the aesthetics of the Australian landscape.

## Identification

They are a medium to large-sized deer. Mature stags will stand around 120cm at the shoulder and weigh approximately 160kg. Hinds are about two-thirds the size of the male.

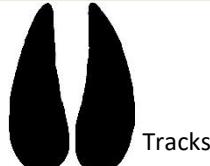
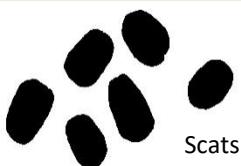
In winter their hair is longer and the colour is often dark grey-brown. Mature animals show a prominent pale coloured patch on the rump. Males may form separate groups to females and juveniles. Ears are normally long and pointed.



## Distinctive characteristics

Reddish in colour during summer and grey-brown in winter. They have a distinctive pale rump patch.

This species may be detected from pellets and footprints, and from their distinctive 'roaring' call.



## Biology

Red Deer are a herd animal and have highly developed social order. They are social animals and live in herds dominated by a single female.

They are seasonal breeders with mating (the 'rut') occurring mainly in April.

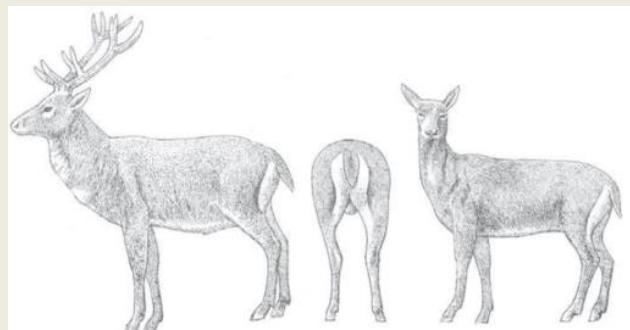
Stags roar to attract receptive females and will fight to protect their harems from rivals. Males are only territorial during mating season.

The sexes separate in summer; the females to give birth and the bulls to form their separate bands.

Both sexes are mature at 16 months although young males do not usually mate due to competition from mature males.

Gestation period is 8-9 months with a single offspring; twins are rare.

Red deer display some ability to hybridise with Rusa deer, but can only produce fertile female offspring.

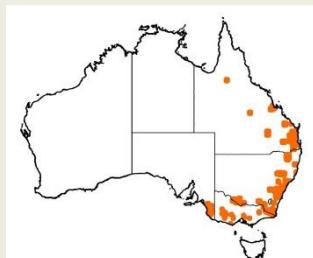


## Antler anatomy

Red Deer antlers can grow as long as 90cm and have 14 points individually. Mature males usually have antlers with three tines, although the number of tines is influenced by animal condition.

## Habitat

Red Deer are adaptable to different habitat types, although they favour open woodland edges adjacent to undulating grassland areas, interspersed with numerous water courses.



They are mainly browsers feeding on woody trees and shrubs as well as grasses, sedges and forbs. Red deer are social beasts and live in herd that are dominated by a single female.



## Damage

Red Deer are a growing pest problem. They have been recorded causing damage to grazing land, forestry plantations, fences and farm infrastructure. They can alter native vegetation communities through selective browsing, and can present a serious hazard for motorists.

Red deer may carry and spread livestock diseases that can influence farm productivity and increase management costs.



## Control Options

Techniques used to control Red Deer may include ground and aerial shooting, exclusion fencing, and trapping/yarding. However the latter would not be considered where relocation of the animals would then be required.

# Fallow Deer Identification



**Fallow Deer (*Dama dama*) originated in Turkey and are listed as Vulnerable. They are considered to be a pretty deer species with their spotted coats, however they are still present serious threats to biodiversity and agriculture.**

## History

Fallow Deer were introduced to Australia from England in the 1830's. They are now found in all states except Northern Territory. Their strongest foot-holds are in Tasmania, South Australia and New South Wales.

## Identification

The Fallow is a very pretty deer of medium size. A mature buck will stand up-to about 95 cm at the shoulder and weigh up to about 90kg. The hinds will be half the size of a stag standing up-to 80cm and weighing in at about 40kgs.

There are four different colour variations: red, black, white and menil (meaning spotted). Their coat is predominantly fawn with some white spotting, or dark brown.

They exhibit a long tail which is raised when alarmed.

Scats are stubby pellets, sometimes with a point at one end.

The calls vary from high pitched bleating to deep grunts.

As with all other deer species in Australia, females lack antlers.

## Distinctive characteristics

Stags antlers are quite different from any other wild Australian deer and are palmate (like a moose).



Fallow have prominent black and white markings on the tail and buttocks, which are heart-shaped on the rump.

The tail flicks constantly while feeding.

The 'Adam's Apple' is strikingly prominent in the throat of adult stags.

## Biology

Fallow deer are gregarious. Their social behaviour is variable. In some areas they form herds of up to 30 animals that are dominated by a single female. In other places they may survive as individuals. Adult males are usually solitary but may join bachelor groups, usually of less than 6 animals.

Their lifespan is around 12–16 years.

Agile and fast in case of danger, fallow deer can run at a maximum speed of 48km/h over short distances. Being naturally less muscular than other cervids (deer), they are not as fast.

Fallow deer can also make jumps up to 1.75m high and up to 5m in length.

Bucks cast their antlers in October.



Fallow Deer breed from late March to May. During this season, dominant males establish 'rutting' stands within a defined territory centered about 100m apart, and attempt to defend a harem of adult females.

In rut, the buck makes an unmistakable croak, similar to a grunting pig which makes them an easy target for hunters.

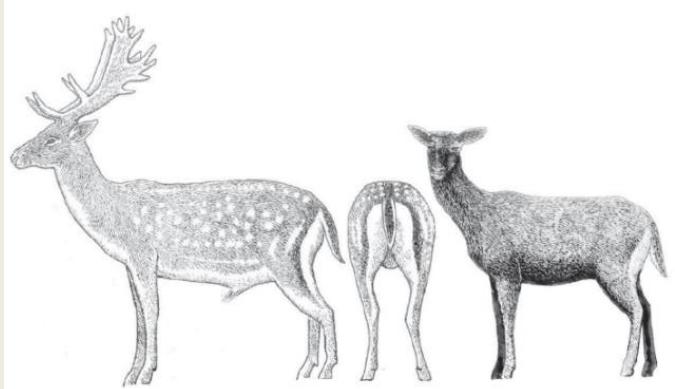
The gestation period is approximately 8 months and usually a single fawn is produced in December.

Fallow Deer home ranges vary depending on availability of food and other factors such as shelter, degree of disturbance, climate factors, and density of animals. Home ranges average 0.5-1 km<sup>2</sup>. Males have a different home range depending on whether they are in rut or in a bachelor group.

## Habitat

The Fallow Deer are a herd deer inhabiting semi-open scrubland and frequent and graze on pasture that is in close proximity to cover.

Fallow deer graze on a wide variety of grasses herbs and shrubs including in Australia, banksias and wattles.



## Damage

Feral fallow deer are a growing pest problem. They can cause significant damage to native vegetation and ecologically fragile areas, and can spread weeds.

They have been reported damaging farm fences and disturbing domestic sheep during lambing.

Fallow deer can form large herds and their total grazing pressure can be significant.

They may also carry and spread livestock diseases that can impact on farm productivity and management costs.



## Control Options

Techniques used to control feral fallow deer may include aerial and ground shooting, exclusion fencing, and trapping / yarding. However the latter would not be considered where relocation of the animals would be required.

In some circumstances, sprays and sonic repellents may be used to deter animals, but the effectiveness of such techniques is not entirely clear.

# Deer Scats



**Deer poops or scats can aid in identifying deer feeding habits, their favourite bedding and eating spots, and their proximity in the area. Fresh, warm and moist poop could indicate that deer are nearby. There are similarities among the scats of deer and other animals like goats and rabbits, but people can generally differentiate deer poop due to its small size.**

## Structure

Deer droppings may be deposited either singly or in clumps of a large number of pellets, which may scatter as they hit the ground. The pellets may cluster together to form a solid scat.

The deer's feeding habits greatly affect the structure. When the deer feed mostly on leaves and twigs, scats are round, separate and firm.

On the other hand, grasses, apples, clover, and other types of forbs result in lump droppings.

Steaming warm scats mean that it is fresh and the deer just left. As time passes, they lose colour, get drier, shrink, and crumble.

The size and form varies between deer species.

## Colour

The colour of deer scats changes depending on diet. Usually, scats are green, brown, or black. Green scats may indicate that the deer has been consuming large amounts of green vegetables. It may also indicate that their bile pigments weren't sufficiently broken down, causing diarrhoea. Brown and black scats are usually due to the dead red blood cells and bile.

## Size

The sex of the deer may be indicated by the size of their droppings. A deer's colon works in a rhythm of opening and closing the sphincter. This movement results in small, round-shaped pellets. 12 fecal pellet groups per day is normal.

## Count

The count of deer droppings in an area may determine the number of deer nearby. Defecation rate differs with diet. Sambar

## Location

Deer scat is usually found where they are feeding, but this is not always the case. If the scat is still a little wet and warm, then the deer is probably nearby. But you still have to check for a few more days to determine if they are frequently staying in the same area or if they just passed by once.

When examining any scat, it is advised to take extra precautionary measures, as they are toxic and there is a high risk of contacting harmful bacteria and diseases.



Deer (left) and Kangaroo / Wallaby scats



## Red Deer

Red Deer scats are round looking, but often more pointed at one end. Occur in large groups of around 100 with the groups often spread over a large area ( $50 \times 60$  m).



## Fallow Deer

Fallow Deer scats are round looking, but often more pointed at one end. Smaller than Red Deer droppings. Occur in large groups singularly (top image) or clumped together particularly when the diet consists of a lot of fresh grass (lower image).



## Sambar Deer

Sambar droppings (pellets) are black, pointed at one end, and average  $20 \times 10$  mm. Often are deposited in piles in vegetation cover.



### Image Sources:

- Michelle Hanslow, Nillumbik Shire Council
- Game Management Authority, Victoria
- Deer Identification Guide, NSW Local Land Services

# Signs and Damage



Due to their crepuscular nature, deer are not always directly sighted. Evidence of deer on your property may instead be indirect, and consist of tracks and trails, tree rubbings, wallows, or areas of furrowed soil at the base of trees.

## Tracks / Prints

Deer tracks are most easily confused with tracks left by Goat, Pig and Sheep. Each deer hoof has two toes or cleaves. Tracks left by front and rear hooves may differ in size as well as shape and in some cases it may be possible to differentiate the sex of the animal based on these attributes.



Deer prints are generally larger than those of sheep, pig and goat.

- Two elongated toes make up the hoof
- Slight gap between toes on both feet
- In soft soil, deer can leave an impression of dew claw behind print



## Trails

Trails are simply well-used tracks made by animals, when they follow the same route repeatedly.

Tracks made by deer are referred to as game trails and may be more prominent than those used only by kangaroos, due to their hard hooves, which tend to tear up the ground more easily.



The number of prints – or the inability to distinguish individual prints - can be indicative of how many deer are in an area. Severe trails can lead to erosion.

## Hair Signs

Coarse wiry deer hair is often caught on fences where deer push their way under or between wire strands.



*Sambar, Fallow and Kangaroo Hair / Fur*

Deer hair is coarse and wiry (top image) unlike kangaroo hair which is soft (bottom image).



## Tree Rubbing and Ringbarking

Rubbed and ringbarked trees are often an obvious indicator of deer presence – but make sure that you look for clear signs of scratches on the trunk as kangaroos are also known to rub against trees.

Stags rub their antlers against trunks which can lead to disease entering the tree, or even tree death.



## Scrapes and Preaching Trees

Scrapes are patches of bare soil typically between one and two metres squared in size. They are spaced at irregular intervals throughout the home range of a stag, and are invariably made at the base of a tree referred to as a “preaching tree”.



The use of a scrape involves a distinct succession of activity. First, raised on its hind legs, the adult stag rubs its preorbital glands and mud-coated antlers as high into the branches of the preaching tree as possible.

While balanced on its rear legs, the full weight of an adult stag leave deep imprints of widely splayed cleaves on the scrape.



Once the preaching tree is marked, the adult stag paws or scrapes an earth patch at the base of the tree with its front hooves, forming a series of furrows into which it subsequently urinates.

Sometimes the furrows form a distinctive “v-shape”.

## Wallows

Prior to wallowing stags usually urinate in the water before rolling in it, allowing their coat to be covered in urine-infused mud. At the same time they may rub their pre-orbital glands in the mud surrounding the wallow so that it too becomes infused with scent from secretions. Once coated, stags may rub their muddy coats on adjacent trees as a form of chemical signposting.



Where wallowing activity is heavily concentrated there may be changes to local water quality in terms of sediment loads and the level of contaminants such as fecal indicator bacteria (*E. coli*) may be higher than normal.



## Damage to Vegetation

These are images of gardens in Nillumbik that have been damaged by deer. There is clear evidence of breakage at a height not possible by other herbivores and also shows their ability to shred and break large sized branches.



*Pittosporum undulatum* are a regular food source for deer, and the signs of 'upwards pruning' of these trees is an indication that deer are around. In Nillumbik, we are probably happy for the deer to eat these, however, as deer are known to spread seeds, including weeds, hopefully they not acting as vectors of these invasive bushland plants.



Sambar Deer lack upper incisors and instead have a hard palate. This results in tearing of vegetation rather than neat cuts on stems.



## Vehicle Collisions

Accidents involving deer and both motorcycles and cars are becoming more common in Nillumbik, with a few hotspot locations emerging, where deer regularly cross the roads.

