

A FIELD GUIDE TO IDENTIFYING FERAL DEER



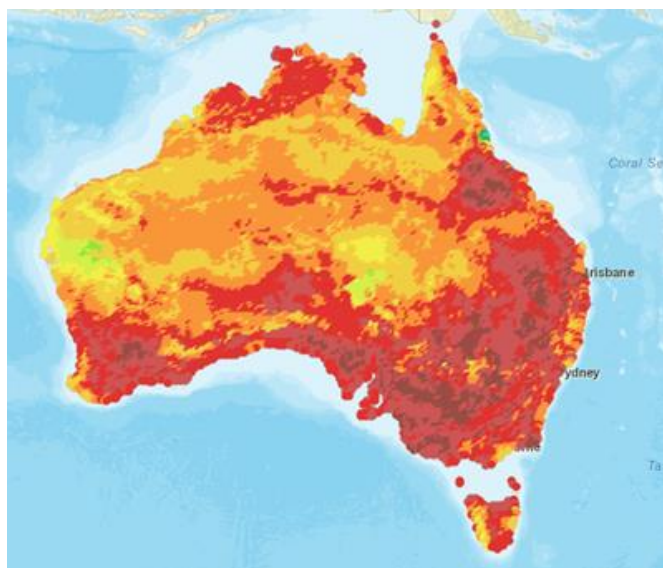
National
Feral Deer
Action Plan



CENTRE FOR
INVASIVE SPECIES SOLUTIONS

PURPOSE OF THE FIELD GUIDE

Our native wildlife, agriculture, and cultural heritage is at risk from introduced species. Deer were originally brought to Australia for hunting and farming in the 1800s but over time feral populations established. Today exploding populations pose a significant threat to Australia's environment, bushfire recovery, primary production, and communities.



Predicted spread of feral deer

Potential distribution of deer (six species) estimated using the Climatch algorithm.

Dark red shows the areas where the habitat and climate are most suitable for one or more species of deer. Green shows areas less suitable for deer.

Monitoring the spread of deer is an essential aspect management. To aid in this area, a community of citizen scientists is forming to provide eyes and ears across the country. Reporting of deer sightings and evidence of damage is key to developing an understanding of population dynamics, where to best implement control measures, and to notify local councils of oncoming issues.

A community can achieve this goal where individuals cannot.

The purpose of this booklet is to guide individuals on identification of deer species (Part 1) and their signs in the environment (Part 2).

You can join the deer community working to protect the environment by reporting to DeerScan. Information on how to use this application is provided at the end of the Field Guide.

PART 1: IDENTIFYING THE DEER



Sambar deer



Red deer



Fallow deer



Rusa deer



Hog deer

There are six feral deer species in Australia:

- Sambar deer
- Red deer
- Fallow deer
- Rusa deer
- Hog deer.

The different species can have varying impacts to the environment, different population densities and are associated with different control measures. Therefore, it is important that, where possible, the correct deer species is identified.

If the species cannot be identified, it is not an issue. A reported deer is better than a non-reported deer.

Fallow Deer (*Dama dama*)



	Male (Buck)	Female (Doe)
Height	Up to 95cm	Up to 80cm
Weight	60-100kg	40-50kg
Antlers	Multi-tined, upper half palmate or flattened. Cast in October, reformed by February. Up to 50cm.	
Description	Coat colour highly variable, from black, to reddish brown with white spots, to lighter brown (males) with white spots to white. Coat colour variants can be universally present in a single herd. Black and white markings on tail and buttocks prominent. While feeding tail is flicked continuously. 'Adam's Apple' strikingly prominent in throat of adult stags. In rut, the buck makes an unmistakable croak, similar to a grunting pig. The calls vary from high pitched bleating to deep grunts.	
Location in Australia	Occur in QLD, NSW, VIC, TAS and SA. The most widespread and established feral deer species in Australia.	
Preferred habitat	Open forest and woodland with grassy understorey. Woodland edge adjacent to grassland	
Social Habit	Outside breeding season (mid-April through to August) herds segregate into groups containing females and their offspring and groups containing bachelor males.	

Chital Deer (*Axis axis*)



	Male (Buck)	Female (Doe)
Height	Up to 95cm	Up to 80cm
Weight	60-100kg	40-50kg
Antlers	Flattened antlers up 50cm with numerous points	
Description	Reddish brown to chestnut brown coat with dark brown/black muzzle white spots. Heart shaped pale rump patch with black outline. Males have a striking white throat patch. Long tail. Have a distinctive high-pitch alarm call when disturbed.	
Location in Australia	Exist in Queensland near Charters Towers, with other smaller isolated population in NSW, South Australia and Victoria.	
Preferred Habitat	Chital deer graze on a variety of grasses, fruit and leaves	
Social Habits	They can form herds of more than 100. Females separate from the herd during birthing and rearing of their young	

Hog Deer (*Axis porcinus*)



Height	Male (Buck) Up to 70cm	Female (Doe) Up to 60cm
Weight	55kg	30kg
Antlers	Typically short, only 30-35 cm long. Usually three points on each side. Additional tines may be present in older animals. Do not cast their antlers in a regular fashion; however, around August to October is most common.	
Description	Smallest deer species in Australia. In summer the coat colour is a uniform yellowish brown to reddish-brown. Sometimes pale cream spots may be present. In winter, coat colour is dark brown. Newborn calves have white spots. Tail rather long in proportion to body, white underneath and at tip.	
Location in Australia	Hog deer only occur in Victoria and NSW.	
Preferred Habitat	Typically found along the coast in freshwater and saltwater marshlands, heathland, woodlands and forests, often adjacent to farmland. The nearby presence of thickets of dense understorey, used for shelter, is a feature common to locations where the species occurs.	
Social Habit	Typically solitary or in small groups. Larger congregations of animals may occur where food is locally abundant	

Rusa Deer (*Rusa timorensis*)



	Male (Buck)	Female (Doe)
Height	Up to 110cm	Up to 95cm
Weight	135kg	90kg
Antlers	Three lyre-like tines. Rear tine on forked pair is always longer than front tine. Round in section. Up to 96cm	
Description	Coat colour varies seasonally. Summer coat colour reddish-brown, darkening on hindquarters and lightening on chest with white throat spots. Winter coat is thicker and upper parts are greyer. Stags often develop thick mane. Newborn calves have a rich red coat colour.	
Location in Australia	Found in NSW, QLD and SA, only isolated populations are found in VIC.	
Preferred Habitat	Cleared grassy areas but also heathlands, woodlands, forests and rainforest	
Social Habit	Outside breeding season stags remain segregated from hinds and their offspring. Often seen in small groups	

Red Deer (*Cervus elaphus*)



Height	Male (Buck) Up to 120cm	Female (Doe) Up to 90cm
Weight	135-220kg	95kg
Antlers	Multi-tined, six to eight tines common, 10-12 less frequent. Round in section. Cast in October or November, reformed by February. Up to 90cm	
Description	Coat colour changes seasonally, being reddish in summer and greyish brown in winter. Regardless of time of year, a lighter yellow-coloured rump patch is prominent. Calves have white spots along flanks when first-born, which tend to fade within a few months. Tail is small and indistinct. Ears long and pointed	
Location in Australia	Occur in VIC, NSW and QLD.	
Preferred Habitat	Open forest and woodland with grassy understorey. Woodland edge adjacent to grassland. They may be seen in open areas but usually only when it's close to thick, timbered vegetation	
Social Habit	Outside breeding season (mainly April) stags remain segregated from hinds and their offspring, with hinds forming matriarchal herds. Males are often territorial during mating season and roar to attract receptive females	

Sambar Deer (Cervus unicolor)



	Male (Buck)	Female (Doe)
Height	Up to 160cm	Up to 115cm
Weight	300kg	230kg
Antlers	Lyre-like with three tines per antler – a single brow tine and a terminal forked set of tines. Round in section. The front tine of the forked pair may be an extension of the main antler beam and can sometimes be longer than the rear tine. This is different from the Rusa Deer where the rear tine of the fork is always the longest. Up to 70cm. Antlers can be cast at differing times, though typically late-spring through early summer.	
Description	Largest wild deer species in Australia. Coat colour is uniformly dark brown, though lighter coloured on the belly and the inner sides of each leg. Characteristic large rounded ears, about half the length of the head. When disturbed, individuals will raise bushy tail over back and rump-hair will flare.	
Location in Australia		
Preferred Habitat	Widespread and adaptable species. Though often associated with tall wet eucalypt forest, often occurs at the edges of farmlands, and is known to inhabit heathland, woodland, dry forest and rainforest.	
Social Habit	Solitary or in small groups. Outside breeding season stags remain segregated from hinds and their offspring. During 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.	

PART 2: IDENTIFYING SIGNS IN THE ENVIRONMENT

Deer can be difficult to spot, due to their aversive behaviours.

Fortunately, deer can leave obvious marks of their presence in the environment.



DEER SCAT



Deer produce rounded, oval or oblong scats that may be deposited singly or in clumps containing large numbers of pellets. Clumps of deer scat usually break down into separate pellets upon contact with the ground.

The size and form of scats may vary within and between different species of deer.

In a field situation, deer scats can be most easily confused with those produced by other introduced herbivores such as goats and sheep.

Compared to deer; goat scat is irregular in shape and has a distinct pointed end and sheep scat is cylindrical in shape and the end is dimpled or rounded.

Fallow Deer



Red Deer



Goat



Sheep



DEER PRINTS

Distinguishing features:

1. Two elongated toes make up the hoof
2. Slight gap between toes on both feet
3. In soft soil, can leave impression of dew claws behind print



Red deer male front and rear hooves in mud



Red deer male front hoof, walking gait



Red deer female front hoof, splayed



Multiple red deer tracks

Deer tracks are not easily distinguished from goat, sheep or pig but are generally larger

Deer



Goat



Sheep



Pig



RUB TREES / RINGBARKING



Behaviour: Deer form rub trees by repeated agitation of the bark of trees or shrubs by antlers, an action known as ringbarking. During growth the antlers are covered in a sensitive skin coated with hair, known as velvet. As the antler approaches full development, blood flow to the velvet is restricted and it dries and flakes. During this time deer may rub off the velvet by thrashing the vegetation, resulting in a clean or polished set of antlers.

Impact to the environment: Removal of bark can cause tree death by interfering with the transport of nutrients from the soil.

What to look for: Deer rubs can be on a range of vegetation types, from annual weeds, to tussocks, shrubs, saplings and all the way through to large trees.

Less substantial vegetation will be 'thrashed' and will reflect this, being twisted and broken, and depending on type, with bark removed. Trees offer more resistance and may show gouges where antler points have scored the bark, often exposing the underlying sapwood. Trees may also show evidence of repeated visits over many years: old scarring, healing scars and more recent scarring. Rub trees may be covered in mud by stags following wallowing.

Rub trees will be found throughout a deer's home range, but will likely occur in areas that are the focus of their activities – on game trails, around wallows or rutting areas and around feeding areas

Very old rubs will be obvious – any exposed sapwood will be grey, and any damaged bark will have either healed completely or have turned dark brown. For more recent rubs, damaged bark may have started to turn brown and any shavings at the foot of the tree may likewise have started to brown off. A simple test that gives an indication of how fresh a rub is involves making your own mark next to the genuine article.

WALLOWING



Behaviour: Male deer create muddy pools or wallows by rolling around in a damp or wet patch of earth, in the process covering themselves in mud. Wallowing is to mark scent and attract females. Female deer will commonly visit a wallow.

Impact to environment: Wallowing causes excess water to become trapped which negatively impacts plant growth and seedling establishment. During wallowing behaviour deer can spread diseases into the water leading to increased spread of disease from deer to fresh flowing streams and rivers.

Frequent trampling on surrounding ground by visiting females causes increased damage.

What to look for: Wallows are usually found in the middle of dense cover or in the semi-open where ground cover is cleared for a radius about them. Typically, wallows are located in drainage lines or in swampy ground or seepage areas.

When a wallow is in use it will look like a muddy hole, often with water in it, and lots of tracks around it. Often, indents or scrapes made by legs and antlers will be present. Wallows vary in size but are typically a couple of metres across and perhaps 30 or 40 centimetres deep. Even when dry, not recently used, or grassed over, a wallow can be identified from its shape, old deer tracks and location in or next to a drainage line, on a damp bench or in a tree-stump hole.

BROWSING



Behaviour: Deer are medium to large herbivores that are required to consume extensive volumes of plant matter.

Impact to environment: Around 60 native plants are now significantly threatened by deer, and more than a dozen state or federally listed vegetation communities are being brought close to the brink.

Selective browsing of plants impacts ecosystem composition and can favour growth of invasive plants. For example, at Royal National Park ferns and sedges, representing unpreferred forage species, may spread vegetatively to occupy space vacated by declining palatable shrubs and herbs.

What to look for: Plant browse signs by deer include excessive hedging of plants, or obvious browse lines at a height not possible by other animals (around 1.5-2m high).

Deer only have teeth on the front bottom of their jaw, so they tend to crush branches rather than have clean cuts.

TRACKING

Behaviour: Tracking refers to the formation of tracks in forested areas because of constant movement of deer.

Impact to the environment: The process of tracking destroys ground covering plants leading to increased soil erosion. Treading of deer hooves breaks up the soil structure, encouraging the trapping of water and formation of soft mud. This is known as soil pugging. Plants are unable to grow in soil that has been subject to pugging, causing negative impact to plant survival.

What to look for: Tracks that have formed in an otherwise vegetation covered landscape. Look for deer prints as described in the previous page.



SCRAPES AND PREACHING TREES

Behaviour: Scrapes and preaching trees are used as a place for social communication between bucks and hinds leading into the rut.

Impact to the environment: Similar impacts to both ringbarking and tracking.

What to look for: Male deer mark a tree with their antlers and scrape the earth patch at the base of the tree with its front hooves. Typically, it is under an overhanging branch or beneath a tree with protruding limbs that are within reach of a stag when he stands up on his hind legs.

The actual scrape can vary from just a shallow bowl in hard ground to a very pronounced hole in more easily worked soil. The area can vary in size.



RECORD YOUR DATA WITH DEER SCAN



DeerScan (a component of FeralScan), is a free community resource for recording sightings of feral deer, reporting the damage they cause, and documenting control actions you undertake – www.deerscan.org.au

How to get started

1. Register your details

Register your details in DeerScan or simply record information with a valid email address. You do not need to register but it will make it easier for you to view your own data, and enable the FeralScan team to contact you about deer information in your local area.

2. Map your observations

Record wherever you see deer, what species you have seen, what problems they have caused, and control activities such as ground shooting. To enter data, zoom to your current location and place a marker on the map, then insert the details of your observation in the form provided. Smart phone users can use the free FeralScan App to enter data while in the field.

3. Submit your record

Submit your record and view the details in the All Sightings or My Data tabs. View other observations in your local area entered by other community members. You can also upload your photos to the Photo Gallery, and they will display on the website.

Information you enter about feral deer and their impacts in your local area will help local biosecurity authorities to manage feral deer populations to reduce the damage they are causing. Feral deer are becoming a major pest throughout Australia – your help is important!!

Please note: All deer information you enter will be managed securely and discretely.

RECORD YOUR DATA WITH DEER SCAN

