

Conservation Management Notes

Wildlife on your property

Watching and surveying wildlife

This note is a practical guide to help landholders discover what native birds and other animals are on their property at different times of year. It provides an overview of non-invasive observation techniques and equipment.

The techniques described here rely on observation of animals, or their traces (such as footprints, droppings, digging sites or burrows). Although capture may sometimes be necessary for identification, it requires specialised knowledge, skills and equipment, and it risks injury and stress to both the animal and handler.

Observing the wildlife on any property provides a fascinating insight into animals' habits and preferred habitats. Observation records can also be valuable to scientific researchers and others working to understand and conserve natural heritage. Interested landholders can get to know their wildlife better than anyone — being well placed to record changes in patterns of wildlife activity over time and seasons, as well as occasional chance sightings that organised surveys may miss.



Swamp wallaby. Photo: M Turton

Essential equipment:

- notebook and pen
- self-sealing plastic bags for specimens such as droppings, feathers, hair
- binoculars.

Optional items include:

- camera
- sound recorder
- spotlight
- headtorch
- field guides.

Equipment

Binoculars are described by their magnification and objective lens diameter. For instance, 8 x 30 refers to a magnification of eight and an objective lens diameter of 30 millimetres. Small binoculars are very handy but smaller objective lens diameters mean that more light is required for an adequate image (something to consider for low light situations such as late evening or dense forest). Higher magnification is useful, but it can sometimes be difficult to keep the image steady.

Spotlights. Traditional portable spotlights are usually run from a small, sealed 12 volt battery, carried in a shoulder bag or backpack. Some have adaptors so they can be run from a car power source. Thirty to 50 watt bulbs are adequate, but 100 watt bulbs are unsuitable as they quickly drain batteries and can easily dazzle wildlife. Good quality torches can be just as effective. Modern LED technology can deliver high power with small batteries. A red filter should be fitted over the beam so it less likely to disorientate or frighten animals. Once eye shine is detected, the beam can be adjusted or dimmed so it does not directly shine on the animal.

Starting off

Opportunistic sighting of animals made while going about the day to day business on a property, can provide a wealth of information over time. However, to expand on this and detect more elusive fauna, there are other methods to try. Wildlife watching can be a solo or team effort and does not have to be vigorous and physical. Spotlighting from a slow-moving vehicle or the point count system are ideal low-energy methods. The walking census method may suit more active observers.

Surveys should be regular and consistent, so that meaningful comparisons over time can be made. A series of smaller surveys in different seasons are better than a big effort once a year. The same methods should be used each time. Point counts, should be made at the same place at the same time of day, and observations recorded for the same length of time. For a walking census, the same route should be followed for the same length of time, starting at the same time of day. The route should be located in good habitat to increase the chance of seeing wildlife. It is important to sample through the range of seasons in a year, and preferably to sample the variations in seasons over a number of years.



A log used by water rats as a feeding platform. Photo: M Turton

Making notes is vitally important — it is too easy to forget what was seen and where. Many observers keep a notebook especially for wildlife records. Devices such as smartphones can often record calls or spoken notes, written notes and images, or add the location to a map.

Photography is a valuable record keeping tool, allowing animals to be remotely 'captured' for later identification.

Wildlife watching involves many senses. Sight, hearing and smell can be used singly or in combination to identify which animals are present. Detective skills help uncover more cryptic clues, such as tracks, nests or scratch marks on trees. Different techniques are used for different animal groups, depending on their habits and patterns of movement.

Fauna finding tips

Most birds are active during the day (particularly morning and evening) and have distinctive calls, making them one of the easiest groups to observe — although it can take quite a while to learn the different calls. Carrying a bird book or keeping one in the vehicle, allows an unknown bird to be looked up quickly.

Most native mammals are elusive and nocturnal, so direct observation requires after-hours work. However, kangaroos, wallabies and echidnas are often seen during the day.

Frogs are most active at night after rain, though difficult to see. They are often identified by calls, but can also be seen while spotlighting.

Reptiles can be observed in the heat of the day, often basking in the sun on logs and rocks. Goannas are often seen during hot weather running up a nearby tree when disturbed.

Rain after a dry spell will often bring wildlife out of hiding, so this is a good time to look.

Insects are about in greater number and variety in the warmer months, and are often associated with the flowering of plants. Increased insect numbers also increase the chance of seeing the insectivorous birds and mammals which feed on them.

Microbats, with their rapid darting flight, are easy to spot against the sky at dusk or around an outside light. An area with a reasonable amount of natural habitat may support many species, but, without capture or specialised equipment to analyse their calls, most are impossible to identify. However, one microbat species that is commonly heard is the white-striped freetail bat. Microbats occasionally enter houses and sheds (if so they should be left and allowed to find their own way out at night).

Reptiles and invertebrates (such as insects, spiders and snails) can be found by carefully turning over rocks, fallen timber or litter on the ground. Timber and rocks should always be replaced as they were.

Small conical holes in the ground are made by bandicoots. Echidnas dig large, irregular holes when searching for ants (often below large trees).

Scats (faecal pellets of carnivores) can reveal the identity of the animal and its prey. Droppings of herbivores are generally characteristic for a particular species. Possum and koala pellets smell strongly of eucalyptus leaves when broken, and can be differentiated by size, shape and colour.

Nests can often be seen in trees and shrubs, and 'whitewash' is often seen under branches where birds roost at night.

Small bundles of fur and bones around the base of large trees signal that owls are roosting above.

Scratches or feeding scars on trees indicate the presence of possums, gliders or koalas.

Tiny footprints of marsupial mice are often seen under rock overhangs.

Just sitting quietly in the bush, perhaps by a creek or waterhole, will reveal many things not previously noticed. After a while, birds and possibly other animals will resume their activities.



Cuts in a bloodwood left by a yellow-bellied glider feeding on sap. Photo: V Bear

Animal tracks

As an animal moves over a soft surface, it leaves footprints. These can be used to determine what animals passed by and, occasionally, something about their behaviour. Tracks are particularly useful for surveying reptiles and small, nocturnal or otherwise secretive and inconspicuous mammals, or to monitor fox and cat activity.

Reading tracks in the wild is not always easy, the soil has to be just right to hold an imprint. It is also useful to have a series of prints, as the stride length helps to give an idea of the size of the animal. Footprints can often be observed in naturally occurring areas of sand such as creekbanks.



Tracks below a rock overhang, including wallaby, fox, bird, probably a bush rat, and invertebrates. Photo: V Bear

Sand pads

A sand pad is a special surface prepared to receive tracks. They can be laid in areas likely to be used by fauna, or animals may be enticed onto them by placing a bait or lure at the centre of each plot.

Tracks are most identifiable in clean, firm and slightly damp sand. Where this occurs naturally at a survey site, pads can be made by clearing and raking smooth a square plot at the desired locations.

In other cases sand will have to be imported. Yellow brick-layers' sand is best, but it is very important that it is clean and certified free of weeds and known plant pathogens.

Sand can be laid down directly on top of existing soil and leaf litter. A watering can be used to create a firm, damp consistency. The surface should be smoothed with a flat rod, a stake or the back of a rake.

A single sand pad may get some footprints, but a number of pads will provide more coverage. For a more comprehensive survey, the distance between sand pads will depend on the species targeted and the size of the area being surveyed. For small lizards and small mammals (e.g. phascogales, dunnarts or rodents), sand plots can be as close as 50 metres. For medium-sized mammals (e.g. quolls, bandicoots, bettongs), and as a general purpose survey, 200 metres is a better distance.

Identifying tracks

Two field guides are listed in the reference section. Droppings or other signs found near the tracks may help. Tracks are most identifiable in the early morning before the sand has dried and the wind has blurred them, and are more easily seen when the sun is still low in the sky. This is also a good time for photography as slanting shadows show up the outlines clearly.

Tracks can usually be identified down to family or genus level, but often it is difficult to distinguish tracks of closely related species unless there is a marked difference in size and shape. There may also be differences in size of tracks between sexes and different age groups within a species. Macropod (kangaroo and wallaby) footprints are readily identified.

Simple systematic survey techniques

Walking and point counts — suitable for birds, large mammals, frogs, reptiles

Walking counts are a census of all species seen and/or heard when following a particular route for a set period of time. This is usually repeated at the same time of day for three or four days in a row, several times a year. Monthly surveys are excellent if time is available, but four times a year (seasonal) is more than adequate. Even once a year will show trends. The path should traverse all of the different native vegetation types on the property. Sightings should be recorded, diggings and tracks should be drawn or photographed (with a small item such as a coin for size reference).

Point counts record species from fixed points for a set radius (for example 50 metres), and for a set time period (for example 20 minutes). These are also repeated at the same time of day for a few days in a row, several times a year. Point counts are good for denser habitat areas such as rainforest, where birds and other animals are often difficult to see. Many observers take a folding chair and sit quietly or have a cup of tea for a few minutes before starting to record observations. This gives the animals time to get used to a human presence. The inquisitive species will often approach quite closely.

Another useful method is to regularly check watering points and sandy (dry) creek beds for animal tracks. This will build up an inventory of the different species using that point and will show seasonal changes. It is also a good way to learn the tracks of different species as the imprints are nice and clear. After becoming familiar with the tracks of the local species, more information will be gleaned about their movements on other parts of the property.

Sound recordings of bird and frog choruses can be made during point or walking counts.

Spotlighting — suitable for nocturnal birds, mammals, reptiles and frogs

Spotlighting at night from a vehicle or on foot can be used to see kangaroos, possums, gliders, frogs snakes, lizards and night birds such as owls.

Eyeshine will indicate an animal's presence. It is actually the reflection of the light from the animal's retina, and can be easily picked up with practice. The observer holds the spotlight level with their eyes, and looks along the beam. The beam is moved slowly over the ground, trees and bushes. Binoculars can be used to identify animal once its eyeshine is detected.

It is also important to occasionally turn off the lights and motor, and to listen to the night sounds, such as those of frogs, boobook owls or the eerie cry of an owlet nightjar.

Identification

Identifying fauna from sightings or traces can be a daunting task for the beginner, but gets easier with practice and perseverance. Wildlife identification guides, books, and sound recordings of bird and frog calls are available from libraries, good book stores or online. Some of the more well known guides are listed below.

Dead specimens can be sent or taken to the Australian Museum for identification. Tertiary institutions, local naturalists and NPWS officers may also be able to assist.

Any surveys which include trapping require a licence from OEH, and must be conducted under the supervision of someone who is trained in handling wildlife.

Useful references

Related Conservation Management Notes

- The NSW Atlas of Wildlife
- Assessing Wildlife Habitat

General

National Parks Association of NSW Inc 2001, *Community biodiversity survey manual*, NPA NSW Inc and NSW NPWS

Sanders A 1999, *How to conduct a community fauna survey*, Department of Conservation and Land Management, Como, Western Australia

Birds

Simpson K & Day N 2010, *Field guide to the birds of Australia (8th edition)*, Penguin Group.

Slater P, P & R 2009, *The Slater field guide to Australian birds (2nd edition)*, New Holland

Pizzey G, Knight F & Pizzey S, (ed) 2012, *The field guide to the birds of Australia (9th edition)*, Harper Collins Publishers, Pymble

Stewart D 2002, *Australian bird calls: subtropical east*, Nature Sound, Mullumbimby (CD)

Mammals

Menkhorst P & Knight F 2001, *A field guide to the mammals of Australia*, Oxford University Press, Melbourne

Strahan R & van Dyck S (ed.) 2008, *The mammals of Australia*, New Holland Publishers

Churchill S 2009, *Australian Bats*, Allen and Unwin

Arthropods

The CSIRO Field Guide Series, including volumes on butterflies, moths, dragonflies, stick and leaf insects, beetles and katydids.

Zborowski P & Storey R 2010, *A Field Guide to the Insects of Australia*, CSIRO publishing.

Gooderham J and Tsyrlin E 2002, *The waterbug book*, CSIRO Publishing

Harvey MS & Yen AL 1989, *Worms to Wasps*, Oxford University Press, Melbourne

Reptiles and Amphibians

Anstis M 2002, *Tadpoles of South-eastern Australia*, New Holland Publishers

Barker J, Grigg G & Tyler MJ 1995, *A field guide to Australian frogs*, Surrey Beatty and Sons, Chipping Norton

Cogger HG (ed.) 1996, *Reptiles and amphibians of Australia*, 6th Edition. Reed Books, Sydney

Robinson, M 1993, *A field guide to frogs of Australia from Port Augusta to Frazer Island including Tasmania*, Reed Books, Sydney

Stewart D 2003, *Australian frog calls* Nature Sound, Mullumbimby (CD)

Tracks and other signs

Morrison RGB 1981, *A field guide to the tracks and traces of Australian animals*. Rigby, Adelaide

Triggs B 2004, *Tracks, scats and other Traces – a field guide to Australian mammals*, Oxford University Press, Melbourne

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