

THE AUSTRALIAN BIRD AND BAT BANDING SCHEME

Introduction

The next time you see a bird, ask yourself these questions:

- How many of that type of bird are there?
- Where does it live?
- Does it mate for life?
- How old is it and how long might it live?
- How many eggs will it lay during its life?
- Does it fly far away from here?
- Where will it go?
- Where does it feed?

The answers to these questions are important to conserving our native birds, and the places where they live. Researchers who look for those answers often need to be able to recognise individual birds or groups of birds. One way is to attach bands or tags to the birds. Researchers who use bands to study birds are called "banders".

The Australian Bird and Bat Banding Scheme (ABBBS) helps this research by supplying numbered metal bands to banders. These bands are usually fitted around the bird's lower leg (or tarsus). Each band is stamped with a different number and the ABBBS address. Since the banding scheme was started, nearly 3.5 million birds and bats have been banded and over 550,000 of these have been recaptured.

The role of the ABBBS is to

- help with training banders to use bands properly
- advise on how best to collect and use banding information
- store information about birds that have been banded
- let banders know where and when their bands are found
- arrange the design and manufacture of bands
- supply bands and other equipment to banders.

Banders

Banders are carefully trained how to catch, handle and band birds without injuring them. Training normally takes two years and a great deal of practice. There are about 600 banders around Australia and another 200 in training. They include university students and teachers, wildlife scientists, wildlife managers, and a great many people who study birds as a hobby.

Banding and recoveries

Like all research, a banding project starts with a question the bander wants to answer. The ABBBS can help banders decide how to collect the right information to answer their question.

Bands are sent to the banders and their work begins. Banders send the ABBBS information about where, when and what types of birds their bands were put on. The ABBBS records that information on computer. If one of those birds is caught again, the ABBBS can calculate the minimum distance it has travelled (of course, the bird may have travelled much further before being recaptured). The ABBBS then sends a letter to both the bander and the finder, telling them of the bird's history.

Most parts of Australia are sparsely populated, so in most cases banders recapture birds which they themselves have banded. But sometimes banders catch a bird with someone else's band on it, and occasionally members of the public discover bands on injured or dead birds. When these recoveries are reported to the ABBBS, the information is passed on to the bander who banded the bird.

Band design

Good band design means making sure that bands don't injure birds or change the way they live, even after many years.

A band must be the right size and shape and must be tough enough to outlast its wearer without causing injury. A band for a Willy Wagtail needs to last only about 15 years while a band on a Wandering Albatross might have to survive more than 60 years of constant dunking in seawater!

Band size is very important - too large and the band might slip down over the foot of the bird, but too small and it could cut into the bird's leg.

Band shape is also important for some species. Pelicans have legs that are egg-shaped and pelican bands must be shaped that way too so that they don't rub and cause injuries. Some kingfishers have very short legs, so narrower bands are needed for them. Penguins' legs are so short that leg bands can't safely be used at all. Instead, flat metal tags are put around their flippers.

In time, even metal bands can wear out. How quickly depends on the habits of the bird, where it lives and what the band is made of. Some of the earliest bands used on seabirds were made of copper but they corroded too quickly and had to be replaced.

The metals now used in ABBBS bands are long-lasting and hard-wearing. Small sized bands are mostly made from pure aluminium or an aluminium alloy. Larger bands are usually made from stainless steel.

What we have learned from banding studies

Banding has revealed some startling facts about Australia's birds. For example, most small bush birds (robins, wrens etc.) never move far from where they were born, yet Silvereyes fly anything up to 3,000 km north from Tasmania and Victoria to escape the winter cold. In Europe, small perching birds seldom live more than 5-7 years, but similar Australian birds such as the White-browed Scrubwren can live up to 15 years. Although "oldest" and "longest movement" records are fascinating, averages are much more important to people who are studying birds.

Little penguins

More than 23,000 Little Penguins have been banded at Phillip Island in Victoria since 1965. While there is still a lot to learn about Little Penguins, recoveries of tagged birds has given us the following picture.

- When newly-fledged Little Penguins leave home, they mostly move south and west around Australia's coast line.
- For the first year, it seems that these young penguins spend their time at sea, feeding and growing fat.
- Only in their second year do they start to come home to the breeding colony.
- About half begin breeding right away; the others start in their third year.
- The oldest Little Penguin known to the ABBBS was 21 years old when it died. On average, Little Penguins only live for about 5 years.

Fairy-wrens: a behavioural study

The Superb Fairy-wren *Malurus cyaneus* is the common "blue wren" of eastern Australia. A colour banding study carried out by the Australian National University in Canberra has shown that the Superb Fairy-wren has a rather complicated home life.

- Each breeding female has a territory which it defends with the help of her partner and up to three of her sons.
- All of these males help to feed the nestlings but only the female builds or repairs the nest.
- The female's young are usually fathered by a male from an adjacent territory.
- While young males are allowed to stay with their mother after they have fledged, young females must leave home in search of a territory of their own.

International movements: Birds that live and feed on mudflats and ocean shores are known as waders or shorebirds. Many, such as curlews, knots and sandpipers, spend their whole lives avoiding winter. They breed in places such as Siberia, Manchuria, and Northern China during the northern summer (May-July). As winter draws near, they make the long journey south to Australia and New Zealand, via Japan and Korea, returning north to their breeding grounds only when winter is over. About 2 million waders make a 20,000 km round trip to Australia - every year!

Recoveries of bands and sightings of shorebirds marked with coloured leg flags have begun to show the routes migrating waders follow and which feeding grounds they use on the way. Protection of these areas is important to conserving migratory waders. Australia is a party to several international treaties aimed at protecting waders and/or their habitat. These include the Japan-Australia Migratory Birds Agreement, the China-Australia Migratory Birds Agreement, the Bonn Convention on Migratory Species and the Ramsar Convention on Wetlands.

From band recoveries and sightings of leg flags we now know that Curlew Sandpipers and other migratory birds use this East Asia Flyway on their migration. They must feed often on the way and protection of their feeding grounds (mudflats etc) is essential to their conservation.

Other marking techniques

Sometimes banders can collect information without re-catching birds to read their band numbers. There are several ways to do this.

Colour bands: Several coloured plastic bands can be put on the legs of birds. The combination of colours can be seen at a distance to identify individual birds.

Leg flags: These are plastic leg bands with a coloured flap which is much easier to see than a colour band by itself. Leg flags are commonly used on migratory shorebirds to show the area where they were banded rather than to identify individuals.

Colour dye: Dying plumage is used only for short-term studies because dye lasts only until the birds moult their feathers (one year at most).

Readable bands: Metal or plastic bands with large numbers have been very successfully used on several types of birds such as Silver Gulls, and Peregrine Falcons. Banders often have to use binoculars to read the bands.

Wing tags: These are patches of coloured fabric and usually have a number on them. They are attached to the wing and have been used successfully on egrets, kookaburras and cockatoos.

Technological Solutions

Radio tracking: Many researchers have attached small (1-2 gram) radio transmitters to birds to track them as they go about their lives. The tiny batteries used last only a few weeks.

Satellite tracking: More powerful (and heavier) transmitters can be tracked by satellites and have been used on larger birds like Albatrosses. As transmitters and batteries become smaller, it may become possible to track smaller birds by satellite.

Passive Induction Transmitters (PITs) are small devices that can be injected under the skin. Special scanners can read the PIT's number when it is close by. PITs are commonly used to identify pets and livestock and have been used in the Antarctic to study penguins.

Smart Tags can collect and store information such as temperature, air pressure, direction, and light intensity. When the tag is recovered, its information can be unloaded and analysed. Smart tags are already being used to study tuna and will soon be in use on albatrosses.

Banding in other countries

Many other countries also have banding schemes and their bands are occasionally found on birds in Australia. The ABBBS sends information about these recoveries to the foreign banding scheme which in turn passes the information on to the person who banded the bird. Likewise, overseas schemes send the ABBBS information about Australian bands they have recovered. Among these countries are

- Brazil
- Japan
- China
- New Zealand
- France
- Russia
- Germany
- South Africa
- Republic of Korea
- USA
- Great Britain

Bats

There are about 70 bat species in Australia, ranging in size from the large flying foxes to small forest bats weighing only 2 or 3 grams. Banding can also be a valuable research tool for use with bats. They are banded on their forearms instead of on their legs and nearly 117,000 have been banded in Australia. Many of these were tree-dwelling forest bats and banding research has shown they move only a few kilometres. Other studies have shown that cave-dwelling Bent-wing Bats often move hundreds of kilometres.

More about birds and bats

If you would like to learn more about Australia's bird and bat fauna, consider joining your nearest ornithological group or field naturalists club.

Domestic bands

Other people also use bird bands. Racing pigeons usually have a band and many zoos and privately owned aviaries also band their birds. These are not ABBBS bands and will not carry the ABBBS address. If you find one, you should try to return the band (and the bird if possible!) to the right owner. Try your local pigeon fanciers club, State Conservation Agency, zoo, or vet.

If you find a band

If you find a bird with a band, wing tag, or some other marking, the ABBBS would like to hear about it. Either write to the ABBBS or telephone 02 6274 2407 with the following information.

- the band number
- where you found the band
- when you found the band (date)
- what you think happened to the bird
- where the bird is now
- where the band is now
- notes about any other marks on the bird.

If the bird is dead, we would like you, if possible, to

- take the band off,
- gently straighten it as much as you can,
- stick it to some cardboard
- write the band number onto the cardboard
- write whether you have telephoned the ABBBS about this band
- send the band to the ABBBS

The ABBBS will be very glad to hear from you and will send you a letter telling you about where and when the bird was banded.

Contacts

The Australian Bird and Bat Banding Scheme
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 Phone 02 6274 2407 Fax 02 6274 2455
 Email: abbbs@environment.gov.au
 Website:
<http://www.environment.gov.au/biodiversity/science/abbbs>

You can also report sightings of leg flagged shorebirds at:
<http://www.awsg.org.au/reportform.php>



Australian Government
 Department of Sustainability, Environment,
 Water, Population and Communities