BIRD BANDING SCHEME

The Australian Bird Banding Scheme began in 1953 and is organized by the Division of Wildlife Research, C.S.I.R.O. The scheme has contributed to investigations into the movements and habits of birds, the factors affecting such movements and habits, and their relation to ecology and conservation. Application of information compiled aids the conservation of native species, the management of game birds and programmes for the control of declared pest species. The project has revealed bird migratory patterns, diseases, life spans, territorial behaviour, etc. and it has called for inquiry into factors determining these developments.

Birds may be banded in variety of ways, the usual manner being a light metallic strip placed around the leg, which causes no inconvenience to the carrier. The bands can be made from aluminium, stainless steel, monel (a less abrasive metal) or from synthetic substances and are in the form of split rings which may be opened or closed accordingly. The information recorded on a band is a serial number and the words "WRITE C.S.I.R.O., CANBERRA". This serial number relates to a triplicated form titled "Bird Species Schedule". A log book record is kept of all serial numbers, the bird's age, species, sex, date and place of banding and the bander. The serial number is unique, in that once it has been issued it can never be issued again. Up to ten billion individuals can be recorded with this system and by introducing letters into the serial code, a much greater number of birds may be allocated a code. The band sizes may vary, depending on size and species of birds.

Often special bands are made for specific species, this alleviates complications and aids those people carrying out research. When colour bands are used, they are in a code of three different coloured rings, each bird carrying a different colour code. This type of banding is most helpful in that it allows an observer to visually check in the field, and follow the territorial or habitat behavioural patterns.

Birds that are banded privately carry a closed ring band which is usually applied when the bird is young. This band cannot be opened and carries information of no research value to the C.S.I.R.O. programme.

Birds are trapped or banded as nestlings by research workers and when they are recovered from the wild, information from their bands is submitted to C.S.I.R.O. and collated to eventually form valuable data patterns.

For the programme to be totally efficient, global co-operation from all peoples is important. The use of digits on bands has enabled international usage of codes and data and at the same time enables the various peoples throughout the world to spot and understand them.

Some information recovered has enabled ornithologists to determine species that have strayed and whether those species have been able to exist in hostile or foreign environments.

In recovering birds that are seen carrying bands, the requirement of the Australian Bird Banding Scheme is that they aren't harmed. Consequently most bands are recovered from birds that have died although research workers using special equipment are able to retrap live birds on occasions. Bands should be returned so that C.S.I.R.O. can carry out research to eventually achieve a successful programme. In Western Australia, for those who have information to return, please ring 299 6477 or contact C.S.I.R.O., Division of Wildlife Research, Fyfe Street, Helena Valley, 6056.

● Three examples of recorded movements of species involving Australia are as follows.

Species	Date and Place Banded		Date and Place Recovered	
Sharp-tailed Sandpiper	5/1/61	Perth, W.A.	28/5/61	Batagaj, Siberia
Straw-necked Ibis	20/10/61	Muchea, W.A.	10/11/62	Orange, N.S.W.
Grey Teal	22/7/58	Swansea, Tas.	29/7/62	Lake Austin, W.A.

● The longest elapsed times between banding and recovery up to November 1973 for some species.

Species	Date Banded	Date Recovered	Elapsed Time
Crested Tern	26/11/55	18/8/73	17 years, 8 months, 23 days
Grey Teal	24/9/57	19/2/73	15 years, 4 months, 24 days
Fuscous Honeyeater	26/1/59	29/4/72	13 years, 3 months, 3 days
Rufous Whistler	9/1/60	14/11/71	11 years, 10 months, 5 days
Striated Thornbill	24/3/62	17/11/73	11 years, 7 months, 24 days
Eastern Silvereye	1/6/60	19/9/69	9 years, 3 months, 19 days

● Some recoveries in Australia of birds banded overseas.

Species	Date and Place Banded		Date and Place Recovered	
Common Tern	9/7/55	Marum, Sweden	7/1/56	Fremantle, W.A.
Arctic Tern	5/7/55	Murmansk, Russia	16/5/56	Fremantle, W.A.
Cape Petrel	23/2/66	Adelie Land, Antarctica	12/9/68	Cape Byron, N.S.W.
Gannet	7/1/56	Horuhoru, N. Zealand	12/11/56	Rottnest I., W.A.

● The Department's Wildlife Officer at Busselton, Bernard Masters has provided the following statistics on species and bands recovered in that district.

Bird Species	Banded Date	Place	Recovered Date	Place	Distance Travelled
Southern Giant Petrel	23/3/73	Signy Is. in South Orkney Group	10/7/73	Wonnerup	8 450 km; 84 km/day
*Black Duck (male)	13/2/72	Woodanilling	17/8/73	Ferguson	145 km
Southern Giant Petrel	10/3/74	Signy Is. in South Orkney Group	5/8/74	Busselton	8 450 km in less than 150 days
*Grey Teal (male)	7/12/67	Moora	18/12/71	Ludlow	330 km
*Black Duck (female)	29/4/71	Woodanilling	12/2/72	Blackwood River	220 km
*Black Duck (female)	13/1/70	Woodanilling	19/12/71	Boyanup	150 km
*Grey Teal (male)	17/12/73	Moora	22/11/76	Tarlabin	300 km
*Black Duck (female)	2/3/74	South Perth Zoo	16/1/76	Witchcliffe	225 km
Southern Giant Petrel	14/3/75	Signy Is. in South Orkney Group	?/7/75	Wonnerup	8 450 km in less than 120 days
Silver Gull	6/11/77	Carnac Island	Less than 3 weeks later	Busselton	172 km
Western Silvereye	23/4/77	Manjimup	8/4/78	Karridale	99 km

* These birds were banded by The Department of Fisheries and Wildlife under a departmental Scheme unrelated to C.S.I.R.O. Australian Bird Banding Scheme.

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In addition to these basic points, consideration should be given to the size of the *exit pupil*. Expressed in millimetres, the exit pupil is the diameter of the area of light reaching the eye. It can readily be seen as the bright disc emitted from the viewing eyepieces or ocular lenses. The diameter is calculated by dividing the magnification into the diameter of the objective lens (i.e., an 8 x 40 mm binocular has a 5 mm exit pupil). The wider the exit pupil, the brighter and clearer the image.

Additional features

There are several other features that should be looked for in binoculars. Most models, nowadays, have a transparent optical coating to reduce reflections of light from the glass surfaces. This not only reduces glare, but also increases the amount of light reaching the eye. To maximize the effect, all lens and prism surfaces should be coated. Lesser quality binoculars may have only an exterior surface coating, letting in a much smaller percentage of light. Older un-coated lenses and prisms can be coated only at expert repair facilities.

Convenience in handling is every bit as important as the optical features. The equipment should suit your own personal requirements for bulk, ease of focusing and weight, just as most people buy a car based not only on its mechanical points, but on how it rides and drives.

Next to optical qualities, more binoculars are chosen on the basis of size and weight than any other features. The key here is personal suitability. Some people like a medium sized binocular that fits their hands well, while for others, the smaller the better. Weight can range from little more than half a pound (0·23 kg) for compact, low-power models, to over 3 pounds (1·36 kg). Remember that for extensive viewing, heavier binoculars are more tiring to handle and can add unnecessary weight on long walking trips.

Unless you always view your subjects at great distances, pick a glass with a center-focusing wheel rather than one that has individual eyepiece focusing. However, even on the center-focusing models, the right eyepiece should be adjustable to fit the precise focus adjustment that your eyes require. Once set, note the position of the calibrations for future reference in the event that the eyepiece is moved. Most binoculars also have a hinge at the center post for adjustment to the distance between an individual's eyes.

The ability to "pick up" moving subjects requires a focusing mechanism that responds quickly to the movement of your finger. Rapid focusing models have an arm extending from the right eyepiece that responds instantly to your right thumb and focuses both lenses. However, the better quality binoculars with center focusing use a lubricant that allows maximum ease in focusing, so you need not look for one of the "insta-focus" type.

If you wear eyeglasses, look for models with either collapsible or retractible rubber eyecups to ensure maximum field of view.

Choosing your binocular

Having given thought to these points, you should be about ready to select the model you need. I would recommend using the following criteria as a guide for meeting the requirements of park personnel and wildlife officers.

Field Glasses or Binoculars?—Binoculars. Some popular models are 7 x 35, 7 x 50, 8 x 36, 8 x 40, 9 x 36.

Magnification—Within the 6-10 power range, but preferably 7, 8 or 9 power. Six power tends to be too small a magnification and 10 power binoculars are usually heavy and bulky, with a narrower field of view. Very steady hands are required to use magnifications over 8 power.

Field of View—Choose a model that allows the maximum field possible in combination with the magnification. It should be at least 380 feet at 1 000 yards.

Exit Pupil—The diameter should be 4 mm or greater.

Coated or Uncoated Lenses—Unquestionably coated.

Weight—Not more than 2½ pounds (1·14 kg.), 1 to 2 pounds (0·5-0·9 kg.) is ideal.

Brands—There are many high quality brand names on the market—Bausch and Lomb, Leitz, Zeiss, Bushnell, Canon, and Nikon, to mention just a few. Pick a reliable brand, one that is backed up by an acceptable warranty, and for which repair facilities are available to you.

Price Range—There is no set price that must be paid to obtain a good binocular, but generally you get what you pay for. Prices will of course vary, depending on geographic location, but I would suggest investing between U.S. $60-$200. You can pay over and over again at the repair shop for cheap models.

Handling and maintenance

If you want to ensure longevity for your binocular, it is important that it be treated with care. Common sense handling procedures suggest that you avoid bumping or dropping the instrument to prevent disalignment of the optics. When hiking in rough terrain, slip the binocular inside your shirt or jacket or hold tightly beneath your arm, with the strap securely over your neck.

If you live in an arid region where blowing dust and sand are a factor, keep the binocular inside the case until needed. In marine localities, where the equipment might be exposed to salt spray, a similar procedure might be followed, or you could use your outer apparel or a plastic bag as a shield. Should salt water fall on the binocular, wipe it off thoroughly as soon as possible to avoid corrosion.

Rain shields are available for many models to protect the exposed eyepieces when not in use on field trips. If you must use the glasses under such conditions, you can avoid getting water on the objective lenses by cupping your hands around the outer surface, like blinders. Avoid use in a downpour and be sure to dry the equipment once you are out of the rain.

If you have the misfortune to drop your binocular in fresh water, allow these procedures: (1) Remove the binocular from the water, but do not dry. Leaving the binocular wet will inhibit the growth of fungus that can damage the lens coating. Place in a plastic bag and, within 36 hours, take to the nearest depot that services binoculars. If this is not possible, dry off as much water as possible and expose the binocular to a stream of very dry air, as from an air conditioning unit. (2) If the binocular falls in salt water, rinse with fresh water as soon as possible and follow the same procedure as in (1) above. Some people prefer not to take binoculars along on boat or canoe trips. Sealed plastic bags can be used to store equipment safely in such circumstances.

Maintenance

Regardless of the price you pay for your equipment, your optics require regular attention. To clean:

1. Blow briskly on lenses and adjacent parts or use a soft brush to remove dirt or grit particles. Blower brushes are available. Grit is the worst enemy of lens surfaces.
2. Moisten the lenses by breathing to form a light mist, or use a recommended lens cleaning fluid.
3. Wipe clean in light circular movements, using lens tissue, lens cloth or a clean handkerchief.

Avoid leaving your binocular with the lenses exposed to direct sunlight when not in use and never, never try to take the instrument apart to remove dirt from interior lens or prism surfaces. You may well disturb the precision alignments of the optical units. If the interior surface needs cleaning, send the binocular to a reputable dealer or repair facility. Similarly, if the optics are out of alignment, forget about trying to make adjustments yourself. Misaligned optics can affect your vision, causing eyestrain and headaches.

Modern binoculars are sturdy but care and maintenance is required. Most of this is merely the exercise of common sense. With a minimum of time and effort and by treating your binocular with the respect that it deserves, you will be able to protect your investment for many years.

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