



Hunter Bird Observers Club Inc.

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DECEMBER MEETING.

The December Clubnight was held on Wednesday the 11th. The Main Features for the evening were a Quiz organised by Sue Hamonet, members divided into groups to identify bird calls, with the help of cryptic clues. Winners received Mars Bars! This was followed by the Christmas Raffle, with five prizes, \$40.50 was raised. A video clip was then shown of the Victoria's Riflebird and finally members' slides. Anne Brown presented an illustrated story of a Little Wattlebird that nested outside her bathroom window and raised young and Peter McLauchlan showed slides of a recent holiday he and Margaret had in North Queensland. The evening closed with supper, members providing a variety of food.

The following observations were recorded:-

Whiskered Tern)	
Yellow-rumped Thornbill)	
Brown Thornbill)	Shortland Wetland Centre.
Little Bittern)	
Baillon's Crake)	

Pale-headed Rosella with Eastern Rosellas at Cardiff (probable escapee).

2 Ospreys at Boolaroo.

Emu-Wrens at Bayview Shopping Centre, Morisset.

2 Glossy Black Cockatoos at Warnersvale.

White-winged Choughs nesting at Barnsley.

White-browed Woodswallow at Barnsley.

Spectacled Monarch at Rankin Park.

An abundance of Scarlet Honeyeaters from a number of locations in Newcastle.

It was explained that a more thorough system for observations was to be adopted, members were asked to fill out details on a sighting report. These were handed out at the meeting for the first time.

NEW MEMBERS.

We extend a very warm welcome to the following new members.

Paddy and Caryl Lightfoot	New Lambton Heights.
Scott, Tony and Cartlan Heaney	Belmont North.
Jo Fielder	Merewether.

LIBRARY REPORT.

Recent additions to the Club Library are as follows:-

1. The Hawkwatcher by D.A. Orton. This is an English publication dealing with Birds of Prey in the British Isles and the Continent. However, it includes details of birds which we are familiar with in Australia.
2. The Kookaburra's Song. A misleading title as in addition to the Kookaburra's Song, the book contains a series of short stories exploring animal behaviour in Australia. An engaging book that should appeal to all.
3. Bird of Life, Bird of Death by Jonathon Maslow. The adventures of the author searching for the Quetzal in the Central American highlands.
4. Parrots of the World by Joseph Forshaw and William Cooper. An important addition to our Library as it covers not only our Australian Parrots but also those found in other parts of the World. A well written text by Joseph Forshaw and superb illustrations by William Cooper.

Field Outing - 8th December 1991.

Despite the unseasonably cool, foggy weather, 6 members and 1 visitor gathered at McDonald's, Hexham at 6 am to participate on the monthly outing. We travelled to the Water Board property at Tomago sand beds where we were greeted by the Smiths, our official guides and pass in for the day. Upon entering the Water Board property, an abundance of wildlife, kangaroos, wallabys etc., and many eucalypts and other trees in flower, suggested to me that this should be an excellent spot for birding.

After parking our cars we moved out to search for birds. Things were unusually quiet considering the conditions, however we did manage to find some. These included Rufous Night-herons, Variegated Wrens, Brown-headed and Scarlet Honeyeaters, Yellow-rumped Thornbills (nesting) and Mistletoebirds seemed to be everywhere. White-breasted Sea-Eagles were observed flying overhead several times, however a perched raptor some distance ahead kept everyone guessing. As we approached, it flew almost directly overhead at low altitude. A magnificent Wedge-tailed Eagle in all its splendour. We settled down for morning tea and to compile a list, not a great deal of birds so far, however the mossies were more than friendly. As Jeanette finished off her breakfast, Alan and I wandered down to watch a pair of nesting crested pigeons.

We moved on to other parts of the Water Board reserve, more wildlife including skinks and monitors were seen and birds, including Sacred Kingfishers, Spine-tailed Swifts and two more Wedge-tailed Eagles soaring overhead, one with what appeared to be nesting material in its talons.

Unfortunately, I had to leave just before lunch and missed observing a Pheasant Coucal, which was one of the more exciting sightings of the morning. Lunch was enjoyed at Finnan Park, Grahamstown Dam where about ten waterbird species were added to the count, the most notable being Great Crested Grebe and Musk Ducks. The total count - 73.

Doug Biddle.

BARREN GROUNDS BIRD OBSERVATORY

Program of Special Courses

AUTUMN - WINTER 1992



ADDRESS The Wardens
Barren Grounds Bird Observatory
PO Box 3
JAMBEROO NSW 2533
PHONE 042 360195

Birds of the Bush

Leader Alan Leishman & the Wardens

Dates Mar 6 - 8

A weekend of field work for the wildlife enthusiast - don't miss this opportunity to assist with censusing and netting the rare ground parrot and to participate in on-going Observatory Research. For further information please phone WEA 02 264 2781

Ground Parrot Census

Date Sat Mar 7

We need lots of people to assist with the census. If you are interested, please phone the wardens for further details or arrive at 9 am.

Lyrebirds

Leader Iain Paterson

Cost \$140

Dates June 26 - 28

RAOU \$130

Would you like to know more about one of the truly great wonders of Australian birdlife? Hides will be used to observe lyrebirds displaying and you will have the opportunity to experience their remarkable mimicry first hand. This will also be a golden opportunity for sound recording and photography.

Changing dinosaurs into birds

by Jim Macdonald

It's hard to imagine two groups of animals as different as prehistoric dinosaurs and modern birds, yet fossil records show direct connections between them.

Dinosaurs first appeared about 230 million years ago during the Triassic period. They were the dominant land animals for many millions of years until disappearing completely, for some unknown reason, about 60 million years ago.

Dinosaurs differ from other reptiles by having very long necks, long vertebrated tails and two or four legs placed close together, not wide apart like crocodiles. The name dinosaur, meaning 'fearsome lizard', properly suggests creatures of gigantic size, as demonstrated by reconstructions in many museums. However, fossil finds show they occurred in a great variety of shapes and sizes. In one group, the ornithomorphs, or 'bird-footed dinosaurs', some were less than a metre in length. Ornithomorph footprints preserved in ancient mud flats, as at Lark Quarry near Winton in Queensland, show that these particular dinosaurs walked and hopped like birds.

We do not know from which particular species or group the ancestral bird evolved nor when certain dinosaurs began changing into birds, but we do know that it was sometime early in the dinosaur period, rather than at its end. This is based on the evidence of a fossil found in Bavaria in Germany, *Archaeopteryx*, a very advanced bird form that was preserved in 170 million year old limestone, about 110 million years before dinosaurs became extinct.

Why a certain dinosaur source diverged to become birds can only be conjectured, but it seems probable that the process began in circumstances where survival depended on transition from a cold-blooded to a warm-blooded (being able to maintain an internal body temperature despite changes in the external environment) state.

Warm-blooded

Dinosaurs, like all reptiles, were cold-blooded. They required the heat of the sun to combust the food material and oxygen in their cell tissues, a chemical change known as metabolism. The metabolic rate, or rate of combustion - like engine speed - determines the amount of energy available. Cold-blooded animals need the external temperature to be warm for their survival. If the external temperature drops below the point which the bodies of these animals need for metabolism, in other words if the external temperature is constantly cold, then they will die.

Now let's imagine the following scenario. Imagine a situation where certain dinosaurs lived in an isolated region from which there was no escape when the climate became too cold, perhaps in the ancient Gondwanaland of which Australia was a part. During the onset of one of the many ice ages, lasting over thousands of millions of years, the gradual lowering of temperatures, eventually below the survival level of these cold-blooded dinosaurs, could have resulted in their extinction unless they developed a self-heating system. And this was achieved by improving the efficiency of the heart: by becoming warm-blooded.

Cold-blooded animals, with a three-chambered heart, have no provision for the separation of arterial and venous blood. Oxygenated blood gets contaminated with carbon dioxide waste, resulting in a mixture which requires external heat to make it combustible. Metabolism, therefore, is dependent on the external temperature (it's like a liquid with a low alcohol content which requires to be heated before the alcohol will ignite - like warming the spoon to ignite the brandy!).

The addition of an extra chamber, to a four-chambered state, like mammals, makes it possible to supply cell tissues with purified blood, and combustion takes place independent of external heat. It takes place internally.

Such adaptations to changes in climate are continually taking place. As climate alters, so animals must adapt or perish. In Australia during the transition from a very wet to the present dry climate many birds survived by becoming arid-adapted, like the Emu; for instance, whose ancestor was almost certainly a rainforest type of Cassowary.

Origin of Feathers

Now that these animals had developed an internal heating system, or warm-blooded state, made possible by the development of a four-chambered heart, they also required a means to protect their bodies from heat loss at low temperatures. In other words they required to insulate their bodies.

We are not sure what sort of protective covering the first primeval dinosaur-birds had, as we have no fossil records of these creatures. But on the assumption that individual development repeats evolutionary changes, it is quite likely that the first feathery covering was similar to the down on a newly hatched domestic chicken.

We can assume that eventually down was replaced or supplemented with feathers, as it still is by young birds growing up. Plumage, like a feather quilt is a highly efficient insulator. The original function of feathers was without doubt to insulate the warm-blooded ancestral dinosaur-bird, much like the function of fur for the primeval mammal.

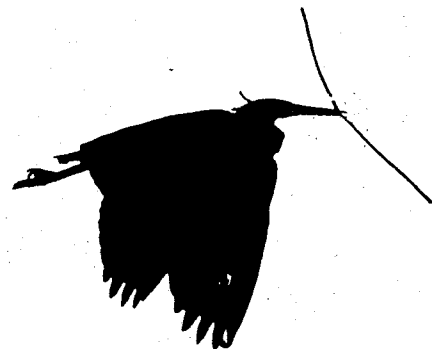
The *Archaeopteryx* skeleton, with wings and feathers, was found in Bavaria in limestone formed 170 million years ago. About the size of a magpie, it had a skull with teeth and a long, vertebrated tail.
Illustration courtesy of Jim Macdonald.



Origin of Flight

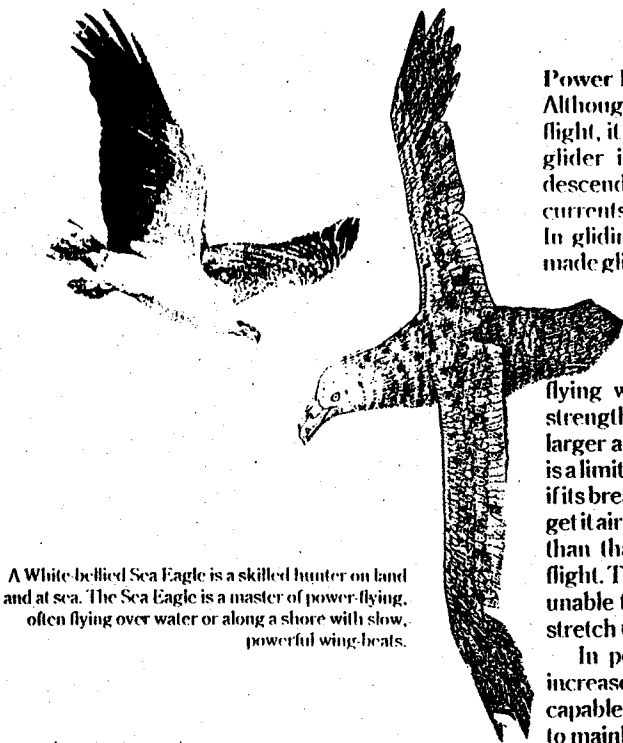
The development of anatomical structures for one purpose and then being used for another as well is common in birds and nature in general. The dual function of feathers is a notable example. Developed for insulation, nature discovered feathers could be adapted to make an animal airborne. But how did it come about that a feathered dinosaur learned to fly?

Stages in the evolution of flight can only be conjectured. However, some clues are provided by the *Archaeopteryx* fossil. One significant clue is that *Archaeopteryx* had grasping claws at the tip of each wing. Similar claws are found on the modern Hoatzin, a bird that clammers about in the trees of the Brazilian forests. Therefore, *Archaeopteryx*, like the Hoatzin, must have been arboreal.



This image of an Eastern Reef Egret returning to its nest is as remote as you can get from the image of a dinosaur stomping through an ancient forest.

Photo courtesy of the Queensland Department of Environment and Heritage.



A White-bellied Sea Eagle is a skilled hunter on land and at sea. The Sea Eagle is a master of power-flying, often flying over water or along a shore with slow, powerful wing-beats.

Living in the canopies of forest trees would frequently necessitate jumping between branches, especially from one tree to another, as flying squirrels and other arboreal animals do at the present time. Feathered forelimbs extended in flight to grasp branches would readily encourage the development of larger and stronger feathers, the pinions of modern birds. As flight feathers improved on forelimbs and tail it would be natural to attempt longer jumps. It is reasonable to suppose that gliding flight began in this way.

Archaeopteryx could have been no more than a glider, although it was as fully plumaged as a modern bird, even to the fine detail of feather structure. However, its keeless sternum showed that it did not have breast muscles strong enough to flap wings sufficiently to sustain in flight a body weighed down with a toothed skull and a vertebrated tail.

Over time it would be natural for a glider to attempt longer and longer jumps. Feathered forelimbs would be flapped in agitation as the dinosaur-bird struggled to cover the final distance and maintain balance on landing. Naturally this would increase the strength of the breast muscles, and eventually through evolution they would become strong enough to enable power flight.

Inset above:

In power-flying weight must be balanced by downward wing pressure. An increase in weight requires an increase in wing area, and therefore heavier flight muscles. As weight increases more rapidly than area, the upper limit of weight/area is just enough to lift the bird into the air, as in a White Swan. However, flight can be achieved where there is a proportionately greater increase in wing area, but in this case the bird has to be assisted to get airborne, as in launching from a high stance, and muscles are only strong enough to flap wing occasionally. The bird virtually becomes a glider, as in the Giant Petrel. Illustration courtesy of Jim Macdonald.

Power Flight

Although power flight evolves from gliding flight, it has quite different characteristics. A glider is controlled by gravity and must descend, unless sustained by uprising air currents; power flying is self-sustained flight. In gliding, the wing area (or sail in human-made gliders) can be increased with relatively little addition to total weight, whereas a similar increase in power

flying would require progressively greater strength to activate the wings and therefore larger and heavier breast muscles. But there is a limit on how heavy a bird can get (12-14kg) if its breast muscles are to be strong enough to get it airborne; take-off energy is much greater than that required for sustained horizontal flight. The White Swan, about 12kg, is usually unable to get into the air unless it has a long stretch of open water to patter along.

In power flying, when the wing area is increased to the limit of the muscle strength capable of flapping them, there is a reversion to mainly gliding flight. Some large birds rely on elevated launching perches, like the Condor of the Andean mountains and the Lammergeyer of the Pyrenees, and spend much of the time in the air soaring, using air currents to keep aloft. The Wandering Albatross, with a wingspan of about 4m and weight at about 9kg, uses head winds at the summit of high waves to get airborne, and spends hours, some observers claim days, ranging widely over the oceans with scarcely any visible wing-beats.

Thermoregulation

The transition from gliding to power flying gave rise to a new problem. The coat of feathers conserving body heat at low temperatures had the adverse effect of preventing the dispersal of surplus heat generated by the action of breast muscles in flight. It would be like an athlete sprinting without removing the warm garments he wore while waiting to run; he would soon fall down with heat exhaustion. Some form of heat control, thermoregulation, was essential.

Birds, like dogs, do not have skin sweat glands, which would be useless anyway. They have an alternative method of dispersing heat using their respiratory system. Birds inherited from their primitive ancestors small balloon-like extensions from the lung bronchi. These air-sacs have been enlarged, to varying extents, in different species. In very active bird species they are elaborated to an extraordinary degree, branching throughout

the body and frequently entering bones. The sternum of these species, for instance, is riddled with a mesh of air spaces. These air spaces work to get rid of the heat of the attached active breast muscles, much like how a car radiator cools the engine. Heat is removed by the fanning action of respiration.

The primary function of respiration is to supply oxygen to the lungs. Bird lungs do not expand and contract. They depend on air

being pumped to them by muscles pressing on air-sacs. 'This bellows' action is capable of pumping far more air than the lungs require; one estimate recorded five times as much. The excess, forced throughout the whole respiratory system, is used for cooling. Speed of circulation is determined by cooling necessity. On a hot day a bird at rest can increase aeration by the rapid action of throat muscles pressing on cervical air-sacs. In flight, fanning is synchronised with wing action - as if a runner's breathing was controlled by leg movement.

Conclusion

In one way and another birds have perfected the art of flying. The potential for this achievement was inherent in the genes of ancestral dinosaur. It was set in motion when the survival of this progenitor became dependent on the development of a four-chambered heart and the transition from a cold-blooded to a warm-blooded state. Through a sequence of adaptations the process continued to result in the present variety of bird life. It may be a fanciful thought to link the two ends of this evolutionary series by describing birds as flying dinosaurs. **W**

Jim Macdonald has been an ornithologist all his life. From 1935-1968 he worked at the Bird Department of the Natural History Museum in London, taking charge of the Department in 1943. He has written 60 scientific papers on birds and has been on countless scientific expeditions overseas, particularly to Africa. In 1968 he retired to Australia.

How did birds reduce weight?

- By keeping small
- By replacing jaw bones with horny bills
- By replacing teeth with stomach gizzard
- By reducing tail vertebrae to compressed pygostyle
- By converting solid bones to tubes
- By a system of air-sacs making body hollow
- By continuous supply of oxygen to the lungs
- By dispensing with one of the female paired ovaries
- By repressing gonads when not breeding
- By retaining primitive egg-laying habit
- By regurgitating undigested food (some species)
- By constant ejection of food waste and urine **W**

How did dinosaurs become birds?

- By becoming warm-blooded
- By acquiring an insulating coat of feathers
- By reducing weight
- By being arboreal
- By learning to glide
- By developing strong breast muscles **W**

ATLAS FIELD OUTING TO BRETTI - 18/19 January, 1992.

This atlas outing was attended by 8 members, who ventured into the surrounding bushland of Brett Reserve to record the bird species of this 10' grid.

Bretti Reserve is situated about 35 km to the north of Gloucester. A variety of habitats were surveyed, ranging from rainforest to cleared farmland.

The total count for the weekend was 91 species, with the highlights being Wompoo and Topknot Pigeon, Pale Yellow Robin, Grey Goshawk, Red Backed Wren and Regent Bowerbird.

Jeanette Stephenson.

KOORAGANG ISLAND OUTING 26-1-92

With a 7 a.m. start the chilling fog of Kooragang did not deter the 6 members who investigated the Reserve and the Islands to find numerous Terek Sandpipers, Eastern Golden Plovers, 4 Pied Oystercatchers and waders of all denominations. As the sun burnt off the fog, birds became clearer and colours more distinguishable and therefore just as hard to identify.

Arriving at the Flouride works we were met by a seventh member and many Bar Shouldered Doves. Proceeding through the avenue of mangroves and hordes of mozzies, settling ourselves on the partly washed away dyke walls, flights of Godwits and Sandpipers arrived until they numbered hundreds to mingle with Pelicans, White Faced Herons, Sacred Ibis, Royal Spoonbills and the everpresent Silver Gull.

New birds were sighted by some members and some members sighted an avian species they had not sighted for sometime, all in all it was a profitable outing with 72 species sighted or heard.

Graeme O'Connor.

PARROT SEARCH.

The Royal Australasian Ornithologists Union (RAOU) is desperately looking for help for its 1992 Orange-bellied Parrot Survey. The Union is looking for assistant searchers, as well as people who may have sighted the parrot, who may have heard of sightings or who may have visited areas where the parrot may be sighted. The Orange-bellied Parrot is one of Australia's most endangered species. In 1990 only 67 birds were counted nationally.

Contact: Jonathon Starks on (03) 370 1422 or
21 Gladstone Street,
Moonee Ponds, Victoria 3039.

Wildlife Australia.
Summer 1991.

A Magpie Story.

We have a new addition to the family! It is a young magpie, commonly known as 'Maggie' or just plain 'Bird'. We rescued him from a hibiscus shrub, where he had either fallen or been pushed from his nest high in the gum tree above.

From the beginning his mother ignored him. Enticing pellets of mince placed conveniently near him would be scooped up by her and taken quickly aloft to the remaining two babies, despite pitiful cries from the outcast. So there was no alternative but to provide a box on the back verandah, which was to become home for the next few weeks. Like most young birds he had an insatiable appetite so it was a constant job keeping up the supply of meat, bread and water which disappeared in one end and out the other with great rapidity.

We soon noticed that the unsteadiness of his legs, giving him a drunken gait, was caused by one claw turning inwards. This, we were told, is not an uncommon deformity in magpies and that it should not prevent his ability to eventually fly. He was certainly a slow learner in everything and one sceptic member of the family dared to suggest he was suffering brain damage as a result of his fall. However, he has come on well and is catching up with his brothers (or sisters) who now timidly line-up with him for titbits. Our bird is somewhat smaller and is comparable in size to a baby of the second clutch just flown, although there must be about four months age difference.

Learning to feed himself was a major step forward, one we thought he would never achieve. There was much rejoicing when one day, with head cocked first on one side and then the other - obviously working out the correct strategy, he made a sideways swoop and collected his quarry. After this there is no stopping him having a go at anything that moves or if there is nothing available he playfully tosses leaves in the air, retrieves fallen clothes pegs and never misses a chance of getting into the garden shed to sort out the nuts and bolts. Another popular pastime is undoing shoe laces or pecking threads out of any sort of cloth within his reach.

In his early days he had to accompany us everywhere and this meant fairly frequent stops in parks in order to give him a 'run'. This was always a good conversation piece with other people. One couple told us they had travelled around Australia with two young magpies as backseat companions. The only difficulty we found was that slowing down meant food time for him, even at red lights and so some morsal had to be pushed down his large gullet for peace and quiet.

At about three months he really started to stretch his wings by taking short prancing hops around the garden, usually in the early evenings. Whenever anything passed overhead, be it bird or plane, he would follow it with his beady eye as if his innermost yearnings were to be up there with it. We marked his progress by the number of steps he could negotiate up to our back deck. After a long while he made it to the top where he was rewarded by watching us or the television through the window after tapping on the glass to let us know he was there. As darkness fell, he would find himself a roost, to the detriment of our outdoor furniture. The problem the next morning was how to reach ground level again and this had to be achieved by a firm push. The day at last came when he became airborne. His main difficulty was judging distances and more often than not, his flights ended in a crash landing or overshooting his mark and having to be rescued from beyond his boundaries.

One of his quirks is to lie on his back and have his tummy rubbed, with legs in the air and eyes shut he goes into a trancelike state. Rubbing his jawline has much the same effect. He delights in getting under the garden hose and sometimes wallows for about fifteen minutes in his shallow bath.

A noisy wing flapping welcome is never far away when we come home and the delightful soft chortling at the door is a reassuring sound that all is well in the world - at least with one feathered friend.

Frank Antram whose official title is Director of TRAFFIC Oceania has a job that requires enormous specific knowledge to monitor and control our wildlife trade effectively.



Frank Antram

Frank's love for wildlife started as a hobby and he has been lucky - or clever enough to incorporate his hobby with his career.

An avid amateur bird watcher, Frank spent his youth in England admiring birds such as finches, and seasonal migration of birds, a far more noticeable happening in Europe than Australia.

His love for wildlife began at the age of 16 when he observed a male Linnet (an English finch) in breeding plumage. He bought a book to find out what it was and began a lifetime of study.

Frank's interest in wildlife expanded to butterflies and moths. By running a light at night he was able to record the moths that the light attracted and process the information for a local naturalist society.

His interest in wildlife continued, so he decided to turn it into a career and in 1980 began working in the London Office of TRAFFIC (the WWF-funded wildlife and wildlife trade monitoring organisation.)

THE ENGLISHMAN WHO KEEPS OUR *Wildlife* IN AUSTRALIA

Frank's responsibilities included checking UK import and export applications for wildlife. Through checking applications for accuracy he was able to advise the Government on import and export permits.

Often importers would lie about the species' origins. As applications came through, Frank assessed them, detailing why a certain species should or should not enter or leave the country.

Frank was also involved in the computerisation of the Annual Report Statistics for CITES (Convention on International Trade for Endangered Species). This involved standardising and coding all information collected and putting it on database, an invaluable asset in successfully monitoring illegal wildlife trade.

This completed, he decided on a more active hands-on role in saving the world.

So he joined Greenpeace, London, as the office manager and found himself chained to the French embassy in protest of nuclear testing in Pacific.

While playing the activist on occasions, most of his time at Greenpeace was spent developing a more professional administrative structure. A year later he was ready for a new challenge.

He set out for Sydney and arrived in January 1984 to set up TRAFFIC Australia. He found a suitable bare room, and locked the door for a week to learn about Australian wildlife and the issues involved in wildlife trade in Australia.

As the learning process continued Frank fell in love with Australia's native birds, and Australia, and became an Australian citizen.

Just like in his TRAFFIC UK days, he now plays a vital role advising governments in our region and making a significant input into all policies relating to Australian wildlife.

Frank played an active role in the two amendments to the Wildlife Protection Act, 1984; he was a member of the Australian delegation to the CITES conference in Argentina, 1987; and was an honorary adviser for Papua New Guinea at the 1989 CITES conference.

In 1987, WWF Australia took TRAFFIC on board, and funded its operation. TRAFFIC Australia, became TRAFFIC Oceania, as it incorporated the South Pacific Region. The responsibility of incorporating the South Pacific as well as Australia meant the need for a second person. TRAFFIC's agenda widened, and the work load didn't just double but quadrupled.

TRAFFIC continues to grow from strength to strength, mainly due to the two dedicated workers who between them cover an enormous amount of work, and fight to ensure the wildlife of Australia and the South Pacific stays where it belongs.

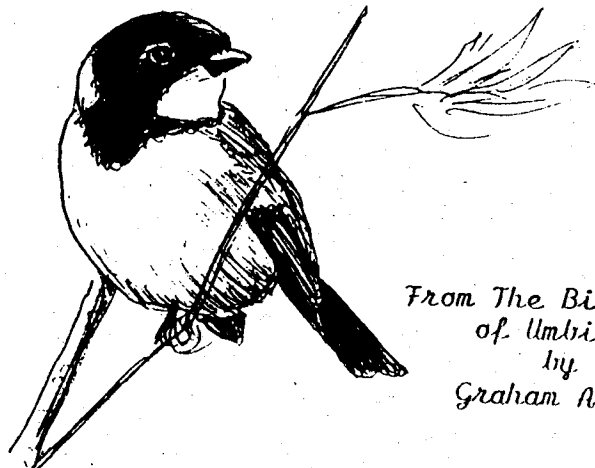
by Yael Bradbury



The Quiet One

Modest grey bird, the quiet one,
sitting inside the bushes, silently,
avoiding, or avoided by, his own kind,
ostracised youngster, seeking small companions—
thornbills, scrub wrens, fantails,
robins, red and yellow.

In winter, find a mixed flock feeding;
midst all the chirpings and the flutterings,
the hoppings and the dartings here and there,
goes the grey quiet one, unobtrusively.
Does he know in springtime he will blaze
like wattle? Shining, yellow-gold bright singer,
Golden Whistler.



*From The Bird Baths
of Umbigumbi
by
Graham Alcorn*

COMING EVENTS.Sunday 23 February.Field Day:

Upper Allyn/Telegherry.

Meet:

McDonalds Hexham. 6 a.m.

Contact:

Kay Imrie - 524524.

Weekend 7/8 March.Atlas Outing:

Wauchope area.

Contact:

Graeme O'Connor - 531304.

Wednesday 11 March.Club Night:

Shortland Wetland Centre - 7.30.

Sunday 22 March.Field Day:

Black Hill/Buttai/Stockrington.

Meet:Roundabout John Renshaw Drive/
Leneghans Drive. 7 a.m.Contact:

Graeme O'Connor - 531304.

Wednesday 8 April.Club Night:

Shortland Wetland Centre - 7.30.

Weekend 11/12 April.Atlas Outing:

Murrurundi/Timor.

Contact:

Graeme O'Connor - 531304.

Easter WeekendCamp:

"Carlton" via Gunnedah

17 - 20 April.

(Private Property).

Contact:

Sue Hamonet - 581023.

The above information whilst as accurate as possible should be checked nearer to Field Days etc., with the contact person. An update of activities will be given on Clubnights.

Deadline for your contributions to the April/May newsletter - 25th March.

I wish to acknowledge and thank Anthony Brown, Editor of Wildlife Australia and Yael Bradbury, Assistant Editor of Wildlife News (World Wide Fund for Nature, GPO Box 528, Sydney 2001, (008) 251573,) for their permission to reproduce articles from these publications.

Editor.

CASSOWARY HOUSE SPECIAL WEEKS

June 6 - 13, July 4 - 11, August 1 - 8.

A week in comfort at Cassowary House - 5 days to find the northern birds, a spotlighting evening and a day on the reef. \$1100.

Throughout the year we operate birdwatching trips to the Atherton tablelands and Cairns coast for a day or a week!

We sometimes have a studio unit for the self caterer available.

Details from Rita and John Squire, Cassowary House, Kuranda Qsld 4872. Tel 070 937318.