

Tropical Topics

An interpretive newsletter for the tourism industry



Birds breeding

No. 52 January 1999

Notes from the Editor

The excellent David Attenborough television series, *Life of Birds*, (ABC 7.30pm on Sundays) has recently been focussing our attention on the varied and often entertaining behaviour of birds. This issue of *Tropical Topics* takes a look at some of our local birds and, in particular, their breeding behaviour.

Birds are a bit like tropical reef fish. Unlike so many other animals, they are colourful, visible, act out their lives largely in full view — and move through space with enviable ease. They invite our interest and, as researchers learn more about them, they become ever more fascinating. Bird watching can be simply about identification — ticking names of species on lists — or it can be about understanding what the birds are doing, which in many ways is much more worthwhile.

As usual there are many more aspects to this topic than room in the newsletter. Look out for more on bird behaviour in future issues.

I would like to thank Steve Garnett, DEH, and Elinor Scambler for their help with this issue.

Please note

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Helpful offspring

Kookaburras like to chorus, family groups of up to a dozen together producing a cacophony which proclaims their territory. The more birds, the louder the chorus and the stronger their territorial claim. Kookaburras therefore benefit from living in large families.

Most birds drive their offspring from their territories as soon as they are independent, but young kookaburras continue to live at home for about four years. During this time their parents put them to good use; young laughing kookaburras perform about a third of incubation and brooding duties for the next generation and supply the nestlings with over half of their food.

Kookaburras are not the only birds to breed co-operatively. In fact, child labour is a feature of at least 80 Australian species* including forest and buff-breasted paradise-kingfishers, bee-eaters, a number of honeyeaters, particularly the miners, fairy-wrens, thornbills, robins, woodswallows and butcherbirds, to mention only some.

Why do these young birds hang around with their parents instead of setting up homes of their own? Breeding may well be limited by food scarcity, particularly where there is no seasonal increase (as happens during a northern hemisphere spring) to fuel a sudden population growth — and more beaks are needed to gather it.

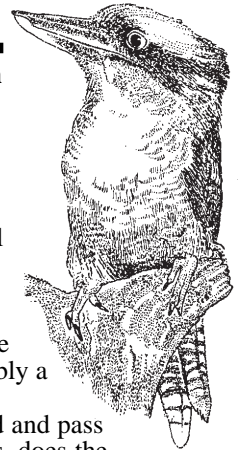
Even if the young birds cannot breed by themselves *how* are they persuaded (every human parent with adolescent children may well want to know) to help with domestic chores?

*Details vary between species. Some pairs are capable of raising a brood without help, but others invariably fail if they try. Some require only a few helpers, while others may have 20 or more.

**Although helpers are often closely related to the breeding pair and nestlings, sometimes they are not (see *Promiscuous fairy-wrens*, p7).

There are several theories and no doubt some are valid for some species and some for others. Possibly a young helper:

- unable to breed and pass on its own genes, does the next best thing by promoting the family genes.
- having mated with the breeding female is (or believes he is) the father**. (Females may deliberately recruit helpers by mating with them.)
- helps in exchange for 'pocketmoney' — the right to remain, and feed, at home.
- learns vital childrearing skills.
- hangs on, hoping one day to inherit the estate.
- finds safety in numbers — more lookouts give more warning of predators — and more feeders help to keep the nestlings quiet.
- having helped raise a brood can then recruit them into its gang and, with strong numbers, move out to establish its own territory.



Whatever the reason, co-operative breeding seems to be a particularly Australian phenomenon — 85 percent of all bird species which breed co-operatively are found here — and may well be a response to Australian conditions.



WET TROPICS
MANAGEMENT AUTHORITY

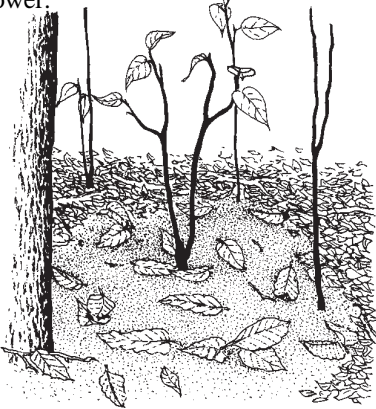


Department of
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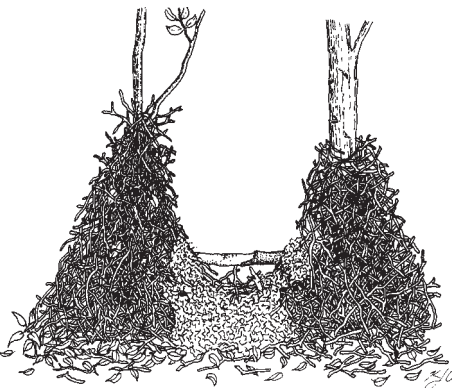
Bowers

Bowers are not nests but display areas, built by male bowerbirds to attract females for mating. Females choose their mates after carefully inspecting the structure and decorations of each bower (rare items gain bonus points) as well as the male's plumage, his display and his vocal repertoire. Males with the best displays get to mate with the most females — in any population only a few experienced males, with the most impressive bowers, may actually father the young. This creates much competition with males actively destroying the bowers of rivals and stealing trophies. This forces the victims to spend more time on rebuilding and less on seducing females. Following his conquest, the male bowerbird takes no further interest in the female and his offspring. In contrast to their mates' elaborate structures, the females build rather ordinary cup or saucer nests made from twigs.

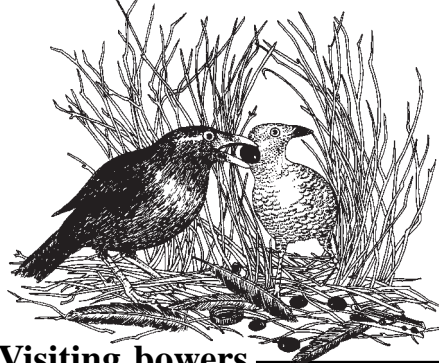
Tooth-billed bowerbirds' bowers are the simplest. The male clears an area one to three metres in diameter, returning to exactly the same patch of forest floor each season. He then decorates his stage with fresh leaves, pale side up, having snipped them off with his double-notched bill. Each day he brings more fresh leaves (sometimes stealing them from neighbours). What the male lacks in bower-building he makes up for in mimicry (see *Mimics*, right) spending almost every daylight hour at his bower.



The smallest, the **golden bowerbird**, builds the biggest bower. Two towers, up to three metres in height, is made from sticks piled around two saplings about a metre apart. Often the towers are connected by a horizontal perch at the sides of which decorations of lichens, mosses and pale flowers and fruits are added. The beautiful golden male displays on the perch and around the area of the bower. The bower may last for many decades, often with the same owner, and may be handed down through generations.



The **great bowerbird** and the **satin bowerbird** build avenue bowers. Thin sticks are neatly arranged in an upright position, forming two parallel walls, looking almost like a couple of old-fashioned brooms sticking out of the ground with a narrow passage between. Decorations are mainly arranged at each end of this avenue, the great bowerbird choosing pale objects such as bleached snail shells, stones, bones and soft drink can ring-pulls as well as green fruits, while the satin bowerbird prefers blue — feathers, berries, flowers, glass, plastic and so on. Further adornment is added by the males 'painting' the inner walls of the avenue with plant matter and saliva. The satin bowerbird even uses a frayed grass stem as a brush — a rare example of tool use in animals. Interested females enter the avenue, where mating takes place, after which she may be promptly chased away to leave the bower free for further seductions.



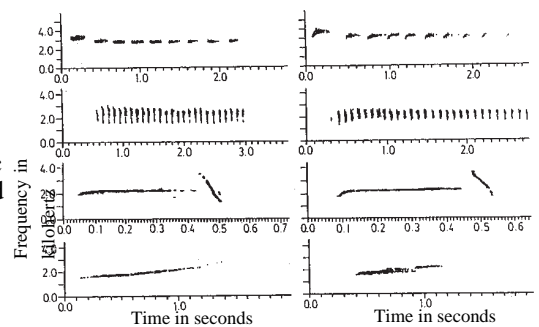
Visiting bowers

People are fascinated by bowers — but may unintentionally create a situation where all the bird's hard work is in vain.

Bowerbirds put an immense amount of effort into their creations, spending up to 20 years building, renovating and decorating. A good bower is the key to a male's breeding success — as long as the females come to visit him. Females, however, are shy and if a bower is frequented by potential predators, such as humans, they may stay away. The sad result is that the most spectacular bowers, which attract most human visitors, are the most likely to be a waste of effort. Having invested so much time and energy the males often cannot afford to start anew.

Mimics

All the Wet Tropics male bowerbirds are known to mimic other birds, usually as part of their courtship display. Male tooth-billed bowerbirds (right) can copy the songs of more than 20 other birds. From September to February each year they enliven the forest in the vicinity of their stages, giving an impression of countless species of birds in full song. The males sing for much of the day and it is thought that the mimicry component is used specifically to attract females. However, the loud songs also seem to function as an advertisement of territories to other males since a bird will stop now and then to listen for its neighbours. If an adjacent rival is not heard, the bird may then mount a quick raid to steal his neighbour's leaves!



These sonograms show the similarity between calls of three birds (left) and the male tooth-billed bowerbird's mimicry (right). From the top, (left) white-throated tree creeper, Lewin's honeyeater and pied currawong.

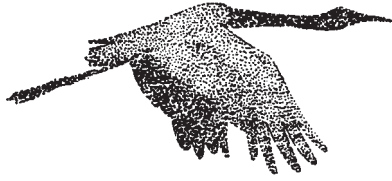
Females of the satin and great bowerbirds are also known to mimic when disturbed at their nests. They usually choose to mimic predatory birds but can also produce cat and human noises. (One great bowerbird, near a quarry, can mimic the noise of rocks being thrown into a trailer and a two-way radio.) Possibly this is done to distract a predator by confusing it with the impression that another individual is present.

If you want to visit bowers, or take others to visit them, please put the needs of the birds first.

- Time your arrival carefully so that you visit the bower in the middle of the day. The females visit for mating in the morning and evening, so visits between 11am and 2pm will help minimise this disturbance.
- Try to stay at least 10-15m away from the bower and make your visit brief. By hanging about, trampling and dropping rubbish you may not only scare away females but also alert potential predators to the bower's position.

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Out and about



At the second annual Birds Australia Atherton Tablelands **crane count**, which took place on 10 October 1998, a total of 1844 cranes were counted at 11 sites. Of these 1255 were definitely sarus cranes, 139 were definitely broilgas and 450 were not identified. This means that between one third and one quarter of Australia's estimated 5000 sarus cranes were present on the Tablelands that night.

Definite records of sarus cranes in Australia go back to the 1960s, with possible sightings in the 1950s. They have been considered recent arrivals — natural invaders — but DNA studies suggest that they may actually have been present for thousands of years. This is backed by the fact that their home, the Cape York peninsula south to the Burdekin and the Gulf of Carpentaria, is some distance from the likely point of invasion from Asia.

Do you have any historical information on the Tableland cranes? If so please call Glenn Holmes on (07) 4091 4364 or Elinor Scambler on (07) 4095 3296.

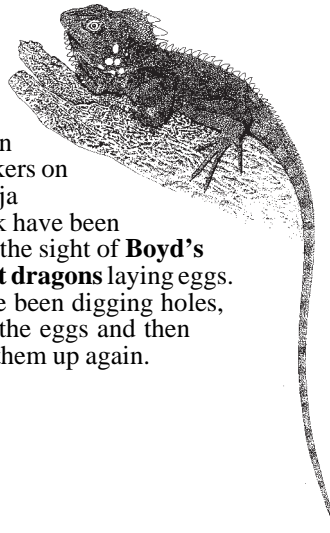
The flying speed of the cranes has been estimated/paced with a car at about 80km/h. With a good tailwind they can fly at over 100km/h.



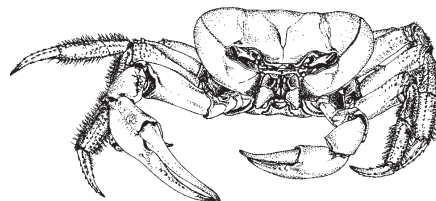
Please note the phone number for the **Far North Queensland Wildlife Rescue Association** has changed. If you find sick, orphaned or injured native wildlife, please call 4053 4467. The Association has opened a shop front in Cairns at 114 Hoare St.

Tropical Topics reader, Jim Fitzgerald, has collated all the **German translations** from Tourist Talk into two alphabetical lists (English-German and German-English). He is happy to share these with other readers. To receive them simply send a stamped addressed envelope to the editor, address on the back page. A general index to all *Tropical Topics* newsletters is also available — also on receipt of a SAE. Please specify which list you require.

In the Cape Tribulation area, workers on the Marrdja boardwalk have been treated to the sight of **Boyd's rainforest dragons** laying eggs. They have been digging holes, dropping the eggs and then covering them up again.



There have been frequent sightings, recently, in the Cape Tribulation area, of **giant land crabs** — *Cardisoma carnifex*, featured in *Tropical Topics* 36. A large claw has been observed blocking the entrance to a 100mm diameter burrow but the resident (about 90mm across the carapace) was caught out in the open, one night. After trying unsuccessfully to hide itself against a large tree the crab scuttled back to its burrow. As it entered it pulled a large leaf across, effectively hiding the entrance — and sending a clear message that the show was over and the curtain was down! (Acknowledgments to Hans Nieuwenhuizen)



DNA fingerprinting, along with electromagnetic implants, have been adopted by the Queensland government in its fight against illicit trade of wildlife. The project will initially concentrate on four bird and one snake species — the golden-shouldered parrot, red-tailed black cockatoo, yellow-tailed black cockatoo, glossy black cockatoo and the green python. A DNA data base will enable checks to be made on protected wildlife claimed to have been bred in captivity or purchased legally. The electromagnetic implant, similar to those used routinely for identification purposes in dogs and cats, can be scanned with a special reader. It enables each individual animal to be identified with a code which is eventually matched up on the data base with the DNA record.

All holders who are required to present their animals for fingerprinting are being contacted by the Department of Environment and Heritage.

Russell Watson, Resort Ranger on Great Keppel Island has reported an **albino welcome swallow** flying around the resort.

Below is a follow-up from the article on page 7.

Dr Garry Cross of the Department of Animal Health at the University of Sydney has forwarded his preferred **recipe for wild lorikeet feeding** — for those people who are *determined* to feed the birds and who can be *certain* of providing a regular supply and to keep feeding areas scrupulously clean to prevent spread of disease.

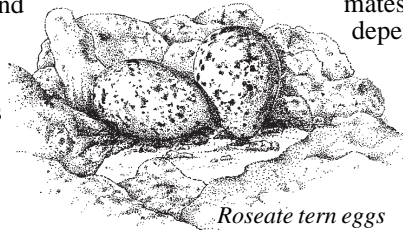
- 2 cups Heinz rice cereal
- 2 cups rice flour
- 2 cups canary egg and biscuit food
- 1 cup glucose powder
- 1 teaspoon multivitamin mix (ABDEExtra)
- 1 dessertspoon pollen

Please bear in mind, however, that it is better *not* to artificially feed wild birds.



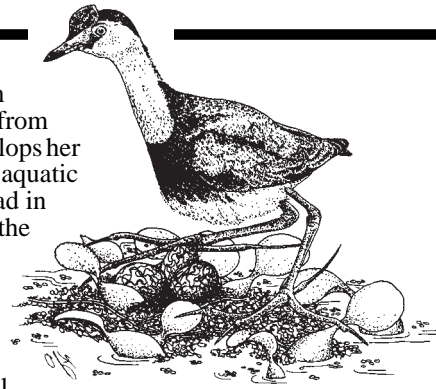
Birds as builders

Some birds make **no nest** at all, or at most provide a scrape in the ground which may or may not be lined with vegetation and/or stones. Many of these are seabirds which rely on the isolation of the islands on which they nest to protect them from predators — although nightjars, bush stone-curlews and some others nest successfully on the ground on the mainland. Ground nesters are very vulnerable to predators and many have been rapidly driven to extinction by the introduction of rats, cats, stoats and humans to previously predator-free environments such as New Zealand.



Roseate tern eggs

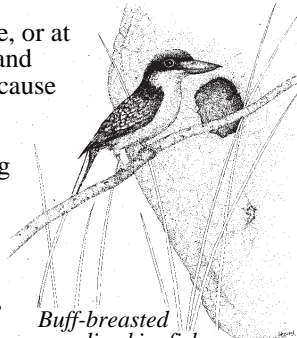
Nesting on water, if you can prevent your eggs from becoming waterlogged, gives them some protection from predators. The female **comb-crested jacana** (right) plops her scribbled eggs on a raft of vegetation supported by aquatic vegetation such as water-lilies — and then leaves dad in charge. Larger and more aggressive than the males, the female is the boss in jacana society. She holds a large territory which includes the smaller territories of up to five sharing and caring males who devote themselves to incubation and childcare. If one female successfully challenges another female for her territory (and mates) she will promptly destroy all her predecessor's eggs and chicks, thus ensuring undivided attention from her new mates. In both sexes, the jacana's coloured comb, which can change from red to yellow depending on mood, is used to indicate status.



Dusky moorhens, a common sight on our fresh waterways, are communal breeders. Groups of two to seven birds, with one to three males for each female, work together to aggressively defend their territory. The females mate with all the males in the group and nests are created by all members of the commune pulling down vegetation to make a high platform. Eggs are laid together and the parents all take turns to incubate and then to look after the chicks.

Cavities make secure nesting sites. Natural tree holes are the choice of many parrots and kingfishers but some species prefer to excavate their own cavities in termite mounds. Others, such as bee-eaters, pardalotes and some kingfishers, tunnel into sandy banks.

The eggs of cavity nesters are usually white, or at least pale, presumably so parents can see, and avoid stepping on them in the dark, and because they do not need to be camouflaged. They also tend to be fairly round, which makes them stronger and more efficient at retaining heat. (Pointed eggs are laid by birds which nest on cliffs, to prevent them from rolling off.)



Buff-breasted paradise kingfisher

Buff-breasted paradise kingfishers nest in ground-level termite mounds, creating a tunnel often less than half a metre from the ground. Following this invasion, the termites seal off the chamber. Given the noise made by the chicks and the smell from dropped food, it is astonishing that broods are successful in these vulnerable positions. Many other kingfisher species choose termite mounds higher up, in trees. Tunnels are made by the adults flying head on at the mound, occasionally dying from impact.

Almost all **parrots** form monogamous pairs, often for life. Most depend on tree hollows so a shortage of these, whether through clearing or occupation by introduced birds, limits their ability to breed. Some make very deep nest holes — those of the king parrot may even be at ground level, inside hollow trunks. Excavation of the brood chamber by the female is thought to create the mood for egg laying; darkness stimulates egg-laying in female budgies.

Rainbow bee-eaters nest communally, sometimes over 40 birds co-operating to dig nesting burrows, incubate eggs and care for the young. Young, unmated males are of particular help in lending the adults a hand.

White-rumped swiftlets build their nests in very large cavities — caves. Colonies of tiny cup-shaped bracket nests, made from plant matter and feathers cemented together with hardened saliva, are glued closely together on the rock walls. Usually one white egg is laid in each. The swiftlets negotiate the dark caves using echo-location.

In the Wet Tropics, we are lucky to have two of the world's 19 species of megapodes (bigfeet) — the **mound builders**. Although hardly the most beautiful of nests, the incubating mounds of the Australian brush-turkey and the orange-footed scrubfowl are the largest of any birds. Measuring, on average, three to four metres in diameter and one metre high, the brush-turkey's mound normally contains two to four tonnes of material. Those of the scrubfowl, which are added to each year by different birds, are even bigger and can weigh over 50 tonnes. The mounds need to be big, and contain enough fresh material, to generate sufficient heat. This is created by the respiration of micro-organisms, particularly certain types of fungi. (Overseas, related birds use the heat from volcanoes.)



Orange-footed scrubfowl

Only the male **brush-turkey** (below) builds the mound, spending 5-7 hours, raking about 56kg of material, each day for over a month. The female devotes her energies to the production of what are particularly big eggs with very large yolks, needed during the long incubation. (The shells are also particularly thin, allowing the embryo to more easily obtain oxygen underground and also allowing it to make a quick escape, and quicker access to external oxygen, at hatching time.) The male then tends the mound. Any overheating, or cooling, endangers the eggs as does too much or too little moisture or lack of air. The temperature of the brush-turkey's mound remains remarkably constant, within

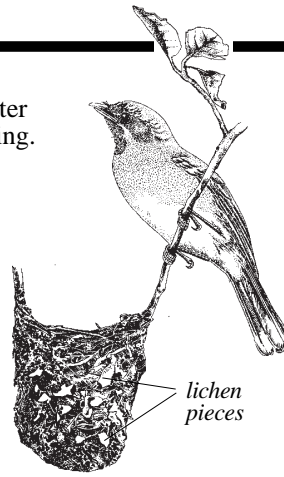


5deg of an average 33deg. The male tests it and adds or removes material, sometimes making ventilation holes, as necessary. Exactly how the male takes the temperature of the mound is in some doubt. It has been suggested that he uses the bare skin on his head, his feet, bill or neck sac but no studies have confirmed these possibilities. It is likely to be the palate or tongue since both males and females regularly take a bill-full of mound material, apparently to sample it.

It seems that females choose their mates according to how well they build and look after their mounds, inspecting all males in the area and observing their behaviour before making their choice. They also probe the mound to test its temperature and other properties. The owner of a good mound may find females queuing up to lay their eggs in his care. A female will usually remain with her chosen partner for 3-6 weeks, laying eggs in his mound before moving on to another male, with a fresher mound, to start again.

Cup nests come in many forms. Some, like those of many honeyeater species are slung from a fork in a branch, suspended by cobwebbing. Often clearly visible, they are frequently built close to the end of branches which are too delicate to bear the weight of many predators.

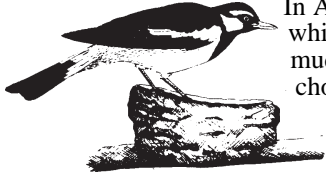
The **spectacled monarch's** nest (right) is often built only a metre or two above the ground. Like many cup-shaped nests it is decorated with pieces of lichen and spiders' egg-cases. These are thought to help conceal the nest from predators not by camouflaging it but by breaking up the dark shape. The pale decorations reflect light, giving the illusion that the nest is see-through and therefore not actually there.



Ospreys add to their bulky stick nests year after year. Built on rock faces and (dead) trees, and often reaching gigantic proportions they may serve to advertise a pair's territorial claims. (They also pose a problem to adopted Telstra towers and similar human structures.) There is no need for them to be camouflaged or hidden because it would be an unusually brave predator to take on a bird of prey. Nevertheless owls and snakes may pose a problem.



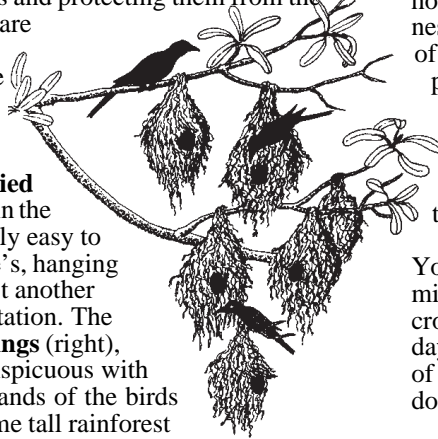
In Australia, the nests of apostlebirds, white-winged choughs and **magpie-larks** (left) are made from mud. Beakfuls of mud are first fashioned into a platform on the chosen branch and then the walls of the nest added. Bits of vegetation are included to strengthen the structure and the mud tapped to release trapped air.



It has been observed that **willie wagtails** often build their nests near to those of magpie larks. Perhaps these two aggressive species benefit from nesting in close proximity, combining forces to chase away predators.



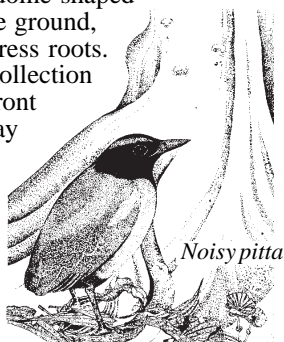
Covered nests are useful for hiding the contents from predators and protecting them from the elements and are particularly prevalent in the tropics. The spindle-shaped nests of some species, notably the **yellow-bellied sunbird** (left), dangle in the open but are remarkably easy to miss.



The large-billed gerygone's, hanging above water, looks very like just another piece of flood-abandoned vegetation. The huge colonies of **metallic starlings** (right), however, are nothing if not conspicuous with hundreds and sometimes thousands of the birds hanging their nests from the same tall rainforest tree. There may be safety in numbers but when grey goshawks raid the nests the starlings do not combine forces to mob the predators.

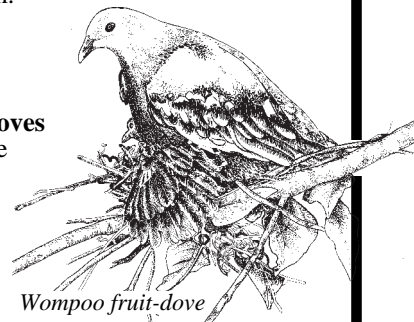
The **golden-headed cisticola**, like the better known tailor-bird of nature documentaries, sews living leaves on to its nest. Built in grass tussocks or similar vegetation in swampy areas, the nest is dome-shaped with a side entrance. It seems that the male and female work together, the female inside the nest and the male outside, passing strands of cobweb through holes in the leaves to stitch them into place.

Pittas build bulky dome-shaped nests on or near the ground, often between buttress roots. Some also place a collection of animal dung in front of the nest. This may serve to disguise the smell of the nest from predators such as brown tree snakes.



It is possible a young female cuckoo learns to identify (imprint) on its foster parents and later lays in nests of only that species. (In the most advanced cuckoos, different 'tribes' of one species stick strictly to one host species, each inheriting an ability to mimic that particular host species' egg colouring. More recently evolving parasitic cuckoos, such as the pallid cuckoo, lay their eggs in the nests of over one hundred species and have even been seen feeding cuckoo nestlings. They are still getting the hang of the business of being neglectful parents.)

The nests of many **pigeons and doves** seem to consist of not much more than a beak-full of twigs and a prayer. It is surprising that they hold eggs, let alone wriggling nestlings, but the commonness of many species, for example the peaceful dove which is a minimal nester, means they must serve their purpose. It has been suggested that these nests may dry out quickly after rain. Flimsiness, however, may be an illusion; the sticks in nests of superb fruit-doves were found to consist of forked twigs which were locked into place and difficult to pull apart.



Young pigeons and doves, uniquely among birds, are fed on milk. Resembling cottage cheese this is produced in the adults' crops and is the only food given to the chicks for the first three days. It is high in protein and produces the highest growth rates of any nestlings. This must be of particular importance for fruit-doves whose adult diet is low in protein.

Cuckoos are well-known for their habit of laying eggs in others' nests. However, about two-thirds of the world's species (91 of 136) do their own work and raise their own young. Australia has one nest-building cuckoo — the **pheasant coucal** (left). It first tramples down a platform of vegetation quite close to the ground and then pulls down other plants to make a domed roof with two entrances — a necessary escape route for an incubating bird.

Most female parasitic cuckoos deposit their eggs during the laying period of the host bird, at a time when the host is away feeding, often removing one so that her addition will not be noticed. Sometimes, if she has missed the laying period, the cuckoo will remove nestlings from the nest of a potential host, forcing them to start again and thus giving her the opportunity to join in.

Less well-known are the birds which, in addition to making their own nest, dump a few eggs into the nests of other birds of the same species. This happens among some swallows, finches and waterfowl. Most foster parents are unable to detect the intruder's eggs and raise them as their own. The patterns on coots' eggs, however, vary from one individual to another so if a female detects a 'foreign' egg in her nest she will often toss it out.

Questions & Answers

Q Why are sea snakes abundant in some reef areas and which species are common?

A Sea snakes are common in some areas but rarely seen in others. Unfortunately, reasons for this patchy distribution are unclear. They do occur in large numbers in the Swain Reefs where dozens may be seen during a dive in areas known, appropriately, as the 'snake reefs'. They are also very common on Ashmore Reef, northern WA.

Of 31 species of 'true' sea snakes (Hydrophiids) approximately 14 are potentially found around the Swain Reef area. These are the most specialised, or most adapted to life in the sea — they live a totally aquatic existence, giving birth to live young. Most have considerable difficulty moving on land.

Around seven of these sea snakes are regular reef inhabitants. Probably the most commonly seen is the olive sea snake (*Aipsyurus laevis*), a relatively large (up to 1.2m) species which is highly variable in colour. Like most sea snakes it is highly venomous and has an unnerving habit of approaching and twining around divers. Happily, it rarely bites, unless attacked, and since its fangs, like those of most sea snakes, are quite short, only large specimens can bite through wet suits.

Another, the turtle-headed sea snake, (*Emydocephalus annulatus*) is, unusually, non-venomous. It

specialises in eating fish-eggs and has almost lost its fangs, teeth and venom glands.

Usually only one species of sea snake is readily identifiable, with little chance of mistake. This is the yellow-bellied sea snake (*Pelamis platurus*). This is a pelagic species that is occasionally seen around reefs. It has a black dorsal surface and a bright yellow belly.

Another group of sea snakes, the sea kraits (Laticaudids), feed in the sea, but return to the land to lay eggs, and often to sleep (by day). Laticaudids are quite competent on land and can even climb into low hollow logs and so on. Records of these snakes in Australian waters are very scant. Both species are characterised by bold black and white or bluish-white and black bands.

(Acknowledgments to Eric Vanderduys, Queensland Museum)

Facts and stats

The Wet Tropics and Great Barrier Reef have a larger number of bird species than any other region of the same size in Australia. More than 430 species have been recorded — over half the total number of bird species found in Australia. Thirteen species are endemic.

Clutch sizes depend on species. Some lay a fixed number of eggs but others can replace any which are lost. Domestic chickens can, of course, keep producing but some wild birds are similarly productive. One (a type of woodpecker) was persuaded to lay 71 eggs in 73 days as they were successively removed from the nest. The sizes of some clutches are related to food quantities available at the time and vary from year to year. Australian birds have small clutches compared with similar species elsewhere. Interestingly, the average clutch sizes of introduced birds seem to be declining.

Of the 24 smallest birds in the world over half build domed nests.

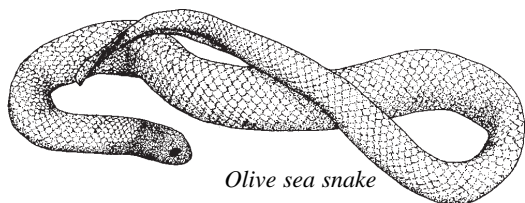
Co-operative breeding has been recorded in 12 percent of Australian bird species — but in only 2.5 percent of bird species worldwide. Many Australian co-operative breeders originated from the same ancient Gondwanan bird group.

Birds which breed co-operatively tend to lay smaller numbers of eggs in one clutch than similar birds which breed in pairs — but are much more likely to produce more than one brood.

White-winged choughs are an extreme example of co-operative breeders. The young are dependent on their parents for years as they slowly learn to become efficient foragers — and do not become sexually mature until they are about four. If a pair tries to breed without help their chicks invariably die of starvation. So necessary are helpers, they even kidnap young birds from neighbouring territories and recruit them into their group. Young chough helpers can be deceitful, however. They have been observed approaching the nest with food, dangling it above the youngsters' open mouths and then, if no other chough is watching, scoffing it themselves!

The males of three percent of bird species (246 worldwide) have penises. These include emus, cassowaries, kiwis and all waterfowl.

A starling's nest with three chicks was found on the back of a live sheep which was about to be sheared.



Olive sea snake

Tourist talk

ENGLISH	GERMAN	JAPANESE
co-operative	zusammen arbeiten	kyoryoku 協力
nest	Nest	su 巣
bower	Laube	azumaya あずまや
cuckoo	Kuckuck	kakkou かっこう
mound	Bruthuegel	tsuka 塚
cavity	Astloch	kudou 空洞
lichen	Flechte	chii 地衣
to mimic	nachahmen	monomane suru 物真似する
disease	Krankheit	byoki 病気
feathers	Federn	hane 羽

Promiscuous fairy-wrens

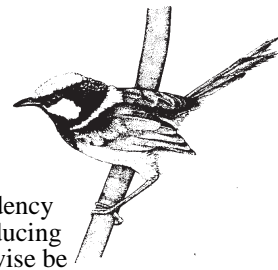
Just as the structure of the human family has become more varied, studies have shown that some bird families are also far from conventional.

Fairy-wrens are co-operative breeders. To the outside world the group appears to be a close-knit one, the breeding male with his bright colours presiding over a breeding female and a number of males which, outside the breeding season, often adopt feminine plumage. (Adolescent females, not tolerated by mum, are driven away.) One big happy, closely related family? Definitely not!

Genetic studies of superb and splendid fairy-wrens have revealed the shocking fact that a high proportion of the young are not dad's. It appears that, from time to time, mum entertains the neighbouring males, mating with up to six different ones in addition to her regular partner. Similarly the male fairy-wren, decked in his brightest costume, a flower clenched in his beak, also goes philandering — siring chicks with up to 10 other females. Shockingly promiscuous as the

fairy-wren tribe appears to be, their tendency to stray is bound to be beneficial, introducing genetic diversity into what could otherwise be a dangerously inbred group.

This social structure is not the norm for all co-operative breeding birds. Similar studies of noisy and bell miners, which also form large groups, suggest that the breeding pairs are faithful to one another. However, 'extra-marital' affairs are fairly common among white-winged choughs, a species which is unable to raise young without help. Stable groups of these birds tend to be quite inbred, the dominant pair often breeding incestuously, but from time to time deaths due to conditions such as drought force the birds to regroup and cross-breed again.



Food for the birds

You wouldn't raise your children on a diet of lollies so it is not fair to feed a similarly poor diet to wild birds.



Feeding birds is a popular way of attracting them closer, in tourist resorts, backyards and picnic spots, but it is a very selfish thing to do. It can cause many problems.

For a start, the digestive systems of non-human animals are not geared to cope with processed foods and the bread, sugar, honey and meat fed to the birds lack essential nutrients. Rainbow lorikeets are among the most frequent victims. In the wild they eat large amounts of pollen which is high in protein — essential for growing new feathers after moulting. However, the diet of sugar and honey which is often offered to them contains very little protein. As a result, rainbow lorikeets are frequently found with feathers which are too short for successful flight. A sugary diet is also deficient in vitamins and minerals, which makes birds susceptible to diseases, while the fermenting sugar creates ideal conditions for the growth and spread of harmful micro-organisms.

Of particular concern is Psittacine Beak and Feather Disease. This is an extremely infectious virus which affects parrots and may be spread also to cockatoos and possibly to doves and pigeons, often with fatal results. The disease impairs growth of the long feathers essential for flight and is easily passed from parents to their young. In this case the chicks, when launched from the nest, cannot fly and fall to the ground instead. These unfortunate birds are known as

'runners', and the disease as 'runner syndrome'. The virus is spread, very easily, through the birds' droppings, even from affected birds which have made a recovery. This means that feeding stations, which artificially attract large numbers of birds together provide perfect conditions for the disease to spread.

Meat is often fed to carnivorous birds such as kookaburras, magpies, butcherbirds and currawongs but is deficient in calcium and can lead to a softening of their bones and beaks. Bread causes all sorts of digestive problems. Another problem with artificial feeding is that birds become dependent on it and suffer if it is suddenly stopped. They may also breed more frequently than normal creating an imbalance in the bird populations. For example, small birds will suffer from large numbers of hunters such as butcherbirds, kookaburras and drongos. Also, since nest sites do not get a rest during which viruses would die off, they instead persist to move from bird to bird. Artificially fed birds also lose their natural fear of humans and can become aggressive when demanding food and easy prey for domestic pets.

The best way to attract birds to your garden or resort is to provide them with a natural diet by planting suitable native plants. Grevilleas and bottlebrush trees attract rainbow lorikeets as do many rainforest trees and shrubs. The little euodia (*Evodiella meulleri*) is a perfect small tree for this. Rainbow lorikeets, as well as honeyeaters, spend hours clambering among the pink blossoms which cover its branches for weeks in spring. The scarlet flowers of the flame tree (*Brachychiton acerifolius*) are also attractive favourites as are the branching flower heads of the umbrella tree (*Schefflera actinophylla*). A clean shallow bird bath, if it can be placed safely and regularly maintained, is also useful for attracting birds.

For those who are *determined* to feed rainbow lorikeets and to take on the responsibility of doing so regularly and keeping feeding areas scrupulously clean, Taronga Zoo recommends fresh fruit and budgie seed. A nectar mix can be made from three parts Heinz high protein baby cereal, one part honey plus one teaspoon Petvite vitamin supplement per cup of nectar mix. Add enough water to make a porridge and use only at the rate of one teaspoon per bird. It should be placed in the shade and old food always cleaned up.

Bookshelf

General:

The Life of Birds

David Attenborough
BBC (1998)

The book of the TV series.

Bird behaviour

Robert Burton
Granada (1985)

Reader's Digest Complete Book of Australian Birds

Reader's Digest (1993)

Interpretive Birding Bulletin

Published six times a year, for \$30, this is available from The Editor, 136 Payne St, Indooroopilly, QLD 4068.

Co-operative breeding:

Nature Australia Vol 25 No 8 Autumn 1997

When good help is hard to find

Rob Heinsohn

Co-operative breeding, incest and kidnapping in white-winged choughs.

Nature Australia Vol 25 No 9 Winter 1997

The politics of parenting: an avian perspective

Michael J.L. Magrath

Corella Vol 19 No 3 Sept. 1995

Co-operative breeding in Australasian birds

M.F. Clarke

Nature Australia Vol 25 No 7 Summer 1996-7

(Fairy-)Wrens through the eye of a sceptic

Steve van Dyck

Bowerbirds:

Wingspan Vol 8 No 2 June 1998

Bower Power

Clifford and Dawn Frith

Emu Vol 96 Part 1 March 1996

Visual evidence of vocal avian mimicry by male Tooth-billed Bowerbirds

Clifford Frith and Michael McGuire

Emu Vol 95 Part 2 June 1995

Court site constancy, dispersion, male survival and court ownership in the male Tooth-billed Bowerbird

Clifford and Dawn Frith

Bird feeding:

Simply Living Aug 1996

Polly wants a cracker

Janie Burton Taylor

Simply Living Dec. 1994

Don't feed the birds

Lyn Matts

Jacanas:

Nature Australia Vol 25 No 2 Winter 1997

Signals of the flesh

Natalie J. Demong and Stephen T. Emlen

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Environmental Protection Agency

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