

Tropical Topics

An interpretive newsletter for the tourism industry



Bird calls and songs

No. 56 June/July 1999

Notes from the Editor

Listen to the sounds around you. If you are out of doors, or have windows open during any part of the day you are likely to hear noises made by birds. Bird song is famous for its beauty – while the harsher sounds can annoy and even frighten us. For much of the time, birds seem to be randomly twittering, warbling or cackling – but we should not underestimate the amount of communication involved. Messages are flying back and forth. Birds are proclaiming their species and individual identities, defending their territory, wooing mates, calling alarms, begging for food, signalling intentions ...

The messages are not intended for us. We are not equipped with keys to the code but, being a curious species, we are working out what the birds are communicating and the more research that is done, the more complex the messages are proving to be.

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

Information contained in the *Interpretive Birding Bulletin* was of particular use in putting this issue together. See Bookshelf for details.

Please note

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The dawn chorus

At about this time of year, lengthening days encourage birdsong, species which are relatively quiet at other times of year suddenly finding their voices, particularly just before the sun rises.

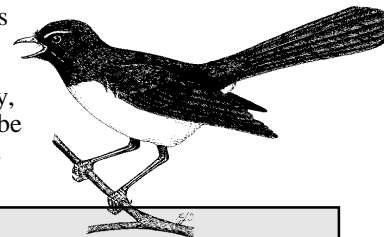
This early morning performance is triggered by light intensities, so the exact timing can be affected by the weather. There is a general order in which the different species start to sing with kookaburras normally kicking off the performance. (Birds which eat insects and worms may start before the seed eaters.) The exact timing changes throughout the season, however, patterns varying with stages in nesting.

There may be practical reasons for singing at dawn. The air is usually at its stillest so noise travels well. It may also be the safest time to sing, when dim light hides the singer from predators and there is safety in numbers as everyone joins in. The poor light also makes hunting for food difficult so the birds can put their time to good use by renewing their territorial claims. Morning is a good time to do this. Neighbours may have succumbed during the night while newcomers could be on the look out for an unguarded area. By singing vigorously at dawn, a male is also able to announce his superior fitness as a suitor – a weaker bird may need to first find food to replenish his energy stocks after a long cold night. A

strong bird can emphasise his message by continuing to sing long after dawn as well.

In fact, hormones may be the key to dawn chorusing. Increasing light increases the secretion of sex hormones in males – the main participants. As more birds join in, both males and females become increasingly excited and since the females of some species are at their most sexually receptive first thing in the morning (perhaps stimulated by the surrounding male choir) this could obviously be the most productive time for a male to attract a mate.

There is a second, less intense, chorus in the evening as the light fails, some birds continuing to sing well into the night. Notable among these are the willie wagtail which chatters musically in the dead of night (perhaps stimulated by moonlight or street lights) and a number of cuckoos. Their motives remain a mystery, still to be solved.



Songs or calls?

Bird calls, as opposed to songs, tend to be simple, usually non-musical, notes. They are produced by both males and females at any time of day or year and usually convey a message such as alarm. Songs are less easy to define but are usually longer, more musical and more elaborate with multiple different syllables. Whereas the meaning of calls can often be understood by different birds, songs are essentially species-specific and are no doubt designed to transmit messages between individuals of the same type. The most elaborate songs are usually produced by males in the breeding season but females, particularly in the tropics, also sing (see page 7).



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The technicalities of birdsong

We sometimes say someone 'sings like a bird' – but this is actually impossible since we simply do not possess the equipment.

The syrinx is found only in birds. It is a box-shaped organ at the bottom of the bird's windpipe, much deeper in the bird's body than the larynx, positioned in the throat, which serves as our voicebox.

Inside the syrinx the bird's windpipe divides into two tubes which lead to the lungs. These tubes are each equipped with a pair of fleshy lips which can be closed, completely or partially, to create the sound as air is expelled from the lungs. These lips can be moved independently so the quality and pitch of the notes vary, low notes coming from one side and high ones from the other. Mini-breaths, taken in at the rate of maybe 30 a second, allow the bird to sing

apparently continuously.

Some birds are able to sing two tunes at once with different notes coming from each half of the syrinx at exactly the same time. Yet more notes are made by combining the sounds higher in the throat. The loud trumpeting of the male trumpet manucode of northern Cape York Peninsula is made possible by an extension of the windpipe which runs as a long coil under the skin across its breast.

Birds tend to have very quick reactions and their response to sound is no exception. In fact, measurements indicate that it is not unusual for a bird to take as little as 150 milliseconds to react to a sound – which is several times faster than the human reaction.

More than meets the ear?

There may be more to bird calls than we appreciate.

For a start we can't hear it all; the frequencies used by birds range from about 30 Hz to well beyond the range of human hearing – above 15 000 Hz.

Birds are also roughly 10 times better than us at perceiving time intervals – in other words they can separate out sounds produced in rapid succession so that what we hear as only a continuous note or a buzz is actually a series of different notes. The timing of the notes may hold a meaning that is beyond our comprehension.

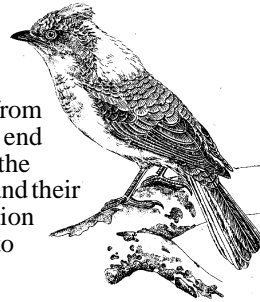
Subtle differences in certain utterances, in different contexts, may also convey meaning – just as we may use a car horn to convey a variety of messages such as 'The lights have changed', 'Look out', 'Hello', or 'That was a %#@*&!! stupid thing to do'.

Different dialects

Just like children learning to talk, birds pick up most from their parents, some from their neighbours and least from distant strangers. As a result, many end up with distinct regional accents or dialects. Where populations of birds have become isolated from each other these differences become more exaggerated.

In the Wet Tropics, it has been discovered that golden bowerbirds inhabiting mountain tops just 20km from each other sing quite different songs. In fact, although the birds behaved aggressively when played tapes of local golden bowerbirds, they did not respond to the songs of birds from other areas. It is thought that different populations of these birds,

which inhabit cool wet forests above 900m, became isolated from each other at the end of the ice age as the climate warmed and their preferred vegetation type contracted to mountain tops.



The pitch of a call may carry certain information. Since larger individuals generally have deeper voices, a low pitch may indicate superiority while a high pitch may convey submissiveness. Harsh sounds (in many animals) are used to indicate hostility whereas friendly messages are generally soft and tonal.

Just as we recognise individuals mainly by sight, birds may instead depend primarily on their ears. The standard species call or song is often individualised, each bird adding its own 'signature'. This is of particular importance for birds searching for mates or chicks in large colonies.

In the genes?

The ability to sing is determined by the size of the appropriate part of the brain. In species where only males sing this is much smaller, or may be completely missing in females but where both sexes sing it may be of equal size. If a bird's singing grows in complexity during its life, part of this section of the brain also increases in volume – but in species where singing is only performed during the breeding season, this part of the brain shrinks at the end of the season and grows again the following year.

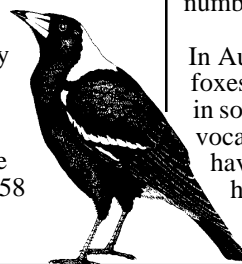
It seems that some bird vocalisation (particularly calls) is inherited; in one experiment, brain cells were transplanted from a quail embryo to a domestic chicken embryo – and when the chicken hatched it produced quail calls instead of its own.

However, some vocalisation is also learned. Chicks reared in isolation have been able to produce songs typical of their species, but they are rather poor, undeveloped versions. The chick seems to have been provided with an instinctive framework which it will then fill out and develop by listening to other adults. Some birds will only learn songs of the correct species but others are less discriminating and have been tricked, by putting them in

the nest of another species, into learning the 'wrong' songs. The critical learning period for male songbirds seems to be between 21 and 100 days after hatching.

Nevertheless, much bird song is learned and perfected during the animal's life. Lyrebirds and other mimics are constantly adapting their repertoire as they are stimulated to copy different noises.

Magpies do not start to make adult noises until they are at least 15 months old. Although it learns from parents and neighbours, each magpie's song is quite individual, between 12 and 58 percent of the syllables having been invented.



It appears that some birds are forgetting how to sing. The Royal Society for the Protection of Birds in the UK, blames traffic noise for interfering with the ability of birds to hear each other and to learn their mating calls. Apparently, instead of a melodious song, some birds are only able to tweet. Consequently, mating and, therefore, bird numbers, have declined drastically.

In Australia, predation by cats and foxes on lyrebirds has been blamed in some areas for a decline in their vocal repertoires; musical mentors have been removed before they have passed on their skills to younger birds.

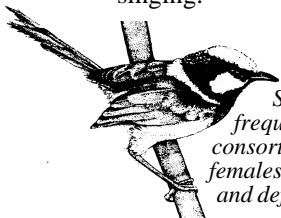
The birds can sing

Australian females, especially those in the tropics, like to sing. Most bird research has been done in temperate zones, where it is unusual for female birds to sing, so this was long assumed to be a general rule. However, it is now recognised that this is not so.

The main function of female song is thought to be territorial defence with the message aimed largely at other intruding females who may have designs on the resident's nest site and/or her mate. This is particularly relevant in species where males make a habit of mating with more than one partner and their attentions are divided between different households. To a lesser extent, female song in certain species may serve to attract mates.

Hormones, undoubtedly, play an important role in singing; both male and female songbirds have hormone receptors in the song-related part of their brains. More specifically male hormones seem to be responsible. Female European robins, which never sing during the breeding season when they share a territory with a (singing) male, start to do so during the winter – a time when they not only have a personal territory to defend but also have elevated testosterone levels. Indeed, female birds which do not normally sing have been induced to do so after being injected with male hormones.

Androgens, although they are male hormones, are linked to oestrogen production and are thought to be present in high levels in females just before nest-building – the time at which vocal females do most of their singing.



The female superb fairy-wren sings strongly throughout the year. Since her partner (left) frequently disappears to consort with neighbouring females, it is left to her to sing out and defend her nesting territory.

Taping out?

A popular method of attracting birds is to play a taped recording of the bird's song or call. Many birds react just as they do to a real bird – is that an intruder on my territory? A potential mate? A threat? A sign of food or predators nearby? However, there is increasing anecdotal evidence that frequent tape playback in some areas has resulted in some species become 'taped out'. In other words, they no longer respond, whether to a tape or to a genuine bird message.

Humans too can get confused – there are reports of bird surveyors at Iron Range having to go and check before noting down magnificent riflebirds in their morning census, in case the calls they heard were actually coming from someone's tape. Tapes can also induce birds to attack humans – this has happened in Australia to both owl and southern logrunner researchers.

Some birdwatching organisations cover tape usage in their code of ethics. The Queensland Ornithological Society Inc advises that, "In any conflict of interest between birds and

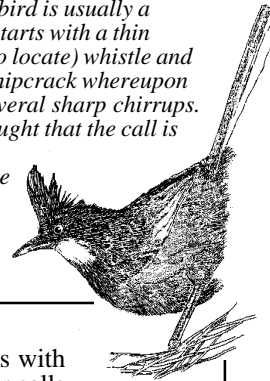
Duetting in the tropics

Australian birds are particularly good at singing duets. Some pairs sing together in chorus, their voices overlapping for some or all of the performance. Others, such as magpie-larks, alternate their performances often in the form of a quick-fire call and answer. In some cases this alternate singing is so tightly-timed it would seem that just one bird is making the utterance (which probably means that we underestimate the amount of duetting that is actually going on).

Apart from helping the pair to keep in touch, particularly in dense forests, it is likely that the birds are co-operating to defend their territory, the female's song serving to repel other females while the male's warns other males to keep away. The frequency of duetting among Australian birds is perhaps due to a relative scarcity of breeding habitats and a need to defend them vigorously. It is also particularly common in tropical areas – the home of 80 percent of duetting bird species. Perhaps the more sedentary nature of tropical birds is the clue – where both birds may be engaged in defending permanent territories all year round.

Duetting may also promote pairbonding and help synchronise breeding activities. This may be important where nesting depends on unpredictable seasonal events such as rains, and cues are more subtle than a simple lengthening of daylight (the main northern hemisphere cue). It may also be a form of 'mate-guarding' through which one partner tests where and how far away its mate is – and that he or she is not off philandering with the neighbours, an activity which genetic testing of broods reveals is not at all rare.

The call of the whipbird is usually a combined effort. It starts with a thin piercing (but hard to locate) whistle and (easier to locate) whipcrack whereupon the partner adds several sharp chirrups. It has long been thought that the call is initiated by the male and completed by the female, but the opposite may also be true.



Stimulating coos

Recent studies overseas with doves indicate that their calls play an important role in stimulating hormonal activity. It seems that a male's song inspires the female to produce nest-calls – but that it is her own cooing, not the male's, which then stimulates hormone development and egg follicle production.

Some female doves were, experimentally, deprived of their voices – and did not ovulate. However, when tape recordings of their own cooings were played to them development carried on as normal. Some development took place if the coos of other females were played but none if just male cooings were heard. Deaf females still produced calls and showed some hormonal response which has been explained by nerve connections between the bird's voice-box (syrinx) and the hypothalamus where hormonal activity takes place.

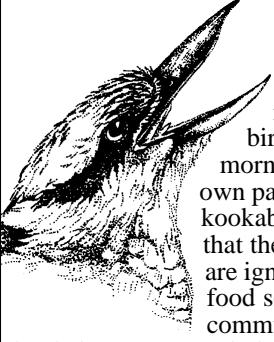


birders, the welfare of the birds and their environment comes first ... limit the use of recording and other methods of attracting birds, and never use such methods in heavily birded areas, or for attracting any species that is locally, regionally or nationally threatened or endangered..."

Acknowledgments to Elinor Scambler

Signalling with sound

Although birds are able to produce a wide variety of sounds these do not constitute a language, but rather a series of signals and, if there is a reply, responses. Nonetheless, birds are able to use their voices to communicate a wide variety of messages



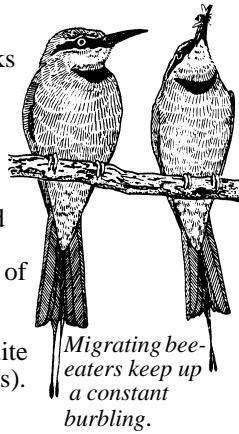
'Keep out'

Each bird species has a unique repertoire of calls and songs used mainly for communication between individuals of the same type (and put to good use by birdwatchers intent on identification). Early in the morning, as the local kookaburra gang rouses us with their own particular salute to the sun, they are telling all other kookaburras within earshot that they have a territory and that they are ready to defend it. Songs of other bird species are ignored since they do not indicate competition for territory, food sources, mates or nesting spots. In fact they are communicating in a different 'tongue' which means nothing to the kookaburras. Instead, they have ears only for the calls of their own type, needing to know that everyone in the neighbourhood is keeping to their own patch.



Contact calls

Birds travelling in flocks tend to call frequently, probably to keep in contact. Twittering sunbirds, chattering metallic starlings, raucous cockatoos and harsh-voiced lorikeets often keep up a babble of sound as they feed together (although a feeding flock can be quite amazingly silent at times). Then, when they are ready to move off, one bird begins to call and the others stop feeding and join in until they all take off.

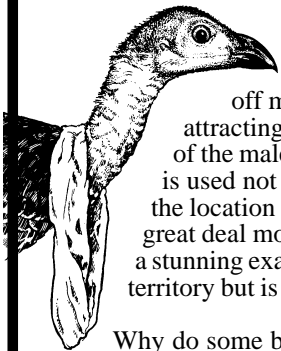


Migrating bee-eaters keep up a constant burbling.

Much bird calling is devoted to this function. Just as birds fly freely across imaginary lines which we defend with guns, land mines and stringent passport controls, so too are humans oblivious to the numerous closely guarded boundaries they traverse unthinkingly throughout the day. The world is divided into countless territorial mosaics, overlaid one upon the other, and each of vital importance to one species but largely unacknowledged by others. The boundaries shift as stronger birds win disputes over weaker rivals and as older birds die and young challengers move in. The dawn (and dusk) choruses are a time for taking stock. Disappearances are noted and quickly acted upon.

Even birds in feeding flocks of mixed species seem to find a common 'linguistic' ground; sonograms have shown that their calls are remarkably similar and presumably cut across species barriers to be recognised by all members of the flock.

The sounds of migrating flocks can be heard far above the earth the birds seeming to call more frequently in fog and other conditions of low visibility – perhaps they are simply trying to avoid mid-air collisions.



'Come hither!'

A bird's territorial call may often be interpreted by a rival as 'stay off my patch' – but by a potential mate as a 'come hither' message; attracting a partner is another essential function of birdsong. The booming of the male Australian brush-turkey – made by inflating the wattle with air – is used not only in aggressive male-to-male encounters but also to advertise the location of his mound to potentially visiting females. However, often a great deal more effort is put into the production of 'love' songs. The lyrebird is a stunning example. The male's famous mimicry is rarely produced in defence of territory but is put to full effect when he is aiming to attract a female.

Why do some bird species produce elaborate songs and others not? Since females seem to prefer the males with the most elaborate songs, and are most likely to breed with them, this trait would be inherited. This may thus be an example of 'runaway' evolution, comparable with the extraordinarily elaborate plumes favoured by some females.



A QPWS ranger recalls a willie

wagtail which once acted as an early warning system for him when he was living in Victoria. A magpie used to dive-bomb him when he went into his back garden but each time the magpie swooped, the willie wagtail sent out a burst of chatter. By ducking every time he heard the warning chatter, he managed to avoid being impaled by the magpie's beak.

Alarm calls are generally of two types and are quite similar across a range of species.

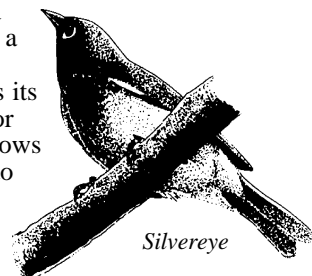
A short, soft call is often used when distant, aerial predators have been detected. Sometimes referred to as a 'seet', it is beamed directionally to fellow family or flock members who immediately take cover or to nestlings which know instinctively to keep quiet. This call is very difficult to locate because it is broadcast in narrow frequency bandwidths. Curiously, those calls belonging to birds in the northern hemisphere use high (narrow-band) frequencies (7-9kHz) while Australian birds use lower ones (2-6kHz). It has been shown that one of the main aerial predators in the northern hemisphere, the sparrowhawk, is unable to detect the high-pitched 'seet' noises further away than 10m and it is thought that at least some Australian raptors have difficulty locating narrow-band calls in low frequencies.

that further stalking is useless. Reinforcements have been called and together the birds may mob the predator until it backs off.

This type of call is used particularly frequently by birds living in family groups and during the breeding season when there are nests to be defended. In both cases the birds giving the alarm are protecting closely related, genetically-similar members of the species. However, just as a scream is understood by every human, no matter what language they speak, alarm calls also translate between species. Certain species tend to be quicker at spotting predators and giving the alarm than others and thus attract other birds to them. It has been observed that young golden-shouldered parrots and hooded parrots, as well as a collection of finches, doves, trillers and sittellas, willie wagtails and flycatchers, feed in the vicinity of nesting black-faced woodswallows which are particularly good at detecting and chasing potentially dangerous butcherbirds and kookaburras.

The other alarm call is strident and loud and transmitted in wide frequency bands. Although it may indicate the location of the caller, it not only serves to tell other birds that there is danger around, but also tells the intruder that it has been spotted and

Similarly, when birds are foraging in mixed species groups (each individual benefiting as the collective foraging disturbs more insects) certain 'sentinel' species often form the core of the group, having attracted other species. In the dry forests of eastern Australia as many as 23 different species have been observed foraging together with thornbills and silvereyes functioning as the core member sentinels. Some sentinels abuse the trust placed in them, however. If one notices a flock member about to capture a choice piece of food it may sound a false alarm which causes its rival to run for cover and allows the sentinel to grab the morsel for itself.



Silvereye

Begging for supper

The begging cries of nestlings seem to urge the parents to bring more food. In experiments overseas, when tapes playing these cries were placed next to nests, the additional begging spurred on the parents to deliver more food to the nest. Further experiments with cuckoos and reed warblers have revealed the secret of the cuckoos' success in persuading foster parents to feed an individual as much food as they would an entire brood of their own chicks (not the equivalent of just one bird's share). Where an individual warbler chick is able to produce begging cries at the rate of 0.4 per second and an entire brood at about 3.6 calls per second (competition causes individuals to call harder), the young usurper is

apparently able to beg at an average rate of 5.6 calls per second, thus inspiring its 'parents' to deliver the equivalent amount of food.

Loud begging calls appear to invite discovery by predators, so in order to reduce this risk (and save the little nestlings' energy) they seem to be programmed to beg only when the parents are near. The parents of some species may produce a special call to initiate this begging while other nestlings react to vibrations of the nest, the draft of parents' wings or, in the case of hole-nesters, a darkening of the entrance.

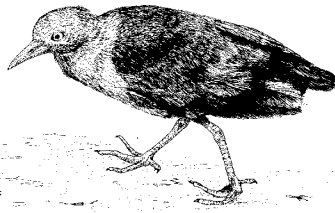
Big leaves – loud calls

In forests, particularly dense ones, where vision is limited, sound is a particularly important method of communication.

However, leaves in a tropical rainforest, because they are large, hard and shiny, reflect and distort sound so the calls of rainforest birds, particularly those frequenting the canopy, tend to be simple, loud and repetitive. On the forest floor long, low pitched calls, such as the booming calls of the cassowary and the Australian brush-turkey, travel well. Sound also travels well across the surface of water.



Parent-chick communication also includes warnings. When the alarm is given, the little black chicks of the red-necked crane scatter, crouch and remain immobile. They also send out high-pitched whistles which may help the parents to locate them again once danger has passed.

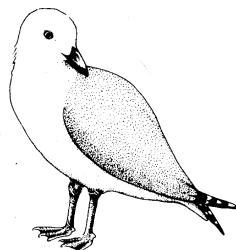


To share or not to share?

It's hard not to imagine that the excited hubbub of birds gathering to roost together is an exchange of the day's news and, indeed, some sort of communication may be taking place regarding food resources; it has been observed that birds leaving the roost in the morning often fly to food sources discovered by other members the previous day.

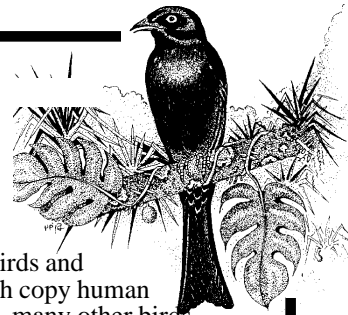
Selected ravens in the USA were experimentally fitted with radio-transmitters and released at different locations, some with food (fresh road-kills) and others without. After spending the night at a common roost, those which had 'discovered' food revisited the sites, along with companions from the roost. However, no birds returned to the empty release sites. No one knows how the birds communicated – whether vocally or visually – but it would seem that some sort of messages were passed. It is also interesting to speculate why the birds would willingly share food. Perhaps it is better to share a find (which will inevitably be taken by another scavenger if left too long) in the anticipation that you will be allowed to share in the next find by a colony member.

Gulls make a 'food-finding' call when they join a feeding group, which attracts yet more individuals to the find. It seems odd that an individual bird, particularly such a notoriously greedy bird as a gull, would advertise food at the risk of losing it. However, there is safety in numbers. More company at the feeding site means more eyes looking out for danger – and less chance that a predator will single out the finder for attention. It has been observed that house sparrows face the same dilemma, but that the finder of the food makes a choice. If the food is big enough to share it will 'chirrup' to call others but if not it will quickly and quietly scoff the morsel and move on.



Mimicry

A number of birds mimic. The most famous (apart from parrots and hill mynas) are lyrebirds and bowerbirds which copy human noises. However, many other birds such as drongos, crows, magpies, singing bushlarks and certain honeyeaters mimic the songs and calls of other species. Although most mimicry seems to be aimed at attracting females, it may also be used to confuse predators who may be perplexed by hearing another individual in the vicinity. It has been suggested that some birds, such as butcherbirds, may mimic the calls of small birds to entice them close enough to be grabbed for dinner!



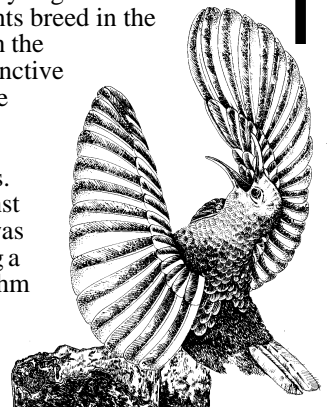
'Parroting' is the expression often used to describe rote and mindless imitation but researchers in the USA working with an African grey parrot have found that the bird is able to understand what it is saying and to use English to communicate meaningfully with people around him. He can ask for 15 different foods ("I want banana") but if given the wrong thing will repeat the request until the correct item is produced. He uses numbers up to six appropriately and can identify colours, shapes and materials and, since his wings are clipped, can ask to be taken to particular places ("Wanna go chair"). He is also creative and, when given dried corn instead of fresh corn, named it "rock corn". It seems that birds may well be much more intelligent than we think.

Mechanical sounds

Some birds, instead of using their voices, make sounds in other ways. The male Australian brush-turkey inflates the skin of its neck to create a booming sound while the male musk duck inflates the bladder under its beak to amplify its piercing whistle. Sooty owls and barn owls, when threatened, make clicking sounds with their tongues, presumably to intimidate predators. The black-necked stork (jabiru) apparently has no voice at all but, like all storks, makes a 'clattering' noise by repeatedly snapping its beak shut. This is used by both adults and nestlings as a defence/threat display and also by courting adults.

Wings can also be used to make noise. Male riflebirds slap their wings together as they arch them above their head in dramatic courting displays. Certain male snipes create a drumming noise by vibrating their tail feathers during display flights – but we do not hear this in Australia since these migrants breed in the northern hemisphere. Special feathers in the wings of crested pigeons make the distinctive whistling sound as they take off, but the function of this is a bit of a mystery.

Very occasionally birds use instruments. Palm cockatoos use sticks to beat against hollow wood and an Albert's lyrebird was filmed in Lamington National Park using a vine, grasped in one foot, to beat a rhythm in time to its song – perhaps a unique occasion of a bird using instrumental accompaniment.



Questions & Answers

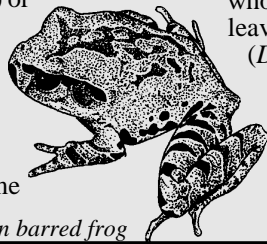
Q I gathered frog eggs from a puddle in February. Four months later, I still have tadpoles! The odd frog has developed, but has been devoured by fellow taddies!

Conditions in my plastic container are obviously far from ideal – I use creek water to top up water levels and feed them with lettuce leaves. Do you have any suggestions to ensure future success and how long would you expect eggs to become frogs?

A The species of frog may be relevant. Some rainforest frogs, such as the northern barred frog, can take from one to two years to fully develop, so four months is not an extraordinarily long time for some species.

However, there are many other factors which may slow down development. One is a lack of protein. Although they are essentially herbivores (which turn into carnivores as they grow into frogs) tadpoles obtain protein from microscopic diatoms etc. as they graze on algae and rotting leaves in the natural environment. To overcome this, you could try suspending leftover chicken bones in the water for the taddies to nibble off remaining meat morsels, or feed them with a little fish food.

Other reasons for impeded development could be overcrowding, inappropriate water temperature, low oxygen levels, lack of sunlight (required by some tadpoles to assimilate nutrients) or generally poor water quality – the creek water, or perhaps the sediments on the bottom, could be contaminated in some way.



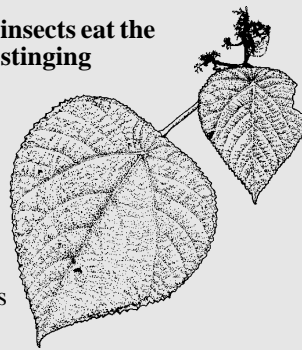
Northern barred frog

Q I have always believed that butterflies live only for 24 hours. Is this true?

A No, unless an accident befalls them or they are eaten by a predator, they can live anywhere from a couple of weeks to nine months. The lifespan depends on species and weather conditions. Those butterflies, such as blue tigers and crows, which gather on coastal areas and offshore islands over winter live longer than if favourable weather conditions had encouraged them to breed immediately after emerging from the pupae.

Acknowledgements to Jack Hasenpusch of the Australian Insect Farm.

Q What insects eat the leaves of stinging trees?



A The caterpillars of white nymph butterflies as well as several stick insects, a weevil and a chrysomelid beetle eat the leaves of the Gympie-gympie stinging tree (*Dendrocnide moroides*) – the bush with large heart-shaped serrated leaves which it is a good idea to avoid. (It is often the well-eaten leaves which sting us, since they are less obvious than the whole ones.) Green possums eat the leaves of the shiny-leaf stinger (*Dendrocnide photinophylla*), a larger tree with smaller leaves. The sting from this tree, which has fewer stinging hairs, is less painful – but is, nonetheless, definitely to be avoided.

Facts and stats

Between 15 and 24 distinct calls (not songs) can be produced by birds, the number varying according to species.

Some birds madden us with their sound. The pallid cuckoo, which sings repetitively at night, is known in Australia as the brain fever bird. In Malaysia that title has been bestowed on the plaintive cuckoo, which has a similar habit. (It is also called the 'dead child bird' since it is thought to be grieving for a dead child.) In South America, it is the bellbird which is called the fever bird.

Duetting has been observed in 222 birds species in 44 families; 55 percent of these were true songbirds. It is more common in species where male and female look alike.

Studies of the song of a marsh warbler in Belgium showed that it was able to mimic the songs of nearly one hundred European species as well as over one hundred African species – learned during its winter visits there.

We share similar peaks of sensitivity with birds in the pitches ranging from 1500 Hz to 4000 Hz.

Observations suggest that the whistle part of the eastern whippbird call may vary according to the individual and that the answerer only responds to the whistle of its mate. It also appears that the whistler can lower the pitch of its whistle to match that of an intruder – perhaps a way of directing aggression to a specific individual.

Experiments in Europe showed that female German chiffchaffs reared in isolation, without having ever heard the song of their species, responded with increased heartbeats when they were exposed to the songs of fellow German chiffchaffs – but did not react at all when they listened to the songs of Spanish and Portuguese chiffchaffs.

Androgen levels tend to be elevated at times of aggression between rivals – males and females – leading to an increase in singing.

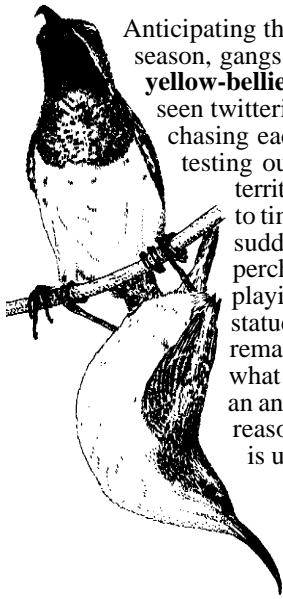
The differences between the songs of golden bowerbirds isolated from each other on mountain tops in the Wet Tropics may be the first step in a gradual evolutionary divergence. It is thought possible that these groups could ultimately change into different races and even into different species with time. Genetic testing is being carried out to clarify this theory.

The magpie produces the longest known bird song – it can continue for up to half an hour without repetition.

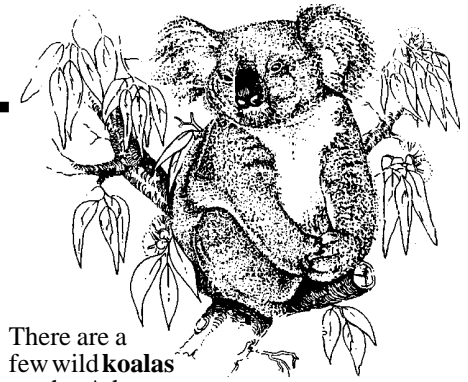
Tourist talk

| ENGLISH | GERMAN | JAPANESE |
|-----------|------------------|----------------------|
| birdsong | Vogelgesang | saezuri さえずり |
| call | Ruf | jinaki 地鳴き |
| dialect | Mundart | hogen 方言 |
| chorus | Chorgesang | gassho 合唱 |
| dawn | Morgendämmerung | yoake 夜明け |
| a duet | Duett | duet デュエット |
| alarm | Alarm | keiho 警報 |
| territory | Revier | nawabari なわばり |
| contact | Kontakt | renraku 連絡 |
| a mate | Paarungsgefährte | tsugaino aite つがいの相手 |

Out and about



Anticipating the breeding season, gangs of young male **yellow-bellied sunbirds** can be seen twittering loudly and chasing each other, possibly testing out established territories. From time to time they may all suddenly stop and perch motionless as if playing a game of statues – quite a remarkable sight in what is normally such an animated bird. The reason for this display is unknown.

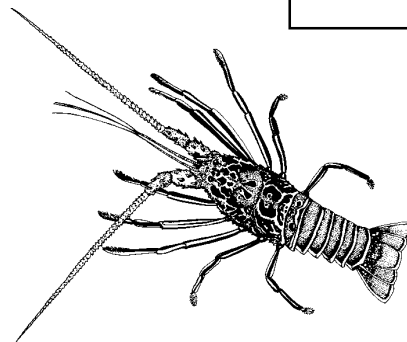


There are a few wild **koalas** on the Atherton and Evelyn Tablelands and it is believed that there are fragmented populations around Herberton, mostly to the west of the Herberton Ranges, and more in the Millstream area; an injured koala, caught by a dog, was rescued from the area in 1998 and rehabilitated.

Acknowledgments to Robyn Gobert

Drier weather means that rivers are becoming more salty where they reach the sea which in turn encourages certain **fish** to swim further upstream. Good conditions this wet season have resulted in large numbers of juvenile barramundi, mangrove jack, grunter (spotted javelin), fingermark and pikey bream in the waterways with promise of good fishing for the next couple of years. Banana prawns have also benefited and are being found in large numbers. Unfortunately, tilapia, the pest fish from Africa, have also done well.

Some items, past their 'use-by date', have been removed from the web version of the newsletter.



In July each year, mature **ornate rock lobsters** (painted crays) migrate to the deep waters along the edge of the Great Barrier Reef in order to breed. During this migration, the male places a sperm packet on the female's 'chest'. When the eggs leave her body she breaks this packet with specially adapted small claws and the sperm attach themselves to the eggs as they pass. They are then carried by the female for about a month until they hatch.

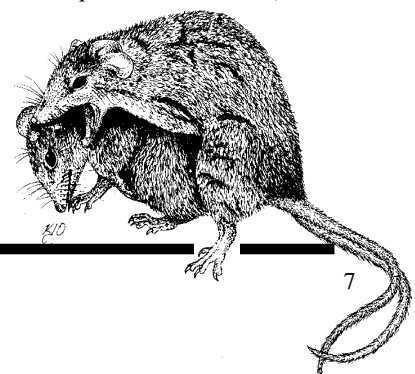
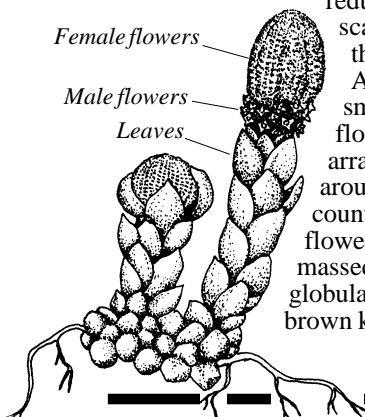
The larvae then drift in the currents for about nine months before turning into little lobsters and, if they are lucky, finding a place on the reef to grow.

In the Gulf of Papua, huge aggregations of ornate rock lobsters, sometimes many thousands strong, are known to travel as far as 500km to breed. It is a one-way trip for the adults most of which die after spawning.

July is a good time to see male **antechinuses** out and about during the day. Although normally nocturnal, the urge to mate – stimulated by increasing daylight – leads these little animals to throw caution to the wind. Scurrying from nest to nest, they are desperate to deposit their limited amount of sperm as quickly and as widely as possible before their almost inevitable death. The females give birth about a month later. (See *Tropical Topics* 50 for details.)

The strange mushroom-like flowers of the parasitic plant, **Balanophora fungosa**, are often a common sight on the rainforest floor during winter. Despite its appearance (and its common name, 'fungus root') this plant is not a fungus. Because it produces no chlorophyll it is unable to manufacture its own food from sunlight so it lives parasitically on the roots of certain plants. Its leaves are

reduced to a few scales protecting the flowers. Above them, small white male flowers are arranged in a ring around the base of countless female flowers which are massed into a globular creamy-brown knob.



Bookshelf

Interpretive Birding Bulletin

Dr. Wm. James Davis (editor)
Available from 136 Payne St,
Indooroopilly, QLD 4068
Subscription: \$30.00 for one year (6
issues)

The editor of this useful 16-page newsletter is keenly interested in all aspects of bird behaviour, in particular bird communication. In the Bulletin he has managed to synthesise a great deal of information from numerous scientific papers into a readable and very interesting publication.

The Life of Birds

David Attenborough
BBC(1998)

The book of the TV series; the chapter Signals and Songs deals with vocal

and visual communication.

Bird Behaviour

Robert Burton
Granada(1985)

This has interesting sections on vocal communication.

Reader's Digest Complete Book of Australian Birds

Reader's Digest (1993)

Australian Natural History Vol. 24 No. 11 Summer 1994-95

Female Doves Coo to Themselves

Rachel Sullivan

TREE Vol. 13 No. 4 April 1998

Functions of duet and solo songs of female birds

N.E. Langmore

A local birdbook

Birds of Queensland's Wet Tropics and Great Barrier Reef and where to find them

Lloyd Nielsen
Gerard Industries Proprietary Limited (1996)

This field guide to the 433 species recorded from our region has an original and useful layout for identification. The introductory key lists distinctive features such as 'black and white plumage' or 'perches sideways on tree trunks'. Page numbers then lead the reader to lists, with small coloured illustrations and descriptions of all birds with these distinguishing features. More information and a guide to the best areas for birding are included in later sections of the book.



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Opinions expressed in *Tropical Topics* are not necessarily those of the Department of Environment and Heritage (EPA).

While all efforts have been made to verify facts, the Department of Environment and Heritage (EPA) takes no responsibility for the accuracy of information supplied in *Tropical Topics*.

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Environmental Protection Agency

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