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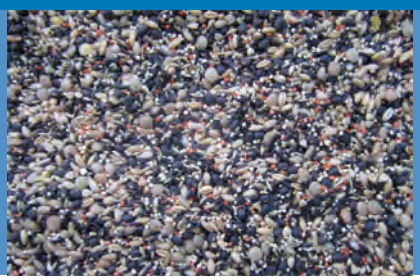

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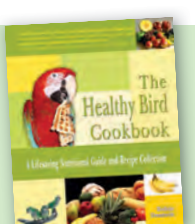

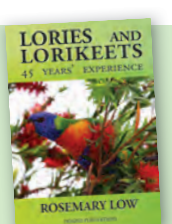

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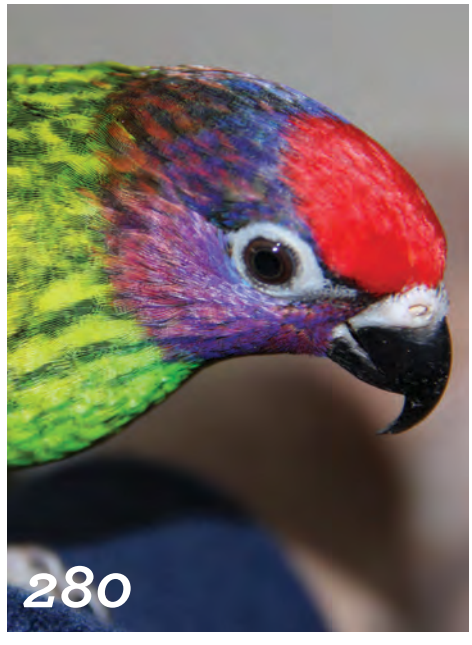

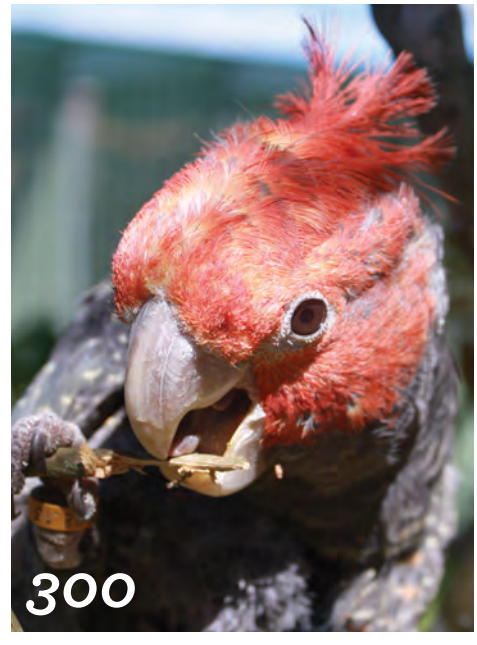

regulars

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WELCOME

SHERYLL STEELE-BOYCE

Bird life has been pretty quiet over the winter months. However, with the onset of spring, nest developments begin. Coupled with nest preparation and eager anticipation, moving into the breeding season means bird keepers need to improve and add to the diets of breeding pairs to help them raise healthy chicks.

ABK has diversified into supplies of bird products, including pellets and supplements, so we invite you to check our website at www.birdkeeper.com.au to see if we can assist you with any products. Not all items are listed, so please contact us to email you a complete price list. Handrearing foods include Passwell and Zupreem. If you require other brands, please give us a call and we will refer you to a supplier.

We also have recently taken on the distribution of the IPetz range to pet shops. Products include galvanised D-cups, poultry feeders, poultry coops, brooders, lamps, thermostats and a whole range of reptile items.

Of particular interest is a great substrate called Chipsi Extra™ which is made from soft beechwood plant fibres in a medium and extra large-sized chip. Being a non-pine base, there is no risk of tannins. Hygienic and dust-free, this absorbent organic nesting and bedding material is suited for nest box substrate, cage bottoms and the nursery.

Before outlining our topics for this issue, I have pleasure in introducing Hillary Hankey—well known to many companion pet owners for her behavioural knowledge and workshops. Hillary also presented at Parrots 2015 as a guest of the Parrot Society Inc. She begins her new column, *Pet Parrot Behaviour*, with a series titled *Companion Parrot Myth Busters*, on page 303.

Looking for a quiet parrot, suitable for smaller suburban aviaries? Then consider the Blue-winged Parrot—Barry Blanch describes their merits in his regular column on page 288.

On the finch front, Russell Kingston provides an interesting overview of South American finches, including grassquits, cardinals, crested finches, and siskins kept in Australian aviculture—see page 292. And on page 313, Marcus Pollard revisits keeping and breeding the Beautiful Firetail in an effort to encourage more breeders to pull together to increase numbers of this species.

Deliberately pairing two different species is not supported by most aviculturists and conservationists. However, hybridisation does occur due to a variety of factors, such as isolation from like species and within subspecies. It is also interesting to note that there is an increased incidence of hybridisation in some avian orders. Kit Prendergast presents some fascinating facts on this subject over various avian taxa in a two-part series, beginning on page 316.

The Peach-fronted Conure is becoming an increasingly popular species in Australian aviculture and a new writer to our pages, Jason Wright, explains his experiences in their breeding and care on page 277. He also advocates their suitability as companion birds.

The experiences of European breeders with particular species can differ to that of breeders in other parts of the world. In this issue, we lead with Horst Mayer's success in breeding the white-eared group of *Pyrrhura Conures*, on page 306. His best breeding pair of Grey-breasted Conures had bred 101 young as of July 2016—a grand achievement!

Lubomir Tomiska also relates how he has warmed to keeping and breeding the Goldie's Lorikeet, focusing on their dietary requirements and housing in the winter climes of the Czech Republic—see page 280.

The popularity of lovebirds has vacillated over time. Peter Odekerken has kept many parrots throughout his years in aviculture. One lovebird that remains his favourite is the Red-faced Lovebird which he kept when he lived in South Africa. Although not available in Australia, Peter shares his experience in a trip down memory lane, on page 296.

And on page 284 Bob Branston recalls his past experiences with a very protective pair of Major Mitchell's Cockatoos.

The final article in the regular column—*Canary Chatter*—by Brian Bohl, appears on page 318. Brian has shared some great information on canary forms including their nutrition, breeding and showing. I am sure keepers involved in the canary fancy will miss his words of wisdom! Brian—thank you for sharing your knowledge as a member of the ***ABK*** team.

Young bird keepers—send in your entries for the annual Syd Smith Memorial Competition, which closes on 30 October. Prizes include an annual subscription to ***BirdKeeper***. See page 337 for more details. If you would like some support in the preparation of your article, please give me a call.

It looks like we truly have something for all interests in this issue, so please enjoy!

Sheryll

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WORDS AND PHOTOGRAPHS BY **JASON WRIGHT**

Peach-fronted Conures

P ODEKERKEN

Peach-fonted Conures enjoy a varied diet of pellets, seed, greens and fruits

In Australia the Peach-fronted Conure *Aratinga aurea* has a reputation for being hard to breed and noisy. To their credit, they breed as readily as Sun Conures, and are certainly less noisy, from my experience. I affectionately call these beautiful little conures 'Peachies' and thoroughly enjoy their endearing natter and conversation every time I enter my aviary complex.

DESCRIPTION

Peach-fronted Conures measure approximately 25–26cm and weigh 70–80g. At a quick glance, one could miss the beauty of a Peach-fronted Conure, with its stunning orange forehead, blue crown and, with maturity, a chest and throat that are a rich olive contrast to the dark green topside of the bird. Unlike most conures, the eye ring is not naked, with the eye surrounded by rich orange feathers, though this can range from one or two feathers to an entire ring of feathers, depending on the individual bird. I understand this may actually be more as a result of subspecies than variations in individual parrots.

It has been a pleasure to watch my young pairs mature and develop their vibrant colours. Their plumage is not as intense when immature.

DIET

All of my conures receive the same diet—Vetafarm™ South American mix pellets and small parrot mix is freely available. Each morning they also receive soaked/sprouted seed, mixed with diced vegetables and a small offering of fruit, which consists of a varying mix of apple, pear, orange, corn, cucumber, zucchini, carrot, peas, beans, broccoli, and snow peas. The mixture differs depending on seasonal availability and also to give the birds variety. I have also noticed that my Peachies tend to prefer their seed, other than leading into breeding season and with young. At these times, they change their eating habits to include far more corn and soft foods, especially the pellets.

I supplement the soaked seed mix with Calcivet™ (or an equivalent) to assist with egg-laying and the health of the birds. They also enjoy chewing on cuttlebone, which is available all year round.

My birds are also fed greens—milk thistles, seeding grass, kale or just runners from my lawn. They enjoy fossicking about and chewing fresh branch offerings. They also relish pomegranates—just don't be alarmed by their droppings afterwards.

HOUSING

My Peach-fronts are kept in suspended aviaries which measure 2.4m x 1m square. They are double-wired as Peach-fronted Conures have a tendency to be aggressive towards neighbouring birds. I also believe the benefit of the suspended aviaries is nest box inspection and feeding is less intrusive on the birds, especially as I use swivel feeders, which means I have no need to enter the aviaries unless replacing fresh branches.

Peach-fronts, once settled, are inquisitive and love to chew. I offer fresh *Callistemon*, Cotoneaster, and gum branches, which they devour and strip with great enthusiasm. Nest boxes are also fair game, which is another good reason to offer fresh branches to limit the damage. I now use marine or heavy ply for the majority of my nest boxes. It provides a sturdy box, and insulation when the females lay early.

My Peach-fronts sleep in their nest boxes, however I have heard of them sleeping on the perch. Personally I think it is beneficial for them to sleep in the box, as this prevents night fright and also helps with nest box familiarity when it comes to breeding season.

The author's Peach-fronted Conures are housed in suspended aviaries and provided fresh branches to satisfy their love of chewing

A usual clutch is generally 3–4 eggs

BREEDING

Because they are great chewers, be mindful to check the nest box regularly in the lead up to breeding season, as Peach-fronted Conures can spend plenty of time just chewing a new entrance in their nest box. As a rule, I provide a small amount of pine shavings to line the standard cockatiel-style nest box (18cm x 18cm x 35–40cm high, with a relatively small entrance hole and a horizontal perch fixed across the front of the box). I also provide a larger quantity of fresh gum bark that can be shredded by the birds to stimulate nest box and breeding activity.

Not only does the

Parent compatibility can affect successful breedings of Peach-fronted Conures

chewing intensify in the lead up to breeding season, so does the mood and aggressive nature of the males. Their attention to the female is nothing short of harassment. Strutting about the aviary, flitting about and flashing irises also become prevalent.

It's normally noticeable that the female is about to lay, due to her enlarged abdomen. The pair bond is normally good and they continue to mate often, in traditional conure manner—the male with one foot on the perch, the other on the female.

My Peach-fronted Conures normally lay 3–4 eggs in a clutch, although I did have a one-off clutch of five. The females usually sit tightly once the second or third egg is laid. Fertility varies—sometimes a fully fertile clutch, often 1–2 eggs are clear. It seems to be the first clutch of the season that has clear eggs. I believe my females go down before the male is ready, often in late June or early July, when it is still cold. Once the male realises it is the breeding season, results improve. Having said this, it does vary from pair to pair, as one pair is 100% fertile all the time.

Compatibility seems to be the biggest issue with Peach-fronts. Finding the right pair can result in exceptional parents, with several pairs happily raising four young in each nest.

CONCLUSION

Having made the initial decision to acquire young birds, I've patiently waited for them to mature. Three years is the usual, but I have heard of Peachies laying at two years old. Having watched them intently for this period of time, you certainly learn the personalities of your birds and notice the change in character when maturity is reached.

And to be honest, I have treated them no differently to my Sun or *Pyrrhura* Conures. They have rewarded me with as much entertainment, colour and pleasure. Hopefully this year they will also reward me with some more youngsters.

I would certainly recommend these beautiful conures to anyone wanting a challenge and the reward of breeding an exceptional conure that many have avoided. They are now being bred in reasonable numbers, with some breeders doing well.

As their price becomes more accommodating, it should be noted that handraised youngsters make exceptional pets. We've had the little guys talking and 'waving' on command. They are a pleasure to handraise, and such an endearing pet. More people should be fortunate enough to experience such a lovely and colourful conure.

WORDS BY **LUBOMIR TOMISKA** PHOTOGRAPHS BY **NILS BECKER**

The Goldie's Lorikeet

P ODEKERKEN

What is the current situation of lory breeding in Europe? There is no doubt that we still have a diversity of species in our aviaries. The newest taxonomy from Del Hoyo *et al* (2014) classifies 60 species within the family Loriinae. According to my rough estimate, 75% of these are still present in captive populations in Europe. However, numbers are significantly lower than they were in the not-so-distant past, to the extent that we are at risk of losing species.

I started breeding lories in 2007 and I still remember my first visit to the bird market at Zwolle (one of the two largest bird markets in Europe) where many lory species were offered.

At that time, the price for a Dusky Lory *Pseudeos fuscata* pair was €500, and Black *Chalcopsitta atra* and Duyvenbodei *C. duyvenbode*i Lories were for sale for about €1000 a pair.

The price for rarer species today is at least double that and, even if you are keen to pay the money, you cannot be sure to find the birds. Apart from a few of the more common species like the Yellow-bibbed *Lorius chlorocercus*, Rainbow *Trichoglossus moluccanus* or Yellow-backed *Lorius garrulus*, the majority of lory and lorikeet species can be considered rare in Europe. Without any importation, Black-winged Lories *Eos cyanogeni*, Fairy Lorikeets *Charmosyna pulchella*, Musschenbroek's Lorikeets *Neopsittacus musschenbroekii* and a few other species are certainly destined for extinction in European aviaries.

However, there are a few things which private breeders can do about this negative trend. As well as improving our breeding results and methods, and meeting in specialised lory clubs, we should also encourage new breeders to start keeping these beautiful species.

TAXONOMY

I decided to follow the latest taxonomy of Del Hoyo and classified the Goldie's Lorikeet in the *Psitteuteles* genus—*P. goldiei*, originally described and named by Bonaparte in 1854. Some authors have

The Goldie's Lorikeet originated in New Guinea

placed the Goldie's in the *Trichoglossus* genus (Arndt 1996, Low 1998 and Vriends 1993).

Nowadays, molecular DNA analysis represents the main tool to determine taxonomy, and some good studies focussed on parrots have been published using this method of analysis to resolve the evolutionary history and phylogenetic relationships of this avian order. However, only a single study published recently—Schweizer *et al* (2015)—has used molecular techniques to perform the first taxonomic analysis on lories and lorikeets. Results revealed that *Psitteuteles*, as well as the genus *Charmosyna* and, probably, *Trichoglossus* are non-monophyletic—that is, the species grouped within each genus are not more closely related to each other than species placed within other genera. Nevertheless, the Goldie's Lorikeet was confirmed as belonging to the *Psitteuteles* genus (unlike the Iris Lorikeet which it was discovered should be moved from *Psitteuteles* to the *Trichoglossus* genus).

DISTRIBUTION AND STATUS

The Goldie's Lorikeet occurs naturally exclusively in New Guinea. This species' distribution is spread over the central mountain ranges of Papua New Guinea to the easternmost point of the island. The species is found at up to 2750m altitude in montane forests where temperature can fall as low as 14°C. This is a similar habitat to the Stella *Charmosyna papou*, Josephine's *Charmosyna josefinae* and Whiskered Lorikeets *Oreopsittacus arfaki*. In contrast to these species that spend most time in higher altitudes, the Goldie's Lorikeet also occurs in lowlands. According to the IUCN, this lorikeet is evaluated as Least Concern.

HOUSING

I have kept this species in both indoor cages and aviaries. The cages measured 1m square. Aviaries had a shelter size of 2m long x 8m wide x 2m high, with an outside flight measuring 1m long. A large window connecting the inside and outside areas allowed the birds to fly 3m. Despite its smaller size, the Goldie's Lorikeet is an agile flyer. However, most breeders will never notice its flying ability because they keep the species in small cages. In truth, my birds seldom showcased their flying abilities because they seldom ventured to the outside flight. Rather than flying, they preferred climbing on branches and playing with their mates, like most lory and lorikeet species.

The winter in central Europe is cold. Temperatures can fall as low as -20°C. Some breeders believe that as long as the nectar supplied does not freeze in bowls, there is no concern for the birds and, even when it does freeze, they just supply dry nectar!

Our duty as aviculturists is to keep our birds in favourable conditions which lead to good health, good breeding results and long life. Because of that, I heat my facility to +15°C during the colder months. Part of the collection stays for the entire

L TOMISKA

Goldie's Lorikeets were offered both indoor and outdoor housing, preferring to stay indoors

year in combined aviaries, which have inside and outside areas. Other birds are kept in indoor cages during the winter and in outside aviaries for the rest of the year.

In comparison to other similarly sized *Charmosyna* species, the Goldie's Lorikeet is less affected by lower temperatures. However, they are small birds and with a higher surface area to body volume, they lose heat more readily and are less insulated, meaning it costs them more energy to maintain a stable body temperature in colder air temperature.

DIET

Diet for lories and lorikeets is an ongoing and unresolved topic. Hundreds of homemade recipes and dozens of commercial nectar mixes exist and everybody believes that his or her recipe is the best. I will try to explain the thinking behind my opinion.

There are still many details we do not know about the natural diet of lories. How much protein do lories actually need? Smaller nectivorous birds, like hummingbirds or sunbirds, need a very limited amount of protein to survive. Nutritional requirements can differ a lot among individual species of lories.

In one study, zoologists from the University of Florida compared the protein metabolism of Pesquet's Parrots *Psittrichas fulgidus*, Red Lories *Eos bornea* and Budgerigars *Melopsittacus undulatus*. Surprisingly, they found that nectivorous Pesquet's Parrots and Red Lories required 2–3 times less protein than the granivorous Budgie. Researchers also investigated how changes in protein levels affected bird body weight. Interestingly, a diet which contained only 3% protein had no impact on the body weight of the nectivorous parrot species, in contrast with the granivorous Budgie, which underwent a significant decline in weight on such a diet.

Breeders often mistakenly consider most lory and lorikeet species to have the same habits and requirements because they all eat nectar. Yet genera can differ a lot from each other in their habitat, morphology and diet. For example, Red-flanked Lorikeets *Charmosyna placentis* are highly nectivorous, whereas Rainbow Lorikeets are less restricted and do not have an exclusively nectivorous diet.

Commercial nectars are very popular among breeders. In Europe, we have a broad range of products which differ a lot in quality. Some breeders also attempt to produce their own instant mixtures. However, they are often not well informed about the nutritional requirements of these species. Such experiments have brought us good nectars and bad, depending on the experience and skills of the particular breeder.

Why do I not believe that most commercial instant nectars are good? Because many of these products are not based on serious research but are simply the result of trial and error. Commonly, producers do not work with published studies and recent data from the field. Often nutritional requirements based on poultry are used. (This is a problem not only for lories but also in the production of pellets for other birds.) Why do many commercial nectars contain high protein? Most studies have found that nectivorous birds require much less protein than granivorous parrots. Many products contain high protein levels, are overly rich in Vitamin A which can lead to liver damage, and are high in iron, despite hemochromatosis being a common issue in lories.

So, how should we feed our lories? I have been breeding lories for nine years. During that time I have tried many types of commercial diets (eg Aves™, Orlux™, Nekton™, Avian™) and I have visited many breeders.

German lory breeders have always been my inspiration. I admire their attention to detail and how they keep lories in good conditions and clean housing. It is clear that many of them are not just 'consumer breeders' who buy 20kg bags of instant nectar, provide it in dry form and add a piece of apple. Experienced breeders, including Becker, Schäfer, Bosch, Weyer and Neff, have constantly been working on trying to improve the lory's diet.

In developing my nectar diet for lories, I was inspired by Rudiger Neff. However, I use only liquid nectar, not dry. At least 5–6 kinds of fruit and vegetables are mixed into the nectar. This is a guarantee that birds have a natural source of vitamins and that the mix does not sediment so much. If the temperature does not rise above 25°C, it does not spoil. If it is too hot, I change the nectar more frequently each day.

In a second bowl, I provide something which I call a protein cocktail. There are mealworms, maggots, eggfood, sprouted seeds and pulses. Patience is needed for some species of lory to learn to eat new foods. However, I believe that if we are persistent, birds will eventually eat most foods we offer.

I consider my liquid nectar to be a light mix which keeps lories active for the whole day. However, it does not contain all amino acids to cover their nutritional requirements which is why I supplement it with the protein cocktail. While smaller species like the Red-flanked Lorikeet *Charmosyna placentis* do well on liquid nectar, it does not satisfy the needs of larger *Lorius* spp.

Smaller species are very picky about content of the second bowl and eat only a small part of this food, whereas larger species often consume the entire contents. I have also observed that food preference of lories can be seasonal.

As mentioned, lories generally require less protein in their diet than other parrots. However, this is not the case in breeding birds. Chicks need more protein for their development and growth. Therefore we cannot feed lories the same way for the whole year. During the breeding season we have to provide a high-protein diet, reducing the protein content during the non-breeding season. This is common in all parrots, but in lories the difference is more significant.

These Goldie's Lorikeets took a few seasons to settle and breed

BREEDING

The Goldie's Lorikeet might be classified as an easier species to breed. However, I had to be very patient to achieve my first success with this species. Originally, these birds were not one of my favourite species. They became part of my collection by coincidence. When I visited a German breeder one day, he had a spare female which was two years old. The bird was in good condition and was offered for a good price. I decided to buy her, put her aside and wait until a male became available. She had been handraised and was quite tame. Whenever I came near the cage, she immediately jumped on the mesh and tried to interact. A few months passed before a friend offered me a male. It was more than 10 years old but I did not know of any other males available at the time, so I took it.

Later, I found out that this bird displayed a very strange behaviour when stressed. Although it is not uncommon for birds to become immobile in stressful situations, this bird underwent what looked like

It is essential to research the composition of suitable diets for lories and lorikeets, as many do not contain the correct nutritional requirements

The Goldie's Lorikeet deserves attention

epileptic fits, with its whole body shaking. Otherwise, the bird was in a good condition, so I put him in with the female in an inside cage. Nothing happened for a year. The birds absolutely ignored each other, despite being provided with two nest box types—a conventional vertical type, measuring 13cm x 13cm x 30cm, and an L-shaped design of similar size.

I eventually came to the conclusion that an old epileptic male was probably a poor partner for my beautiful female. By coincidence, I visited another breeder at that time who had a spare Goldie's Lorikeet male. This one was 13 years old and plucked on the head. The breeder offered it to me for free because it did not have any future in his collection. Despite reservations about having another retired male, I decided to pair this new male with the female and see how things went. To my surprise, after just after a few weeks, the new male and my female started copulating. I did not wait; I removed the second male.

However, nothing happened after that! No more copulation, no eggs ... After a year of wasted time, I was cursing myself for buying two old birds rather than young birds which would be a better prospective for the future. What is more, the separated male occupied a cage I needed for other birds, so it was returned to the pair.

You would not believe it, but the female started copulating with the epileptic! A few weeks later I found the first egg in the nest box. This seemed really promising. I separated the male with the plucked head and left the pair alone. Unfortunately, the first clutch was infertile and was later broken by the parents. One fertile egg appeared in the second clutch. The female incubated properly and after 23 days my first Goldie's chick hatched.

The very next day it disappeared. I suspect that the parents were disturbed by the inspection or maybe by a couple of Red-flanked Lorikeets which nested in the adjacent cage. I decided to transfer the pair to an outside aviary, intended for smaller lorikeet species. The couple started nesting again at the beginning of summer. Finally, breeding was a complete success and the parents cared for the chick very well. It became independent after seven weeks.

CONCLUSION

Although the Goldie's Lorikeet was not my favourite species, with time I got to like this small, nicely coloured, quiet and constantly active bird.

REFERENCE

Schweizer, M et al 2015, 'Molecular phylogenetics suggests a New Guinean origin and frequent episodes of founder-event speciation in the nectarivorous lories and lorikeets' *Molecular Phylogenetics and Evolution*, vol. 90, pp. 34-48.

WORDS AND PHOTOGRAPHS BY **BOB BRANSTON**

Major Achievements in Aviculture

With a strong bond, breeding success was just a matter of time

Aviculture can be a frustrating nightmare at times but it also offers many wonderfully rewarding experiences. How many fascinating stories are out there among aviculturists who have had more than just the satisfaction of keeping and possibly breeding birds in captivity?

Breeding our birds can be financially rewarding but I think this is far outweighed by the sheer pleasure and eye-opening experiences these feathered friends bestow upon us.

Although at any one time, my wife and I have had up to 90 pairs of birds set up for breeding—new mutations in *Neophemas* and cockatiels, breathtakingly beautiful exotic parrots and numerous normal Australian parrot and finch species—one particular pair of common Aussie cockatoos never ceased to amaze me year after year. I am speaking of a pair of magnificent Major Mitchell's Cockatoos *Lophochroa leadbeateri*—named after Major Sir Thomas Mitchell, a surveyor and explorer of south-east Australia during the 1800s.

Major Mitchell's male protecting a palm log nest—which only lasted two seasons

BREEDING AND *ANGRY'S* PROTECTION

Although this story is not specifically about breeding success with this pair of Majors, it does feature heavily in all the amazing feats and outstanding attributes of these so-called Pink, or Leadbeater's Cockatoos.

Both birds were so devoted and protective as parents that, assuming fertility was there, chicks were assured. Not too many other pairs of birds have been able to guarantee me at least one clutch of fledglings per season and two if I decided to pull the first clutch for handrearing.

Protection of their offspring was paramount. Many Major Mitchell's males become quite aggressive towards their keepers at nesting time. With this pair, both parents became lethal weapons each and every season when their nest was 'threatened'. It did not matter whether they had not yet laid, had laid eggs or the eggs had hatched, any intrusion was met with a cruise-missile attack to deter incursion.

The male, aptly named *Angry*, was relentless in his attacks. He delighted in initially playing unconcerned when I entered his flight, only to launch himself directly at me as soon as I took my eyes off him. I almost died of fright the first time he attacked me—all half a kilogram of high-explosive parental instinct landing at maximum velocity on my chest and eye-balling me, ready to take a piece out of my face. Staring straight at those glaring eyes, the erect crest and fully flared wings and the snapping, hissing beak was more than enough to send me into a hasty retreat from the aviary, even though I outweighed *Angry* 160:1.

I have had macaws and Amazons attack fiercely in breeding season but none was so focussed on the intense intimidation of this Major's eye-balling approach to fighting off the intruder. Suffice to say, the coward in me took the mitigating approach the next time I had to enter *Angry's* territory. I took a net with me, caught *Angry* in it and left him neutralised for the remainder of the incursion into enemy territory—which was never long anyway, as his mate was as vocal and intimidating as he was except without the chest attack. She only launched screaming flights as close to me as possible in an endeavour to intimidate, but never got actually physical like *Angry*.

Some male Majors I owned became very aggressive towards their partners, sometimes resulting in serious injury to the female. However, *Angry* always took out his frustration on whoever or whatever threatened his territory and never on his partner—a true gentleman and family protector. The only time he struck his female was inadvertently with his erect crest as he shook his head to show displeasure at some annoyance, which could never be classified as abuse. Full-on parenting was what this lovable pair was all about.

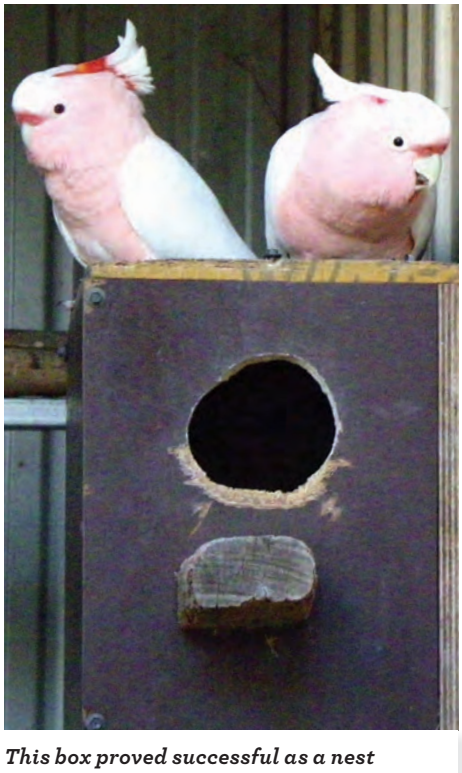
CARING FOR A CRIPPLED CHICK

One season, the pair had a chick with what appeared to be a paralysis problem. The chick's legs were fully outstretched and stiff and had the same physical characteristics as '*Polytelis* syndrome'. I thought the most humane thing to do was to euthanase the chick. (It was not until it had fledged that I noticed any problem.)

The chick was obviously able to prop itself up against the side of its log prior to fledging. However, once out of the nest, it would lay on its chest, with its legs outstretched behind it and could not move onto its back. The parents would turn the chick over to feed it and would religiously clean up any droppings that had accumulated on its lower abdomen or tail as a result of laying on its chest.

I agonised over putting it down for several days. I felt that I should at least try something because the parents were not going to give up on it. So, after confining *Angry* to the net, I endeavoured to manipulate the legs, hips and feet of the chick daily. After several days, some flexibility in the joints was becoming obvious. I persisted with this treatment for several weeks until sufficient suppleness was attained for the chick to clumsily climb up the cage wire to the perch, using beak and feet.

This amazing pair of birds never gave up on the chick—feeding and cleaning it until it was almost fully recovered and able to fly and stand on perches without falling. After several months of activity, a slight stiffness in walking gait was all that was evident. As well as giving me a great buzz of success, I'm sure the Major pair was glad to see the end of the human chiropractor!



This box proved successful as a nest

RED-BELLIED BLACK SNAKE

If *Angry* was able to fight off an 80kg intruder (at least once), fighting off a 1.2m Red-bellied Black Snake would be no problem. How this reptile got into the aviary, I do not know. The first I knew of it was the excited alarm calls of the Major Mitchell's parent birds.

They had chicks in the nest and were screeching loudly, with crests erect and wings outstretched, in an effort to drive the snake off through sheer noise and physical intimidation. Despite the commotion, the snake was going nowhere. It obviously sensed an easy meal.

While I scurried off to get a suitable weapon, *Angry* decided to take matters into his own hands—or should that be wings? To my horror, on returning with a rake and sugar bag, I found *Angry* down on the aviary floor, confronting the snake head-on, with glaring eyes intently focussed on the snake's head. What occurred next left no doubt as to the protective instincts of this little feathered fireball.

Without hesitation, the brave little Major went on the attack. The snake reared itself up ready to strike, only to be met with furious wing-flaps to its head, so quick and unrelenting that the reptile turned tail and slithered away. *Angry* was not content to let it go peacefully either, he kept up his focussed attack until the snake had taken refuge behind a large water bowl and I was able to extract it to safety. I might be mistaken but I'm sure that snake muttered 'thank you' as I removed him to calmer pastures.

In total contrast to this full-on encounter with the Red-bellied Black Snake, the Majors were prepared, after an initial outburst of screaming and wing-flapping, to accept a 2m Diamond Python taking up residence in the roof of their aviary for a short time. The python had dropped off an overhanging branch onto the top of the aviary. The Majors evidently felt secure that it could not gain access to the aviary and actually raised chicks during part of the python's stay. A truly amazing and astute pair of birds, hell-bent on ensuring the survival of their species despite all odds, yet smart enough to figure out what posed an imminent danger to their brood and what did not.

SAYING FAREWELL

This pair of birds also taught me a great deal about the importance of nest selection and how successful breeding results can be maximised by the right choices. But that, as they say, is another story and will be the subject of a future article.

Despite having wonderful experiences with most of the birds we kept and bred over two and a half decades, *Angry* and his mate were the hardest to part with when we could no longer keep birds. But the memories this magnificent Major Mitchell's pair provided will last forever. I'm positive most dedicated aviculturists will have had similar amazing times with at least one pair of their birds.

What an enlightening and eye-opening hobby aviculture can be, provided we take the time to observe, understand and appreciate the natural instincts of our feathered friends, even in a captive environment. In fact, aviculture arguably exposes many of the wonders of bird life within a short period of time, whereas similar studies in the wild could take decades.

BREEDING AUSTRALIAN PARROTS

WORDS BY **BARRY BLANCH** Grad Cert App Sc. Ornithology PHOTOGRAPHS BY **JULIE BLANCH**

Blue-winged Parrots

Blue-winged Parrot male

Blue-winged Parrots *Neophema chrysostoma* are small, slender parrots commonly referred to as grass parrots. They belong to the *Neophema* genus. Although considered a migratory bird from Tasmania, it is unclear how many of the population migrate, or to which areas on the mainland. The migration doesn't appear to include whole flocks or large numbers. Blue-winged Parrots inhabit several of the south-eastern Australian states and the majority of Tasmania, including the Bass Strait Islands. On some occasions in South Australia the Blue-winged can be mistaken for another member of the *Neophema* family—the Elegant Parrot—due to their similarity in colour and size. The Blue-winged is a quiet parrot. Although some are very friendly, they can be timid or flighty in the aviary. They are capable of rapid flight and I have seen the sudden rise of a whole flock from ground cover when disturbed by very slight sounds and movements.

IN THE WILD

Range and Habitat

Blue-winged Parrots inhabit a variety of different environments from open, sparsely timbered grasslands, mallee shrub woodlands to the inland saltbush plains, coastal and semi-arid areas. They can be found throughout most of Tasmania, feeding on the unique moorland Heath Button Grass or coastal saltbush. Blue-wings are often found in small parties, foraging on the small seed pods, grasses and seasonal flowering herbs. Their plumage blends in so well when they are feeding that they go almost unnoticed. Land clearing and improved pastures have encouraged the increase in numbers of birds in Tasmania throughout the year.

On the mainland, the Blue-winged range extends from the regions close to the temperate easterly border areas of South Australia, throughout southern and south-western regions of Victoria, parts of New South Wales and even some areas of Queensland, especially during the winter months. Blue-winged Parrots are known to mainly breed in Tasmania and on the Bass Strait Islands but there seems to be a moderate population which inhabits the mainland areas south-east of South Australia and southern Victoria throughout the year.

During the late autumn and early winter, a moderate number of Blue-wings migrate from Tasmania across Bass Strait to parts of southern Victoria and south-eastern South Australia. The migration doesn't appear to include the whole flock.

Birds inhabiting the mainland regions also move from the southern regions of their habitat up to the northern and eastern parts of their range, depending on the availability of water in rivers,

Blue-winged Parrot pair—male on left

billabongs, creeks and artesian bores. Some Blue-wings disperse up as far as the Eyre Peninsular, Lake Eyre Basin and the Darling River Plains before returning south to breed in the spring. It is understood the birds migrate in a loop, travelling north via one route and returning by another. It has been suggested that birds on the mainland could be leap-frogged by the migrating populations from Tasmania.

Description

Blue-wings are small, slender-bodied parrots with a body plumage that blends in with the ground cover they frequent. They are named for the distinctive wide blue on the wings. Blue-wings are only on average 22cm long and male birds weigh a little over 50g. Their general plumage is an olive-green with a slight yellowish tinge. They have a distinctive blue band across the forehead, between the eyes. The band is a dark royal blue lined by a fading light blue. Below the band and around the eye is lemon yellow, almost like a face mask. Above the band and below the yellow 'mask', the cheeks, throat and upper back feathering, including the mantle and rump, are all varying dull olive-green, infused with a pastel grass green fleck throughout the upper breast. From the lower breast and all under parts, the abdomen, undertail coverts and thighs, the feather colouration is a pastel pale yellow. In contrast, the broad band from the shoulder down the wing to the primary feathers is a violet blue, tending to cobalt blue towards the middle of the wings. The secondary wing feathers are very dark blue and almost black. The top of the tail is a bluish-grey with yellowish undertail covert feathers. Female Blue-wings are generally duller and the frontal forehead band is duller and less prominent.

IN CAPTIVITY

Housing

Keeping Blue-wings doesn't require a large flight or aviary. As Blue-wings are swift flyers, a smaller length flight or aviary will prevent any speed and the likelihood of injury. A flight measuring 2–3m long x 1m wide x 2m high, including a shelter area, is sufficient to house one pair of these small parrots.

Blue-winged female

Blue-winged Parrot female

Conventional flights with an earthen floor are more suited for these ground-feeders. We house our Blue-wings in conventional aviaries with small gauge 0.6mm square mouse mesh that reduces the likelihood of snakes and mice gaining entry. If breeding pairs are kept in suspended flights, the birds need a slightly larger flight for exercise, especially during the non-breeding season. Because Blue-wings are known to be night fliers, especially on full moonlit nights in the lead-up to the breeding season, the sides of flights should be covered to reduce disturbance to neighbouring birds. In suspended flights, providing a small tray covered in a sandy loam allows the birds to dry sandbathe and ingest some grit.

The Blue-wing Parrot is non-aggressive and can be housed in a well-established planted aviary with non-aggressive species such as King Parrots, Crimson-wings, doves, finches and pigeons. They will breed in a colony if aviary space is sufficiently large, although planted aviaries are not always successful as the birds will strip the leaves off shrubs, which will need regular replacement. It is not advisable to mix other *Neophema* species, with the exception of the Bourke's Parrot, in a colony with Blue-wings as they will hybridise. Housing them beside Elegants and Turquoisines will be a distraction and result in poor breeding success. Blue-wings housed in neighbouring flights alongside other parrot species can actually encourage breeding. Shrubs and plants surrounding the flights provide privacy as well as sheltering the aviary from extreme heat or cold weather.

Nesting

Either a nest box or a small log, hung vertically just under the shelter, can be used but don't place it too high. In northern areas, nests need to be shaded or ventilated to reduce the effects of the summer heat during the breeding season. Lightweight boxes with a hinged lid that can be easily lifted off the wall are ideal for inspection. The nest box size is generally 20cm x 20cm square x 30cm deep, with a small entrance hole no more than 50mm diameter. In hot, dry temperature areas, the nest needs to be lined with a 50% mixture of coarse hardwood sawdust and damp peatmoss to maintain the humidity needed for hatching. Water misters over the flight can reduce extreme temperatures.

Diet

These 'grass parrots' are predominantly small seed-eaters. A good quality small parrot mix is always available and

supplemented with additional plain canary seed. This is essential for maintaining and improving breeding health. Greens such as celery and spinach are fed daily. When dandelion and milk thistle are in season, they are fed in place of other greens. When birds are feeding young, supplementing the parrot mix with either soaked or sprouted seed helps reduce the parents' effort in keeping the young chicks' crops full. A plentiful supply of clean water is essential, with a bowl sized to allow the birds to bathe and splash. Because the birds are ground-feeders, a regular worming regime should be maintained in the month before and after the breeding season.

Breeding

When selecting unrelated Blue-wings for pairing, it is important that the birds are DNA-sexed rather than visually sexed as some females can be as bright as males. This parrot will breed at 12 months of age, so pairing needs to be done before the birds obtain adult plumage.

Blue-wings tend to nest later in the season than other *Neophemas* that start nesting at the end of August to early September. It isn't unusual to hear the birds calling out during the clear moonlit nights in the months prior to the breeding season commencing.

The male's courtship ritual only begins when the female has obtained her new breeding plumage after a heavy moult.

Nesting generally commences at the end of October through to mid-December. This can be problematic in northern Australia as temperatures can take their toll on the chicks. Normally 4–5 eggs are laid over seven days, after which the female sits very tight and is fed by the male at the nest entrance. The eggs hatch after 18–20 days and the female continues to be fed by the male until the chicks fledge at around five weeks of age.

Chicks become independent after 2–3 weeks. All immature birds are duller versions of the female and it is impossible to visually determine sex. If young chicks have not been closed-rung while in the nest, they need to have leg bands applied soon after fledging for record keeping. If the first clutch from eggs laid early in the season is lost, a second clutch is often laid.

CONCLUSION

Blue-winged Parrots are well suited in suburbia due to being quiet and requiring only small housing. Providing their aviary flights are sheltered from extreme summer heat, they are relatively easy to keep. These are not aggressive birds and can be kept in pairs or colonies depending on aviary size. Housing other *Neophemas* such as Elegants in neighbouring flights can be a distraction to Blue-winged pairs. It is not advisable to house other *Neophemas* with Blue-wings, with the exception of Bourke's Parrots, as they will hybridise.

WORDS AND PHOTOGRAPHS BY **RUSSELL KINGSTON** OAM

South American Finches
in Australian Aviaries

Jacarini Finch male

A BRIEF HISTORY

Finches from the neotropical realm have been available in Australia for about 90 years. And while they were never imported in the numbers that Asian and African species were, they nevertheless generated a lot of excitement among bird keepers in this country.

In 1949, the Federal Government placed a ban on the importation of live birds into Australia, with the exception of New Zealand. The total ban extended to New Zealand in 1971. Since that time there have been no legal imports of live South American finch species into Australia. Throughout the intervening years, illegal imports promoted fresh genetic diversity and introduced the occasional new species. This, however, was not sufficient to maintain all of the species we had here. As a result, many of the species available in the past have vanished from our shores due to lack of fresh genetic stock.

GRASSQUITS

While there is evidence to suggest that the Olive Finch was once found in Australia, there are certainly only two Grassquits now available. Both the Jacarini Finch or Blue-black Grassquit *Volatina jacarina* and Cuban or Melodious Finch *Tiaris canora* are freely available and popular as cage birds in this country. Both species, once classed as *Emberizidae* (Bunting family) are now placed with the Tanagers and related to Darwin's Finches.

Jacarini Finches

The Jacarini Finch is very common within its range of southern Mexico, through Central America, and South America, including Northern Chile, Argentina and Paraguay. Jacarinis occur on the islands of Trinidad and Tobago. A common species in the wild, one hears them calling frequently but they are elusive and difficult to see as they lurk in tall grasses and thickets of shrubbery. This shyness extends to their behaviour in captivity and they will hide from view when approached. Another interesting facet of their behaviour is their habit of calling throughout the night. The male's pre-copulation display is spectacular. To impress females he will jump to a height of about 30cm from the perch. Males commonly use a favourite branch from which to launch themselves. A white patch is displayed on the shoulder. The small nest is cup-shaped and built from dried grasses and lined with fine fibrous plant material.

Live insects play a significant role in their diet. Jacarini Finches are frequently seen seeking out spiders in aviary corners and chasing flying insects. Live termites, maggots, small crickets and mealworms may be offered, particularly during the breeding season, which extends through spring and summer. In the wild, they consume minute insects and grass seeds.

Cuban Finches

As the name suggests, this finch hails from Cuba, as well as the Bahamas, and Turks and Caicos Islands. If the Jacarini is shy and retiring, the Cuban Finch is diametrically opposite in personality. It is boisterous, fearless, confiding with humans and constantly sings its sweet song—hence the name Melodious Finch. In confined areas, males can be aggressive towards other males and birds with yellow plumage. One should never introduce

Cuban Finch male

other Cuban Finches or birds carrying yellow into an aviary containing a resident pair of Cubans. In very large enclosures, a male will tolerate his juvenile sons but in smaller enclosures he may assault them as soon as the black and yellow 'collar' appears. Attacks from Cuban Finches are frequently fatal. Notwithstanding this, Cuban Finches will assimilate into a mixed collection of carefully selected seedeaters. To achieve harmony in a mixed collection, all of the birds, including Cubans, should be introduced together.

Nests are usually a bulky load of various plant fibres, cottonwool and coconut fibres and may be located in nest boxes, old jam tins and wire baskets. A finely lined nest chamber is located in the centre of the nest. If a receptacle is not provided, they will build a nest in dried brush or dense shrubbery. While it may seem tempting to do so, I have found that encouraging Cuban Finches to become tame in an aviary can be a mistake. They become quite tame, particularly when fresh greens are on offer and have been known to walk right out of the aviary on the unsuspecting keeper's shoulder or head. Bonding with their keeper may also contribute to their truculent behaviour.

Cuban Finches will take live insects but are more interested in consuming green foods such as half-ripe grass seeds, leafy greens, sprouted seed and chick weed. A clean, good quality mix of small dry seeds forms the basis of their diet in captivity.

CARDINALS

Cardinals are without doubt the show-offs of the South American finches. They are large, brightly coloured, boisterous, active and have a lusty song. Sadly, their presence here in Australia has been all but extinguished due to lack of genetic integrity. I have to say that my time keeping Red-crested Cardinals was a highlight in my bird-keeping career and I am deeply saddened by their departure from the Australian avicultural scene.

Until the 1980s Cardinal species available here included the Red-crested Cardinal *Paroaria coronate*, the Pope Cardinal *Paroaria dominicana*, the Yellow-billed Cardinal *Paroaria capitata* and the Green or Yellow Cardinal *Gubernatrix cristata*. The North American Northern or Virginian Cardinal *Cardinalis cardinalis* was also available here at one time.

Red-crested Cardinals

These birds are distributed throughout the central regions of South America, including south-eastern Brazil, eastern Bolivia, Paraguay, Uruguay, and Argentina. They were also introduced to Hawaii and Puerto Rico. They are common within their range, including the introduced populations. This

Yellow-billed Cardinal male

Red-crested Cardinal

is not a species suited to small enclosures, preferring large well-planted flights. A generous container of water provides adequate bathing—a favourite pastime of Red-crested Cardinals. I do not suggest keeping more than one pair of cardinals in an enclosure, no matter how large, as aggression is likely, particularly during the breeding season. Conversely, they may be kept with a mixed collection of medium to large seedeaters. Their strong call is not dissimilar to that of the Crested Finches.

Breeding season commences in late August, with the cup-shaped nests built in a large canary nest pan, an old food tin or in brush and shrubbery. A favourite nest material is pine needles with a soft grass or feather lining. The dark olive-coloured eggs are heavily spotted. Any success in rearing youngsters depends on the variety and quantity of live insects, small frogs and small lizards available. Feeding mealworms alone is not sufficient. My Cardinals were fed on live moths, small green grasshoppers, mealworms, small crickets, maggots and small lizards. The quantity of live food taken to rear each clutch of youngsters is staggering and a lot is dropped on the aviary floor and wasted. Apart from a good quality mix of dry seeds, they take plain cake and fruit such as inkberries, mulberries (which, incidentally I have seen them taking in copious quantities in the wild), pawpaw and pear.

YELLOW FINCHES

Of the 13 Yellow Finches in South America, only the two species of Saffron Finches were definitely imported into Australia. The nominate form *Sicalis flaveola*, commonly referred to as the Saffron Finch, was imported prior to the 1949 ban. By the mid-1970s few still existed here. In the early 1980s the Pelzeln's Saffron Finch *Sicalis flaveola pelzelni* was possibly illegally imported into Australia.

Saffron Finch male

An Oven Bird's nest—note the female Saffron Finch checking it out

Saffron Finches are members of the Tanager family and originate from large swathes of northern, central and eastern South America, including Colombia, northern Venezuela, western Ecuador, western Peru, eastern and southern Brazil, Bolivia, Paraguay, Uruguay, northern Argentina, and Trinidad and Tobago. They have also been introduced to Hawaii and Puerto Rico. They are a common species throughout their ranges and are frequently seen around human habitation. People in the countryside hang nest boxes on their verandahs for Saffron Finches to nest in. In the wild, they nest in the discarded hollow mud nest barrels of Ovenbirds. Saffrons construct a cup-shaped nest of grasses in one corner of the barrel. In captivity, they do much the same in a wooden nest box.

While I never kept the nominate form, I was fortunate to keep the Pelzeln's Saffron Finch for many years. Their colour and soft song was a delight. However, their aggression, particularly from males, was something else. Less brightly coloured than the nominate form, they are nevertheless attractive. Fledglings were able to feed themselves within a few days and I would remove them from the breeding pair within a week. To leave them any longer courted disaster because the father was likely to kill them. On occasion, males would also kill their spouses. I have to say that I have not observed serious aggression in these birds in the wild.

They are a hardy species in captivity and do well in semi-open, planted flights. Rather than providing dry brush as nest sites, I suggest using Budgerigar nest boxes. The diet should consist of a good quality finch seed mix, half-ripe grass seed heads and/or the more nutritious sprouted seed. They will take plain cake or Doug Bailey's insectivore cake. Added to all my sprouted seed mixes is Naturally for Birds™ Protein Boost. Other NFB supplements that may prove useful are Prima for Finches and Micro-nutrients. Live insects are important during the breeding season. I found live moths popular. These may be collected in a moth trap and turned out into the aviary each morning or a trap set into the aviary wall, drawing moths into the aviary each night.

Red-crested Finch male

CRESTED FINCHES

Three species of Crested Finches have been available in Australia at various times. Of these, the Pileated Finch *Coryphospingus pileatus* and Black-crested Finch or Pigmy Cardinal *Lophospingus pusillus* are now non-existent. The only species still available is the Red-crested Finch *Coryphospingus cucullatus*.

Red-crested Finch

The Red-crested Finch occurs in Argentina, Bolivia, Brazil, Ecuador, French Guiana, Guyana, Paraguay and parts of Peru. I found them on the verges of gallery forests in Brazil. I have never found them common around human habitation. They have a strong call, not dissimilar to that of the Red-crested Cardinal.

There has been passionate debate among bird keepers about the level of aggression of these birds in captivity. Some breeders have disposed of their Red-crested Finches on the basis that they were killing other birds in the collection. I have not experienced this problem despite having kept them in mixed collections. This may have been due to the enclosures being of substantial size and well planted. They are a species well worth keeping and

it is important to do so to save them from dying out in Australian aviculture. If you are in doubt, or have a pair that is unduly belligerent, I suggest providing them with private accommodation.

The male's pre-copulation display is truly something to see. As he is calling strongly, he drops his wings and raises his rump, exposing a brilliant vermilion colour. He also raises his fan-like vermilion crest which, unlike most crests, runs across his head rather than the usual front to back. The combination of colour, movement and sound is one of the most spectacular displays in the finch world.

The open cup-shaped nest is constructed of coarse grasses, leaves and fibrous plant material, with the nest chamber lined with soft feathers, cotton wool and plant fibre. I remove the juveniles from the parents approximately three weeks after fledging. In very large flights, I only remove juveniles at the conclusion of the breeding season.

SISKINS

Various siskin species have appeared in Australia, including the European Siskin *Carduelis spinus* and some of the African siskins. A small number of the 15 South American siskin species were imported at various times, however, only two are currently in Australia. These are the Red Siskin *Carduelis cucullata* and the Hooded or Yellow Siskin *Carduelis magellanica*.

Red Siskins

The Red Siskin is distributed across regions of northern South America including Columbia, Guyana and Venezuela. It is listed as Endangered or Critically Endangered. There have been attempts by the Australian Avicultural Federation, the American Federation of Aviculture and the Smithsonian Institution at rehabilitating Red Siskins to the wild. One of the primary reasons given for the Red Siskin's demise in the wild is the wild bird trade, for which they were trapped in huge numbers and (primarily males) shipped to Europe and North America for the pet trade. Male birds were hybridised with domestic canaries with the object of producing the Red Canary. In Australia, crossbreeding between Red Siskins and Hooded Siskins in the 1970s and '80s threatened their viability. Fortunately this practice has largely subsided.

Red Siskins are now well established in Australian bird keeping. They are hardy birds and given the right environment will readily breed.

In the non-breeding season, the intensity of red on the males becomes faded. It resumes its intensity with the onset of the breeding season. The colour should be an even, intense vermilion and the intensity of colour is linked to diet.

Red Siskin male

Yellow Siskin chicks

Suitable accommodation for this species varies widely from small breeding cages up to large flights. They may be kept and bred as a single pair, polygamously or as a colony of many pairs. I have always kept Red Siskins in mixed collections of small to medium-sized seedeaters. They construct a small cup-shaped nest, lined with cotton wool. They are notoriously light incubators throughout the day.

Yellow Siskins

Hooded Siskins are known in Australia as Yellow Siskins. This terminology would not be appropriate in Europe where several species of Yellow Siskins are kept. While the Queensland Finch Society Inc is currently conducting a breeding program for Yellow Siskins, they should not be classified as at risk in this country. This species is generally regarded as more aggressive than the Red Siskin and therefore less suited to colony breeding. Its call is stronger than that of the Red Siskin.

The Yellow Siskin's cup-shaped nest is similar to that of the Red Siskin. Both nests may be built in a small canary nest pan, a small tin or in the brush. The diet for both siskins is similar—a quality dried seed mix including canary seed, phalaris seed and niger seed. Importantly, niger seed should be Australian grown, as imported seed may have been treated, thereby rendering it infertile. Half-ripe wild sunflowers are a favourite with siskins, as are half-ripe grass seeds, sprouted seed and various herb and weed seeds. Plain cake and egg food are also provided. Both species will take live insects such as termites while rearing youngsters.

CONCLUSION

If it is song, colour and fascinating behaviour you are seeking from your birds, you are well advised to try some of these little gems. South American finches, with their flamboyant colours and arresting behaviour, make unique avicultural subjects.

WORDS AND PHOTOGRAPHS BY **PETER ODEKERKEN**

Red-faced Lovebird pair—male on left

The Red-faced Lovebird

The Red-faced Lovebird *Agapornis pullaria* is, to me, the most desirable lovebird to keep. It is not as noisy as other members of the genus, is easy to sex and is, in my experience, an inoffensive bird in a colony or a mixed collection. Others would say this species is hard to breed, but we will explore that later.

IN THE WILD

Distribution

This lovely species has a wide distribution in Africa, ranging in the west, where it is found intermittently in Sierra Leone, Côte D'Ivoire and Ghana, across to southern Sudan and down through Uganda into Tanzania, around Lake Victoria. There seems to be a large gap in the Congo but the Red-faced is found along the coastal regions all the way down to northern Angola. It is locally common, but apparently large numbers have been trapped for the wild bird trade. I have never found this bird to be common in aviculture and it was inexpensive in South Africa in the 1970s and early 1980s. The Red-faced Lovebird can be nomadic within its range.

Habitat and Diet

The Red-faced Lovebird prefers open forest areas and, if found in dense forests, it is within close proximity of grassy open glades. Lowland open forest seems to suit these birds, but they have been found up to 2000m in Uganda. Small flocks of up to 30 birds fly swiftly and have been found eating green sorghum seed and can be considered a serious threat to crops. Grass seeds such as millets are a major part of their diet, along with occasional fruit and insect larvae. No doubt these birds also feed on new green shoots and leaves, although I have no record of that.

Breeding

The breeding season separates the flock into pairs and I believe there is a high incidence of the nest in arboreal termite mounds. It has been reported that Red-faced Lovebirds also use abandoned woodpecker holes, but knowing how difficult it is to get pairs interested in wooden nest boxes, I would seriously question this. No doubt some pairs are opportunists and do accept a cavity in a tree. However, the reason they are considered difficult to breed in captivity stems from the fact that they are notoriously obstinate in accepting a natural hollow or nest box.

Because their range covers a wide area of Africa, the breeding months differ for each region, but usually commence soon after the first rains, when new green seeding heads are available. The clutch comprises 3–6 white eggs. Incubation is approximately 24 days and fledging about 48 days later.

IN CAPTIVITY

Diet

Red-faced Lovebirds need a basic diet of small millets and canary seed. Keep sunflower seed to a minimum. Germinating seed should be fed at least weekly, and more frequently with the breeding season

Red-faced Lovebird male at the front of a sisal flower base used frequently in South Africa to stimulate a parrot species that likes to excavate its own chamber

Red-faced Lovebirds need a basic diet of small millets and canary seed

and particularly with young in the nest. Fruit, such as a thin slice of apple or any other fruit they enjoy, should be provided. Greens are important, especially celery, but of course try a variety as any vegetables will be of benefit. Calcium and mineral supplements, as well as fresh water in clean bowls, must be provided.

Housing

I had three pairs in a box-type aviary when I kept these birds in South Africa, and they were happy in this small colony, with only minor confrontation. The aviary had two enclosed sides and the roof was completely covered. It measured about 3m long x1.8m wide x 2.1m high.

Breeding Nest

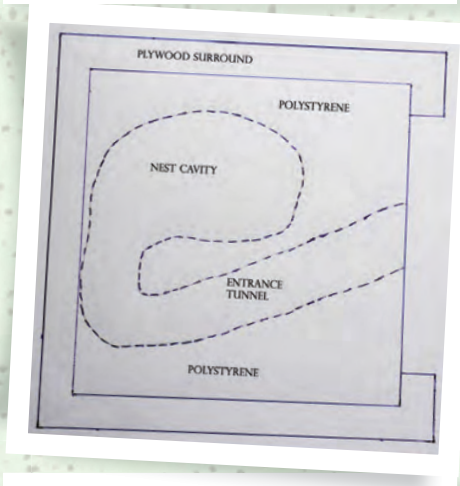
Due to this species' specialist nesting requirement, I tried to find untreated cork—impossible to get in the early '70s—for the nest box. I was worried that the chemicals used in the treated cork may kill my birds, so I tried polystyrene—two 7.5cm thick sheets held side by side with wood on the outside. The box had internal dimensions of 15cm wide x 25cm deep x 25cm high and open on one end. I then dug a small entrance—not very deep—maybe 5cm x 5cm in diameter. On this exposed face I placed mud, so that it looked natural, covering the entire face and hole so that it did not show white to the birds.

A pair almost immediately started to excavate—I was very excited. They dug a great nest, with a tunnel going all the way to the back of the 25cm, to come in contact with the wood at the back and then going up a bit and returning to the front in a chamber about 15cm high x 10cm in circumference. The female laid five eggs and, after a period since no young were produced, I opened the box and discovered the eggs covered with small pieces of polystyrene. The female had continued to enlarge the chamber and covered the eggs. This meant she could not incubate the eggs as they were covered by insulated polystyrene.

Unfortunately, I was a surveyor (always in the field for weeks at a time) and my mother could not take care of the collection as she had problems walking due to a motorbike accident some years previously, so I had to sell them.

I wish I had those three pairs now because I am sure I would breed them. In Australia, we have peat moss sold in a compressed, hard, cubic size of about 60cm. I would cut a suitable size and surround it with wood, as I did in South Africa so long ago. I am quite confident that would work but I suppose you never know. (This product comes without extra chemicals added to assist plant growth.)

Unfortunately, I have never again had the opportunity to breed Red-faced Lovebirds, but others have. It seems you need to provide a substitute for an arboreal termite mound. It is also considered necessary to provide a form of heating to the chicks because the parents don't brood for long. No doubt this is due to termitaria being warm from the hosts, as the termites



Cross section of Red-faced Lovebirds nest

seal off the damage caused by the birds, similar to our own Golden-shouldered and Hooded Parrots.

A heat pad can be used below the nest but only use this once the chicks have hatched. Naturally, depending on the ambient temperature at the time and the region you live in, a heating system may be unnecessary. Once the young are feathered, you could stop heating but, depending on the ambient temperature, do this gradually, in steps of about 5°C.

CONCLUSION

We are unlikely to ever see this bird in Australia, but its requirements are worthy of note and it just goes to show again how important it is to consider what a species uses and needs in the wild and adapt this information to help maintain and breed our birds.

WORDS AND PHOTOGRAPHS BY **DR MILTON LEWIS** BSc (Hons) PhD

Incubation Temperatures

A Lifelong Legacy

As I sit tapping my thoughts into the computer, I find my mind continually wanders to the canary room and the list of things that need to be done before the breeding season. Will I have time to paint the cabinets and finish plastering the ceiling in the canary room that I was not able to finish before the breeding season started last year? It is all just a few weeks away and I like everything perfect to give the birds the best chance of a successful breeding season. There is no way that I would risk making noise and disturbing the females during incubation by finishing those last few jobs.

I have no choice—my story about rats and their social lives will just have to wait. I need to write about something I have just read and which will be of more immediate interest to us all as our birds begin to settle on clutches of eggs in the spring.

COPING WITH FLUCTUATING TEMPERATURES

Over the past few years I have become more and more aware of the fluctuations in temperatures that our pairs of birds, and their eggs and nestlings, are faced with each breeding season. To avoid having nestling canaries during the very hot summers after Christmas, I have resorted to pairing a little earlier than previously and making sure females are not allowed to start another clutch unless it will fledge before the beginning of January. By pairing early, my females face cooler fluctuations in nightly temperatures in August but with the aid of a lot of insulation in the bird room this new problem is not as large a concern as the 40°C-plus summer temperatures.

One thing that has always frightened me is unnecessarily disturbing females during incubation and potentially increasing the risk of dead-in-the-egg embryos because of chilling. We all know that if eggs become too cool for extended periods then the unborn chicks will die. What happens if the eggs overheat?

Bird eggs are poikilothermic, that is the embryos/chicks are unable to regulate their own temperatures. This is what the female does during incubation. As an example of the likelihood of this event occurring, the average incubation temperature for a Zebra Finch egg is about 37.9°C. If the air temperature is above this—which is highly possible in summer—and the female is not on the eggs, there is a chance that these embryos will overheat and die.

Hooded Plovers are in danger because of nesting disturbance by overly enthusiastic human beach-goers

The Masked Lapwing—owner of the eggs pictured below

A clutch of speckled camouflaged eggs of the Masked Lapwing

Such events regularly occur in the wild and a perfect example in Australia is the endangered Hooded Plover. These birds nest on sand dunes that are exposed to very high summer temperatures. The nests are not much more than a scrape in the sand, with perhaps a few scattered shells or stones in the vicinity, and no shelter from the sun. Under normal circumstances, this is not a problem and the female incubates throughout the heat of the day, keeping the eggs at a safe temperature.

Unfortunately, human beach activity, including 4WD and quad bike activity on the dunes can disturb the birds for hours. The result is 'cooked' eggs. This is now a major threat to the survival of this small bird.

As an aside, but still thinking about temperatures and incubation, other plovers nest in this way and because of where they live, their eggs have adapted a speckled appearance as camouflage. This helps to protect the egg from predators if the parents need to leave the nest.

The camouflage spots vary in size, colour and density and the background colour is usually very pale buff or cream. Gomez *et al* (2016) found that eggs with darker background colours and spots actually provided the best camouflage in the sand.

Darker eggs also absorb more radiation from the sun and therefore become warmer more quickly when the parents are not on the nest. In fact, the temperatures become lethal for the embryos within about two minutes, which is not very much time to stretch your legs. Luckily, or perhaps by choice, ground-nesting birds rarely leave their nests if left in peace. So improving the camouflage with a few darker spots will be more beneficial in the short term under normal conditions.

SMALL VARIATIONS HAVE A BIG IMPACT

We have looked at the consequences for eggs and embryos of either too much heat or not enough during incubation, and the results are not good—dead chicks. Now we should think about the results of smaller fluctuations in the incubation temperatures.

There are quite a few studies that reveal the associated problems for birds that have developed from lower than optimal incubation temperatures. Nestlings incubated in this way may suffer from poor growth, reduced development of their immune system, poor metabolic rate and even reduced performance in flight muscles. However, I would like to bring to your attention some work that investigated the long-term survival of birds that were exposed to different incubation temperatures.

Bernsten & Bech (2016) investigated how small variations in incubation temperature may influence long-term survival in Zebra Finches. Using a large population of captive birds in Norway, the researchers collected clutches and artificially incubated these eggs at different temperatures. The first thing that really grabbed me was the idea of artificially incubating Zebra Finch eggs, but really it just shows that you can do almost anything with Zebra Finches.

The temperatures used for incubating the eggs in this experiment were 35.9 °C, 37.0 °C and 37.9 °C. Relative humidity was 70%. The final temperature class of 37.9 °C is the closest to normal average incubation temperature. The eggs were divided into the three temperature groups. About 300 eggs were incubated for the first eight days of development and then returned to the nests to be incubated by Zebra Finch females. A total of 144 chicks were hatched.

As you may have noticed, there is not a great deal of difference between the three classes of incubation temperatures but the results are highly compelling. The average life span of a Zebra Finch is about five years. This is great for research because the research group was able to follow the birds they raised experimentally through sexual maturity and for at least 2.5 years (half normal lifespan). The big result was that by lowering the mean incubation temperature by 2°C for only the first eight days of embryo development there was a clear reduction in long-term survival of adults. At 1000 days (2.7 years) of age, only 20% of the birds raised at lower temperatures were alive compared to 50% at the highest temperature.

Interestingly there was no difference in embryonic survival between the temperature treatments but there was the beginning of a trend at pre-fledging, with 86% survival of high temperature birds compared with 70% in the lowest temperature.

In many ways, the majority of birds we keep are similar in life-history traits to Zebra Finches; most importantly in that they are naturally short-lived species. I think it is reasonable to suggest that most canary breeders would expect the first two years of a female's life to be the most productive. Rarely would females be used for breeding after that time (although there are always exceptions).

The results of the incubation temperature experiments clearly resonate with what we are trying to achieve in our bird rooms. Most people would be trying to achieve the healthiest nestlings, adults and long-lived productive stock. Clearly the premise of providing stable conditions, especially with regard to room temperature and an undisturbed incubation period could go a long way towards these aims.

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Keeping Gang Gangs as Pets

WORDS AND PHOTOGRAPHS BY **ANDREW RANKMORE**

In the wild, Gang Gangs are constantly busy chewing bark, foliage, twigs and flowers

Gang Gang pair—male on left

DESCRIPTION

Gangs Gangs are members of the cockatoo family, with no distinct close relative within the genus. The Gang Gang Cockatoo has a unique crest which appears as a light, feathery structure, best described as forming a 'pom pom' on its head. The sexes are dimorphic, with males displaying a red head, while females tend to have a greater amount of red colouration on their underside. Remaining body colouration is similar between the sexes, with a slate grey base and a strong green tinge on the outer primary wing feathers of individuals that are properly nourished.

IN THE WILD

Gang Gangs are difficult to locate in the wild, where they are extremely quiet. You can be within metres of a large flock and be entirely unaware of their presence. The only time Gang Gangs will announce themselves is at sunrise and sunset, and when on the wing between feeding locations.

Observations demonstrate how busy these small cockatoos are. After sunrise, the birds generally move from their roosting site to a feeding tree within close proximity. There is a noisy ruckus before they settle to being their typical quiet selves. Once there, the birds will eat large amounts of seasonal food (ie gumnuts, seed pods) for an hour or so before moving to a nearby tree to continue feeding. This tends to occur 3–4 times in the morning before the birds retire to a semi-resting state. During this period, they tend to alternate between sleeping for short periods and destroying the surrounding foliage in which they perch. This behaviour continues until evening when the birds look for their new roosting trees where they will spend the night.

Gang Gangs are constantly busy. Even during their resting periods, they are constantly chewing—bark, foliage, twigs, flowers, are all stripped. This behaviour is integral to the species and can be best described as a natural 'inability to be bored', with the constant destruction only punctuated by minutes of sleep.

IN CAPTIVITY

Learning how this species' wild behaviour applies to a bird in captivity is essential to a happy home, ensuring Gang Gangs do not develop self-destructive behavioural problems. Gang Gangs, as with all parrots in the home, are only 'just' removed from their wild cousins and are therefore not domesticated. This is important to remember because parrots can and will successfully integrate into a human household, but only if sufficient consideration is given to interpreting behaviour in a wild context.

This means bird keepers need to avoid the natural tendency to place human interpretations on a bird's training and reactions. A common example is the keeper's reaction to a nip or bite. As birds develop their social skills, they can and will explore variation in physical contact, or how to express dominance or dislike to a situation. It is at this stage that an unwary owner often rewards such behaviour by pulling back the finger, putting the bird down or on a perch, feeding it treats etc. Such reactions teach the bird that nipping a handler means sudden freedom, no forced interactions, and it can do as it wishes, and even be fed as a result! Further, when a bird begins to be noisy, owners often react by giving it more food, coming to see to the bird, talk to it or yell at it—all positive rewards for a bird seeking attention, hence the behaviour not only repeats, but intensifies with such reinforcement!

These are just examples of the more common mistakes that lead to birds being rejected to outdoor aviaries or sold on as problem birds. I can only recommend that prospective or new parrot owners buy one of the many bird-specific training books to ensure interpretations and training match desired outcomes. The subject is too broad in scope to be presented here with any depth.

Nonetheless, Gangs Gangs are one of the easier parrots to integrate into a family—minus their well-known tendency for feather-plucking. Although some keepers may inadvertently reward undesirable behaviours, Gang Gangs have proven to be forgiving, non-dominating birds capable of retraining and readjustment (within reason).

SOCIAL CONSIDERATIONS

Clearly, as noted from wild observations, Gang Gangs tend to flock in smaller, family groups for the majority of the year. Examples of larger flocks or, at the other spectrum, singular pairs may be observed, but these tend to be exceptions that coincide with particular events or cycles within the year. This means that Gang Gangs are not individualistic birds. They may have their regular handlers, but they will not overly bond with 'only' one person, as do many other cockatoo species. This is a highly positive attribute for prospective owners of Gang Gangs as they will more readily accept family members and visitors. That being said, wild behaviour also indicates that Gang Gangs could inherently require some social acclimatisation from a young age to cope with the loneliness and irregularities of an artificial (human) family group. Obviously our modern, captive home routines will mean that the time spent with a bird after the 'novelty' factor wears off is likely to be an issue for companion Gang Gangs unless restraint is applied in those early days and weeks.

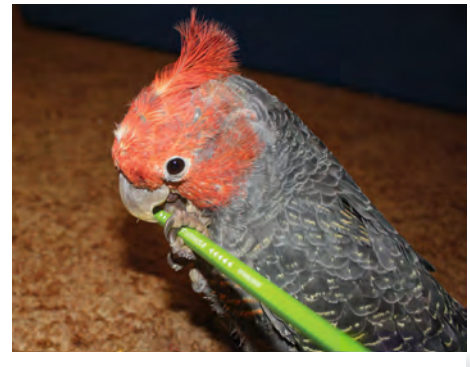
At our breeding facility, we raise our Gang Gangs individually with just enough engagement to willingly share physical contact with humans on demand. This teaches young birds how to entertain themselves in their enclosed environment (which is progressively filled with toys as they age). Being 'bored' and without social activity conflicts with Gang Gangs' natural behaviour, but given the birds 'know no different', the dividends are easily apparent in their day-to-day mental health. That is not to say the birds are kept in a stark or non-stimulating environment—quite the contrary—but they are limited to routine human contact similar to the realities of their future situation.

ACCLIMATISATION

Acclimatising a Gang Gang or any other bird to their individual household is generally not considered by pet bird owners. Often, as with all new and exciting things, individuals and family members swamp the bird, wanting to hold, bond and play with their new acquisition. They try to cuddle it (something cockatoos accept with ease), have it out as often as they can, teach it to talk, feed it by hand etc. But slowly the realities of life, work, and new interests set in. By this time the bird has grown accustomed to high attention levels, an active and vocal 'flock' that is completely focused on it—raising the birds own appraisal of its position within the flock hierarchy. Then, within a short period of time, the bird is expected to be satisfied with a few toys, some dry seed and little to no interaction on a daily basis. The result is a noisy bird that is now stressed, confused and semi-permanently imprisoned, in comparison to its original freedoms! No wonder birds go off the rails in such circumstances!

Gangs Gangs are one of the easier parrots to integrate into a family

Gang Gangs as a pet tend to adapt to a number of people and do not tend to develop a bond to one person



Gang Gangs need to be occupied—rotating a range of toys provides necessary stimulus

In the case of Gang Gangs, this is the point at which self-destructive behaviour such as feather-plucking is sure to creep in. The bird may begin to bite or lose its previous temperament, and in the worst cases, mutilation may start. Gang Gangs can become stressed and turn on themselves rather than the object of their frustration. Only a considered and measured acclimatisation program can alleviate this all-too-common outcome, and it must be carried out when the bird is still young and developing.

To improve captive adjustment, young Gang Gangs should be placed in an area of high activity within the household to improve their acclimatisation to variations in routine and events that wild birds do not have to face at such close range. Examples include visitors, other pets (birds, dogs and cats etc), and even nightly 'wandering' of household inhabitants, going to the toilet or turning on a light. All this aids in a bird's ability to 'take things as they come' and resist the innate primal reactions of 'fright and flight', developed over millennia. The greater the exposure to random and unusual sights/sounds when young, the less stress a bird absorbs throughout its life.

Unless specified, we prefer to raise Gang Gangs individually to ensure the unique learning towards 'lonely and/or bored' realities are met without alternative. Although birds may sight or hear each other in accompanying cages, they are several feet apart to ensure the coping strategies are developed and sound enough to fulfil the companion bird requirements of their future lives.

Getting used to a variety of toys that are constantly changing is also essential from a young age. Looking at their behaviour in the wild is the clue to keeping Gang Gangs entertained.

Gangs Gangs are constantly destructive in behaviour—if they are not feeding by pulling apart nuts/seeds/pods of some sort, they are stripping leaves or twigs, and even chomping into the branches on which they perch. This kind of behaviour is quite typical of the cockatoo family, and allows keepers to use their imagination to good effect. In our experience, rope balls have proven a good 'stress' reliever along with items like cardboard boxes, pumpkin skins, rolled newspapers and pine cones offered for destruction. Plastic 'chewables' are avoided, but anything that is non-toxic and bird-safe can be used to allow these hyperactive chewers to *do their thing* every day. (And it's not hard on the keeper to put something new in each day.) The birds will relish these challenges to destroy everything offered, while creating quite a mess in the bottom of the cage.

DIET

Diet is another area of consideration but, as above, variety and alternative rationing is the key to a healthy and entertained bird. Gang Gangs generally demonstrate the most willingness of all cockatoos to consume a varied diet, high in fruit and vegetable offerings. Starting this familiarity while young always helps to ensure a bird is not only healthy but more resistant to disease and other failings. Gang Gangs need some fat in their diet, which sunflower and peanuts can fill easily, but in no way should this be a daily standard. Our birds are fed a sprouted pigeon mix as their daily standard portion, with sunflower or pellets alternatively making up the remainder of their dry mix diet, supplemented by fruit and vegetables.

CONCLUSION

Gang Gangs represent a very unique and, in my opinion, the most beautiful, bird of the Old World. They come with some challenges (as most things of rare beauty do), but with a planned acquisition and acclimation program, Gang Gangs can be kept with a somewhat lower workload than is otherwise typical of the species.

Feather-plucking is a real possibility in this species but to avoid this, the keeper must make a commitment of time and effort to keep the bird interested. If a bird looks scruffy or has even one feather in its mouth, put something new in the cage for it to chew, even a rolled newspaper or magazine. Don't assume it's a one-off, because the next day you may find a bald patch!

However, with careful planning it has been proven that Gang Gangs can become fulfilling, reliable and friendly family companion.

WORDS AND PHOTOGRAPHS BY **HILLARY HANKEY**

Companion Parrot Myth Busters Part 1

Introducing Hillary Hankey

Hillary Hankey's interest in animal behaviour began early in life, documenting the daily habits of the family cat—including hours of cat naps—on her dad's camcorder in practice for becoming a National Geographic researcher.

Her fascination turned to birds and she began accruing an avian collection in her childhood bedroom. She has been training birds ever since.

Hillary has worked for zoos as an animal trainer and keeper, and in 2010 founded Learning Parrots, a consulting practice designed to help parrot owners utilise positive reinforcement for better relationships. She has also volunteered to raise toucans and consulted with wildlife education facilities, working with exotic mammals and reptiles.

In 2013, Hillary left the zoo world and started Avian Behaviour International, a bird training and education organisation in California, aimed at helping parrot owners in a deeper, more meaningful way. She is part of a progressive movement promoting high standards of ethical behaviour management, involved in the presentation of free-flying birds in educational programs in zoos and similar institutions, and aimed at inspiring conservation action.

'To each his own' is a common refrain we hear when we don't agree on methodology in just about any industry or pastime. When it comes to parrot behaviour, it seems that for every other person we ask about the problem we have in front of us, we will hear a different solution. Not all solutions, however, are created equal in how they influence stress, aggression, the risk of harm to handler and trainer, bring about results, and ensure long-term success. Sometimes we are fooled into perpetuating these mythical techniques because they worked for a specific situation or realised a short-term result. Or perhaps we don't recognise how many unnecessary resources actually went into achieving the desired goals.

Some of these methods may even seem to make sense, which is why they are so easily passed from one person to the next. As information about positive reinforcement and learning theory becomes more palatable and easily available, parrot owners have better opportunities to build a stronger foundation for a happy life together with their parrot. In this three-part series, we will take a look at how companion parrot behaviour myths impact their success in our homes. So let's roll up our sleeves, tease apart these 'truisms' that pepper our social media forums, and most importantly, establish a powerful antidote to reach our goals more proficiently.

How much time you spend with a new baby bird is not as important as what you do with that time. While babies are so easy to snuggle and pet, make sure your quality time with your new baby bird entails actively teaching it to play with its own toys, on its play stations, and trying new foods and other items. These activities take careful guidance with many babies to ensure they are on the right path

A new bird in an unfamiliar environment is uncomfortable, and more likely to show behaviours that are not conducive to training and relationship building. This Amazon is already showing body language, however subtle, that he is feeling insecure on his perch, leading to him flying off if he is capable or instead, biting the approaching hand

BRINGING HOME BABY

New parrot owners can find no shortage of literature devoted to the taming and training of their pet, whether they are young, freshly weaned babies or adult birds in need of another home. This stage is crucial in building a trusting relationship because the bird has no history with its new family and will gather so much information about what it can expect from its future interactions. But will these interactions be based on building trust, or blocking it?

Trying to habituate a new bird to our presence by sitting next to it can actually sensitise it to our presence, sending the wrong message to our new companion. While we may think we are showing it we mean no harm, our lack of response to its stress can cause heightened cortisol release mechanisms, inducing the opposite effect of what we intend

THE CHAIR METHOD

Trying to teach a parrot to calm in our presence can be heart-wrenching. Whether that bird lunges at the cage bars as we pass or races to the opposite corner, the bird is usually experiencing physiological signs of elevated stress—dilated pupils, open beak, and often neck and tail feathers flared. In some extreme cases the bird could do some real damage to itself. For decades, and indeed, still today, one of the steps to taming the bird was getting it used to our presence by the 'chair method': pulling a chair next to its cage and calmly reading, talking or singing to it, preferably without eye contact.

So what is the problem here? It's not as if the chair-sitter is actively engaging with the bird, and the idea is that eventually the bird will calm down because it realises that we will do it no harm. But are we?

All of the above-described body language is the bird's way of communicating that it is stressed. By ignoring this communication, we are not building trust, we are stonewalling our avian companion's form of dialogue and teaching it that nothing it does will have an effect on its future. The bird is helpless to control its own outcomes. This can lead to frustration, induced aggression and even apathy in our future work with this bird. Similarly, it unwittingly promotes insensitive taming techniques by holding out for the bird to 'get over' its fear and discomfort and give up displaying signs of distress. This program hardly makes for a trusting beginning.

Instead of employing a method that blocks communication and can delay the relationship building process exponentially, the first few days of a bird's arrival into its new home should be focused on keeping it as comfortable and calm as possible. *Prior* to the bird's arrival, we should consider how to arrange food bowls, toys, perches, cage trays and even exterior household items near the cage. This means that when we have to perform necessary husbandry tasks such as cleaning and feeding we don't elicit a fear or aggressive response before we even have a chance to begin formal training.

A carefully arranged environment and sensitivity to a new bird's comfort level in the cage will assist tremendously in a positive experience in step-up training

THE NEUTRAL ROOM

Consistency is a language your bird knows how to speak. We don't get to choose how the bird responds to each interaction we have, we must be vigilant observers and respond accordingly. This will be a crucial part of step-up training.

Traditionally, we have been told to train the step-up in a neutral room or on a perch away from the cage. While this could appear like sound advice to avoid so-called territorial behaviour around the cage, the careful observer might ask how one would get the untrained bird to and from the cage. Even using a perch to transport the bird instead of our hand can incite stress more often than not, giving the bird inconsistent communication. A bird that has been trained to step onto a stick previously may have been trained to do so by giving it no option, or it may not have been well acclimatised to new environments. We want to teach the bird that we are a source of positive interactions, and this message needs to be delivered both inside and out of formal training sessions.

Arranging perches in the cage to have an open spot for step-ups and downs sets us up with a comfortable place for both human and bird to work. This allows us to work in a few sessions a day, staying within the bird's comfort level to teach it to step up with positive reinforcement. We keep our communication consistent, avoiding the trap of needing to get our bird back to the cage for safety without having trained this behaviour.

Starting at a place of comfort and staying within that threshold not only achieves results more efficiently, but also builds more sustainable behaviour with positive side effects as opposed to the negative fallout that happens with coercive techniques inherent in traditional training methods. Our avian student isn't ready for step-up training if we see undesirable behaviour inside the cage. With that information, we can build learning history by training easier behaviours such as targeting before moving on to step-ups.

SPENDING TIME WITH A NEW PARROT—IT'S ABOUT QUALITY OF INTERACTION

When many companion parrot owners began realising that constantly spending time with their new birds was creating companions with inadequate independent skills, breeders and bird shops dispensed a prescriptive response that new owners should only spend the amount of time with their bird each day that they would expect to spend for the rest of the bird's life.

Developing rigid parameters for together time was the antidote sellers came up with to attempt to prevent over-bonding in the form of constant calling in the absence of the owner, inability to engage in toy playing, being handfed past the point of natural weaning, and preference for one family member as the rest of the household lost interest in the insatiable demands of their companion.

What commonly ends up happening is the owner constantly carries the bird from room to room to keep the bird from screaming and the bird might find itself locked in a spare room or basement, or being relinquished to a new home.

While the picture of an adolescent parrot in our homes that lacks independent skills can conjure an image of an incredibly stressful situation that everyone would hope to avoid, simply instilling a rigid practice of allotting specific time slots for our demanding pets does not address the problem either.

In fact, as anyone with a young child can attest, new birds generally do require more time and energy to lay ground work for skill building, ensure comfort, and minimise stress. What we do with our time is far more important than how much time is spent, and a new bird doesn't learn independent play skills simply because we leave it alone to figure it out for themselves.

Some critical skills to teach them for long term success in our homes is for them to be able to play with toys independently inside and out of their cages, stay occupied whether the family is in the same room, or chooses to leave, and eat a healthy diet on their own.

Teaching a bird these natural seeking and destroying behaviours with appropriate enrichment items will set a parrot up for a lifetime. Successful replacement behaviours can counteract screaming, destroying household items, and attacking other pets and family members. Early access to toys in a young bird's development is so important.

For older birds, teaching them to engage with enrichment begins with making it really easy to find favourite treats in destructible items like small boxes, cartons, or paper bags, perhaps even tucking treats in holes in wood blocks or willow wreaths. Gradually making it harder for them to reach the goodies will help engage their natural inclination to chew and forage through fibrous materials.

CONCLUSION

When a new bird comes home, many new owners feel overwhelmed with a huge sense of responsibility for their charge, being faced with a set of body language cues much different with a mammal's, and the onslaught of suggestions regarding how to handle each new challenge that arises.

Developing critical thinking skills goes a long way to assessing the advice being dispensed. Outdated formulaic directives that have been around for decades lack an individualised approach with a trust-based foundation fundamental for long-term success in keeping birds in our homes.

Some of these traditional approaches seem to have a commonsense quality, which makes them harder to leave behind. By uncovering the science behind detrimental methodology and formulating an effective replacement based on positive reinforcement and a more progressive understanding of behaviour and learning, we can apply sustainable training techniques that offer a better opportunity for human and bird to live a longer, less-stressful life together. abk

WORDS AND PHOTOGRAPHS BY **HORST MAYER**

Breeding *Pyrrhura* Conures

As a German breeder, I would like to share my experiences keeping and breeding three species of *Pyrrhura* Conures—the White-eared *P. leucotis*, the Grey-breasted *P. griseipectus* and the Pfrimer's *P. pfrimeri*. These birds were all once considered subspecies but have since been confirmed as separate species. These small parrots, measuring about 21–25cm tall, are predominantly endemic to South America. They have been bred for about 25 years in Europe and kept as pets for some time.

I acquired my first *Pyrrhuras* in 1997. Since 2007 I have also bred the White-eared and in 2010 I purchased two pairs of Pfrimer's Conures. Over the years I have cared for 15 species of *Pyrrhura* Conures, mainly in two pairs. Most have reproduced with a total of about 500 young.

Currently I only keep 10 pairs of *Pyrrhuras*—four Pfrimer's, four Grey-breasted and two White-eared pairs. I also house 200 Lilian's Lovebirds *Agapornis lilianae* in many different mutations—Dominant Pied Green, NSL Ino, Pastel Green, Pastelino Green, Dilute Green, Blue, Single Factor Blue, Double Factor Blue, Dominant Pied Blue, Dominant Edged Blue, Pastel Blue, Pastelino Blue, and Violet and DEC Blue. In Black-cheeked Lovebirds *Agapornis nigrigenis*, I have Violet, Dilute Violet and Dilute Blue.

HOUSING

My parrots are housed in pairs in small aviaries, measuring 2m long x 0.7m wide x 2.2m tall, in a heated birdcage in my backyard. The breeding nest boxes measure 29cm x 18cm x 18cm, or 38cm x 20cm x 20cm. After breeding, I let the breeding pairs and young—sometimes more than 30 birds—fly in a 3m x 3m community aviary where they get along very well.

One morning, as I turned on the light, I counted 26 conures as they hatched out of one nest box, which measures 50cm x 25cm x 25cm.

Grey-breasted Conure

Four forms of white-eared Pyrrhura conures—from left: the Grey-breasted, the Emma's, the Pfrimer's and the White-eared

DIET

As a basic diet, my parakeets are given a special seed mixture for larger parrots that does not include sunflower seeds. They are fed just enough daily that by the evening all seeds are eaten—even the not-so-desirable small seeds. Additionally, their daily regime includes a small amount of dry eggfood and some fruits or vegetables, predominantly apples and carrots. *Pyrrhuras* like all kinds of fruit and vegetables, so there is really no limit to the possible variety.

All year, except November and December, I feed daily sprouted seeds in the form of a special mixture for parrots from Versele-Laga™. These sprouted seeds also contain no sunflower seeds. Immediately before feeding, I mix minerals and vitamins, dry eggfood and dried herbs with the sprouted seeds.

When my birds are rearing young, the breeding pairs get sprouted seeds in the morning and afternoon. Otherwise birds are only fed in the morning. Occasionally, I offer the birds all kinds of fresh greens, as well as fresh branches. Grit, charcoal, minerals and crushed eggshell are always available. Of course fresh water is provided daily, and twice daily in the summer months.

From left: P. pfrimeri (female), P. griseipectus (female), P. leucotis (male) at 4–5 months old

Grey-breasted Conures—eight chicks at 3–5 weeks old in a three-chamber nest box

BREEDING

Grey-breasted Conures

My best breeding results with *Pyrrhura* Conures have been with the Grey-breasted species, a beautiful bird found only in a small part of north-eastern Brazil. They have been listed on the IUCN Red List since 2007 as Critically Endangered.

Grey-breasted Conures—the author's super breeding pair photographed in 2011 at the age of 10 years at which time they had raised a total of 74 young. Now, in July 2016, they have raised a total of 101 young!

White-eared Conures P. leucotis. From left: one breeding pair with their two young at four months old

Even though my first pair didn't breed successfully, the second pair raised four clutches, totalling 17 young chicks from 2000–2002.

All records were broken by my current breeding pair, which raised 96 chicks from 2003–2015. In 2007 they produced eight chicks and at the time of writing in June there were another five chicks in the nest. This extraordinary breeding pair is mentioned in Rosemary Low's recent book *Pyrrhura Parakeets (Conures)—Aviculture, Natural History, Conservation*—available from ***ABK***.

During this successful breeding, the pair shared a 9sq m community aviary with a pair of Swift Parrots *Lathamus discolor*, which also successfully bred and raised five young, as well as eight pairs of *Brotogeris* spp. and five pairs of Long-tailed Finches *Poephila acuticauda*. Even though the usual vertical nest boxes were provided, both the Grey-breasted Conures and Swift Parrots moved into a three-chamber birdhouse measuring 56cm long, with a rear breeding chamber measuring 22cm x 16cm—which had been meant for the *Brotogeris*.

I can't explain the survival of all eight Grey-breasted Conures in this clutch, despite the huge size difference between the first and last hatchlings. Perhaps it was the greater food quantity and variety (many fruits, breeding food with hard-boiled eggs, soaked white bread and nectar mix for the lories) or the different nest box dimensions—perhaps both factors contributed or it was simply coincidence.

The eight young Grey-breasted Conures gave me great joy, especially since all developed into beautiful and strong examples of their kind and exhibited a closeness to their mother.

However, all pairs did not breed so successfully. Despite repeated attempts, particularly when I changed the members of a pair, I was unable to simultaneously breed another pair of Grey-breasted Conures. I hope my results will improve this year by trying to breed four pair in a larger community aviary, thereby giving the birds a choice of partners.

White-eared Conures

These parrots are also endemic to Brazil. In 2009, at two years of age, my two pairs of White-eared Conures bred for the first time. Each year since then they have produced multiple young, with a total of 46 chicks.

The chicks hatch out of pure white eggs after a 22-day incubation period. Eggs are normally laid in a two-day cycle (occasionally three days). Fertilised eggs show blood arteries only four days after being laid. At this point, the eggs still move freely inside the shell, but the next day arterial branches are visible and the egg is attached to the shell. After one week, the eggs are no longer translucent and appear dark. Unfertilised eggs remain translucent and light-coloured.

Fresh hatchlings have a light skin tone, white down feathers and a dark upper beak. They draw immediate attention by emitting a begging sound which provides an audible alert, so you can often observe the hatching process without constantly monitoring the nest.

I ring my birds at 10–12 days old using 5mm closed rings—they open their eyes at this time too. On the 19th day chicks get their first feathers, mostly on the tail. Two days later the quills usually appear on the wings. By day 25 the white ear coverts are visible. After 42–44 days my young White-eared Conures fledge.

Fledgling colouring is very similar to that of their parents, although the fledglings are smaller and their tails are not full length. After a very short time it is difficult to differentiate old and young birds. One clear marking for young birds is the coloured tail tip which is visible for several months.

Fledglings begin to eat food without assistance about two weeks after leaving the nest. You do not need to separate the fledglings from the parents, a distinct advantage with all *Pyrrhuras*.

I find it a special joy to observe them as a family. The family undertakes most activities together and sleep in a single nest box.

Pfrimer's Conure

Pfrimer's Conures were first introduced to Europe in about 1998—six males and one female in Switzerland. As the Swiss breeder explained to me, all Pfrimer's Conures in Europe are descendants of that one female.

P. pfrimeri is diffentiated from the White-eared Conure primarily by the nearly homogenous chestnut brown colouring on the sides of the head. It measures approximately 22cm long.

The white ear coverts clearly visible in other white-eared species are barely visible. Otherwise the *P. pfrimeri* closely resembles the Emma's Conure *P. emma*.

As with all *Pyrrhuras*, the sex cannot be determined by feather colouring.

The Pfrimer's Conure is endemic to a small area in north central Brazil and is rare outside that country. There are a few successful breeders of these beautiful birds in Germany and surrounding countries.

My personal experience with Pfrimer's Conures is based on two pairs I obtained in

January 2010, when the birds were about nine months old. In May 2011 my now two-year-old pairs bred for the first time. One female laid six eggs and the other four. Sadly, only three of the 10 eggs were fertilised. All three eggs hatched, but each pair raised only one chick. I ringed the chicks at 12–14 days with 5mm and 5.5mm closed rings. The fledglings left the nest after about 45 days.

Over time, the Pfrimer's Conure became calmer, tamer and bred more successfully. In 2012 five chicks reached maturity, in 2013 another two, in 2014 sadly none and in 2015 another four. I have four pairs for breeding in 2016. In addition to my existing breeding pairs, I obtained three birds from the Swiss breeder (all three are descended from the original female caught in the wild) and added one fledgling from the broods I had raised. With these birds, I hope to achieve my goal of raising more of these very rare parakeets.

You can request additional information about my avian breeding at my website www.horst-mayer-vogelzucht.de.

Pfrimer's Conures—six year-old breeding pair (female, third from left) with three youngsters at three months old

KELLINGTON (SHUTTERSTOCK)

Hoatzin or Canje Pheasant

A Birdwatcher in Guyana

WORDS AND PHOTOGRAPHS BY **VICKIE LILLO**

THE HOATZIN

One of our two Amerindian guides, Cleveland 'Buddy' Simon, cranks down the small engine until it is little more than a gentle rhythmic purr, and the aluminum jon-boat eases among the red mangroves proliferating near the shore. Waxy leaves brush against my legs. An endless trail of cutter-leaf ants is marching across the prop roots of the mangrove, advancing single file along a virtual highway of tangled stilts. I follow their track as they meander upwards, always upwards. Over lianas and creeper vines, the methodical army of insects ascends the dangling tendrils of ever-taller bromeliads. For a split second, I have lost interest in our mission. I quickly forget the ants and refocus my binoculars towards the treetops of the forest canopy. A remote forest—a true estuarial eco-system, thriving on the banks of the Mahaica River, in Northern Guyana.

By now, our tiny skiff is ensnared in flowering philodendrons, ferns and eetay palms. Motoring is no longer possible as we wind deeper and deeper into the foliage. Erb 'Ducky' Simon, our other Lokono-Arawak scout, digs his wooden paddle deep into the black water. 'Watch out for the thorns,' Buddy warns, pushing aside the hairy bristles with his oar. '*Kongo-pong* trees.' (That's Amazonian sticker bushes to me.)

Suddenly I hear the rustle of olive-brown wings and I catch a glimpse of our prize—the Hoatzin *Opisthocomus hoazin*. With glowing red eyes and an azure blue face, the national bird is nothing short of comical, like a caricature from some cartoon magazine. Not royal, like the Harpy Eagle of the southern Rupununi plains, or brilliantly plumed like the Guianan Cock of the Rock from Kaiteur Falls, the quarry in my binocular lens has the derogatory moniker of 'stink-bird', for the foul-smelling methane gases belched up from its gut.

Yet somehow, envisioning the awkward Hoatzin as a living fossil, related to the original two-legged dinosaurs (theropods), makes it distinctly more glamorous. It makes our quest more glamorous too. And then the spiked crest rises...brooding at first, then blossoming into a frizzled comb of self-important haughtiness. The Hoatzin has shown itself hiding in the dense greenery of riparian rainforest. I bounce off the seat in excitement—and nearly capsize the boat. Twice before we've waited to see this avian oddity. Birding, after all, is not a recreation for the faint of heart, I tell myself, thumping a bug off my arm—nor the impatient.

A TRUE BIRDER

'Did you see the Canje Pheasant?' Ducky asks in a soft voice, using the name coined by the local natives here on the 240 square miles of Pakuri Reservation tribal land. I nod, completely in awe. Who would have thought I would become a genuine birder in such an off-the-beaten-path? Most of my friends and colleagues at the office mistakenly think I've gone to Africa. They don't realise that northern Guyana, technically considered part of the Amazon River Basin, lies off the coast of South America. Who would have suspected I'd be birdwatching in the Guiana Shield, knee-deep in bristly, barbed *Kongo-pongs*, with ferns clawing at my hair and cobweb strands laced with spiders swaying mere inches from my face? I am almost gloating, I feel so proud of myself. I am now officially a birder—at least, in my own mind. While I'm busy patting myself on the back, my husband Gustavo is clinging to a *Moko-moko* tree for balance as he angles his camera for the perfect shot.

We retreat through the nettles of thorns and thick undergrowth swamped by last night's deluge, and rejoin the mainstream of the river. A section of rotting bark has peeled away from an Ité palm and landed in the bottom of our boat. A pair of plump beetle larvae is munching on the husk. 'Some of the tribe members still eat these,' Ducky comments as he plucks up one of the grubs and lets it wiggle in his palm. 'They're good...when you fry 'em.' He smiles at my husband and winks. 'You want to try some? We can cook them back at the eco-lodge.'

'Oh, no thanks. I'll take your word for it that they're delicious,' I reply. Laughs all around and the four of us continue cruising upstream against the sluggish current of the Mahaica. The woodland thickets along the riverbank are a twitter with the chattering of birds. Ferns, mangroves, banana palms and guavas... and species of arbor, shrub and lily pad act as a welcome respite for the plethora of passerines and near-passerines that call the Amazon their home. We mosey under giant hanging baskets—Oropendola nests—and past a community of clacking Green-rumped Parrotlets, the social butterflies of the rainforest. A Black-billed Ani swoops down from its perch to scavenge the remains of a soursop fruit, lying half-eaten on the shore—leftovers, no doubt, discarded by one of the parrots. It pecks ravenously at the sweet flesh and ebony seeds.

I scan to the left and right. With my

An Orange-winged Amazon

Author holds a Red-footed Tortoise

beginners' birding binocs, I am able to hone in on a trio of Black and White Hummingbirds with long paintbrush tails, and a Yellow-bellied Kiskadee. A bright blue Morpho butterfly wings by in a barely discernible flutter, yet still too quick for me to snap a photo.

THE AMAZON, THE BOA AND THE TORTOISE

As the occasional clearings in the forest give way to sandy coast along the riverside, we begin to see signs of village life—a couple of houses built off the ground on wooden posts, clotheslines full of laundry flapping in the breeze, a landscaped garden of ornamental flowers. Buddy points to where Ducky lives. He pulls up to the edge, ties off the jon-boat, and we sally up the muddy path.

Gustavo and I are greeted by Ducky's wife Madonna and their family pet *Ashton*, a Yellow-crowned Amazon. The friendly parrot steps towards my husband's outstretched hand, utterly unafraid. He's got a good life—able to spend his days gliding through this tropical Amazonian paradise and his nights sleeping in his own private birdhouse.

Our host at the eco-lodge, Damon Corrie, heir to the Hereditary Chieftancy of the Eagle Clan of the Lokono-Arawak tribe—and extreme admirer of psittacines—helped pen the 2003 Nancy Lewis Cullity Parrot Protection Act that was signed into Guyanese/tribal law. *Ashton* never has to worry about being sold off to the foreign pet trade because he is living on the first indigenous reservation in Latin America willing to take a legal stand towards safeguarding the wildlife of their ancestral lands. Estimates run as high as 30,000 parrots and macaws that are being spared every year as a result.

In the dismal sky above us, wicked storm clouds are beginning to brew. It is the rainy season, after all, and today's downpours are slightly overdue, so we hurry back to our launch. Around the bend, we forge the vegetation-blackened waters of the Mahaica. We wave to a man, woman and child in a nearby canoe, undoubtedly hewn by skilled Amerindian hands. The dugout skims the surface without making a sound. Only the splashing of a heron fishing for dinner in the ruddy mangroves disturbs the silence.

Back at the Ayonto Hororo Eco-lodge and Wildlife Sanctuary, Damon is getting ready to drag out the reptilian lodgers of our all-inclusive hostel, but first he introduces me to *Laura*, the Orange-winged Amazon, in a decorative shrub near the porch.

'I'll let you two get acquainted,' he chuckles as he leaves to fetch the Boa Constrictor which Buddy and Ducky caught out on the savanna a couple of days before our visit.

I move closer to the bush. *Laura* is dancing a jig to a tune that only she can hear. Deciding to hand this lovely green, yellow and blue bird a leaflet to nibble on, I pluck a green petal from the far side of the hedge. I offer it to her...or shall I say I 'attempt' to offer it to her. '*Squawk, squawk,*' she yammers, and I hastily recoil to a

location of safety. Apparently, I don't have parrot appeal. The Amazon goes back to her dance, cavorting anew—she seems to be smirking at me with her oversized beak.

Damon returns, along with my husband and son, holding a juvenile, five-foot Red-tailed Boa Constrictor. Although I don't claim to be fond of snakes, I have to admit, this ecru and mahogany serpent, with 'saddles' of dark russet scales becoming more pronounced on its tail, is indeed quite beautiful. The three of us admire the boa as it tries to wrap around Damon's arm. 'Come closer. I'll show you its fangs,' he says. As a self-taught herpetologist, Damon shows no fear of the snake.

A few minutes later, his 20-year-old son Tecumseh has found one of the tortoises—a Yellow-footed Brazilian Giant tortoise—in the pen behind the house. There are only two types of land tortoises in Guyana—the Red-footed and the Yellow-footed. Nowhere near the size of the 'giants' we had encountered in the Galápagos, these terrestrials are, nonetheless, spectacular. With gilded speckles on his head, and front and hind legs dappled by glossy vermilion spatters, the Red-footed Tortoise looks as if he's stepped into a paint bucket. It is a living, breathing, walking artist's canvas—only his sombre-coloured carapace with the amber patches seems a little lacklustre.

A LAST ADVENTURE

Our vacation is drawing to a close and we are sad to be leaving Guyana and our newfound Lokono-Arawak friends. I will miss waking up each morning to the humid smell of the tropics—air so clean and earth so green. Water lettuce, lilacs, heliconia blooms—even orchid epiphytes, 'floating' on bromeliad vines high in the canopy's trees—all give off their own delicate perfume. I will miss the bird chatter most.

FINALE

I am in the middle of packing for our flight to Trinidad when Damon yells for me. 'If you want, we can go on one last adventure?' As if this is a question.

I race downstairs and grab Gustavo and together, we jump into our wading boots. Shimmers of orange and gold from the setting sun glint in the current as we launch the boat. Twilight descends even before we can motor to the village trail.

Carefully, we glide up to the bank. By the gleam of Damon's headlamp and our non-descript flashlights, we are able to make our way down the footpath. 'It's just up ahead, at the first house on the right,' he tells us.

We plow through the woman's front yard, trying to avoid the deep furrows in the grass, and arrive at the side stairs. 'We've come to see the...' he hesitates, 'your bird.' Damon's voice is hushed, almost reverent.

And then I see why. The most outstanding specimen of red, yellow and cobalt feathers—a Green-winged Macaw—is looking our way, studying us with his beady black eyes. Those eyes, situated on the sides of his head that offer him both keen vision and a nearly 360° view. The parrot sees us long before we see him.

'He's friendly.' The Amerindian woman scoops up the macaw. 'Here, you can hold him,' she says. The next thing I know, that humongous bird has been stuffed into my hands.

I snicker, but not from joy. I don't want the parrot to sense my distress—that gargantuan beak is just a hair's breadth from my lower lip. Gustavo rescues me by coaxing the psittacine onto his arm, where he sidesteps his way up to my husband's shoulder.

Gustavo with a Green-winged Macaw

It's getting late by the time we say our thank yous, and we have an early departure for the airport in the morning. The holiday is over for now, but I definitely plan to come back to Guyana and the eco-lodge during the dry season. I've heard about the wealth of avian life on the savannas of the Rupununi—toucans and Aracaris, Scarlet Ibis and Jabiru Storks. Perhaps we'll have a chance encounter with a nesting Harpy Eagle, the regal totem of the reservation's Eagle Clan. I'll be sure to bring Damon along. Besides being a host extraordinaire, hero to the psittacines, herpetologist, and legitimate spiritual leader of Pakuri's Arawak nation, he's promised to round up a Giant Anteater just for me.

To find out more for yourself e-mail: damoncorrie@yahoo.com or go to www.guidedculturaltours.com. abk

WORDS AND PHOTOGRAPHS BY **MARCUS POLLARD** BSc (Hons)

The Beautiful Firetail
Revisited

There are always going to be species that we struggle with and that create an inordinate degree of problems across our avicultural journey—be it due to climatic demands, simply keeping our birds alive, or the live food requirements that prevent chicks being rejected onto the aviary floor.

In the past I was fortunate to be part of a trio keeping and breeding the endangered Swift Parrot *Lathamus discolour* with some success. Afterwards I set about looking for another worthy challenge and a species with a local flavour. I decided on the Beautiful Firetail *Stagonopleura bella* for some inexplicable reason—oh, apart from the fact that it was a finch and our Wildlife Services people didn't want anyone to have them!

As readers of ***ABK*** already know, I wrote a rather rushed version of my initial time with the Beautiful Firetail some years back and I thought it was about time to revisit and update my experiences.

I was asked to present a talk on this species at the last Queensland Finch Society conference, but due to personal circumstances I was unable to do so. So, it is fitting that I should dedicate this article to my father's memory, given that he inadvertently started me down the road to aviculture in the first place—to his perpetual amusement!

BREEDING TRIALS AND TRIUMPHS

Since obtaining my first pair of Beautiful Firetails (through a bureaucratic bungle), I have had some good years with them and some bad. The good years were very good, but the bad years were very bad! The first pair bred 16 youngsters and I stupidly thought 'how easy is this!'

Within two seasons I built my number up to 22 birds, only to have some nice person(s) help themselves to them one evening and leave me with just five.

Since that time I have certainly yo-yoed around with the Beautiful Firetail, partly because of time constraints and health problems, as well as Tasmania's weather foibles.

Beautiful Firetail male

Beautiful Firetail female

I have noticed that, throughout the years, most Beautiful Firetails have been lost between breeding seasons. I have always postulated that this was due to the parents being rundown after chick-rearing and being displaced by their own offspring who, once fully coloured, would be looking to establish their own territories for the coming breeding season. Given that the parents had just reared a number of clutches, they would not be as physically strong as these young up-and-comers, and I suspected that the struggles of the worn-out parents could be the cause of deaths. Having only a few aviaries that I deem suitable for Beautiful Firetails, I've not been able to separate the parents from next generations in order to test my hypothesis.

That was until breeding season 2015/16 rolled into town like an avenging angel! In September we had the hottest days ever recorded for that month—on average around 25°C—followed by nights in which severe frosts were common. The firetails brought their young from the nest barely feathered, and many chicks were unable

Beautiful Firetail nest entrance

The aviary in which the Beautiful Firetails are housed

to fly properly. This was very unusual. Generally the first time you knew you actually had young was when one hit you in the head! Being unsure as to which nest they came from, I vainly tried to replace the chicks into one before nightfall. Sadly, the end result was that no chicks survived.

Following that, we had the driest summer on record, where green feed was at a premium, and my grass patches failed. Typically, the veldt oats *Ehrharta longiflora* started to grow, but with the increasing dry, they produced seed heads when only about 12cm high. Devoid of any seed formation, the heads withered and died. My own veldt oats did the same, and the other Beautiful Firetail staple veldt panic grass *E. erecta* died before forming seeds.

My own grass patch usually ran out by the end of January but last season it was exhausted by the middle of October, despite constant watering. Even the masses of *E. calycina*, which normally covered the roadside on the South Arm Peninsula, failed to grow.

The second or third round of Beautiful Firetails failed. In their desperation for something green, my firetails started eating silverbeet, kale and Chinese greens—bok and pak choy—but they did not consider these plants worthy when raising chicks.

UNEXPECTED SUPPORT FOR MY HYPOTHESIS

An interesting consequence of a lack of chicks fledging for the entire season was that, owing to a lack of stressors from the rapidly maturing offspring, there was zero mortality in adult birds. These observations may assist breeders who are contemplating how this species might factor into their husbandry and stocking regimes.

Some breeders report the same patterns for the Diamond Firetail *Stagonopleura guttata* (occasionally placed in the genus *Emblema*), where if the young are not removed from the colony/pair/enclosure, the breeding is greatly reduced and very few young are fledged. However, I have not heard of any reported deaths among adult birds, only reduced reproductive output.

AGGRESSION

I guess if one were to rate the Beautiful Firetails by their aggression levels, then the Diamond Firetail Finch would be at the bottom. (It is only the rare bird that actually attacks others.)

The Beautiful Firetail sits in the middle—I have witnessed low-level aggression but I have never witnessed full-on, severe attacks. Then there is the Red-eared Firetail *Stagonopleura oculata* at the top. Many consider they are killing machines to their own young once they colour. Mind you, I've heard one guy say they are like 'cuddly pussycats' to each other, but the majority beg to differ.

My most amazing experience regarding the perceived effect of aggression was among Red-vented Bulbuls *Pycnonotus cafer* at the home of John Butler (JB) in the Hunter Valley. John had some Red-vented Bulbuls that were reaching maturity—he was holding them for a chap who was very late in collecting them—the adult pair had just hatched their second clutch.

I was watching them when the adult male swooped straight down at an immature male. He dived and just swerved at the very last moment so there was no actual contact. The young male flew straight to the ground and just sat there. I told JB what I'd just witnessed and how adept a flier the adult male was to avoid any contact. He just looked at me and said—that young bird will be dead in 10 minutes! I couldn't believe it, because I had seen that they never actually touched. JB just smiled at me and said, 'they don't have to, son!' To prove him wrong, I went out to report on the young male's progress, only to find it sitting in the exact same position but stone cold dead without one feather out of place.

It just goes to show the effect of stress in birds, lending support to my postulations that firetail parents could in fact be dying of stress although there have been no overt signs of aggression, and autopsies have shown no signs of injury.

AVIARY VEGETATION

If you've read my previous ***ABK*** offering on the firetail species, then you know how hard they are on the growing vegetation in any aviary. They eat the growing tips of plants and then strip them to plaster all over their nests, possibly as a form of camouflage. Mind you, mine are now approximately six generations removed from any wild-type blood and have mostly stopped placing fresh green material over the outside of nests. In fact, Bengalese Manikins *Lonchura domestica* would

Placing a tree in a bucket provides a popular sleep nest

Chickweed (left) and oats (right) are provided over winter

reject some of their nests these days, showcasing the effect of domestication in aviary birds.

Alas, it's far too late for most of the natural Tea-tree in the aviary, and these days we simply cut an entire Tea-tree bush off, stem and all, and place two in metal rubbish bins and fill them with rocks to stop them tipping over. Hey presto, a nest tree in a bucket which is easy to replace each breeding season. Mind you, the birds will build a sleep nest in it at some time, making it impossible to throw away.

The natural Tea-tree only lasted three seasons but the main trunks are retained and I cable-tie fresh green branches to them every year just to fool the firetails—works a treat.

There are a few trees that they appear unable to kill. The native Broad-leafed Hop Bush *Dodonaea viscosa* has survived and flourished and contains a number of nests every season. It contains natural saponins (soaps), which may explain why it is unpalatable. The Fine-leafed Hop Bush *D. filiformis* may also be a survivor among firetails. Both species can be easily propagated from cuttings or seed. I suspect any of the *Dodonaeas* would make serviceable aviary bushes. They grow tall but can be easily shaped and headed to thicken up.

Another survivor is *Acacia paradoxa*. This plant is widespread on the mainland and is an extremely prickly tree that any bird would have trouble ripping to pieces! I first saw this tree at the home of David Pace, in Geelong. They appeared to be about 3m high and formed a dome-shaped top, although maybe they would grow taller on more suitable soil. David told me to kneel down and look up into the crown of the tree. On doing so I could see that the entire crown was filled with Red-browed Finch nests. After a bit of work, I now have several *Acacia* trees up to 2m high, and recently placed one into the Beautiful Firetail aviary and crossed my fingers! Several tried to land on it to rip it to pieces but all of them found the spikes too daunting and now the plant has doubled in size and has beautiful fresh green tips.

In the wild many Beautiful Firetails nest in a similar prickly plant—*Acacia verticillata* (prickly Moses)—but in the aviary they destroyed several of these that I had growing. If you seriously want these guys in a natural setting, I'd suggest a pile of *A. paradoxa*. Just remember not to brush against them too much yourself, lest you resemble a travelling prickle bush!

DIET

I supply my Beautiful Firetails with Elenbee's Clifton Finch Mix and Greens n' Grain mix. The latter is the first port of call for them and even new birds appear to love it with a vengeance. One hopper of plain canary seeds is also supplied and they frequently feed from this as well.

Over winter they are given hulled oats. These are withdrawn as the days start to heat up (generally mid-September down here in Tasmania). Chickweed *Stellaria media* is given when available and appears enough to get them through the winter months until the three *Ehrharta* species are available. They also consume winter grass, rye grass and *Phalaris*. I have tried them on *Panicum hilmani* but they refused to touch the seeds for some reason.

They are fed soaked/sprouted seed with my own blend of soft food, vitamins and other goodies daily, plus cucumber. Live food is provided, although I have yet to see Beautiful Firetails touch it.

BREEDING

When they are breeding, I give the firetails copious amounts of couch grass runners, which they use for both sleep and the complete outer shell of the breeding nests. Couch grass runners can be metres long in areas not regularly mown and can be ripped up easily. For Beautiful Firetails, I simply give them the entire long lengths which I cut up for other species—very few finch species do not use it. November/blown/fairy grass is presented and they use this for the inner layer of the nest. Some still use small sticks and stiffer straw for the funnel at the front of the nest but, as stated, many no longer bother with this structure.

There are emu and white feathers available, but their favourite nesting material is cottonwool—the average breeding nest contains copious amounts of it. In an average breeding season they utilise an entire roll of cottonwool. It is preferable to provide natural cotton fibres rather than the synthetic fibres that are in some brands. I have never had any deaths or feet lost through using cottonwool to date.

Beautiful Firetails are generally devoted parents and certainly no harder to breed than your average Diamond Firetail. Hopefully more can be bred and many of the stressful traits that currently limit their popularity can be lost in the mists of time. Until that time, I urge all with Beautiful Firetails to do the best they can to ensure they swap both birds and information with other like-minded enthusiasts that attempt to keep and breed them.

ABOUT BIRDS...

WORDS BY **KIT PRENDERGAST** BA BSc (Hons) PHOTOGRAPHS BY **KEITH LIGHTBODY**

Hybridisation Part 1

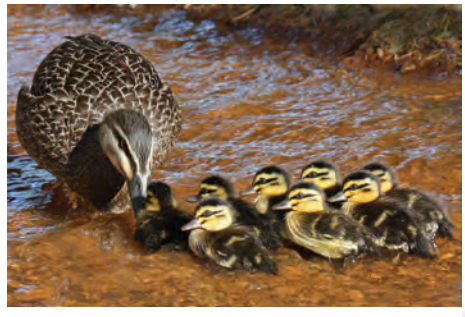
The biological definition of a species is a group of sexually reproducing organisms that naturally either actually or potentially interbreed, and are reproductively isolated from other groups. However, exceptions occur when different species interbreed—a process known as hybridisation. These unconventional matings have a variety of outcomes, with implications for evolution and conservation of the species involved. Those involved in avian conservation or breeding need to be aware of both the potential risks and benefits of hybridisation.

PATTERNS AMONG TAXA

Compared with mammals, hybridisation occurs frequently in birds, both in the wild and in captivity. About one in 10 bird species are known to hybridise but the true incidence is likely higher. The incidence of hybridisation greatly varies among different taxa. The order Anseriformes (waterfowl like ducks and geese) has the highest propensity for interspecies mating—almost 50%. Other taxa which have high incidences of hybridisation are landfowl like grouse and partridges (Galliformes) (21.5% of species hybridising), hummingbirds (Trochiliformes) (19.1%), mousebirds (Coliiformes) (16.7%), and woodpeckers (Piciformes) (13.5%). Hybridisation is also rare among seabirds. There have been no recorded hybridisations in about one-third of avian orders however, this could just mean there have been insufficient studies.

TRAITS IN HYBRIDISATION

Hybrids produced from matings between two distinct parental types often display a mix of their parents' characteristics. In most traits—including size, colour, beak shape, tail and wing length, behaviour, and calls—hybrids are an intermediate between the parents' traits. For example, the hybrids produced by matings between the Red-rumped Flame Tanager *Ramphocelus flammingerus* and the Lemon-rumped Tanager *R. icteronotus* have rumps that are an intermediate shade of orange. In other instances, hybrids exhibit a combination of parental traits, resembling one parent for some traits and the other parent for other traits. In some cases, hybrids exhibit



Pacific Black Duck Anas superciliosa and ducklings. Ducks (order Anseriformes) are one of the most frequently hybridising taxa

'heroic traits' completely outside the range of variation in either of the parent types. For example, Yellow Cardinal *Gubernatrix cristata* x Red-crested Cardinal *Paroaria coronata* hybrids are often larger and stronger than either of the parent types.

HOW HYBRIDISATION OCCURS

Hybridisation occurs when taxa from different populations come into contact again following a period of evolution in isolation, but signals involved in mate-recognition have not diverged sufficiently to prevent interbreeding between the groups. As expected, hybridisation is more common among subspecies (groups not differentiated enough to be deemed to comprise independent species), than species, or higher taxonomic groups

The Blue and Gold Macaw Ara ararauna hybridises with the Scarlet Macaw Ara macao to produce the desirable 'Flame' Macaw hybrid

(genus, family, order). Although most hybrids are produced by inter-subspecies or inter-species mating, in waterfowl, hybridisation has been recorded to occur between individuals from different subfamilies, for example ducks (Anatinae) and geese (Anserinae).

Multiple (or compound) hybrids also occur. These hybrids are produced by successive matings between more than two types, and can occur in captivity and nature. One famous, highly desirable multiple hybrid is the Flame Macaw. This commercially produced hybrid is created by first crossing a Blue and Gold Macaw *Ara ararauna* with a Scarlet Macaw *Ara macao*. The resulting *A. ararauna x A. macao* hybrid is then crossed with a Green-winged Macaw *A. chloroptera*.

In some crosses, hybridisation only occurs between one sex in the pair. In other cases, crosses are reciprocal. For example, in pheasant x chicken crosses, roosters hybridise with female pheasants and pheasant males hybridise with hens. In contrast, Great Black-backed Gull *Larus marinus* x Herring Gull *Larus argentatus* crosses are unidirectional—only males of the former hybridise with females of the latter.

Hybrids appear to be favoured in 'disturbed' environments. This may be due to disturbance breaking down ecological conditions that favour assortative mating between conspecifics, or because 'novel' trait combinations in hybrids mean they are better adapted to disturbed environments. In Australia, where land clearing for agriculture has destroyed forest habitat, the hybrid zone between the semi-specific Pale-headed Rosella *Platycercus adscitus palliceps* and Eastern Rosella *P. eximius splendidus* has expanded. Habitat conversion and the resultant increase in hybridisation can be a conservation concern because of genetic swamping and elimination of one taxa.

HARMFUL OUTCOMES

The fitness (survival and reproduction) of hybrids varies from cross to cross depending on the parental taxa involved, direction of the cross, and genotypes of the parents. The fitness of a hybrid also depends on alleles inherited, its sex, and the environment it inhabits.

The fitness of a hybrid is influenced by sex. When hybridisation fails to produce offspring of one sex, or when there is a sex-bias in hybrid offspring in terms of infertility, it is almost always the heterogametic sex (the sex with different sex chromosomes). In birds, this is the female with a ZW pair of sex chromosomes. Therefore females are more likely than males to be absent or rare, sterile or inviable in crosses.

Interbreeding between different species may fail to produce offspring due to genetic incompatibilities between the egg and sperm. Hybridisation can therefore endanger 'pure' populations of species because it reduces the species' rate of reproductive output. Even when fertilisation is successful, and viable offspring are produced, the hybrids' offspring can have lower fitness than the parental species and be partially or completely sterile. Hybrids tend to be less fertile than the parental types, with fewer viable gametes (sperm/ova), undeveloped or deformed ovaries/testes, smaller eggs, and reduced libido. Thus, breeders should be cautious when attempting to produce hybrids. Nevertheless, hybrid fertility shows great variation, from complete infertility to fertility on par, or even exceeding that of the parents. In captivity, hybrid fitness may be improved by successive generations of targeted selective breeding and back-crossing.

Hybrids are generally expected to have lower fitness than offspring produced from conspecific matings because the combination of two genetic stocks, often adapted to different environments and ecologies, means the hybrid, possessing an intermediate combination, is maladapted.

Sometimes negative effects are absent in the first generation of hybrids but appear in the next generation. This is often manifested as partial or complete sterility in the heterogametic sex.

Hybridisation can even lead to extinction, particularly when one parental species is more abundant than the other. By continually introducing alleles of the abundant species into that of the rare species, and reducing the frequency of pure matings between the rarer species, the genetic distinctiveness of the rare species becomes erased—'swamped' by the introduction of alleles from the abundant species.

Owing to extensive hybridisation between the invasive Little Grebe *Tachybaptus ruficollis* and the Rusty Grebe *Tachybaptus rufolavatus*, the latter, confined to Lake Alaotra on Madagascar, appears to have ceased to exist as a distinct genetic taxon. In Australia, hybridisation between

The Yellow-throated Miner manorina flavigula hybridises with the Black-eared Miner m. melanotis

Yellow-throated Miners *Manorina flavigula* and Black-eared Miners *M. melanotis* appears to have eliminated the latter. Unlike *M. flavigula, M. melanotis* had a restricted range, which likely contributed to its elimination as a pure taxon.

Ongoing hybridisation between parental taxa can be so extensive that the two originally distinct populations coalesce into one, essentially forming a new species. This appears to be happening in New Zealand where introduced Mallards *Anas platyrhynchos* have hybridised extensively with the native Pacific Black Duck *A. superciliosa*. Because mixed matings produce offspring that are more viable and fertile, the higher fitness of hybrids than either parental type is leading to the entire population becoming composed of hybrids. In 1990 less than 40% of pure Mallards remained, and pure Pacific Black Ducks comprised less than 5% of the population. Similarly, in North America, American Black Ducks *A. rubripes* and Mallards once largely occupied geographically disjunct populations but following European colonisation these two taxa have been brought into contact, with subsequent ongoing, frequent hybridisation. Molecular analyses can no longer identify two distinct taxa.

EFFECT IN CONSERVATION

In terms of conservation, even if hybrids do not threaten the genetic integrity and fitness of parental species, they can pose a conundrum. This is because even if these species contain rare genes, they fall outside the protection afforded by legislation. Another complication arises when rare hybrid individuals in nature are mistakenly considered to constitute a rare, highly endangered species. For example, the Imperial Pheasant was once thought to be one of the most threatened species in the world, classified as Critically Endangered on the IUCN Red List of Threatened Species. First described in 1923, only two other specimens were collected, in 1990 and 2000. However, it was revealed that these specimens were instead the result of infrequent hybridisations between the Edwards' Pheasant *Lophura edwardsi* and the Silver Pheasant *L. nycthemera*, where the ranges of these two species abut in Vietnam.

Recognising hybrids is of vital importance for conservation, as considerable resources may be spent on conserving and breeding taxa that are not true rare species, but instead are rare only because hybridisation is uncommon or rarely successful between the parental species.

HYBRID ADVANTAGE

Hybrids may be at an advantage to either parental species due to 'hybrid vigour'. This can occur through a variety of mechanisms. One is when both parental species are highly inbred. Limited genetic variety causes inbreeding depression, typically due to the expression of deleterious recessive alleles, resulting in reduced survival and reproduction (see my previous ***ABK*** article, vol. 29, no. 3). When two inbred populations interbreed, genetic diversity increases. Because different alleles of genes are present, the deleterious effects of a recessive gene are masked by the other allele it is paired with in the hybrid individual.

Hybrids may also have superior fitness when combining traits of two different species, specialised for two different lifestyles, producing a phenotype (the observable characteristics of an organism including morphology, behaviour, physiology etc) better able to use a range of resources and cope with environmental variability.

Hybrid vigour has been documented in a study, spanning multiple generations, on Darwin's Finches. The Medium Ground Finch *Geospiza fortis* and the Cactus Finch *G. scandens*, as well as a small population of the Small Ground Finch *G. fuliginosa*, occur on the Galapagos Island of Daphne Major. They exhibit similar plumages, yet differ in beak shape, which is specialised for particular diets. Breeding records over 16 years revealed hybridisation was rare but recurrent. Males and females hybridised at equal frequencies. About 1.9% of *G. fortis* and 0.9% of *G. scandens* hybridised. Owing to the low availability of mates, 70.8% of *G. scandens* hybridised. Surprisingly, hybrid offspring survival was greater than that of offspring produced by conspecific matings, especially for *G. scandens* x *G. fortis* hybrids. Hybrids also successfully reproduced, backcrossing with both *G. fortis* and *G. scandens*, and even had higher breeding success than *G. fortis*.

WORDS AND PHOTOGRAPHS BY **BRIAN BOHL**

Showing Canaries in Australia Part 2

SHOW STANDARDS

As with any competition, there must be standards for the participants in canary shows to follow. In the case of certain canary varieties developed exclusively in Australia, such as the Australian Fife and the Australian Plainhead, the show standards are unique.

The Plainhead of today is in fact the Norwich Canary of the early part of the 19th century and the show standard for this bird is exclusive to the list of Australian show standards.

Due to restrictions on the importation of live birds and all genetic material into Australia since 1972, the Australian Fife was developed entirely in Australia by Roy Scott in the early 1980s, using the technique used by the original creator of the Fife in Scotland (Walter Lumsden in the 1950s–'60s). The English Fife has the roundness of an orange and although the Australian Fife shares certain similarities, Roy Scott and his Newcastle canary colleagues drew up a unique show standard for the locally developed Fife.

The Border Canary has been on the Australian show bench since the 1930s and its bloodlines contain a significant amount of the original UK Border. Except for certain body dissimilarities (the English Border tends to look rounder) the standards are relatively the same.

The one canary standard used in Australia which appears to follow the worldwide International Gloster Breeders Association (IGBA) standard of excellence is the Gloster Corona/Consort Canary.

PROCEDURE

A show standard follows a set routine. A two-dimensional pictorial of the particular bird—in profile and overhead view—clearly shows the shape of the head, neck, degree of roundness, wing carriage, colour requirements, plumage, size, leg and thigh, standing angle on the perch and general condition.

Also on the show standard sheet will be a scale of points totaling 100, allocated according to category. For example with the Fife Canary, head, colour, plumage and position are each scored up to 10 points, body 15, wings, neck, tail, legs and condition are each worth up to 5 points and size, 20 points. In the case of Type or Posture Canaries—such as the Fife, Border, Plainhead, Gloster, Norwich or Frill—which are bred specifically for their physical traits, it makes sense that up to 80 points can be allocated for Type.

In contrast, in the show standards for Colour Canaries, the emphasis is on colour and degree of frosting. With the Red Factor Canary, for instance, 50 points of the total 100 are designated for colour, 10 for degree of frosting, 10 for condition and feather quality, with only 30 points allocated to Type.

Extremely experienced canary judges generally do not use the points system in competition because their experience allows them to select the birds in the correct order. However in judge training seminars, the trainer will insist that students are fully acquainted with the allocation of points for the particular canary variety being evaluated. Birds under consideration in the training class will first be judged visually, placed in winning order, then re-judged using the points system and the two orders compared. Students with a keen eye and a flair for canary judging may obtain exactly the same result from the two assessment methods but in most cases there will be a difference, highlighting the inadequacies of canary judging visually when not fully trained.

Using the points system when training ensures the student looks at the individual elements that make up the complete bird, making the classification of birds easier.

All of the show standards for canary varieties exhibited in Australia can be found by Googling Australian Canary Standard Index–iPrimus.

TRAINING FOR EXHIBITION

Canaries displaying natural exhibition qualities are not common and a significant amount of show cage and situational training is normally employed to produce a quality show canary.

On many occasions when a difficult bird will not settle, display itself in a calm and steady manner, or show any signs of responding to the judge, the bird will be returned to the staging stands and take no further part in the show. This is such a frustrating situation for the breeder because the bird may have scored highly if the judge had been able to fully assess its conformation and other vital characteristics.

In my experiences as a show steward or penciller, the varieties that most often appear to display overly active behaviour and misbehave in the show cage are those carrying finch bloodlines (the Red Factor with its siskin ancestry) and the Lizard Canary which I believe to be closely related to the Red-fronted European Serin.

Young Fife and Australian Plainheads are both easily show cage trained. They adjust to being in the show cage for a full day with minimal cage training and seem to enjoy the experience with no obvious stress.

There are differences of opinion regarding at what age show cage training should begin. As it is normal practice to separate young canaries from their parents at approximately 30 days, when they are eating and moving about the flight independently, show training could begin from 35 days (five weeks old).

Training begins by securing a retired show cage to the open cage door, allowing the curious youngsters to come and go from flight to show cage. Food or small treats may be required to entice the youngsters into the training show cage. Once the young birds are familiar with the presence of the show cage, the cage is removed with a single bird inside and cage training can begin in earnest.

A variety of training techniques are used to prepare birds for their upcoming show season. Examples include creating a deliberate noise, like running an object over the cage wires, background radio, the breeder wearing glasses, a range of caps and hats, taking the caged birds into the house or for a run in the family vehicle to acquaint them with life outside the security of the bird room. I have heard of fanciers placing training cages on the floor of their bird room and moving the cages along the floor with their foot as they go about their business.

Ipswich Canary Society trophy table at the 2015 show

This Canary Show was held in Toowoomba

Recently, at a large club show in Brisbane at which I was show manager, the stewards advised me that all of the birds on a particular judging stand were staring at the overhead lighting and not responding to the judge. With minor adjustment to the position of that judging stand, the problem was overcome and judging returned to normal. Situations like this will arise at a canary exhibition and it is the job of stewards and the show manager to keep things running smoothly.

When a White Ground Canary is first placed into a young bird flight containing Lipochrome Yellow Ground birds, ranging from Clear right through to Heavily Variegated or Self, having never seen a white bird of any kind, they go crazy with fear and panic. Within a day or so the group adjusts to the presence of this previously suspect 'predator' and the status quo returns.

To reduce the possibility of this occurring on the show bench, it is strongly recommended to include a White Ground bird in the community flight prior to and during the training process.

SHOW CAGES

Over the years there have been moves to have all 13 canary varieties in Australia shown in a universal or multi-purpose box cage.

Queensland was the source of that movement but the individual specialist clubs such as Norwich, Gloster, Border and Fife stood fast on the use of the traditional wire and box cages. The universal cage did replace the earlier Red Factory Canary show cage in Queensland and it was also approved by the Combined Council of Queensland Avicultural Clubs (CCQAC) for use with other colour canaries and mutations.

The only show cage common to the various Australian states is the wire Fife or Border cage (the English Dewar cage) and here in Queensland it is the cage of choice for Fife, Border and Lizard Canaries. Unfortunately canary show cages are not commonly available in pet or produce stores, so a newcomer to the fancy is faced with some legwork. This is where club membership comes in handy to direct new members to cage suppliers of new and secondhand show cages.

The Ipswich Canary Society, of which I am secretary and show manager, buys up show cage stock of many types when they become available, for use by new members. Serious canary exhibitors consider their show cage to be like the picture frame on a spectacular painting—who would want to visit the Louvre to view the Mona Lisa in a second-rate frame? When it is down to the wire between two canaries of similar quality as the finalists in a club championship, the show cage could be the deciding factor, so impeccable show cage condition is a must.

PREPARING CANARIES FOR THE SHOW BENCH

It is essential that no greens or other foods that can stain the bird's beak are given 2–3 days before a show. Toenails should be trimmed and legs and toes should be washed thoroughly during the final bathing session prior to the show.

It's handy to have two shaving brushes when bathing show birds—one for use in a mild warm detergent/water blend to remove dirt and grime from feet and feathers and the second to rinse the bird in warm water.

The shaving brush technique is excellent for removing faeces residue and dirt from the end of tail feathers that have been dragging on the floor of the cage. I hold tail feathers at their base when washing to prevent pulling one. Attention to detail when bathing White Ground birds and concentration on tail feather cleanliness has led to many successes on the show bench.

Young canaries in training

AFTER-SHOW CARE

Some birds may become stressed during and after a show due to being young or other circumstances. The concerned fancier needs to administer a rehydration agent such as Spark™ to take care of any lost body salts. Many exhibitors will feed greens, such as endive or cos lettuce, to their birds after judging to rehydrate them and lessen the effect of stress.

It is important to get the show team back into the bird room and settled prior to sunset because they have normally been out of their home environment for at least 12–14 hours and, as all canary fanciers know, any level of stress can have dire effects on our precious birds. abk

WORDS AND PHOTOGRAPHS BY **DREW SMITH**

Parrots Delight in a Goji Berry Relation

The African Boxthorn is a heavy producer of bright orange berries and savage thorns to protect itself from grazing animals in Africa

At Silverton in far west New South Wales, I frequently sat concealed in my grandfather's carport and watched through the gaps as Mallee Ringneck Parrots flew into a big old African Boxthorn to feed on the bright orange berries. These birds were stunningly beautiful, carrying a feather-sheen akin to a fresh coat of wet lacquer. These Australian ringnecks would sit silently feasting on the orange berries until my slightest shift alerted them to my presence and then, in an instant, they were gone. Those childhood memories have stayed clear and sharp in my mind.

Now, many years later, there is a sudden craze for the juice of the Himalayan Goji Berry, with its promises of health and vitality for those who consume it (and possibly wealth for those who sell it!). My wife bought a bottle at a fair and I realised, while staring at the image on the bottle, that this berry had a familiar look. I knew I had seen its structure somewhere in real life, as the sepals clasping the base of the fruit are quite distinctive.

A little research told me that the Goji Berry *Lycium barbarum*, is a member of the *Lycium* genus and family Solanaceae—which the tomato belongs to. Then the penny dropped—African Boxthorn *Lycium ferrocissimum*.

Well, with such a good rap for the Goji version, it was quite likely that its African cousin was just as, or almost as good. I recalled the Mallee Ringnecks at Silverton and thought that a little experimentation was in order.

A healthy serve of fresh African Boxthorn berries, similar to the Goji Berry. These berries are eagerly sought by many parrots and softbills

It is not always safe for humans to eat what a bird can eat—especially with some native Australian plant foods such as Mistletoe berries, *Pittosporum*, *Myoporum* and *Eremophila*. However, I thought that a little taste could not do too much harm. I found that the ripe, bright orange boxthorn fruit does not have a fantastic flavour—it's a little on the bitter side but it doesn't have that 'not fit to eat' flavour either. A little sugar and it would probably be quite tasty.

I started feeding the berries by hand to an Amazon. She loved them instantly, much more than her old favourite, almonds, or any other specialty foods. In fact, she's a little inclined to take a bit of flesh if she can if she's not happy about something, but in order to get a berry, she knew to be on her best behaviour or they would not be offered.

After waiting a week or two to make sure there would be no cumulative poisoning effects, I began feeding the boxthorn berries to other parrots and now I even have some berry-eating Catbirds. They were also a real hit with the King Parrots (*Alisterus* genus) and Red-winged Parrots (*Aprosmictus* genus).

Given the enthusiasm of the birds offered the African Boxthorn berries and also the wild birds' relish for them, I've concluded that they must be good for them and taste good. Therefore it is well worth the trouble of collecting them. I collect the berries either by handpicking them or by knocking them from the branches onto a ground sheet with a long stick, such as a broom handle. A light bang dislodges the ripened berries.

Solonaceae fruits, including green tomatoes, have a toxin in their skin when green, so I would not feed green boxthorn berries to my birds. The berries do not all ripen at once and the progressive ripening spans many weeks, meaning a long harvest season. Like any fruit, I refrigerate the berries immediately and have found that they stay fresh for a long time.

WEED SPECIES

As you may be aware, African Boxthorn is considered a weed in the southern climates of Australia and has ferocious spines up to 10cm long. The plant can easily reach 3m high and 3m wide. It is bushy to the ground and impenetrable. It is also a favoured nesting place for the House Sparrow and the Black Rat *Rattus rattus*. As a pest plant species, it is generally prohibited, but many exist on council land, are left unchecked and uncontrolled. I do not suggest planting them and if you have them growing on your land, great care is needed when handling or working around them. Their branches are also very flexible and springy, and recoil, which may result in serious injury if you try pulling whole branches, once cut, out of the tangle.

Although it is a prickly business to collect the berries, I believe that the African 'Goji' Boxthorn berries are well worth harvesting. The birds must definitely think so, given their enthusiasm for eating them. abk

An African Boxthorn grows over a pigeon coup where it flourishes and fruits prolifically

WORDS AND PHOTOGRAPHS BY **DR BOB DONELEY** BVSc FACVSc CMAVA

Common Diseases in Backyard Poultry Part 2

In the last article, I introduced the keeping of backyard poultry. Once nearly every house had a few chickens to provide eggs and the occasional Sunday roast dinner. These small flocks almost disappeared in the 1980s and '90s, but poultry keeping is now enjoying a resurgence in popularity. The reason, however, has changed from a food source to poultry which are bred for show, the preservation of 'heritage breeds' or simply as pets.

As with the husbandry and management of any animal, there are disease problems associated with backyard chickens. The old adage 'if you've got livestock, you'll have dead stock' holds true for chickens as much as for any other bird species. This does not mean that we should accept losses. We need to do everything we can to prevent, treat and control disease. However, it reminds us that, if we want a pet that never has any health problems, we should probably get a pet rock!

There are many problems seen in backyard chickens. In this article, I want to discuss the more common ones presented to me at the University of Queensland Veterinary Medical Centre.

UNDERSTANDING DISEASE

We divide disease into two categories—non-infectious and infectious. Care must be taken not to confuse the words 'infectious' and 'contagious'. **Infectious** diseases are those caused by micro-organisms (viruses, bacteria, or fungi) or parasites. If the infection readily spreads from animal to animal, it is said to be contagious. If a micro-organism is capable of causing disease in very low numbers, it is said to be highly infectious. If the infection spreads rapidly and easily between animals, it is said to be highly contagious. It is obvious how easy it is to confuse the terminology!

Non-infectious diseases are those not caused by micro-organisms or parasites, such as cancer, heart disease, egg-binding, trauma, etc.

Infectious and non-infectious disease may act concurrently in the same individual. Very few micro-organisms are primary pathogens—capable of causing disease in their own right in an otherwise healthy individual. Most infectious diseases take advantage of an animal suffering from a non-infectious disease (or another infectious disease) and are said to be secondary pathogens.

Young chickens, with still-developing immune systems, are generally more likely to be affected with infectious diseases. As they age, they become more likely to develop non-infectious diseases.

NON-INFECTIOUS DISEASES

Although some non-infectious diseases can be hereditary/congenital, many are acquired—they develop as the animal gets older.

Malnutrition

This literally means 'bad nutrition' and can result from either a dietary deficiency (eg vitamins, minerals) or an excess (eg too much fat). It can take many forms:

- **Obesity** is common in pet chickens fed ad lib, especially with a lot of scraps and grain added to their diet. It can result in problems such as heart disease, liver disease, osteoarthritis, pododermatitis (bumblefoot), and even diabetes mellitus. Regular weighing of chickens, and control of their food intake in response, can help to prevent many of these problems.
- **Skin and feather problems** are common in very fat chickens, but also in chickens fed on 'homemade' recipes. Feathers will become brittle and may not moult normally. The skin can become either very oily or very dry and flaky. Nails can overgrow and the leg scales can become very thick and painful.
- **Skeletal problems** such as bowed and turned legs are common in calcium-deficient diets, especially those high in energy (fat and carbohydrates). Geese and ducks that are kept as backyard poultry are commonly affected with a condition called 'Angel Wing' in which the wing turns outwards and upwards because the bones are not strong enough to hold the weight of rapidly growing feathers. Slipped tendon is seen in chickens, ducks and geese. The Achilles tendon 'slips' out of its groove in the back of the bird's hock, effectively crippling it. It is thought that it may be due to a manganese deficiency and obesity. Surgical repair of this condition is almost impossible.

Reproductive Problems

These are common in chickens over the age of three years, and can be seen in even younger birds. A large part of this is due to genetic selection over the past 100 years for birds that grow rapidly, mature young, and lay eggs prolifically. Very few birds can maintain this pace year after year without 'burn-out' and the result is a sharp rise in the incidence of reproductive problems after a few years of egg-laying.

Problems include:

- **Egg binding:** The bird is unable to lay its egg and becomes distressed as it tries to do so. Myths such as giving the bird oil by mouth, or holding it over a steam kettle, are just that, myths. Prompt veterinary care is needed to achieve a good outcome.
- **Yolk peritonitis** occurs when the chicken's ovary ovulates, but the yolk fails to pass down the uterus. Instead it falls loose into the body, triggering an intense inflammatory reaction that results in large volumes of fluid accumulating. This makes the bird very unwell and, without treatment, it will die. Treatment is surgery to remove the fluid, yolks and the often-diseased uterus.
- **Pyometra** literally means 'pus in the uterus'. Pus, in this case, does not necessarily mean there is an infection—in fact, the bird is often sterile, but inflammation in the lining of the uterus results in thick caseous (cheese-like) pus filling the uterus. This, in turn, can lead to yolk peritonitis. Again, the treatment is surgical—the uterus must be removed and the belly cleaned out.
- **Ovarian and uterine cancer** is sadly quite common in older chickens. Some is due to previous viral infections (see *Marek's Disease*, below) but in other cases the cause is not known. By the

Ovarian and uterine cancer in a chicken that has widely spread through the bird's body

This is a pyometra—the chicken's uterus is full of caseous pus

time it is diagnosed, these cancers have often spread to other organs and all through the lining of the body, making treatment impossible.

- Other cancers such as lymphoma, fibrosarcomas, even cancer of the heart muscle, have been diagnosed in chickens and waterfowl. Often there is no obvious cause and treatment will depend on the type of cancer (and the owner's willingness to proceed with treatment). It is likely that the next 20 years will see veterinarians develop better techniques for the diagnosis and treatment of cancer in all birds, not just chickens, following the successes of our medical counterparts.

Trauma

This is all too common in chickens, with dog bites a big problem. These are often difficult to manage because of the extensive damage inflicted when the dog grabs a chicken and shakes it savagely. This is, of course, not the only traumatic injury that can occur—I have seen broken legs when owners tripped over a pet chicken and wings broken after being caught indoors.

Poisoning

This is less common these days, but still occasionally occurs. Organophosphate washes such as Malathion™ or Maldison™, especially if mixed too strongly or when out of date, are extremely toxic. Diarrhoea, salivation and seizures are the result. Ionophores are added to chicken starter diets to prevent coccidiosis, but are toxic to turkeys, peacocks and waterfowl. Pet chickens, especially in cities, are occasionally presented with lead poisoning.

INFECTIOUS DISEASES

As mentioned above, infectious diseases are those caused by viruses, bacteria, fungi and parasites. Some of the more common infectious diseases seen in backyard poultry include Marek's Disease, Fowl Pox, respiratory infections, bumblefoot, aspergillosis, ringworm, lice, mites and intestinal parasites.

Classical Marek's Disease in a chicken, with both legs paralysed

Marek's Disease

This is one of the most common viral infections seen in chickens around the world. Caused by a herpesvirus, it is spread through the air and is so common it is assumed that chickens are exposed from the time they hatch. It is most common in young chickens, aged up to four months, but can occur sporadically in older birds. (Only chickens are affected by this virus.) Infection causes a cancer of white blood cells, most commonly in nervous tissue, but also in the spleen, liver and even the eye. The result is paralysis of the legs and wings, painful eyes, swollen liver or spleen, and a crop that doesn't empty. Not all chickens will show all of these signs, but leg paralysis is the most common problem.

Diagnosis of Marek's Disease relies on either DNA testing or post-mortem examination of the nerves. There is no successful treatment for this disease, so prevention is the key.

Vaccination works well but is very difficult in a small backyard operation. The vaccine comes in 100 dose vials (although smaller dose vials are sometimes available). Once mixed with its diluent, it must be used within a few hours (unused portions cannot be frozen for later use) and because the virus is so common, chicks must be vaccinated at one day of age. Other preventative measures involve rearing chicks away from the adults and practising good hygiene.

Fowl Pox

This is a pox-virus infection that is also common in chickens. The virus is extremely stable in the environment and is spread by fighting, feather-picking or, most commonly, by biting insects such as mosquitoes and flies. There are two forms of the disease. The most common takes the form of dry scabs and swellings on bare skin (the comb, wattles, eyes and eyelids). The less common form is known as diphtheritic or wet pox because of the yellow plaques of pus that form in the throat and mouth that can obstruct eating and even breathing.

As with nearly all viral diseases, there is no cure for Fowl Pox. Fortunately the infection is self-limiting—the lesions will heal by themselves over 3–6 weeks, leaving the chicken immune for the next 6–12 months. Occasionally, they will become infected and require antibiotics, but owners

The black scabby sores on this rooster's comb are Fowl Pox lesions

Ringworm (Favus) in a pet chicken

must resist the temptation to pull the scabs off, especially on the eyelids. This will often result in scarring and deformity.

Prevention is again the key. Insect-proofing should be considered for poultry runs during spring and summer. Vaccination can be used in an outbreak but the vaccination reaction may affect egg-laying in birds older than 18 weeks. More commonly, it is administered to chicks up to six weeks of age, and then boosted at 8–12 weeks and at 20 weeks. Only healthy, well-nourished birds should be vaccinated and, when vaccinating day-old chicks, husbandry must be excellent or the chicks may suffer severe reactions. The vaccination is given by plucking some feathers and brushing the vaccine into the feather follicles or by pricking the wing web with a vaccination needle dipped in vaccine. The result is a scab forming at the vaccination site. When it is healed, the chicken has developed immunity.

Respiratory Infections

Chickens are very commonly affected by upper respiratory tract infections, characterised by swollen sinuses, watery eyes, sneezing and coughing, and decreased egg production. Left untreated, the chicken can deteriorate, stop eating, and eventually die. Although many bacteria can cause this infection, the most common infections are known as Chronic Respiratory Disease (CRD, caused by *Mycoplasma*), Infectious Coryza (caused by *Avibacterium paragallinarum*), and Fowl Cholera (caused by *Pasteurella multocida*). These infections are spread by rodents, insects and through the air. Some, such as Coryza, spread slowly in a flock, while others can spread very rapidly. A less common disease is Infectious Laryngotracheitis (ILT, a herpesvirus infection). This causes severe inflammation of the trachea (windpipe), causing the bird to cough to the extent it brings up blood.

Diagnosis used to be complicated but with the advent of DNA testing, this is much simpler. It is recommended to test, rather than just treat, affected birds. Knowing what disease you are dealing with can help to predict what is going to happen in both the individual bird and the flock.

Although they can be treated with antibiotics, some birds will require surgery to remove caseous pus from the sinuses. Some birds are so badly affected that nothing helps, and these birds may have to be euthanased on welfare grounds.

ILT, in many states, is a notifiable disease because it can resemble Avian Influenza. Your vet will advise you of this if the disease is diagnosed in your birds

Bumblefoot

Bumblefoot (also known as pododermatitis) is a bacterial infection in the sole of a bird's foot. There are a number of things that contribute to it starting—an overweight bird, poor diet, bad perches, a dirty pen. The result is a thinning of the skin on the sole of the foot which may split or be punctured, allowing infection to enter. Initially the bird is slightly lame but as the infection worsens it spreads up the tendon sheaths, into the joints of the foot and eventually invades the bone.

Treatment is determined by how severe the infection is. Early cases may respond to improving the perches, cleaning the pen, and basic foot care. More advanced cases may require antibiotics, bandaging, and even surgery. In severe cases, treatment can cure the infection but the chicken may be permanently crippled by the extensive damage to joints and bones.

Early recognition of the problem and aggressive veterinary treatment is the only way to prevent this.

Aspergillosis

This is a fungal infection of the lungs and air sacs and is more common in ducks than chickens. The fungal spores are inhaled and settle out in the lungs and air sacs. It starts to grow like bread mould and the bird begins to struggle for air, losing weight as the disease progresses over several weeks or months.

This disease is infectious. It is caused by the fungus *Aspergillus*, but it is not contagious to other birds or people. It can be very difficult to diagnose in the live bird and even more difficult to treat. Treatment requires anti-fungal drugs for many months.

Ringworm

Ringworm, also known as Favus, is a fungal skin infection occasionally seen in chickens. It causes thickening of the skin and feather loss. Unlike *Aspergillus*, this fungus is contagious to other birds and people. Treatment is with antifungal drugs—possibly for 2–3 months—until it resolves.

External Parasites

Lice, mites and even fleas are commonly found on chickens. They can cause irritation and feather loss. Some, such as Red Mite and the Stickfast Fleas, are blood-suckers and cause anaemia and weight loss. Another common mite is the Cnemidocoptes—the Scaly Leg mite. This causes thickening and lifting of the scales on the legs which, if they become infected, can be quite painful.

There are a lot of treatments marketed for external parasites, many of them quite effective. However, there are a lot of myths about them as well, such as applying sump oil to the legs to treat Scaly Leg Mite. Malathion™ is often recommended for lice and some mites, but can be very toxic. I do not recommend it at all.

Intestinal Parasites

The most common intestinal parasites seen in chickens are the protozoa (single-celled parasites)—Coccidiosis and Trichomonas (canker). Both can cause profuse watery diarrhoea, weight loss and even death. They have a direct life cycle, in that they are passed in the droppings of one bird and eaten by another. Diagnosis is made by a veterinarian examining the droppings under the microscope to detect the parasites.

Other intestinal parasites include roundworms, gizzard worms, and tapeworms. They can all cause weight loss and diarrhoea and, in severe cases, death. Again, microscopic examination of the droppings is needed to make the diagnosis.

A LAST NOTE

Throughout this article I have talked about various treatments. There are some important points to be remembered about using drugs in backyard poultry:

In many cases it is illegal for a veterinarian to dispense these medications without seeing the birds and diagnosing the disease. This is NOT a money-grab by vets, it is a State law that they have to obey, or risk being deregistered and losing their ability to practice.

Backyard poultry are regarded as a 'major food-producing species' and, as such, the use of medications is restricted and controlled just as it for commercial poultry—the government makes no distinction between them. There are some drugs that simply cannot be used in chickens, such as enrofloxacin (Baytril) and others that, if used, the eggs (or chickens) cannot be eaten during a registered 'withholding period'. Your veterinarian will advise you of this withholding period. abk

WORDS AND PHOTOGRAPHS BY **EB CRAVENS**

Taking Pride in Our Bird Keeping

Teaching a handfed parrot to fly free and return can be a most satisfying avicultural endeavour

An open exchange of ideas with other aviculturists and bird owners is a wonderful way to acquire knowledge and exchange unique experiences. I recall 30 or more significant discussions with breeders and pet keepers down through the years that have left lasting impressions on the way I view my psittacine hobby. Convention luncheons, show sales booths, bird club meetings, online chat groups, telephone consults, emails and magazine pages are just a few ways in which we can exchange ideas.

Something that has always struck me during such conversations is the features others pride themselves in regarding their bird keeping—aspects of their facility, the babies in their nursery, the species they own, and so on...

This article poses the question, what do we boast of in our bird keeping?

CHANGING TIMES

Personally, what I prefer to talk about concerning my parrots has changed drastically over the past 25 years. Once I was most proud of the rarest and largest psittacines I kept. That is what I heard most from other aviculturists whom I respected and tried to mimic. When breeding season arrived, and I was fortunate enough to raise a few chicks, I would find myself trying to impress with the numbers of Amazons or conures, Derbyans or King Parrots I was handfeeding. I would not focus on the progress or individuality the babies were showing, or the special new ways in which I was learning from my experienced parent pairs.

It would be difficult to count how many times in my early years I sat at a national convention somewhere and listened to respected, large commercial breeders boast about producing a couple of hundred or more hookbill fledglings the previous year. Naturally, as a beginning aviculturist, I in turn emphasised how many baby parrots I had raised.

To this day, such one-upmanship remains common in aviculture, even among novices working with cockatiels, lovebirds and grass parrots.

NATURE OVER NUMBERS

This is a shame. There is so much more of consequence in the world of captive bird keeping than countable successes in reproduction of offspring or rareness of species. Over time, April and I began to discuss the ways we could bring nature to our pet and breeder parrots. We like to mention the parent-rearing and role-teaching our chicks get, the free-flying experience we are giving our more savvy psittacines, the flock stature of some of our 'family trees' or generational breeding lines.

We tell others of the adoption birds, the rehab psittacines, the ones we feel compassion for, take in from unwanted situations, and either keep or aid back to health and find respectful homes for.

We like to emphasise innovative new food sources, consulting projects to enhance captive environments with greenery, or successful retirement pairing of two aged hookbills who have lived without a companion psittacine for decades.

In this modern era of growing captive bird conservation awareness, there are

Working with adoption facilities to rehabilitate and re-home needy parrots is a worthwhile endeavour

literally multitudes of undesired former pet birds, or those that have outlived their owners and breeders.

It seems to me that my prideful chat about numbers of handfeeding offspring or rarity of my latest CITES 1 pet species pales in comparison to the needs of these hookbills.

What should we boast of in our bird keeping? How about all the new ways we can learn to make cage life more stimulating and healthy for our charges. Or perhaps we could consider how we can minimise cage life by giving supervised freedom to our pets in the house or in a spacious garden aviary setting? Whenever we build or purchase a new, larger flight for our birds, is it something we are proud and excited to talk about with other bird keepers or is it one more unimaginative, mundane holding enclosure for our parrots, parakeets, canaries etc?

DISCOURSE IS EDUCATIONAL

What can we teach other pet bird people about keeping compatible birds in twos, in male/female pairs or mixed species aviaries? Many owners are finding that birds are such complex social creatures that humans cannot be entirely sufficient full-time companions for them—especially once they reach puberty and progress into the adult hormonal age!

How much esteem will we give those breeders and hobbyists who make hearty efforts to raise endangered species as if each single chick were essential to world parrot conservation? That is those aviculturists who, if at all boastful, would speak of long-term leaving of babies in the nest box with their parents, and slow, conscientious weaning onto live green and raw food-based diets—never any trimming of wing feathers or claws—allowing long-term fledging, advanced flight skills, recall to a keeper's arm and the like?

One commendable project I have learned of is a group of aviculturists co-operating to try and produce a captive proximity to the wild form of the 'Bush' Budgerigar, that diminutive, intelligent mostly green Australian progenitor of all the mutated Budgies currently breeding throughout the parakeet world.

Another praiseworthy venture in bird keeping is those who keep a single pair or more of birds as pets and breeders—allowing them to eventually nest during the season, but having them as companions the rest of the year. The parents are only allowed to have one clutch of offspring perhaps every two or three years and the offspring are kept in the home with the parents for many, many weeks to learn all the skills and social behaviours of their forebears, along with human pet activities, of course. Only when they are accomplished and savvy are the babies offered up to new homes.

I really like conversing with my friends who are doing it this way, because they always seem to have such a strong commitment to their birds. When young pairs make mistakes in the laying/hatching process and do not succeed with the first few clutches, the owners are more interested in solving the dilemma with their beloved birds than taking away all ensuing eggs, and trying to incubate, then handfeed them as helpless day-one hatchlings.

Of course, years ago among my cohorts it used to be quite 'cool' to speak of raising baby birds from an incubated egg taken from the parrot parents. Now we have come to realise that, under most circumstances, this is an inferior way to have avian species brought up in captivity.

LOOKING TO THE FUTURE

Yes, the values for praise and topics for good-natured 'boasting' in bird keeping have been slowly changing over the years. Now many of us are most proud of what we do naturally for the good of the birds we keep. And in certain ways, setting such values on our pet and breeding accomplishments reflects more positively on us. I like to summarise it this way: Is the pride we now feel with what we are doing in aviculture the same as we will feel 10 years hence?

As a lifelong psittacine lover, I hope so...

Yellow-collared Macaw—it is the quality of interaction, not the quantity of birds we keep which is important

WORDS BY **DAVID WAUGH** PHOTOGRAPHS BY **FUNDACIÓN PROAVES**

Meteoric Recovery for Colombia's Yellow-eared Parrot

It's rare to find a conservation project about which the news is relentlessly positive. But the extraordinary increase in numbers achieved in the project to save the Yellow-eared Parrot *Ognorhynchus icterotis* from extinction in Colombia is an undeniable triumph.

A partnership between the Loro Parque Fundación (LPF), of Tenerife, Spain and Fundación ProAves, of Colombia, this project is arguably the most successful ever in South America.

In the mid-1990s LPF was supporting the protection of the last known Yellow-eared Parrots in Ecuador—20 individuals in total. By 1998 they had disappeared and it was feared that the species was completely extinct. However, in the same year, and based on hearsay of its continued existence in Colombia, ProAves, with the support of LPF, the Zoological Society for the Conservation of Species and Populations (ZGAP) and American Bird Conservancy, began the Yellow-eared Parrot Project. Its objective was to ensure the survival of the species, and to protect its habitat in the Colombian Andes.

In 1999, after a year of searching, a population of 81 Yellow-eared Parrots was found in the central Andes, in the community of Roncesvalles, Department of Tolima. In January 2001, a second population with 63 individuals was found in the foothills of the western Andes, in Jardín, Department of Antioquia.

With the monthly census results from 2015 now available, the headline news is that the wild population of Yellow-eared Parrots has again reached record numbers. At the main roost site in Jardín, a maximum of 4251 individuals were counted in April and 1096 individuals at another roost site in May, while in Roncesvalles a total of 949 were recorded.

Even allowing for possible movement of the parrots between the sites, there is no doubt that the population is bigger than ever and increasing rapidly. Such has been the rate of recovery, that in 2010 the International Union for the Conservation of Nature (IUCN) reduced the category of threat of the Yellow-eared Parrot from Critically Endangered to Endangered.

Yellow-eared Parrot adult

LA PATRIA

The Yellow-eared Parrot is dependent on the Wax Palm—also an endangered species

THE WAX FACTOR

This remarkable recovery has its roots in the original, detailed investigation by the Yellow-eared Parrot Project. This revealed that the Yellow-eared is extremely dependent on the Wax Palm, Colombia's national tree, but also an endangered species. It was of great concern that the Wax Palm was found in only small fragments, and that its regeneration was virtually non-existent due to cattle grazing of the seedlings and its indiscriminate use

on Palm Sunday. The years of research on habitat use, diet, distribution and breeding behaviour have provided a solid foundation of knowledge regarding the threats facing both the Yellow-eared Parrot and the Wax Palm, thus allowing the project to produce a comprehensive plan of action.

Subsequent conservation actions for the two breeding populations, and more generally at regional and national levels, have achieved great success, again reflected by some remarkable numbers. For example, habitat restoration and reforestation has exceeded 360,000 trees and Wax Palms, planted across 920 hectares. The project has officially attained 5000ha of forest on 25 private farms as nature reserves, and continues to maintain the 16km of fences it has erected to protect forest fragments and young Wax Palms from cattle-grazing. The 4585ha of buffer zone to Las Hermosas National Park are now protected through management by the project. In addition, the project created the Yellow-eared Parrot Natural Bird Reserve of 188ha, in which 1045 more seedlings of five species of plants important for the parrots were planted in 2015 alone.

As an economic incentive for landowners to maintain forest on their land, the project has been able to establish environmental service agreements with municipalities, whereby payments from users of water in the lower part of the watershed support the protection of forests in the upper part.

On average each year the project reaches 40-plus rural schools with environmental education workshops, and can now boast 3000 school-age students involved in the Friends of the Birds groups, as well as 26 bird-friendly groups. In addition, the project has trained more than 215 university students, and 14 Parrot Guardians have been trained and employed. Weekly local radio broadcasts are held in three rural towns and farming communities, and there have been national radio and television broadcasts using the parrot and palm as flagship species.

Also at national level are the annual campaigns of Palm Sunday, National Parrot Day and Reconcile Yourself with Nature, with freely distributed awareness materials comprising 20,000 posters, 3000 t-shirts and countless Wax Palm seedlings for people to plant. At a relatively early stage, the project also obtained the co-operation of the Catholic Church to remind its parishioners not to use Wax Palms on Palm Sunday, with the amazing effect that today everyone has found an alternative.

Due to the positive effects of the project, there are no longer any reports of Yellow-eared Parrots being killed or taken from the wild, and this emblematic species continues its meteoric rise.

Yellow-eared Parrot pairs at their natural nest (left) and artificial nest (right)

A brood of three Yellow-eared Parrot chicks

Ready for reforestation!

WORDS BY **CAROLYN PRADUN** PHOTOGRAPHS BY **STEVE MILPACHER**

Ara Project: Macaw Chicks in Danger

The World Parrot Trust (WPT) has partnered with the Ara Project to protect two macaw species in Costa Rica. The Great Green Macaw *Ara ambiguus* and Scarlet Macaw *Ara macao* have both undergone dramatic population declines due to unsustainable harvesting for the wild bird trade. Habitat loss and hunting the birds for their meat and feathers have also contributed. It is estimated that populations of the Great Green Macaw have been reduced by half in the last 50 years. Scarlet Macaws are also at serious risk throughout their range. Both species are listed by CITES as Appendix 1 (Most Endangered).

WPT is working with the Ara Project in Costa Rica to increase Great Green and Scarlet Macaw populations. This is being done through captive breeding, rescue, release, and reforestation efforts. The captive macaws at the Ara Project's sites consist of confiscated birds, former pets which have been donated, and birds which have been bred and raised at the breeding centre.

'SOFT RELEASE'

The project employs a 'soft release' method for restoring macaws to the wild. Select birds are moved to a release site and placed in a large flight, where they are held for a minimum of two months to become accustomed to their new surroundings and learn to identify local foods. Once the birds are eating and foraging well, small groups of birds are released over an extended period of time, and supplemental feeding of natural food items is offered near the release site for as long as required.

Left and Right: Buffon's Macaw

BREEDING

These efforts have led to success in the 2016 season, with recently released macaws breeding. Great Green Macaws nested at the Ara Project's Manzanillo site, and on the Pacific coast at Islita.

Scarlet Macaws also bred this year. Unfortunately, the Scarlet pair chose a fragile dead palm trunk which proved to be too dangerous for the team to closely monitor. A chick hatched in the nest and hopes were high for a successful fledging but tragically the youngster was taken shortly after by trappers. Although trapping is illegal in Costa Rica, parrot chicks are still lost to the wild bird trade.

ONGOING WORK

The Ara Project's work to release and monitor macaws is the first step towards their recovery. Ensuring wild pairs have the opportunity to rear precious offspring is critical for their future in the wild.

WPT will continue to provide support for local groups fighting to save the Great Green and Scarlet Macaws from the wildlife trade, and for in-country captive breeding and release programs to restore the species to areas where they are locally extinct. This will include funding for releases, tracking, nest boxes and nest monitoring. WPT will also work with local communities to assist with habitat restoration efforts and education on sustainable use of lands.

With your help we can complete these important tasks to better understand the species, and continue to deliver effective solutions to further their conservation.

Please visit https://www.parrots.org/ and http://thearaproject.org/ for further information.

WILD CORNER

WORDS AND PHOTOGRAPHS BY **CLAUDE LACASSE** DVM, MANZCVS (Australian Wildlife)

Clyde—The Tawny Frogmouth

A wild Tawny Frogmouth *Podargus strigoides* can have a cranky personality and *Clyde* was no different. As he attempted to snap his beak at me with angry eyes, I noticed that something was wrong... I could clearly see a fracture of the left lower beak.

The bird was anaesthetised with isoflurane to allow a thorough examination and obtain radiographs. No other injury was detected and all other bones were intact but the lower beak (gnathotheca) was severely fractured on the left side. After thorough cleaning and disinfection of the fracture site, the edges of the fracture were debrided until blood was present and the fracture was then repaired with tissue glue.

Clyde—The Tawny Frogmouth

Tissue glue is a medical version of 'superglue' and has many uses in veterinary medicine, including skin repair of small wounds, closure of skin after microchipping, and stopping haemorrhage. It is very strong and dries rapidly, and worked very well in this situation. Using tissue glue meant that we could avoid using wires and pins that could have been cumbersome for the bird.

Clyde was administered pain relief and fluids on the day of arrival, as well as an anti-inflammatory and antibiotics for the next week. The beak was monitored for any signs of infection or non-healing at the fracture site for the next three weeks.

Because of the way they hunt mid-flight in the wild, frogmouths usually do not self-feed in care and require handfeeding in captivity, typically with mice and beef heart (with Insectivore™ supplement).

The night following his beak repair *Clyde* took to his handfeeding well, without requiring force feeding—a very encouraging sign. After three weeks of allowing his beak to mend, *Clyde* was observed clamping food strongly without any problems, and the previous fracture site looked completely healed. *Clyde* was then placed in an aviary to regain flight fitness for a few days, before being be released close to where he was originally found.

WHAT'S NEW

A WOMBAT IN MY DRAWER ... AND OTHER AMAZING ANIMAL STORIES

BY **ROS ALMOND** PAPERBACK, 160 PAGES, RRP $20 + P&H

Australian animals are celebrated around the world as unique and quirky creatures, surviving and even thriving in some of the harshest conditions in the world. But how does such a tough existence in the Great Southern Land shape their personalities?

In *A Wombat in my Drawer*, author and animal-lover Ros Almond shares the most bizarre and beautiful animal stories from around the nation. Told with equal parts warmth and humour, and accompanied by gorgeous photos and illustrations, this adorable collection of animal adventures is a reminder of the joy of our furry friends.

Ros has a PhD in Australian Literature (aka a Doctorate in watching animal videos on YouTube while quietly sobbing into two-minute noodles). She teaches literature and works as an editor and will happily talk about animals for as long as anyone will listen. In this book she introduces us to *Dusty* the kangaroo who thinks he's a dog, and Louie the emu who think she's a cow. There's also Bazz the dog who likes beekeeping, and Pebble the joey who loves reality TV. From an opera-loving seal to a drunk, rampaging pig, to the happiest marsupial of them all, take a look at the weird, wild and loveable world of Australia's animals.

A great Christmas gift idea for younger members of the family!

Available from ABK

TASMANIAN BIRD IMPORT BAN UPDATE

WORDS AND PHOTOGRAPHS BY **MARCUS POLLARD** (FOR THE AVICULTURAL SOCIETY OF TASMANIA IMPORT BANS COMMITTEE)

Since 2007, breeders have been battling to have a degree of sanity applied to the import bans placed around 32 common aviary species in Tasmania. None of these species had caused any harm to the environment since bird keeping began in this state well over a century ago.

A risk assessment model was concocted in secrecy, which we now know was devoid of any avicultural input. It has made it impossible to import any new species with a past feral history into Tasmania—regardless of the age or circumstances surrounding that history. The term 'fair and transparent process' is repeated on all Parks and Wildlife Service Tasmania (PWST) documentation but there has been nothing fair and/or transparent in their treatment of Tasmanian aviculturists or the bird species banned.

Since day one there have been no stakeholder meetings, no opportunity to voice our opinions and input over the parameters of the PWST's interpretation of the Bomford Risk Assessment Model or to make a positive case for the species banned. This is in marked contrast to the Exotic Bird Record Keeping Scheme and the Victorian Non-indigenous Bird Management Policy, in which open process and discussion were encouraged, not prevented and stifled.

Fortunately, finchos reading this can breathe a sigh of relief as they have escaped the worst of the bans, but certainly not without a fight. I was told by a PWST official that 'around 20 finch species' would be added to the banned for import list. Through my role as spokesperson for a mainland finch society, we were able to mount such a case that no finch species were actually added to that list. It would be grossly remiss of me not to thank Doug Hill, Nick Susnjara and Michael Baker for their support.

For the record, one of the finch species that we were told was to be banned was not even present in Australia, let alone in Tasmania!

Once finches were firmly off the hit-list I 'retired' from all duties and set about breeding finches and little else. My retirement was very short-lived as I was contacted to write some scientific background for a friend who was trying to rally the troops to fight the bans—most of which applied to parrot species. He approached the president of the Avicultural Society of Tasmania (AST), Brett Price, and the Import Bans Committee came into being.

The following two years have been a blur, and worthy of several tomes that could challenge *Lord of the Rings* for length and plot machinations, but to conclude I shall briefly outline the story so far. With the support of Minister Matthew Groom and his office we appear to be headed for some sort of compromise that may see sanity and fairness applied to the process that we now know was a result of the Labor/Green accord.

- **Red, Chattering and Yellow-bibbed Lories** are now available for import into Tasmania. These were already in Tasmania prior to 2007 but some bureaucrat left them off the 'legal as already in Tasmania' list—pretty easy to do when you consult with no-one.
- **The Queen of Bavaria (Golden) Conure** is available for import.
- **Galahs** may be imported into Tasmania again. We didn't even really ask for that one but we'll take it. We were after mutation Galahs but we got the lot!
- **Gang Gang Cockatoos** can be imported into Tasmania. They must be closed-rung or microchipped.

The original offer was microchipped only, but we fought to have that changed.

Not much for two years' work, you may think, but following are the main issues that we are close to achieving an outcome on:

- Use of the possession permit system for species banned in 2007.
- That the biased risk assessment model being used is overhauled to include some avicultural mitigating factors which are currently ignored in favour of ancient establishment records and factoring in of wild-blood introductions. These include the origins of the new species we wish to import into Tasmania, their monetary value, their degree of habituation and domestication and their history in Australia as feral species. These, plus a number of other issues, we feel are needed to make the process fair and transparent (to borrow PWST's own words).

If you think this is progressing at a snail's pace, you'd be pretty right, but it seems PWST is a pretty 'fluid' workplace and every meeting we've had is with different staff—does tend to make the repetition a tad tedious.

However, hold the faith Taswegians, as the much-despised four-tiered license system they wished to impose upon us appears dead in the water. We were informed that any such licensing/permitting system would be open to public scrutiny and comment and not instituted until those affected by it were completely happy with it—a far cry from 2007.

Anyone requiring extra information, please feel free to email me. We are also in the process of constructing a website with all our information on it because some may be of interest to other aviculturists fighting similar legislation. Wait until you read their risk assessment 'conclusion' on the two Amazon species we wanted available for import—just a teaser! abk

CLASSIFIEDS

Classified deadline for next issue—3pm, 11 November, 2016

FREECALL 1800 633 493 • FAX: 07 5568 0300 • EMAIL: birdkeeper@birdkeeper.com.au

CASUARINA PARROT GARDENS

AMAZONS
Orange-winged unrelated adult pair
Blue-fronted adult male,
Double Yellow-headed adult hen,
BLUE AND GOLD MACAW males
QUAKERS
Blue Pallid, Green Pallid, Cobalt, Mauve, Greygreen, Double Factor Greygreen
JARDINE'S PARROT—lovely young pair (related)
ORNATE LORY related pair,
MEYER'S PARROT
unrelated young pair,
Young **SENEGAL PARROTS**
H/R **BLUE-FRONTED CONURE**
MOUSTACHED, PARROTLETS, CINNAMON SPLIT MALE
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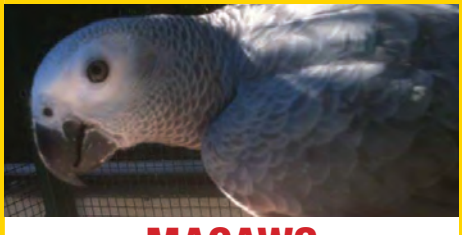

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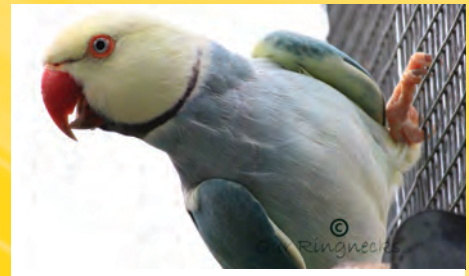

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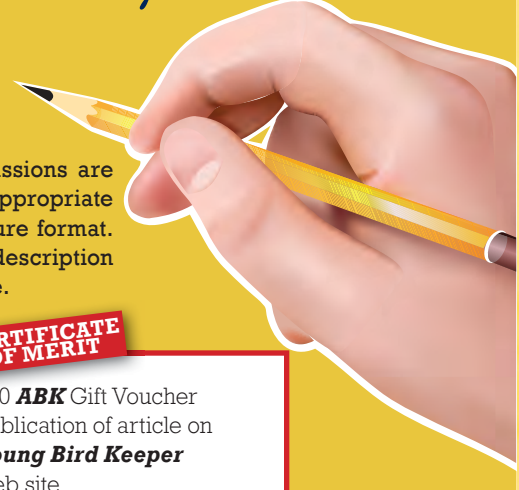

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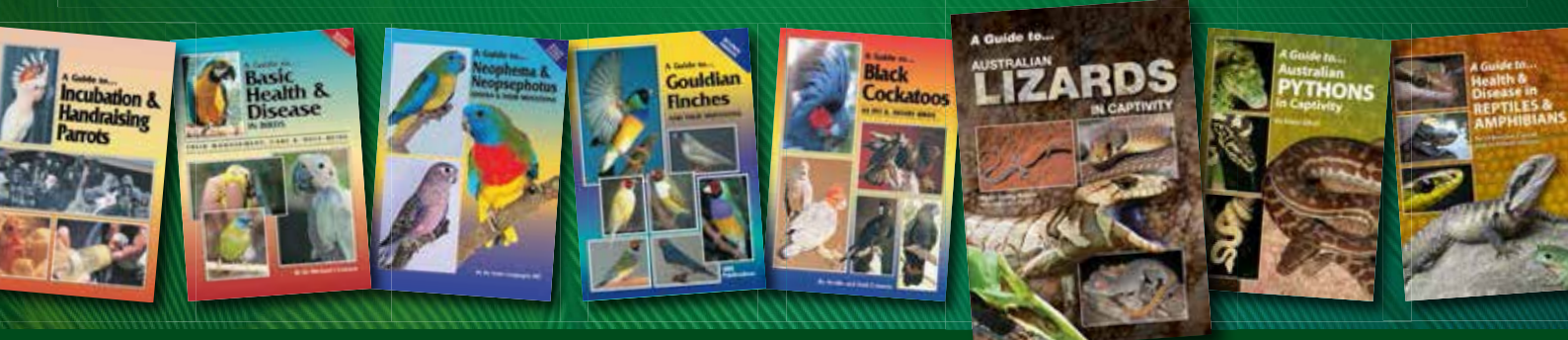

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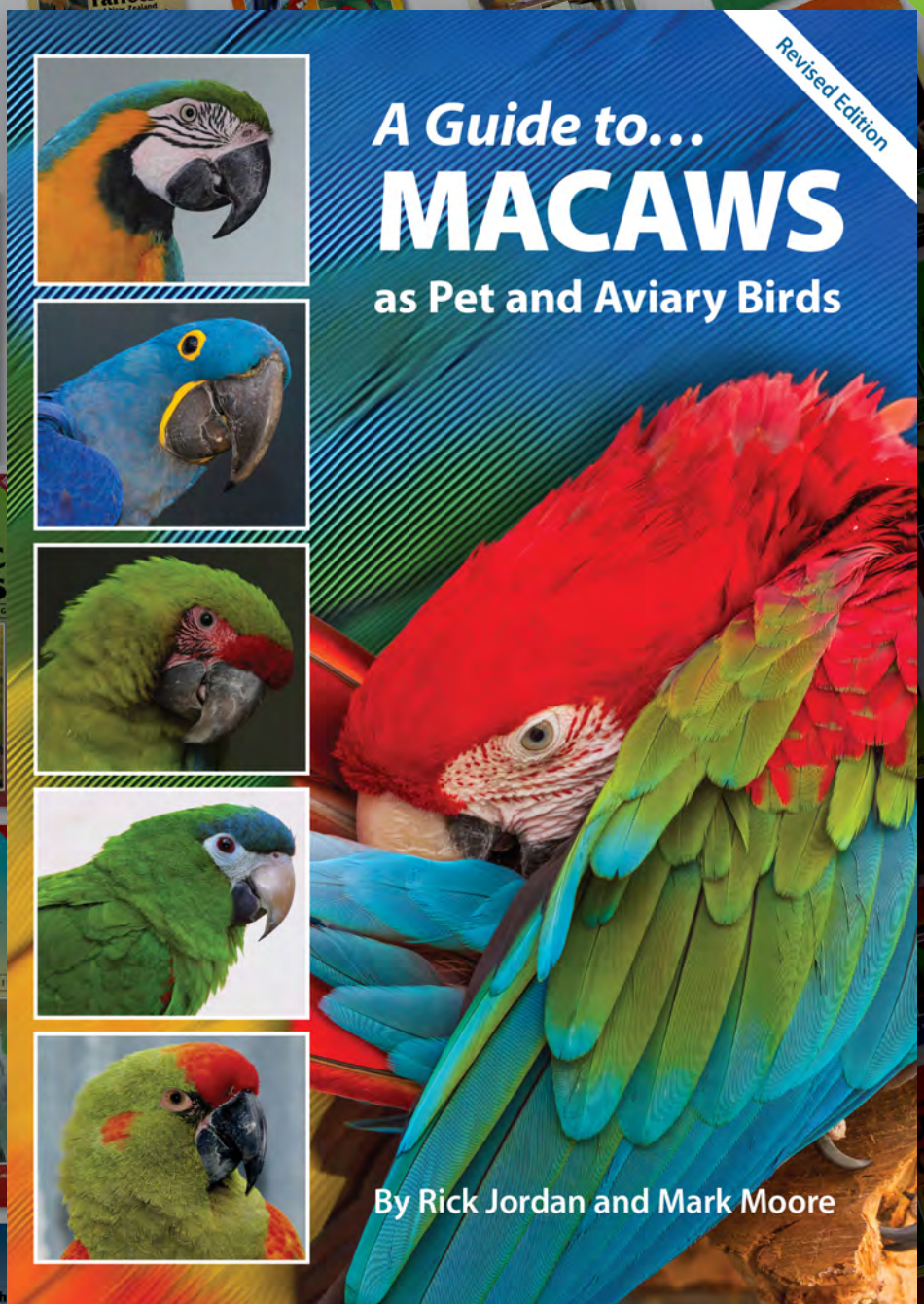

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