# ASA
## Avicultural Bulletin

A JOURNAL FOR BIRD BREEDING, CONSERVATION, RESTORATION AND EDUCATION

MARCH/APRIL 2015

# NEXT ISSUE

Keel-billed Toucans
by Robbie Dean

The purposes of the Society are the study of foreign and native birds to promote their conservation and protection; the dissemination of information on the care, breeding, and feeding of birds in captivity; the education of Society members and the public through publications, meetings, and available media; and the promotion and support of programs and institutions devoted to conservation.
Front Cover: Blue-crowned hanging parrot *Loriculus galgulus* Photo by: Jonathan Beilby
Inside Cover: Keel-billed Toucan Photo courtesy: Robbie Dean
Feather Paragraph artwork by Susie Christian 

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## AN OBLIQUE VIEW OF THE AVICULTURAL CONDITION

Recent events have highlighted trends in human interactions and in aviculture in particular. The Minor Depression, euphemistically titled the Great Recession, seriously impacted discretionary activities and the rise of the ominous, overwhelming internet blob, have combined to change the pattern of human behavior.

The internet has turned many, especially the young, into passive units, spending inordinate time staring at digital screens while playing video games. It has also provided information previously obtained in publications, face to face meetings, or lectures.

This has resulted in reduced membership in avicultural organizations and declining circulation in avicultural publications.

These negative trends, plus urbanism and the crowding and downsizing of living quarters, combine to reduce the keeping of birds.

The future of birds in the wild and in captivity is at the present time not promising.

In California, there has been a serious drop in the native bird population, while CITES restriction on the bird trade has reduced the number and variety once available.

The unfortunate consequence of these factors is fewer people interacting with birds and a reduced interest in bird welfare.

In my experience over the years, there has been a substantial decline in privately owned, large aviaries, which once were fairly common. Present owners of bird stores admit the bird business isn't what it used to be.

In view of these changes and trends, what is the role of aviculture? It can either fold its wings (no pun intended) or accept the challenge.

Every concerned aviculturist and lover of birds and nature must engage in what might be called professional aviculture. Breeding not for profit or personal enjoyment but to breed at least one specie for survival.

Consider breeding endangered native birds. Obtain federal and state permits and provide the facility and care for success, There has been a decline in California of the beautiful Band-Tailed pigeon. This is a bird that should lend itself to successful captive breeding.

Encourage others, especially the young, to become supporters of an engaging future instead of a sterile habitat.

Do we have a choice?

Ivo Lazzeroni

President, Avicultural Society of America

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# ASA Meetings

Get the latest meeting info online at : www.asabirds.org/meetings.htm

ASA Regular Meetings are generally held the first Sunday of the Month in southern California. Everyone is welcome to attend. Check the website for updates on speakers and their topics as well as to reconfirm dates and times etc. Come as you are and bring a friend!

# Blue-crowned Hanging-parrot *Loriculus galgulus*

***Tammy Hartnett edited by Lisa Woodworth***
***photos by Jonathan Beilby***

**Introduction:** Hanging-parrots belong to the order Psittaciformes and the family Psittacidae. Commonly called "Bat Parrots", Hanging-parrots (of which there are thirteen species and a number of sub species) are all included in the single genus, Loriculus. All are endemic to Asia. With the exception of the Blue-crowned Hanging-parrot, they remain virtually unknown in captivity in the US.

**Species:** The Blue-crowned Hanging-parrot (Loriculus galgulus) is a widespread species found in Thailand, Malaysia, Borneo, Singapore, Sumatra and Java. Their numbers are stable with the exception of Singapore, where they are in a decline. Their current status is Cites II, Not threatened. In late 1980's Indonesia (likely Sumatra) exported a number of Blue-crowned Hanging-parrots, of which our current captive population is most likely comprised.

Blue-crowned Hanging-parrots are brilliantly colored birds. At first glance, they appear nearly luminescent. They are one of the smallest of the Psittacidae available in aviculture. There is marked sexual dimorphism. Males are brilliant green with a dark blue cap on the head as well as a bright red bib. They also have a deep orange collar on the nape and yellow band above the red rump feathers. Females are similarly green with dull blue cap to head, no bib and a light orange nape. Females also have the bright red rump feathers. Adults have black beaks with light, almost greenish colored legs and feet. Immature birds are similar to Females with plumage somewhat duller, and horn colored beak and feet. Average adult weight is 25-35 grams.

Blue-crowned Hanging-parrots have a unique locomotion style. When walking, the toes grasp alternating side to side in an unusual wide, swaggering motion. Also unusual is that Blue–crowned Hanging-parrots s appear to have laxity in the hip joint, allowing the leg to turn nearly 360 degrees (while entrapped) with no apparent adverse effect.

The Blue-crowned Hanging-parrot occurs in the lowlands up to 4000 ft. in the forest and forest edge, secondary forest and riverine forest. They are also known to visit orchards, coconut groves and gardens.

**Natural Habits**: The tongue of the Blue-crowned Hanging-parrot is somewhat specialized to take nectar. It is not the most specialized for the genus. That honor goes to the Philippine Hanging-parrot. Hanging-parrots like Lories, take nectar without damaging plant blossoms. It is widely believed they, too, play an important role in pollinating plants by transference of pollen on head feathers. Also, like those in the Loriinae group, Hanging-parrots are known to enjoy visiting 'Palm Toddys', becoming intoxicated and therefore easily collected. (Palm Toddy is the fermented sap of primarily the coconut palm (Cocos nucifera). It is harvested from the palms daily and is a very popular drink in SE Asia).

Blue-crowned Hanging-parrots roost hanging upside down. They also rest throughout the day in the

upside down position, sometimes appearing to regurgitate food as well as grind the beak in an apparent contented motion.

**Management:** Blue-crowned Hanging-parrots are gregarious by nature and can be managed in pairs, or colonies with near-equal breeding results. Single males can be paired with multiple hens with lesser success. While not aggressive towards their own kind, individuals can dominate feeding stations. It is recommended the larger the colony, the greater the increase in the number of feeding stations and fruit spikes.

Hanging-parrots display wonderfully in a mixed species aviary. In Zoological institutions, they are commonly housed with Fruit Doves, Finches, Partridge and Asian softbill species. I have never observed serious aggression from them towards each other or another species. I have seen displacement from perches. I do however, advise caution in the mixing of cavity nesting species; vigilance as an observer and a multitude of nesting choices may be the best management strategy.

Although it is possible to house Blue-crowned Hanging-parrots in very small cages, it is not recommended. Hanging-parrots are very messy birds, requiring daily bathing and thorough cleaning. In a small cage, this could prove too stressful to the birds.

One highly successful breeder of Hanging-parrots used suspended flights (California style cages) for housing single pairs. These suspended flights measured 4'x4'x6' and were safely contained within a larger compound, with partial overhead cover and a mister system/heat set on thermostat. Since Blue-crowneds are naturally flighty, a suspended cage system would only be advised if it were approached similarly.

My preference for housing Blue-crowned Hanging-parrots is as a colony group in heavily planted aviaries. Blue-crowneds, although not noted for defoliating their flights are, in fact, tremendous chewers, especially during the breeding season. I often find myself rotating partially consumed plants out of the aviary. Because of this, I keep many potted plants for rotation. I use lots of browse as well. Blue-crowneds love plants like Schifflera, Eugenia, Ficus, and Willow. They choose Palm species last, making palms an ideal near-permanent filler for flights. All Palms and Bamboo should be closely monitored. Blue-crowned Hanging-parrots have sharply turned nails, which can present problems in captive situations. On occasion, nails get caught in Palm fiber. If the birds appear to have difficulty releasing themselves from cage wire or plant material, it is advisable to trim nails. Also, Hanging-parrots can easily become entrapped in "Y" of Palm or Bamboo terminals. Caution is advised when housing with softbill species. Nesting material intended for softbills can be injurious to Hanging-parrots. Spanish moss, Palm or other fibers can be deadly if a Hanging-parrot becomes entangled.

Because Blue-crowneds can be flighty, and also to protect from inclement weather, predators, etc., it is advisable to completely cover three sides of the aviary, as well as the roof of the flight. I also use a poly mesh bird netting as an additional false roof to keep predators from sitting atop the aviary.

Blue-crowneds should be encouraged to bath almost daily in warm weather. A roof mounted mister system is inexpensive and highly recommended. They prefer to bathe in the foliage and will seat themselves directly under mister heads. Rarely do they go to the ground to bathe, although an individual will occasionally signal the group to come to the ground. Blue-crowneds love to sun themselves midday, so this consideration should be taken when planning the aviary.

While cold tolerant, reproduction and colony health appear improved with supplemental heat. If temperatures are lower than 60 degrees, it is advisable to provide heat.

**Diet:** Hanging-parrots do require a specialized diet. This combination of ingredients is quickly simplified.

They should receive in order of content:

- highly nutritional fruits
- nectar
- seed
- pellet
- insects

Fruits offered include; Apple, Papaya, Pear, Grapes, Berries, Mango, Kiwi, Guava, Cactus fruit (minus thorns), Citrus, Banana, Cherry, Figs, etc. All fruits must be ripe, or they will be ignored. Fruits are served halved or quartered in the pan as well as spiked on the perching. I serve them whole as a convenience for myself, but also there is less food wasted from being carried or tossed to the ground. Seasonally, some fruits are taken more than others …IE citrus in warm weather. Hanging-parrots have difficulty piercing fruit skins. Fruits should be cut to expose insides. Once pulpy insides are open, birds scoop the fruit with beak. They masticate the fruit, appearing to extract the liquid, then discarding the fibrous bits, creating quite a mess.

Nectar should be offered daily. Currently there are many good commercial Lory diets available. My preference is Avico Powder, simply because of its high palatability and local manufacture. During inclement weather or chick rearing, I use the Avico Nectar mixed with warm water and offered twice daily. A small crock of fresh water is available adjacent to each food pan and is changed daily.

Seed is provided in the pan as well. I use a hookbill seed with mixed sunflowers, also millet and hemp. The preference is always to Sunflower, and they hull the sunflower in an unusual way, chewing the husk. It appears they cannot crack the hull as many parrots can. Occasionally they are offered spray millet as a treat. In the winter, I offer halved walnuts (still in the shell) so they can't carry them away and waste them.

Insects are topped on pans, giving meal worms year round. During

breeding season, mealworms and waxmoth larvae are provided 2x's daily. The addition of insects is considered crucial in chick rearing. Blue-crowned Hanging-parrots have a peculiar method of eating worms. With mealworms, while being held with a foot, they split the exoskeleton and remove contents lengthwise, discarding the exoskeleton uneaten. Similarly, with waxmoth larvae, they orient the worm head upright, remove contents by sucking, and then discard the soft body.

**Breeding:** Hanging-parrots do not have a defined breeding season. I have had chicks as early as February and as late as December. Depending on individuals, some pairs produce a single clutch, while other pairs may produce up to three clutches in a year. It is not uncommon for a hen to return to nesting within a week of the previous clutch being fledged.

For such a small parrot, breeding often starts late. Young usually acquire adult plumage by a year and a half. However, successful breeding is often delayed, the earliest starting at two years although sometimes not until four years of age.

Courtship vocalizations and solo displays from the male signify the beginning of pair bonding. Males will also begin to practice regurgitating the foamy spittle that is offered as a courtship food to the Hen. In a colony situation, there is much excitement amongst the group at this time. These behaviors and vocalizations appear to synchronize the group. The courtship display of the Blue-crowned Hanging-parrot begins with the male vocalizing and rapidly running up and down the perching. Posture erect, wings are slightly dropped, red bib feathers and red rump feathers are fluffed and visually highly prominent. The male's posture becomes erect and jerky when offering the foamy spittle to the hen. Often the male must make several attempts before the hen accepts the offering.

Copulation is often a long, drawn-out affair. The male holds the perching with the outside foot and the inside foot is on the hen. He rubs his cloaca against hers, changing sides often. I have observed copulations to take over four minutes, with the hen appearing exhausted at termination.

I have never observed Blue-crowned Hanging-parrots to allopreen.

Blue-crowneds are usually not particular in nest box choices. Parakeet or Cockatiel boxes are appropriate. I prefer cockatiel boxes that are lengthwise rather than square simply to reduce nest contamination from fecal matter.

Blue-crowned Hanging-parrots will occasionally nest subterranean, excavating a tunnel or using a downed log or tree fern body. They have also used the tops of palms as nesting sites. I discourage this type of nesting. Nests are difficult to access, and can pose a health problem as the chicks grow and the nest becomes soiled. To provide the hen with additional nesting stimulation, I front the nest box with cork oak, starting a small hole where the actual nest entrance is. Pine shavings are added inside. Once the hen has excavated an entrance hole large enough, she

will begin removing some of the pine shavings. The shavings are tucked under wings, rump, even in the beak and are dropped just outside the nest box. The hen will then begin to add green material to the nest. This material she collects from plants. Tearing the leaf lengthwise mid rib, usually in 1" long pieces. The hen typically carries the material back to the nest, tucked in the upper tail coverts. Some hens however, appear overzealous and will add material to the entire body, including even nape and chest feathers before returning to the nest. The addition of green material usually means the hen has chosen this particular nest site and will soon lay, usually within two weeks. The hen continues to add green leaf material throughout incubation and chick rearing, usually stopping when she is no longer brooding the chicks.

Clutch size is normally three to five eggs. The female alone incubates, commencing at the second egg. Eggs are usually laid on successive days, although I have commonly seen otherwise. Eggs are white and round. Incubation period is normally 20 days. It is not uncommon for first time pairs –especially young birds, to have a high number of infertile eggs. Typically, by their second season, they are successfully raising many young. Chicks hatch naked, acquiring a white natal down, quickly becoming dark gray until they pin with juvenile plumage.

The female broods the chicks tightly for the first week. She comes off the nest only briefly (typically twice a day AM/PM) to defecate and eat. Hatchlings are commonly fed on their backs. During the second week, the hen begins to leave the nest more frequently. Beginning with incubation, the male will feed the hen at the nest, eventually beginning to enter the nest box himself and feed the chicks. In a colony situation, when there are audible vocalizations from the nest box, group members become highly curious and may enter the box, attempting to feed the chicks. This is especially true of immature Blue-crowned Hanging-parrots. At week two, brooding becomes irregular.

Nesting substrate should begin to be changed at week two and thereafter on a regular basis. This is to minimize bacterial growth and fecal contamination. Larger clutches require more frequent cleanings. When cleaning the box, I usually place the chicks into a covered basket containing shavings. The nest contents are discarded and the nest is wiped clean. Fresh pine shavings are then added, and the chicks replaced. As the chicks grow, the walls of the nest box may be slightly damp from their excrement. With an unvarying cleaning schedule, I have never experienced a problem. However, if you chose not to front the nest box with cork oak, you can simply replace the damp nest box with similar dry nest box. It is interesting to note that Blue-crowned Hanging-parrots will accept chicks from other clutches to foster as their own. In an unfortunate situation, we had a hen nest deep in a dead tree fern trunk. One of the chicks died and we had to extricate the remaining two nestlings. They were

separated, each being added to nests with similarly aged chicks. Both were immediately accepted by their foster parents and fledged without incident.

Blue-crowned Hanging-parrot Chicks are usually processed in the nest box at week four, when they have sufficient plumage to pull feathers for sexing as well as band. Band sizes recommended are 4 (4/32) or 4.5(3/16). I recommend open banding with colored aluminum bands. I strongly advise against closed banding for Hanging-parrots. They are highly prone to accidents involving leg bands caught on perching or foliage. Since Blue-crowned Hanging-parrots are not vigorous chewers, aluminum bands are sufficient.

Blue-crowned Hanging-parrots fledge at week five. Chicks are fully feathered in a dull green plumage with facial feathers remaining pinned. To prevent accidental drowning, pools and water features should be drained. Water should be presented in shallow bowls. Low perching should be provided. Fledglings are often weak and will perch low for the first few days. If a fledgling remains on the ground, I will return it to the nest to fledge again the upcoming day. Fledglings are flying sufficiently and hanging upside down by the end of their first week. They sample food during this time and are usually self feeding at week two. They will, however, continue to beg to be fed for some time. In a colony, many members will participate in feeding the fledglings. There is great excitement when chicks fledge. Often young from previous clutches are overly interested and will incessantly attempt to feed or pick at the newly fledged youngsters. They are not harming them, simply causing temporary annoyance.

**Hand Rearing:** Blue-crowned Hanging-parrots are easily fostered under other hens with similar age chicks. I have however, purposely pulled eggs for hand-rearing. Incubator settings were 99-99.5F and relative humidity at 55%. The newly hatched chicks were moved to a brooder, once dried, with temp of 97.5F. Chicks were easy to feed with syringe. Growth appeared normal. Brooder temps were reduced as chicks grew and appeared comfortable. Chicks were moved as a group to a small wire 'howdy cage' when they no longer needed heat and were attempting to perch in the brooder. Chicks were fed Kaytee Exact the first few days, then Exact mixed with small amount of pureed apple and papaya baby food throughout the remainder of handfeeding. Handfed chicks, once self-sufficient, revert to their wild state and are not tractable as pets. Also, it is important to note that while similar to the Loriinae group, they do not share the easy transition to self-feeding (dipping the beak in warm nectar) that lorys do. Blue-Crowned Hanging-parrots, while quick to wean, require the transition from formula to solids that most parrot species do. Hanging-parrots will begin to refuse the hand feeder more often as they become self sufficient.

# Test Your Avicultural Knowledge

1. I am a breeder in lowland rainforests in south Burma, south Thailand, Malaysia, Sumatra and Borneo. What am I? Answer page 34.

2. I am near threatened under the IUCN. and am endemic to an island in the Philippines. What am I? Answer page 34. (can you guess the island too?)

## *Steve's Photo Pick*

Red-tailed Black-Cockatoo
*Calyptorhynchus banksii*

Native to Australia, there are five subspecies occurring in fairly distinct ranges. These large cockatoos are highly gregarious with flocks from a few individuals to a few hundred. Despite their large size, they fly more like a giant butterfly than a large parrot. Red-tailed Black Cockatoos feed primarily on the seed pods of Eucalyptus trees with each subspecies largely depending on the specific variety of Eucalyptus trees found in their range. The Southern subspecies of Red-tailed Black Cockatoo is endangered mainly due to clearing of the native Eucalypt forests so that only a few hundred of the C. b. graptogyne subspecies remain. The north-eastern nominate subspecies is much more common and widespread in the wild.

# No Bird Left Behind

*Jacque Roberts and Susie Christian*

Here is my creative solution for when life's circumstances change.

**Original Permanent Aviary**

What I left was an enormous avian art project in the form of a $50,000 aviary with a circumferential mural of aspen trees, vaulted ceiling, clear Macrolux roof, track lighting, 35 ft attached (safety) flight cage with concrete underneath for hosing and drainage, hot and cold running water, antique Christmas lights under the eves, intermingled with wisteria and hot pink tea roses.

I hung painted, Chinese paper parasols upside down at different heights during the Summer, to keep the heat down and assist the air conditioning. The parasols moved gently with the air conditioner breeze. I also used a light green shade cloth over the roof seasonally, as insulation against weather extremes.

There was a special maple tree that had pink on the underside of the leaves close to the aviary, with white lavatera growing in a spray around the base of the tree. A gentle serpentine shaped ramp made of fresh colored wood was built parallel to the 35 ft flight that was attached to the indoor aviary. Wild flowers grew where there was space, between the ramp and the flight. A special lacquer was applied on the wood used around ponds so the birds would not get out-gassing exposure.

Located at the trailing end of the flight and serpentine ramp was a " feather deck ". The base of the " feather deck " was an elongated triangle frame holding lots of rocks, purposed to hold drainage from the hosing of the flight cage downhill and toward it. On top of the triangular base were ever lengthening boards, carved and shaped as individual feathers, with the overall assembly and shape appearing as a stylized bird wing. The final feather (board) extended three feet beyond the deck. Ferns poked up around the edges.

The " feather deck" had a singular chair on top, for a solitary individual to sit on and enjoy leisure time reading or just taking in the day. The chair was a rocker, painted pink....like the birds, like the intermingled roses mentioned and like the undersides of the maple leaves growing in the middle of the spray of lavatera. The birds? Rose-breasted cockatoos....the best of the pinks!

The positioning of the " feather deck " being at the end of the flight was key, as the flight was both covered and enclosed with salvage, dark chocolate brown sliding glass doors. These doors had handles toward the outside so they could be opened and closed easily for weather changes. They were mounted several inches from the wire.

Selected perches were heated for the same reason as having the sliding glass doors being adjustable - weather changes. Because the aviary was at a higher altitude, the weather could change a lot from 5:00 AM to 7:00 PM, when I would get home from work. It could be storming, wet, cold and dark, but the birds would be smiling and playful as they stepped onto my hands one by one, to be returned to the attached and heated mural room I described.

The entire flight was set very near a cedar fence with cedar arborvitae behind that. I had to keep the cedar trimmed so that it would not extend into my aviary, as cedar is not edible to birds. The back wall of the flight was built of double layer Plexiglas 6ft x 6ft storm windows that replaced some of the wire at intervals. Between the Plexiglas layers I placed tall, dried corkscrew willow branches because I did not want it to seem that birds were always looking out of a wire enclosure. A back up generator would turn itself on automatically within 20 seconds if there was a power failure.

## LIFE CHANGES!

That is what I left behind. Divorce was the unexpected reason.

The solution became an aviary and a flight cage on a 22' and an 18', used boat trailers. I purchased these trailers for under $500 each from Craigslist. The trailers were sandblasted, painted, and became the foundation and base for an enclosed custom aviary and a flight cage, both on wheels. This enabled me to find a rental home, even with a generous flock of hook bills.

Brakes, axels and tires had to qualify and be attended to, as did the weight limits of each trailer, with regard to its purpose. I found a trailer savvy person at a rural tire store, who evaluated each trailer for these things, as well as the placement of the axels in relationship to the heaviest part of the load. The axels need to be positioned two thirds back from the front of the base of the trailer.

I can remember initially hauling one of these "diamond in the rough" trailers on a curvy road, with no license on it and no brake lights. I was talking on the phone with one hand and eating an ice cream cone with the other. How was I driving? With my elbows! OK, I was going through a divorce. You take chances. Naturally, a policeman pulled me over on this country road while I was driving with my elbows. I saw him smiling as he walked to my window, all the while evaluating the entire length of my rig and taking in my designer license plates (something related to "Joy"). Surprisingly, he did not issue a ticket. He gave only a suggestion to try to stay between the lines on the road. Bless him!

## CONSTRUCTION BEGINS

The construction was strategic. It had to be lightweight, had to have a high ceiling, needed to be flooded with light, feel spacious and it had to look good. I needed an avant-garde builder who would take it on for conservative fees, would be careful with my resources with regard to materials and also would be able to get with the whimsy of the project. Believe it or not, if you focus, call around, interview and ask questions with a diligent heart, you can get your needs met.

The gentleman was a contractor who had a cement slab available at his country home that would serve to level and stabilize the trailer during construction of the aviary, so


it would go up squarely. One of his objectives was to get his son to help him during his after work summer hours, so he could teach his son about construction.

I delivered materials diligently to the concrete slab, at intervals that were timely to each stage of the construction. Sometimes it was in the afternoon and sometimes it was after dark in the stinging rain. I would see the lights on inside of his country home. Occasionally, it was necessary to bring another person to help with the off loading. The whimsy was palpable, even when arguing with the contractor about windows, load, construction principles, esthetics and how much electrical power was needed.

He decided to fasten the aviary onto the trailer with vertical steel straps, all the way around the perimeter. That was critical. We went back and forth about windows, as there had to be enough solid wall space to keep the structure from collapsing. There also had to be as many windows as possible. I got two skylights into the plan, a full light door, a narrow sliding glass door at one end and three out hanging, greenhouse type windows (the kind that would usually replace a kitchen sink window) on each of the long sides.

Steel studs were calculated to be lighter than wood studs, so those were designed in. Corrugated metal was lighter for the outside "skin" than shingles or siding. The inside finished surface selection turned out to be 1/4 inch wood underlayment, which is a beautiful light wood with a lovely grain to it, inexpensive and lightweight. We insulated walls, ceiling, and floor.

The aviary was wired for two air conditioners (in case one failed), two heaters (in case one failed), a heavy

shop vac, track lighting and a stereo. It had its own electrical panel, with a 50 ft, 50 amp RV style cord, wired right into the aviary electrical panel. There were two such cords, as one was not long enough. The second one served as an extension to the first one. This allowed the aviary to be placed diagonally in the corner of the 1/2 acre lot and optimally under some trees, with a nice porch and steps to get up to the door. It WAS grand!

## FLIGHT CAGE

The flight cage was easier to configure. Three angle iron cubes from the previous aviary were reused by bolting them onto the second trailer. A slant roof and gutter system were added, along with recycled pieces of Macrolux, from the previous aviary. The flock occupied the flight cage day and night at first, while their other aviary on wheels was being constructed. Because it was not as well protected from wind and rain as the former accommodations and because there was nothing to keep raccoons from going under the

flight, which would scare the birds, even though they were up quite high, I hung clear plastic from the eaves to keep the wind from hitting them.

A fairly elaborate system of cords re-hung the Christmas lights, which the birds were used to. The thinking here was that if they could see what was making noises at night, they would feel less vulnerable. Along with that, my bedroom window was left open at night in case there was trouble. No casualties or big scares occurred in the flight cage within the three months or so that it took to build the main aviary.

The rental I secured was a half-acre flag lot with a long driveway, trees to muffle bird voices, and plenty of privacy. Like the former aviary, they could look into the house and see me and I could look out and see them.

The 100 ft of electrical cord, joining the aviary to the house electrical power system, was laid along the foundation line of the house. Where it crossed the yard, the junction of the two cords was protected from rain. I had these special cords made up at an electrical supply company for about $150 each. The RV plug cost $500 to install, as it required it's own dedicated circuit. I believe the main aviary construction cost was a bit over $6,000 in materials and labor, spread over four months from start to finish, not counting the trailer

expenses. Both the aviary and flight cage are successful and still in use after six years.

## FINAL THOUGHTS

A small tractor with a skilled driver is required to position the aviaries with precision, especially in tight spaces. Both structures were recently moved to the back yard of a small ranch style home on a cul de sac. I promised to rebuild the neighbor's fence with all new materials if they would let me take it down to move my aviary in. I also gave the neighbors, on three flanking sides, some surplus firewood that was there. My movers delivered it and stacked it with a smile. The people who live closest to my birds have a teenager who I hire every other weekend to care for my flock when I am away. No bird left behind! Hallelujah, it is working!

I would like to tell anyone who thinks that they cannot keep their birds when life circumstances change, there is ALWAYS a way to keep what you cherish.

If I am ever in a position to not need my trailers (as in, when the next dream avian habitat is built), I would consider loaning them to someone else who needs transitional housing for their flock.

The outdoor flights were welded from 1 1/2 inch angle iron, predrilled and powder coated. Each is 6' x 6' because of the limitation on the size

of the powder coating oven. There are three slant pieces that bolt onto the tops of the 6 x 6 cubes. The wire is powder coated as well, and all is bolted onto a low boat trailer. The roof was built on after and is supported by the angle iron, which is super strong on end and even more so when doubled where it is bolted together. I bought the doors for between the flights, and had them powder coated with the wire. The

wire cuts were made with a Roto zip. And bbbwwwwaaaahhhhllllaaa! ..... outdoor accommodations.

**Addendum:** the wire mesh is 1/2 X 3 inches to keep raccoon paws and other predators out. However, it is not sufficient, as some raccoons got my doves from underneath. You have to keep predators from getting underneath your outdoor cages. Also, notice that there is no safety

cage here. That should be designed in. I hung antique Christmas lights from the eaves on the high side, and put a single long gutter on the low side as we have a lot of rain in Oregon. And, I confess that I used heated perches due to weather fluctuations that might occur in any one day here. The cords from these had to be trained up and away from the reach of creative birds. The other caution is to keep potentially poisonous plants trimmed away from the edges of your flight. Lastly, I selected a one-acre flag lot for the location but still had to finesse the good will of the neighbors, due to the non-native sounds that my galahs make. The enclosed indoor quarters, really helped to contain the sounds.

With a lot of imagination and creativity, coupled with perseverance and a few thousand dollars, it is possible to make portable aviaries from boat trailers. What a great solution so the birds can move, right along with their owners.

# Hot Wing Tips

This issue's Hot Wing Tip comes to us from Dick Schroeder of Escondido, California. Dick is well known as an author and aviculturist that works with a varied assortment of species, some of which consume crickets as a part of their diet.

Crickets tend to escape before they are eaten and can be hard to catch if the birds can't reach them. The homemade solution Dick came up with contains the crickets in the bottom of a plastic tub with a hole cut out in the top. A stick or branch is inserted into the tub and, as the crickets climb up the branch, the birds can capture them one by one to eat.


Trace elements are an important part of any diet, with a range of different elements needed to produce a healthy bird. In practice we usually have little idea just what trace elements our birds are receiving, and to a large extent rely on luck, and blindly assume our birds will receive all the elements in the right proportions that they need.

If we feed a good quality pellet diet then the hope is the manufacturer of the pellet has arrived at a suitable formulation to satisfy the needs of our birds, but if we feed a seed plus fresh food based diet then it is almost impossible to know exactly what they are getting in the way of trace elements.

However by being aware of which elements are important, and some of the factors that affect their absorption then we can hope to get a satisfactory intake of these elements.

## CALCIUM AND PHOSPHORUS

Both calcium and phosphorus are of vital importance – they build bones, and of course egg shells and calcium especially is a vital component of muscles and nerves. A shortage of calcium may show as general weakness, high water intake, bone fractures and of course egg production issues. Too much calcium can lead to kidney function problems, and may also result in deficiencies in other trace elements such as magnesium and zinc. Since phosphorus is common in most foods fed to aviary birds, a deficiency is very unlikely.

Both calcium and phosphorus are absorbed through the small intestines, calcium with the aid of vitamin D3. While the absorption of phosphorus is not a problem, there are various factors that can influence the bird's ability to absorb sufficient calcium. A high fat diet (lots of sunflower for instance) can block calcium from being absorbed while a high protein diet can aid it's absorption – although a high protein diet can bring its own problems.

The biggest issue with these two elements comes from a diet too high in phosphorus. Ideally the ratio of calcium:phosphorus should be 2:1 since too much phosphorus severely inhibits calcium absorption. While many birds can survive on a low calcium intake they will not be in optimum health. A seed based diet has particular issues with the calcium:phosphorus levels since most seed has a ratio around 1:6 rather than the ideal 2:1 – meaning that the high levels of phosphorus can stop the bird from absorbing sufficient calcium. Similarly many of the commonly fed fresh foods also have poor calcium:phosphorus ratios – corn for instance has a ratio of 1:37

For that reason a seed based diet should always include regular supplementation with calcium, especially important for a hen during the breeding season. That can be either by one of the many commercial products for birds, calcium carbonate powder sprinkled over the food, the

presence of ample cuttlebone or shell grit, or occasional high calcium foods such as cheddar cheese.

## MAGNESIUM

Magnesium is also an element involved with bone development. A deficiency may result in poor growth, and in extreme cases, convulsions and death while excess levels can result in diarrhoea, low egg production and thin shelled eggs. Generally magnesium is present in adequate levels in aviary diets.

## POTASSIUM

Another element that is present in adequate levels in aviary diets and problems are not likely to occur.

## IRON

Iron is important primarily as a component of haemoglobin in the red blood cells. It is of interest since iron in the body is conserved and recycled, with the iron in red blood cells that die being used in the formation of new cells. Excess iron is stored primarily in the liver, and the only way that excess iron can be lost from the body is by bleeding.

Normally the bird is able to manage the iron content in its system very effectively, with iron in the food simply not being absorbed unless the body needs additional iron. Occasionally this equilibrium system fails and the bird can start to absorb more iron that it needs, leading to iron storage disease, with the liver, as the main storage organ, suffering damage as a result, sometimes causing death Lorikeets are apparently most prone to the problem and a diet low in iron is advisable for them.

## ZINC

Zinc is important for tissue healing and is an essential element for growth and development. A normal diet contains sufficient amounts of the small amounts of zinc that a bird needs, and a deficiency is unlikely. However birds in aviaries with galvanised wire are in danger of swallowing small bits of the zinc based galvanised coating on the wire and can then rapidly get zinc poisoning resulting in death. For this reason all galvanised aviary wire needs proper preparation to ensure that none of the galvanised coating is available for the bird to break off and swallow.

## MANGANESE

Manganese is required for many aspects of growth and development as well as in reproduction. It is one of those elements that may easily become deficient in a diet since it is present in only low levels in seed. A deficiency can result in thickened limb bones, distended abdomen, decreased growth rates and ataxia (a lack of coordination of the limbs etc.). Egg yolk is a good source of manganese as are nuts and green vegetables.

## SUMMARY

These are just some of the many elements that are vital to having a healthy bird. Fortunately for the most part a reasonably balanced diet will provide adequate amounts for our birds, however perhaps the most important ones to keep in mind are the calcium and phosphorus levels in the food we provide, especially for hens in the breeding season. Get this wrong and poor breeding result may occur, and even cause the loss of a hen with egg binding.

(this article is based in part on an article by Dr Adrian Gallagher, in the Parrot Society of Australia News, Nov/ Dec 1995)

# Test Your Avicultural Knowledge - Answers

*photos by Steve Duncan*

1. Luzon's Bleeding Heart Dove Gallicolumba *luzonica luzonica* (above) is found on the island of Luzon in the Philippines.

2. Roul Roul or Crested partridge *Rollulus rouloul* (left)

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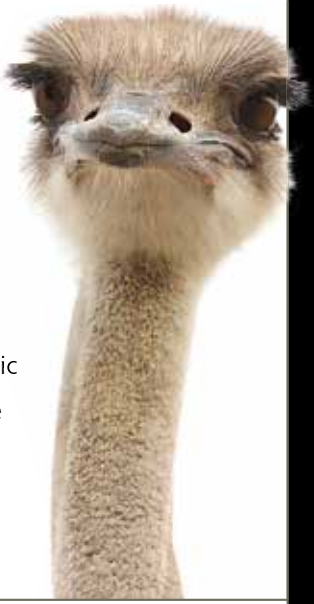

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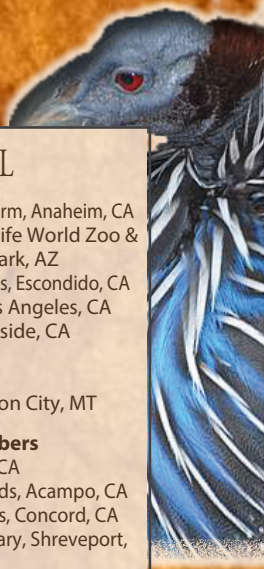

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March 22, 2015 **EVERYBODY'S BIRDMART.** , 9:30 AM - 4:00 PM. Pomona, CA

July 30-August 2, 2015 **AVES INTERNATIONAL**, Grafton, Australia - www.avesconvention.com www.facebook.com/avesconvention

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