

of birds was with the Red-crested Touraco (*Tauraco erythrolophus*) several years ago. After setting them up in a breeding situation, they produced several young. After breeding the Red-crested Touraco, which is quite common in captivity, I decided to try to reproduce the rare Fischer's Touraco. When a few wild-caught birds were imported, I acquired a pair. When looking through several books to acquire more knowledge on this species, I found that this species had not been bred before. When the Fischer's Touracos were in my collection for two years, they laid two eggs which, much to my delight, were fertile.

The diet of the parent birds consisted of grapes, papaya, canteloupe and other melons, ripe Mexican bananas, apples and Science Diet dog maintenance pellets. Calcium and a good vitamin supplement was placed over most of their favorite fruit.

These birds were housed by themselves in an aviary 8 feet wide, 8 feet high and 16 feet long with a shelter measuring 4 feet. The nest was placed in one of the corners underneath the shelter. It measured 12 inches square by 6 inches deep. Twigs and grasses were placed within this shallow box to help stimulate them to breed. The pair completed the nest by adding more twigs and laid their first egg on the 31st of March, 1991. They laid a second egg two days later to complete their clutch. After five days into incubation, the parents abandoned the eggs. The eggs were then removed and placed into an artificial incubator. After a total incubation period of 23 days, the first egg hatched on April 23, 1991. The second egg hatched one day later. They were both successfully reared.

The diet of the chicks consisted of grapes, papaya, canteloupe and small pieces of soaked dog food. They were also given calcium and a good vitamin supplement.

The chicks were very delightful to hand raise. When hatched, they were covered with black down feathers and their eyes were open. It took from three to four weeks for them to be weaned. The Fischer's Touraco is a very quiet and enjoyable bird to have in the aviary.

Editor's note: If any person knows of a successful breeding of the Fischer's Touraco prior to the above article, please inform Dale R. Thompson, Chairman, Avy Awards Committee, through the AFA Home Office in Phoenix, Arizona. ●

Observations of Sunbirds in Aviculture

by Dennis Riphenburg
San Francisco, California

Sunbirds, I feel, are certainly the jewels of the bird world. Not many birds can match the curious and friendly personality, iridescent colors, intriguing behavior, incredible courtship displays and beautiful songs that many sunbirds possess. I have kept birds for more than 29 years. During the past three years I have experienced keeping sunbirds and only wish I would have worked with them much earlier. They are indeed a challenge to breed, however, I feel they are certainly a very worthwhile venture. Unfortunately not a lot of information is readily available on this fascinating family *Nectariniidae*. I have been successful in keeping these birds in what appears to be very good health and have even had nest building activity by several species. Hopefully the information in this article will add to information already available and/or spark an interest in the large family of sunbirds.

All sunbirds are native to the Old World. They range from Africa (where most species are found) to Australia (where only one species is found). When people see my sunbirds and ask what they are, I tell them they are the Old World version of hummingbirds, even though no formal relationship exists between them. All sunbirds are dimorphic, with most females being rather somber and cryptic in coloration. Males of some species go into an eclipse plumage during the spring and summer months. I have had experience with ten different species, eight from Africa and two from southeast Asia. I have truly found these birds extremely delightful and perhaps my favorite of not only softbills I have worked with but all birds I have worked with throughout the years.

Housing

My preference for housing all birds is in large, outside aviaries. However, many of us, including myself, do not have either the luxury of the space and/or the climatic conditions to house birds outside. I keep my birds in a modified green house in cages

measuring 48 inches x 18 inches x 18 inches. Each of the cages contains natural perches and various types of live plants. The upper cages, which receive most of the light and heat, are planted with *tillandsias* and *bromeliads* mounted on various types of wood or in pots. Small ficus plants and Spanish Moss poke through the top wire in various places. In the lower cages I use various types of ferns, philodendrons, bromeliads and a few orchids. I use Spanish Moss in these lower cages as well. It is my opinion the live plants give the birds a feeling of security instead of living in stark, empty cages. The plants also provide potential nesting sites other than boxes, baskets, etc., as well as provide a place to escape if males tend to be overly aggressive. The plants are placed away from the perches to avoid being soiled. They are misted periodically and I find the sunbirds thoroughly enjoy this time since sunbirds prefer to leaf bathe instead of bathing in a pool of water on the floor or ground.

Diet

The basic diet I give to all of my sunbirds is soaked Zu-preem monkey biscuits, Avico Sunbird Nectar, various diced soft fruits, kernels of corn, green peas, shredded spinach or lettuce, mealworms, wax worms and small fly larvae (*Musca domestica larvae*). As far as fruits, I offer pears, bananas, kiwi, oranges, etc., to the sunbirds since their bills are not strong enough to soften apples and other harder fruits. I sprinkle vitamins and minerals over the biscuits, fruit and vegetables. Also, I disinfect the feeding tubes and dishes every day. There are several good products on the market, including good old bleach and water. I happen to use Nolvasan and am very happy with it.

It is not my intent to recommend one commercial product over the other, however I prefer Avico Sunbird Nectar for the sunbirds. Any sunbird which has yellow and/or red feathering will quickly fade in captivity (like many other birds) unless the proper diet is provided. I found using Avico both restores and maintains the yellows and reds in the plumage. It is essential that a constant supply of nectar be provided, similar to hummingbirds, otherwise their health will quickly deteriorate and the birds will die. As far as the soaked Zu-preem, I prefer to soak it in water instead of nectar. I have found the birds tend to eat more of it soaked in

water rather than nectar. Also, I believe that during warm weather bacteria tends to form more quickly in a nectar solution than it would in water. Mealworms and waxworms are offered only to the *Anthreptes* genus sunbirds (in my case, Collared Sunbirds). The bills of the *Anthreptes* sunbirds are much shorter and stronger than those of the *Nectarinia* sunbirds. The fly larvae, sometimes referred to as "tiny wigglers," are offered to all the birds, including the *Nectarinia* sunbirds. However, I feel it only fair to warn anyone planning on using these fly larvae! If your birds are housed inside and they do not eat all the larvae due to dropping a few, you will have flies everywhere before too long! I have found sunbirds to be somewhat sloppy eaters and very often drop whatever they have been trying to soften. I am always amazed, though, how quickly they can fly down and usually catch whatever it is they have accidentally dropped. To help avoid the potential fly problem, I periodically vacuum the quickly formed pupae to help keep the pests to a minimum. In addition, the sunbirds particularly relish occasional spiders, *Drosophila* flies, or other small flying insects such as the ever present seed-moths – if you have seed eating birds.

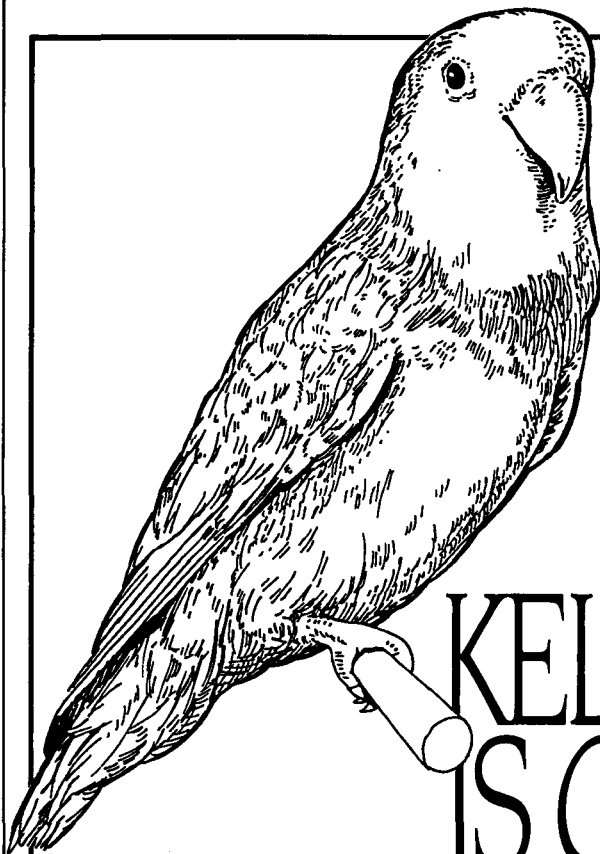
Disease

Fortunately I have had no experience with any disease problems with my sunbirds. I have been keeping sunbirds for over three years and have found them to be very hardy. Perhaps the most common problems all nectivores (nectar feeding birds) face are yeast infections known as *candida*. Fortunately, if caught early, *candida* can easily be treated with nystatin. The most common cause of yeast infections are poor hygiene practices. Since nectar contains so much sugar, fungus forms very quickly in poorly maintained feeding utensils. It is imperative to disinfect all feeding tubes and dishes daily. As I mentioned earlier, I use Nolvasan or Wavicide and am happy with the results. Also, when I get any new sunbirds, I place a drop of nystatin in the bird's beak for three days, purely as a preventative measure. I then keep a close watch on the bird for the obvious signs of *candida* of constant swallowing and what appears to be yawning. Once acclimated, given a good diet and kept in a clean environment, sunbirds should prove to be very hardy birds indeed.

Compatibility

This topic is perhaps, to me, one of the most frustrating. There is not much written on compatibility, especially with softbills. I have approached this subject using the "trial and error" method. Believe me, there certainly have been a few errors on my part. Generally, sunbirds should not be housed with any other sunbirds. I have had no problems housing sunbirds with tanagers. During the non-breeding season I

have also housed sunbirds with honeycreepers, however this does not work well during the breeding season. There are two key elements in compatibility; amount of space and breeding season. Even though you may see various birds get along very well when not in breeding condition, be extremely careful and alert when you hear the first melodious notes of a male coming into breeding condition! Even though you may not observe active aggression by certain



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pairs, some things to watch out for are dominating feeding areas, especially where only one or two feeding areas are provided. On more than one occasion when I had most of my birds housed together in large, planted aviaries I had to either provide additional feeders or move some birds to other flights.

Earlier I mentioned the "trial and error" method. To give an example of what I mean, due to lack of space, I had my best pair of Collared Sunbirds (*Anthreptes collaris*) housed with a male Splendid Sunbird (*Nectarinia coccinigaster*). I noticed the Splendid one day began to sing much more than usual and appeared to be a little more dominant than normal. I didn't think much of it since the combination of birds always seemed to get along well. I noticed the pair of Collareds somewhat intimidated by the Splendid but again no apparent problems. The next morning I went out to feed the birds and both the Collared Sunbirds had been killed by the Splendid! The Splendid was singing and displaying proudly on his perch.

I have found that during the non-breeding season many sunbirds can be housed together, especially if you have all of one sex. In fact, I have even housed several mixed species of sunbirds together during the breeding season, however, none of these were pairs. There did not seem to be any apparent problem. Care must be taken to ensure that one or more do not dominate the feeding areas. Ideally, each pair of birds should be housed separately with the possible exception of adding other birds such as tanagers, mesias, non-aggressive finches and small softbills, space permitting. Please be warned though, all birds will love the nectar which is essential to the sunbirds so your nectar bill will go up!



Male Mariqua Sunbird with female in background.



Nest constructed by female Mariqua Sunbird.

Nesting Behavior

I have been fortunate enough to observe some nesting behavior, however, at the moment, not fortunate enough to observe any raising of chicks. Only females are involved in the nest building process. My first sunbirds to attempt nest building were a pair of Collared Sunbirds. At the time, these birds were housed in a planted, outside aviary. The birds were initially housed with a breeding pair of Silver-eared Mesias (*Leiothrix argenteauris*). The sunbirds and mesias got along very well without showing any signs of aggression whatsoever to each other, even while the mesias were raising young.

However, I wanted to give the sunbirds all the privacy I could so after the baby mesias fledged, all the mesias were removed.

The sunbirds chose a woven, grass covered, finch-type nest similar to the type used in the published article "Captive Propagation of the Collared Sunbird" by Rebecca Dellinger and Christopher Eckart in the April/May 1991 issue of *Watchbird*. In fact, both Rebecca and I had been doing quite a bit of corresponding during this time trying to unravel some of the mysteries of breeding and maintaining sunbirds in captivity. I started the nest by placing dried grasses inside. I noticed the female was interested after the mesias were removed and I saw her carrying in plant fibers found throughout the aviary. I knew she was also looking for some type of finer material so I gathered cobwebs which she seemed to rub on the inside of the nest. I also placed some shed dog hair in the flight which she eagerly placed in the nest. Unfortunately, however, no eggs were laid during this attempt.

Nesting activity was observed by a lone female Collared Sunbird during July of this year. Again, the female chose the same type of nest as described above. As before, I began the nest by placing dried grasses inside. I had an orchid mounted on a slab of cork in the cage and noticed the hen stripping some of the dried sheath and carrying it into the nest. This time, instead of dog hair, I offered very soft and absorbent shredded cotton balls. Within no time she had lined the inside of the nest with cotton (I assume an effective substitute for cobwebs). Since I had made most of the nest, little work was done by the hen. An egg was laid on July 13th on the bottom of the cage. Unfortunately, however, I did not have a male for this hen so, of course, the egg was infertile. The egg is good sized for a bird which is a little smaller than a zebra finch. The egg is white with mottled dark brown at the large end. A second egg was laid in the nest on July 14th which she incubated, however to no avail.

During this same time my pair of Mariqua Sunbirds (*Nectarinia mariquensis*) also began serious nest building. These birds were particularly frustrating to work with since the female had been actively carrying nesting material for more than three months but placing it nowhere! I pro-

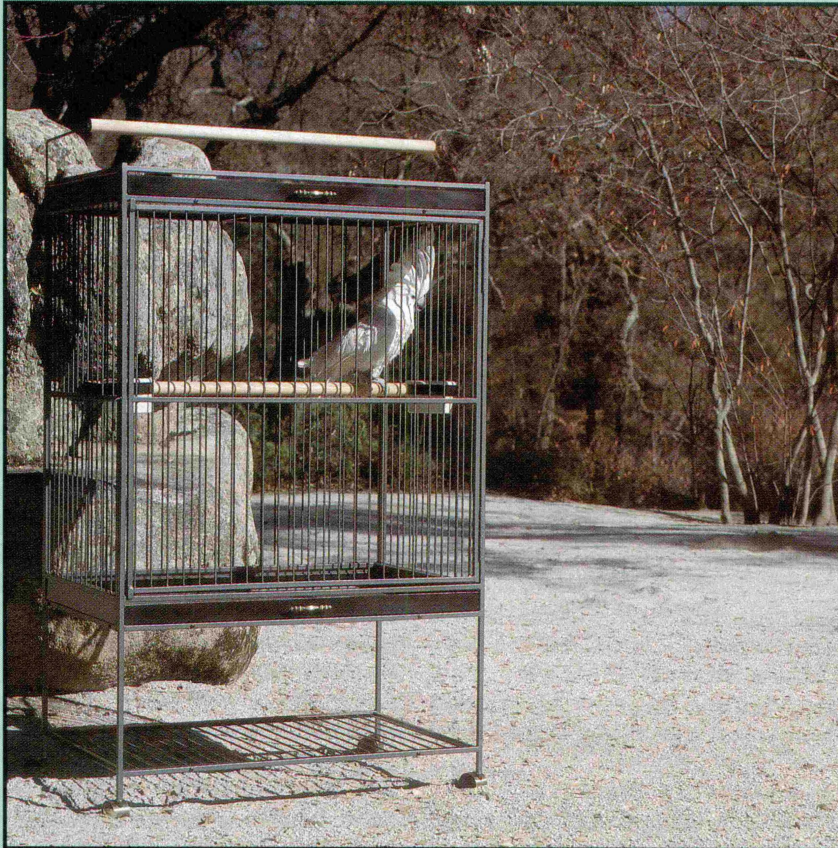
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Male Variable Sunbird.

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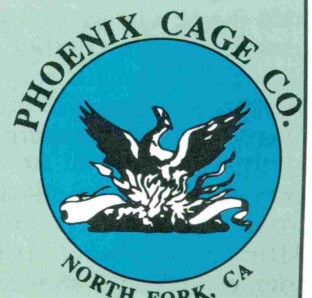
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vided two nests like the ones used for the Collareds but no interest was shown whatsoever. I also hung tilandsias and Spanish moss around the cage but again no interest. She seemed to want to begin the nest somewhere in the top middle of the cage and tried weaving various fibers through the mesh, however, nothing held. I placed a good sized clump of Spanish moss near this area and still it was ignored for several weeks. Then, and I have no idea if this began the serious nest building activity, during the first day of about a week long heat wave not only did the Mariquas begin serious nest building but so did the pair of Variable Sunbirds (*Nectarinia venusta*) in the adjacent cage and a few days later the female Collared Sunbirds.

It seemed the magic touch for the Mariquas was offering the shredded cotton balls and the Spanish moss in the center of the cage. She began poking pieces of cotton into the moss, eventually creating an open, purse-type nest made mostly of cotton. I found a type of plant fiber at a nursery and thought that might work for the birds as well. All the sunbirds used these fibers along with the cotton. Since sunbirds do not like going to the ground, I found nesting material was more readily accepted if placed anywhere from the middle of the cage on up.

One very interesting observation was made with the female Mariqua in that when she was constructing the sides of her nesting cavity from the inside, she would partially open her wings as though to push the already placed material to help enlarge the soon to be completed cavity. Another very interesting observation with both the Collared and Mariqua was that after the entrance of the nest was created the female actually would puff her feathers prior to entering the cavity, presumably to help create a larger cavity than if the feathers were not puffed. Also a fascinating observation was the female Mariqua attempting to pull a piece of fiber which was securely attached to a mounted bromeliad. She would grab the fiber in her beak and try to fly off with it, always unsuccessfully. After approximately three or four tries, even though she still could not pull the fiber from the plant, she would still fly to the nest and go through the motion of placing it in the nest! I believe this was an incredible example of instinct. Is, perhaps,

the amount of time gathering material and the tactile feeling of the material the governing factor instead of returning to the nest with physical material in hand (or beak!)?

Another observation I made which I found extraordinary with sunbirds is the fact that they eagerly search out grit as a calcium supplement! Yes, I am aware that a higher calcium level is required for egg laying hens, however, to see nectivorous birds eating grit is a rare sight indeed. Actually I did not provide them with any grit until I noticed the female Collared picking up tiny stones in one of the plants in the cage and swallowing them. I knew she was about ready to lay so it was obvious this was to increase the calcium level. I had been adding additional calcium (Neo-Calglucon) to the nectar several days prior to this time. I thought this behavior astonishing so I experimented by adding a small dish of grit and was amazed to see the Collared immediately consume it piece after piece for not less than two minutes! I then offered grit to both the Variable and Mariqua Sunbirds. The Variables had somewhat discontinued the nest building activities, however, the female Mariqua eagerly consumed small pieces of oyster shell and other small pieces of grit.

Courtship Displays

Perhaps one of the most pleasurable attributes of keeping sunbirds is their displays during courtship. I have eight different species of sunbirds in my collection, some of which, unfortunately, I do not have pairs. However, with the exception of one species, I have observed displays by all the males. Even though many of these birds are closely related, the displays differ for each species.

An excellent account of the display of the Collared Sunbird is given in the article referenced earlier by Dellinger and Eckart so I will not attempt to duplicate it. As far as the Mariqua Sunbirds, both male and female take part in the displays, however the female does not display much until she is very serious about nesting. The displays are a series of extended, folded wings first on one side then on the other. The birds actually position themselves almost vertically on the perch and fan half their tail either to the right or the left, constantly singing and the display continues for several seconds. They will then usually fly to another perch or move

positions and repeat the process several times. On occasion, the male will also raise one wing at a time, however only for about a second or so.

The behavior of the Variable Sunbirds is similar, however, I have found the male Variable "dances" a bit more than the Mariqua, doing a series of low bows toward the perch and almost slowly walking with body pointed the same direction as the perch, wings held tight and drooped, constantly singing. One feature that both the male Collared and Variable Sunbirds possess is tufts of bright yellow or orange feathers under the wing which are extended during displays. Normally these tufts cannot be seen unless the bird is displaying.

The Copper Sunbird (*Nectarinia cuprea*) display is similar to the Mariqua, however much of their display consists of holding both of their wings up at the same time for longer periods, again constantly singing as the display continues. I have also observed a male Amethyst Sunbird (*Nectarinia amethystina*) displaying with behavior somewhat similar to that of the Mariqua. I have a couple male Purple-throated Sunbirds (*Nectarinia sperata*) and noticed their courtship is primarily holding their head straight up while constantly singing and bobbing up and down on the perch. I am sure the display of all these bachelors could be much more elaborate and I probably won't see much more until I can get mates for these birds.

One fact I would like to warn anyone who either has sunbirds or is anticipating getting sunbirds is that males can be extremely aggressive with females, especially if the female is not ready for breeding and the male is. You *must* provide some type of protection for the female to escape the occasional, what appear to be, vicious attacks by the male. I have seen *all* of my pairs of sunbirds in an attack so fierce that both birds are on the floor fighting as though it was a serious dog fight. Fortunately it does not last for more than a few seconds and usually no harm is done. However, be extra careful that the male does not become so aggressive that he keeps the female away from the feeding areas. Then, just when we think we have it somewhat figured out, there is another side of the story. Perhaps my most aggressive and incompatible pair of sunbirds are the pair of Variables. The male is constantly pursuing the female. However

I did notice one day when she was building her nest she was much more aggressive to the male in keeping him away from the nesting area for several hours.

Summary

At the time of writing, the Mariqua Sunbirds seemed to have stopped nesting activity. After the nest was apparently complete she seemed to lose interest. The weather had changed from very warm days when most of the nest building activity occurred to somewhat cloudy and typical San Francisco summer, foggy days. Whether this has influenced them or not I do not know and this is exactly my point. Not much is known about the behavior of these birds. I only wish more aviculturists would take the time to experiment and observe the behavior of these ever fascinating birds. Sunbirds, as well as many softbills, are not the type of bird to have if one, like so many people keeping birds, wishes to make money breeding them. They are not an inexpensive bird to keep, since the cost of nectar is somewhat expensive. Also, the birds themselves, if you can find any, are not inexpensive. They are definitely the kind of bird an aviculturist would want, not for profit, but purely for pleasure. I only wish the availability of sunbirds in this country was greater. Unfortunately they are very difficult to find, especially in pairs.

If any of you have had experience with sunbirds and would like to share it with me, please write to me at: 95 Corwin Street #3, San Francisco, CA 94114. With the import restrictions which will be imposed very shortly, few of these delightful birds will be available to us. At the moment I know of only two zoos in the U.S. and two private individuals working with sunbirds. That is not to say these are the only pairs in the U.S., however, working with the Dallas Zoo in trying to establish what sunbirds are in the country in order to attempt to pair them up, these are the results we came up with. It is a sad situation indeed. If any readers either have or know of others who keep sunbirds, I would greatly appreciate it if they would contact me so we can possibly get some of these birds paired up.

Sunbirds are perhaps one of the best secrets in the U.S. avicultural softbill world; beautiful, curious, friendly, great singers, incredible displays, hardy and a real challenge. ●

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