

Aviculture on the Wild Side

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Working with avian species outside of their countries of origin is often very different from working with them in their native habitat. A single visit to a conservation site in a Third World country may highlight some of the unique experiences that can occur, but only extensive journeying on the wild side of aviculture will clear away the misconceptions that exist regarding in-country avian conservation.

By not only understanding the disadvantages and advantages of such programs but also by realizing the literal amount of blood, sweat and tears (did I mention pain?) that makes up the backbone of the work abroad, perhaps we in the so called civilized world can approach the problems of

avian conservation with more of a global outlook and an empathetic response. So let us now take a walk on the wild side....

Avian Conservation Maxim #1

"Parrots are not necessarily greener in countries of origin."

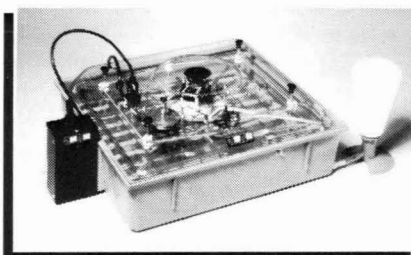
How wonderful we envision life in tropical countries where the days are long and warm with refreshing rains. No doubt the parrots themselves experience benefits from living so close to nature (get your minds off the beaches and snorkeling now, and concentrate on avian conservation), but, alas, paradise does have its disadvantages. The parrots suffer much like the people do in tropical lands where the climate, the abundance of naturally occurring dis-

ease vectors, and harsh living conditions dispel anyone's dreams of perfect living.

The more common problems occurring in captive avians include parasitism, predation, trauma, malnutrition and stress due to climatic conditions. In established in-country captive breeding aviaries, however, the overall incidence of illness and disease can be quite low, despite the plethora of risks. The manifestation of these diseases, though, can be unique to each facility and each country.

Parasitic diseases include protozoan species such as Sarcocystis, Plasmodium (malaria), Leucocytozoon, Cryptosporidia, and Coccidia. Tape worm and round worm infestations can be quite dramatic and finally make checking feces for parasites on any bird worth the effort. Often these parasitic diseases occur in new species or manifest disease differently.

Traditional avian viral diseases do exist and, again, their manifestations can be quite different than that seen in traditional aviculture. Many other diseases suspected to be caused by viruses occur but their etiologies have not



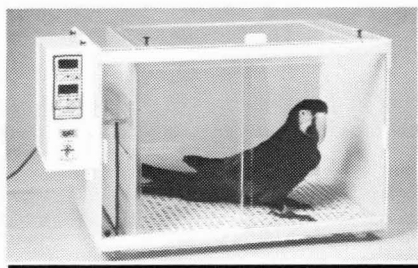
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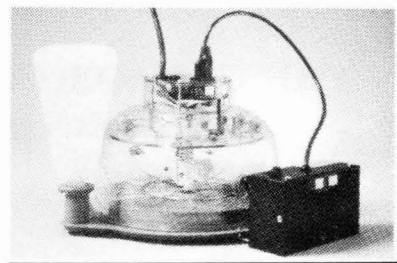


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been definitely identified.

Fungal diseases occur with frequency but mostly in debilitated or stressed birds. Given the high humidity and level of fungal spores in the food and air, it is not surprising to see frequent *Aspergillus* and yeast infections. *Chlamydia* is also seen sporadically, but, as in the U.S., it almost disappears from any well maintained aviary that observes careful introductions of new pairs.

Enteritis seems to occur with greater frequency but, again, the diagnosis is often elusive. The causes probably range from contaminated or spoiled food to contaminated water, amoebas (*Montezuma's revenge*), and a mixture of bacterial and viral diseases.

Then, of course, there are the "icks" that occur. A bird can have an "ick" anywhere on its body but they seem to occur mostly in the extremities such as the toes. By "ick" one means an undiagnosed skin infection with varying severity and rates of cure. It does not appear that anything like "icks" have been reported in the United States to date. The pathologists seem to think that a lot of this could be due to mycotoxins rather than actual fungal, viral or

bacterial disease. Birds respond slowly to treatment but the skin disease often returns.

It seems surprising that in countries of origin where the variety of available fruits and vegetables is tremendous that there should exist malnutrition. But, again, as even some of the people do there, eating nothing but bananas and mangos will lead to a deficiency of protein, fats, and, eventually, calories. Captive breeding collections tend to overfeed fruits and vegetables, and if the birds are not clinically undernourished, they may be subclinically so. It is difficult, however, to find a "safe" protein source in some countries due to the lack of quality control in the manufacturing of concentrated feeds. Storage, too, may introduce vitamin and fat deterioration due to high humidity and temperature, not to mention possible contamination by insects and mammals. It is difficult to import concentrated feeds because one is never sure when the shipment will arrive or whether it will clear customs. Composing a diet of native ingredients is probably the best option, using a rice, beans and corn diet; but most of these diets tend to overemphasize the

corn portion. In any account, a rice-beans-corn diet needs a vitamin/mineral supplement specifically designed for it. Psittacine Research Project at the University of California has done work on this diet and the diet has been used successfully in Guatemala.

It is equally difficult to get good handfeeding formulas. If importation problems preclude the use of commercial handfeeding diets, nurseries can use a mixture of some easily digested dog food (ground up and soaked in water) mixed with some vegetables and fruits. Hundreds of chicks have been successfully raised on this diet, but one must be careful to choose a high quality easily digested dog food with minimum quality fluctuation.

Egg disorders also occur, and sometimes in a higher frequency than seen in the U.S. High environmental heat and humidity, and toxins in the environment are suspected causes of incubational and congenital disorders.

Recently, some parakeets in an outdoor aviary of a local Guatemalan were found to have died of smoke or toxic fume inhalation. Household waste was burned near the aviary and this was probably the cause of death. This is not surprising given that most birds are found, upon necropsy, to have some level of pneumoconiosis, which is a permanent disposition of substantial amounts of particulate matter such as dust and other air pollution in the lungs. Air pollution is ever present in many of these countries due to households burning waste, the burning of sugarcane fields and burning to clear land for the next planting. Also, most households still use wood for their kitchen fires. It would not be surprising to find that a percentage of the human population also has lung disorders given the smoke-blackened interiors of most outside wood kitchens in the country.

Avian Conservation Maxim # 2

"It shall be considered okay to whine"

Many of the diseases seen in countries of origin remain undiagnosed not just due to their complexities and uniqueness, but also due to the lack of veterinary diagnostic capabilities. Most clinics do not have radiographic capabilities, and finding medical technicians who are willing to work with avian blood and cultures is difficult. The expertise simply does not exist and the number of manhours to train in-coun-



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try professionals is significant. In certain instances, veterinarians can be trained to run samples in small local laboratories but this detracts from the veterinarian's ability and time that should be devoted to the actual clinical case. Avian histopathology remains one of the main tools for diagnoses, however, all samples must be sent out of the country to pathologists specializing in exotic avian pathology. Tests for viruses and chlamydia using antigen/antibody testing simply do not exist in most countries.

In treating clinical cases it can be quite frustrating to get outside consultation. Often, there is no one else seeing birds on a regular basis, and getting a phone line into the U.S. from some of the locations can be one of life's greatest tests in patience. Faxing seems to work but the turn around time is most disadvantageous when considering the limited hours one has to work with a sick bird. Drugs are also difficult to get and, when available, come in formulations that have not been worked with before in birds.

Laboratory equipment failures are common due to crawling things making nests in the circuitry, high humidity and temperature, and the constant electrical fluctuations. If you don't burn out your computer at least once a year, you just aren't using it enough. Fancy surge protectors would seem to be the answer but they blow out about as often as the equipment they try to protect. Mechanical breakdowns also include refrigerators and air conditioners, so keeping food, drugs and laboratory chemicals stable can be a challenge, not to mention trying to keep indoor birds and the avicultural staff comfortable.

Available water is not something to be taken lightly. Community supplied water is often contaminated and the pipe system faulty. Having one's own well and storage tank is necessary, but this, too, has problems in not being able to pump water to the tank when there is no electricity, when there is a draught, or when the pipes are broken (again).

The local fauna always keep things exciting, such as having Africanized bees take over nest boxes or just about any cavity. Boa constrictors also enter cages and will kill a bird even if they aren't big enough to swallow the bird and exit the cage. Mammal predators are also constantly lurking, waiting for

an opportunity to grab a head, wing or leg that gets too close to the wire cage walls. This wildlife also makes its way indoors where reaching for a syringe to give a bird an injection enters an entirely different dimension when your hand grasps a tail-thrashing scorpion instead of the familiar plastic syringe.

Wood structures do not last long in the tropics hence there is constant repair of any caging or housing made of wood. Intense storms with high winds and flooding also cause damage to the houses and cages.

As any where, the people you work with are the treasures of the job and the birds are just the topping on the desert of life. Communicating through a language and culture barrier, however, tries everyone's patience, especially the in-country professionals who must battle with English in order to read almost any veterinary or avicultural text. For example, instructing the technicians to "hospitalize the bird and start it on twice a day Baytril" may be heard as "Let the bird go and take the rest of the day off."

The physical challenges of getting through a day increase when one considers the unreliable transportation,

interesting political situations, frequent illnesses, and the ever present poverty that affects not only the impoverished but also those who work with them.

Avian Conservation Maxim # 3

"Thou shalt not criticize"

From the preceding discussion, one can see there are considerable difficulties and challenges in having avian conservation programs in countries of origin. Indeed, the mental fortitude necessary to get through each day is almost impossible to maintain constantly. For this reason, conservationists (or anyone else, for that matter) must not be overly critical of other projects, because one negative statement can cause mental backslides of everyone working on a struggling project. Positive reinforcement, however, may do more good than receiving financial assistance. Another reason not to be overly critical is that no one can truly say what is the best way to approach avian conservation in a particular country unless one has lived, loved and dang near died in that country. And, finally, in-country captive breeding projects do work—maybe just not in the way in which we are accus-



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The mortality and morbidity rates can reach even lower levels than that seen in aviaries in the U.S. and Europe. The production of chicks can also be incredible, possibly due to the natural climate, lighting, and foods. Finally, the projects can be relatively cheap to maintain as compared to other countries.

Existing captive collections can help deal with confiscated birds that are taken from persons illegally trafficking in birds in countries of origin (remember that poaching is extreme in many countries). Veterinary and avicultural expertise will not only help the stable breeding collection, but also any government or humane organization trying to deal with confiscated birds or rehabilitation. This expertise can also be extended to helping with field avian ecology projects where collaboration from the domestic sector is highly needed. Having professionals at a breeding collection also means that the breeding center can serve as an educational center for veterinary students, aviculturists from other collections and zoos, and for anyone needing reference materials that are stored at the collection's library.

On a more informal basis, the veterinary and avicultural staff of a captive breeding collection can extend their abilities out to the community by becoming consultants for bird care in the home, helping with avian vaccination schedules, and becoming involved in avian conservation education programs. In the more rural areas, the aviary staff can bring not only their professional abilities into the homes of the natives, but can also shine with their energy and personality to help honor and respect the lives of those battling it out in Third World Countries and, hence, serve as a role model not only in conservation but also in daily living.

Conclusion

Working in Third World Countries is very hard work, if not, in fact, dangerous. The personal rewards, however, can outweigh the disadvantages as long as one approaches life and work with a positive attitude (and as long as the intestinal tract keeps working). Indeed, with such in-country projects succeeding, we can hope to not only serve as stewards for our avian companions but also for the people, children and futures of these countries. ➤

Nutrition for Amazons

by John Stoodley, England

Parrots in their natural habitat feed to meet their energy requirements. The captive bird becomes obese by overeating simply because the wrong diet is offered or, to relieve boredom, it eats compulsively. Unfortunately, there is a lack of basic knowledge of the requirements of the psittacines' diet. Amazons in the wild feed at all levels. There are the tree top feeders, those that find food on or in the ground and those that feed in between on scrub and bush. Many seek fruit in order to eat the kernel, berries, pollen or nectar together with buds and shoots and whatever insects or grubs are present, so a great variety of fresh food is sought.

Where the land has been cultivated, the parrot has learned to feed on crops, but cultivated land provides its main source of food only where natural and more profitable habitat has been completely destroyed.

This occurs mainly on small islands where the parrot has, over many years, adapted to a specialized diet. In some species this is very limited and cultivation, in the long term, must interfere with natural selection, or the survival of the fittest. The benefits of providing a good balanced diet are obvious. If the ratio of energy to protein are correct, and the amino acid profile and mineral and vitamin levels are suitable, birds do not become obese. Such well fed birds look good, they have good plumage, good disease resistance and spend a reasonable part of the day in normal feeding activities; the rest, hopefully, preparing for breeding, and will live to a ripe old age. Consideration given to providing the right foods is vital in any captive breeding project. More information is needed to improve the understanding in some of these areas. For the moment, much has to be based on extrapolated information. Deficiencies occur when birds are fed a restricted diet. They then often develop fads and further restrict their own diet. Pet psittacines are often kept indoors and denied access to natural light. This causes vitamin D3 deficiency unless additional dietary D3 is given.

Many years ago we decided to change the sunflower based diet that we were feeding our parrots. I had

been able to do some field studies and became aware of the types of bulky food consumed by Amazon parrots. We decided to undertake feed trials, so groups of birds were set up. The group fed mixed pulses, fruit and vegetables with some added calcium, not only looked magnificent but produced far more fertile eggs and vibrant chicks.

The legumes and grains are soaked for 24 hours and the water must be changed several times, as some of the nutrients will enter the solution and encourage bacterial growth. For the same reason, seeds should be rinsed and drained before feeding.

To encourage sprouting, legumes and seeds are trayed for a further 24 hours. The depth of trayed legumes and seeds should not be more than $\frac{3}{4}$ of an inch. They are washed and drained a further couple of times during this period.

Sprouting of legumes and pulses raises the digestibility. Some of the relatively indigestible carbohydrates such as starch are converted into more digestible dextrins, etc., and even into protein as the sprout grows. The vitamin levels also rise slightly, especially vitamin C, although not enough to be relied on as a major source.

Germination also makes the seeds of the legumes safer by reducing some of the toxic or anti-nutritive factors present in them. Soya beans, for instance, contain a trypsin inhibitor which reduces the digestion of proteins. The simple act of soaking also makes it easier for the birds to break up the seed for digestion.

During warm weather, sprouted seed components tend to spoil. Care must be taken to replace spoiled food. If left, it will encourage the growth of aspergillus. The climate will influence the nature of the diet fed to captive parrots. Most Amazons relish green food we favor—alfalfa, landcress, dandelion and watercress, together with green shoots from suitable non poisonous trees. Not only are these materials nutritious but provide an interest for the captive parrot.

There are several pelleted diets now being marketed. We have tried to use some. However, our charges did not