



## **Thoughts and Practices in the Care and Breeding of Parrots for Breeder and Companion Markets**

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### **Part 1- Husbandry aspects of managing a large mixed collection**

When I first began keeping birds thirty years ago, aviculture was a whole different world! There was virtually unrestricted importation allowed and no surgical or DNA sexing. Very little was known about exotic avian medicine and there were very few companies making food products for birds. Books on keeping exotic birds were few and were filled with mostly anecdotal information. I can only imagine what aviculture will be like thirty years from now! Remember that the decisions that we are making now will greatly impact the future of aviculture.

Currently at Aves International, we have over three hundred and fifty pairs of larger psittacines of more than fifty species. The husbandry methods we use are based on trials and lots of errors over the past thirty years. Sometimes I am accused of being old-fashioned in my approach to aviculture. This may be true, but I base our methods on what I feel is best for the health and welfare of the birds. Some of the things we do are labor intensive. While I do look for ways to make our work easier, I do not advocate using products that make it easier for the human keeper at the expense of the quality of life of the birds that we keep.

Today, I will be speaking on the husbandry aspects of managing our adult breeding population. On Saturday, I will speak about our methods of managing the baby nursery.

In my opinion, the basis of health for a collection of birds is the diet that we feed them. Our philosophy regarding diet is to feed as natural a diet as is possible in captivity. In the wild, exotic birds have access to a large variety of nutritious fresh foods that vary as to season. We cannot duplicate the diets that various species would eat in the wild but feeding a large variety



of fresh vegetables, fruits, and grains comes the closest to this. We are often asked if we recommend either a seed diet or a pelleted diet and the answer to that is neither. Instead our diet is based on sprouted grains and seeds and raw and cooked vegetables and fruits.

We feed very limited amounts of processed food to our birds and therefore do not recommend that a pelleted diet be fed as a primary diet for psittacine species. Instead we feed primarily a fresh food diet. These foods include a large variety of sprouted grains and seeds, boiled grains, beans, and peas, boiled root vegetables, fresh fruits, and a large variety of fresh chopped vegetables in season. We use the sprouting kits sold by China Prairie Company of Garberville, CA. These kits have an excellent variety of seeds and grains for sprouting and provide an additive for the soaking water to prevent fungal and bacterial growth, and also a vitamin/mineral powder that contains wheat grass and barley grass along with eighty-eight trace minerals. We also sprout sunflower, lentils, mung beans, peanuts, red wheat, and brown rice. We boil a variety of grains for about thirty minutes. Included are brown rice, red wheat, lentils, corn, and several bean and pea varieties. We also boil root vegetables such as carrots, beets, yams, turnips, and sweet potatoes for about thirty minutes to soften them and make them more palatable and digestible. Apple is fed on a regular basis and other fruits in season are fed including figs, papaya, grapes, pomegranate, melons, cactus fruits, kiwi, platano bananas, and berries. Please do not feed dried fruits out of a package to your birds and think they are getting all the nutrients that fresh ripe fruits provide! Vegetables that are regularly fed raw include broccoli, celery, cucumber, kale, chard, dandelion greens, corn on the cob, okra, squashes, green beans, and pumpkin. All of these various ingredients are mixed together with a small percentage of an avian pelleted diet and dusted with a small amount of vitamin/mineral powder and calcium/phosphorous powder. Dry seed such as sunflower or safflower and/or nuts for macaws and African Greys or small millet for small species can be added as well. We feed more dry seed and nuts in the winter, during the coldest months. This nutritious mixture is fed once a day in the early morning and the birds devour every morsel of it.

After diet, another important consideration is secure and comfortable housing for a collection of breeding pairs. We keep our collection outdoors in southern California in two locations. One is near the coast that has a mild climate. The other location is inland and temperatures at both ends of the spectrum are more extreme. Our aviaries are constructed to allow good air ventilation but also to protect the birds from wind and the elements. All of our flights are inside an outer safety wire wall to protect our birds from predators such as raccoons, fox, raptors, cats etc. Always build your aviaries so there is a safety area around your aviary so that a raccoon cannot reach inside the cage to pull off a wing, leg, or head of your bird. Please don't think that you do not need to fear predation by raccoons. Unfortunately, I hear of this sickening tragedy happening all the time, even in urban areas! We have planted honeysuckle vines on the periphery of this safety wall to provide privacy, shelter, and a fresh green belt around our birds. Tree frogs live in the vines. Eucalyptus, willow, bottle brush, and pepper trees are planted on our property to provide shade, and fresh branches for chewing.



We use wooden perches, two per flight, to encourage flying and exercise. I don't like perches made of pvc, metal, concrete etc as these are unnatural for the birds' feet. Pairs are separated from sight from one another by aluminum sheet metal dividers. We have slanted metal roofing that covers both the front and the rear sections of our flights, protecting both the feeding and nesting areas. The middle of the flight is open to full sunshine. A thermostatically controlled sprinkler system on the roof keeps helps to cool the area on hot days and provides bathing opportunities for the birds.

After food and shelter, the next big consideration is nest boxes. The most important thing to remember about providing nest boxes for birds is that a hen will usually not lay eggs in a box in which she does not feel comfortable. Therefore, the comfort factor is the priority- not the cost. So in my opinion, the only good nest box is one made primarily of wood. I do not like metal nest boxes as they are too cold in winter and too hot in summer. Most metal conducts heat and cold far better than does wood. Additionally I think the chewing of the wooden box prompts birds to breed. This is a more natural type of nest; there aren't metal nest boxes in most tropical forests! Although the nest box will have to be replaced periodically, I think the benefits outweigh the small cost factor of replacing the box occasionally. Using thick plywood to construct the box and reinforcing the entry and inspection holes with metal will reduce somewhat the frequency that the nest box will have to be replaced.

We use a variety of nest box sizes and configurations. Some are rectangular, others are L-shaped, and we even use old wine barrels with some of our macaws. For most cockatoo species, we use a double tower nest with two entries. If a pair does not accept one style or size box, try a different box. Most pairs prefer snug boxes so don't make the mistake of giving larger and larger sizes to your birds. I recommend that the box be hung on the outside of the breeding cage for ease of inspection and to give less surface area to the birds to chew. An entry hole should be placed high on the nest. Pine shavings, not sawdust or cedar shavings, should be placed inside the nest box several inches deep to a point just below the inspection door which should be located on the back side of the box. If you use a guillotine-style inspection door, make sure there is an outside latch on this to prevent a bird from inserting its head as this could result in the bird becoming stuck with potential tragic results. This sad scenario just occurred with a good friend's macaw. The box should be hung as high as is possible to afford the birds as much security as possible.

It sounds tempting to purchase pairs that are already proven breeders but I actually prefer young domestic stock of most species to set up for breeding, especially in the smaller species. Every year, we hold back a few youngsters of several species for future breeding stock. Young hens are full of eggs and often are healthier than older breeding stock.

Think about what aviculture might be like in thirty years hence if we don't start holding young



birds back for breeding. This is especially true of some of the larger species that are apparently not breeding particularly well from domestic-raised babies, such as African Greys and some cockatoo species. I know it is tempting just to sell these babies but the prudent aviculturist will work diligently to establish captive bloodlines of our cherished birds. Not only do the common species that are popular as pets need attention, but rarer or plainer or harder to breed species deserve attention also. If this is not done, we will have precious few species as captive self-sustaining species in captivity. It is frightening to think of the species that were available to me as a young aviculturist twenty-five to thirty years ago and then to consider what species might be available twenty-five to thirty years from now. If possible, rare species should be allowed to rear their own chicks, at least some clutches, and the babies managed in a cooperative program with other aviculturists..

Of course it is important to choose healthy pairs for a breeding collection. Medical screening is always a useful tool in maintaining the general health of a collection of birds. However, quarantine and lab tests cannot detect every medical problem so I always assume there is a possibility that a breeding pair could harbor a virus. For this reason, we pull nearly all eggs for artificial incubation as this greatly reduces the chance of introducing a virus into the nursery.

## **Part II. Management of a large nursery of mixed psittacine and softbilled species**

As stated previously, we pull most of our eggs for artificial incubation. After suffering through two breeding seasons with outbreaks of Polyoma Virus in the nursery seventeen years ago, we decided to pull all eggs to see if we could eliminate the problem and I can thankfully say that we did. Actually, we have eliminated all viral disease, psittacosis, and internal and external parasites from our nursery since we stopped bringing parent-fed babies into our nursery. At our facility if an egg hatches under the parents, the parents raise it. We leave eggs for parental incubation for a minimum of ten days to three weeks. This gives the eggs a good start and we have a very high success rate in hatching.

We use a Petersime Model One incubator. We own two of them and have used them for over twenty years. We have hatched many thousands of eggs in them and have had virtually no problems with the units. They are quite large, being about three feet cubed, and are made of redwood. Thus they provide a really stable environment inside for the eggs. We incubate at ninety-nine degrees Fahrenheit (37.2 degrees Celsius) and approximately eighty-five percent humidity. We use the same incubator for all of the species we raised. We have successfully hatched eggs from many species of psittacines from Hanging Parrots to Hyacinth Macaws and many soft-billed species including hummingbirds, mynahs, toucans, thrushes, mesias, touracos, and hornbills.

We turn the eggs by hand five times per day. The Petersime has automatic turning but we have found that this resulted in a much larger percentage of reversed and mal-positioned eggs-



chicks with their heads in the small end of the egg instead of the larger end. These usually require assistance in hatching and some hatch weak or die in the hatching process. For assisted hatches, we use warm sterile lactated Ringer's dripped from a 10 ml syringe to keep the membranes hydrated and to keep them from sticking like glue to the chick. Hand-turning the eggs results in very few mal-positioned chicks. We don't use many disinfectants in our nursery but do wash our hands with Nolvasan Scrub before handling eggs and babies. This washes away oils that are present on our fingers that could affect the eggs. Once the chick hatches, it is left in the hatching basket in the bottom of the incubator for one to several hours so that its down can dry and fluff a bit.

From the incubator, the chicks go into an isolette maintained at ninety-seven degrees Fahrenheit (36.1 degrees C). We use small plastic boxes and plastic strawberry baskets lined with wash clothes and tissues to house the just-hatched chicks. This bedding is changed at every feeding. These babies are fed six to seven times per day with our freshly made, home-made formula. (The formula is listed at the end of this article). We have developed our formula over many years and prefer it to all commercially-made hand-feeding diets. We feed full-strength formula to our babies within an hour or two after hatching. We do not believe that chicks should have to defecate a certain number of times before being fed nor that they should be fed only fluids or a thinned down formula at first. I think that feeding fluids or thin formula to a just-hatched chick is dangerous as it is easy to aspirate a very young chick. By feeding regular formula at regular intervals, our chicks get a good start in life and begin to show weight gains immediately. The first feeding of the day is at about eight AM and the last of the day is between midnight and two AM, depending upon the time of year, number of chicks being fed etc. We vary our formula slightly for Green-Winged and Hyacinth Macaws as they need more fat and protein in their diet. For them, we add ground macadamia nuts, Brazil nuts, and hulled sunflower to our regular formula- about one part nut meal to two parts regular formula. We also add a small amount of a product called STAT that is forty-five percent crude fat.

We use luer-tip fifteen cc syringes for young babies and thirty-five cc catheter-tip syringes for older babies. I do not recommend using the long pointy-tipped sixty-cc o-ring syringes, especially with species such as macaws that have a strong feeding response. I have seen a number of cases where a baby has had its throat damaged with such long pointy syringes. This can result in serious injury or even death if cellulitis develops after the throat membranes are punctured with such a syringe.

Chicks stay in the isolettes for about two weeks. We keep chicks in groups of two to five chicks from the same clutch or of similar size. We do not think it healthy for a baby to be raised without other chicks in close proximity as they benefit both physically and psychologically from snuggling with other babies. As they grow, they move to a slightly cooler isolette the second week (about ninety-four degrees Fahrenheit) and then they are removed to live in large plastic tubs kept on heating pads set on low. Never use a higher setting on a heating pad placed



under a plastic tub. A large bath towel is secured with clips on the top of the tub to cover about fifty percent of the tub. We sometimes use large bath towels as a substrate but mainly use shredded unprinted newspaper. The babies snuggle down in this well and we have found this to be safe, cost effective, and easy to use. We put one paper towel on the plastic floor and put the shredded newspaper on top of that. The chicks almost always stay at the dark back half of the tub. We move the chicks once at the evening feeding to the cleaner side of the box and rotate the box. This is changed to fresh bedding every morning.

Although we keep things as clean as possible, we do not use many disinfectants in the nursery. We use a weak bleach solution on floors, tables, and walls. Our syringes are washed with water and then sterilized in a large commercial pressure cooker heated to two-hundred fifty degrees F. We put Teflon tape on our syringe tips to help them slip in the syringes easily. Isolettes are cleaned with soapy sponges and occasionally put in full sunshine for a while. Sunshine is Nature's best disinfectant! We don't use a lot of really strong disinfecting products as we find them to be not necessary and we want our chicks exposed to a certain amount of bacteria that is present in the environment. We are quite careful about bacterial contamination of our formula, however. We make it fresh three times daily and do not store it for more than ten hours in the refrigerator. We carefully wash and dry all utensils used in making the formula with special attention to the blender parts used in formula preparation. We had a bacterial problem in the nursery once that was traced to the rubber gasket from the blender- it grew heavy bacteria on a culture! We carefully wash and dry this now.

We do our own cultures and sensitivities and have found this to be an invaluable tool in our nursery management. Every chick is cultured at five days of age. We have determined that this is the optimum age to do this to prevent serious bacterial infections in our chicks. If a heavy growth of gram-negative bacteria is found, a sensitivity culture is done and the baby is treated with an appropriate antibiotic. A baby with a low bacterial growth on a culture is not medicated, as its own immune system usually will resolve a slight amount of bacteria. Since we have begun this practice, we have reduced illness and mortality in the nursery to very low levels.

Babies are closed-banded and careful records are kept on each baby. We keep data on hatch date, parent pair number, nursery number, sexing record, to whom sold, and band number on each bird we raise. By keeping these banding records, we have been able to reunite lost birds with their owners on several occasions!

At about eight weeks of age for most species, the babies go to a weaning cage where they learn to sit on a perch within about a week. We allow babies to socialize with other young chicks so that they realize they are birds. I do not subscribe to the idea that birds are "kids with feathers". I want them to know that they are birds and I recognize that they are heavily influenced by instinct. I do not try to mold baby birds into something that they are not. We let them sit on the



tops of cages and on play stands to flap their wings. We leave the babies with full wings as long as we possibly can and let them learn to fly. We feed a large variety of fresh foods in great abundance and do not force babies into prescribed weaning times. We offer hand-feeding formula to weaning babies three times per day until they are fully weaned. They go through stages of being quite hungry for the formula to refusing and then repeating the cycle. We do not consider a baby weaned until it is completely sustaining itself with no hand-feeding for a week to ten days. Chunks of fresh corn on the cob, apple slices, and spray millet are three of our main weaning foods. These are placed on the floor of the weaning cage so that the baby can easily find them. Fresh water in open crocks is offered and we do not force our babies to drink out of plastic bottles like rodents. An open crock not only provides drinking water but also allows a baby to bathe itself. I have seen quite young babies bathe and I think this teaches them to enjoy bathing.

Soft-billed species are raised in the same nursery as our baby psittacines but we do keep them physically apart and wash our hands between handling the soft-bills as their normal gut flora is different from that of psittacines. Soft-bills are fed a variable mixture (depending upon the dietary requirements of the species) of a commercial hand-feeding formula with added pureed fresh fruit and mynah pellets.

We do not vaccinate our babies unless the buyer wants it done and will pay extra for a Polyoma vaccination. We do not find Polyoma to be a problem for us and offer a full health guarantee on our babies for bacterial, fungal, or viral infections, and/or congenital defects.

It's a lot of work to raise babies from eggs to weaning but quite rewarding! Sometimes aviculture can be difficult and I feel like quitting. But that moment soon passes and I realize that I must have birds in my life! To see a beautiful weaned baby bird that I have raised from a small egg makes it all worthwhile!



## Hand-Feeding Formula for Most Psittacine Species

- ½ cup shelled raw peanuts
- ½ cup hulled sunflower seeds
- 1 cup Hill's Science Diet Primate Diet
- ½ cup Gerber's Mixed Cereal
- 2 jars Gerber's Creamed Corn
- 2 jars Gerber's Carrot or Squash or Sweet Potatoes (either is ok, or you can use canned vegetables, ½ cup of creamed corn (strained) & ½ cup y
- 1 tsp. Vionate vitamin/mineral powder
- 1 tsp. calcium-phosphorus powder
- 1 TBL spirulina powder
- 1 TBL wheatgrass powder

Blend first three ingredients in a blender just over half-full of water (distilled or bottled water is preferred) until smooth. Add the four jars of Gerber's vegetables or the canned vegetables and the four powders and continue to blend. Lastly add the Mixed Cereal and blend until the mixture thickens. This should be refrigerated if not used immediately. Discard any portion not used within a twelve hour period. We do not recommend freezing the formula.

It is not necessary to thin this formula for day-one babies. We feed newly-hatched chicks as soon as they are completely dried with fluffed down and are ready to leave the egg incubator. For minor digestive problems, try thinning the formula with a little Ringer's solution and/or add a lactobacillus product such as Micracine by China Prairie Company. Any baby with prolonged (more than a few hours) digestive problems should be cultured and/or seen by an avian veterinarian.

Gerber's Rice Cereal in the jar can be added to the formula for species such as some cockatoos that might require a lower fat formula. We sometimes use Apple Jungle Avian Pellets by Marion Zoological to thin the formula for some cockatoo species and Eclectus Parrots.

For species that require a higher fat content such as macaws (especially Hyacinth Macaws) added sunflower and Brazil and Macadamia nut meal (can be ground from whole seeds/nuts in a blender with water). Also recommended is a product called DYNE or STAT (different brands of a similar product) can be added to the formula. This is a high-caloric liquid that is formulated to be fed to stressed animals. It is very useful as it is easy to digest and puts little or no stress on possibly weakened internal organs. It can be fed mixed only with Ringer's solution to weak or slow-digesting babies.

Instant Ounces by Phoenix is a good product to use in lieu of STAT or DYNE for species that



require a low fat content.

Mycostatin (nystatin) can be given to a baby to combat Candida (budding yeast infection in the crop) which may slow digestion, and cause vomiting and/or sour crop. Ringer's solution, STAT or DYNE, and Mycostatin (nystatin) are available through a veterinarian. If in doubt about the baby's health, don't wait--consult your avian veterinarian immediately!

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A box on the previous page may appear blank. If so one may follow this link to the [Psittacine Hand-feeding formula](#).