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Stunted Macaws

by Joanne Abramson
Fort Bragg, California

STUNTING

Stunting is the most common problem seen in handfed parrots today. Many aviculturists, for a variety of reasons, are not able to recognize this insidious development in their handfed nestlings until much more serious problems have evolved. Stunted birds are most likely immunologically weakened and more susceptible to infectious disease than normally developed birds. Permanent physical deformities may plague the bird for the remainder of its life, including inadequate or deformed skeletal systems, beak deformities, inadequate psychological development, damaged or poorly developed internal organ systems and questionable reproductive capabilities.

When a bird is stunted from inadequate amounts of food or the lack of a nutritional food, the head grows disproportionately large for the rest of the body. Thin extremities (toes and wings) are a common pediatric symptom. Hyacinth Macaw adolescents have been seen the size of young Scarlet Macaws. One bird was at least 450g undersized for a Hyacinth. There are variations in size of birds (just as in humans) but there should not be a huge difference between the nestlings and their parents. Hyacinths, Green-wingeds and Buffon's are commonly seen stunted birds due to their higher weights. Novice handfeeders or those used to smaller macaw species are especially likely to incur stunting, but it can occur in any handfed bird.

Macaws should be increasing the amount they are eating every few days or, minimally, each week while in their growing stage. As their weights level out and they start eating weaning food, the amount of formula they need decreases. On the large macaws this does not occur until they are over 50 to 60 days old, and in the case of a Hyacinth 70 to 80 days old. We do not know yet whether stunting has any effect on the bird's ability to reproduce.

The human induced metabolic condition is the result of one or all of the following conditions:

- 1) Nutritionally deficient diets.
- 2) Insufficient amount of food; Low volumes of formula. Inadequate number of feedings per day.
- 3) Medical condition preventing the

normal digestion and absorption process, low grade toxicity (visceral or articular gout, vitamin D3 toxicity), bacterial infection (*Candida*, *E. coli*), viruses (papova, chlamydia) and trauma, e.g., burned crop.

The Three Stages of Stunting

Early stage: These birds are not being supported nutritionally (or possibly medically) to allow them to reach their genetically predestined size. If their condition is recognized in time, their retarded development can be corrected and they will achieve their normal size. Early detection of stunting can be determined by experienced handfeeders who review their bird's weight records daily and compare them with previously recorded normal growth data for the species being handfed. Unfortunately, inexperienced handfeeders may not keep weight records or have no data to compare their bird's weight with. Consultations with other aviculturists who have bred the species will be essential to newcomers who might otherwise fail to catch stunting in this early stage.

Intermediate stage: Characteristically, the head and feet remain close to normal size but the body size is more seriously affected. The body is stunted in both length and girth. Most intermediate stage birds survive. Not being adequately fed produces bone structure that does not reach its genetic potential and is often accompanied by distortion of the skeleton. The majority of this section will deal with this group of birds.

Advanced stage: These birds are so extremely underfed that they are grossly deformed. Severe nutritional problems have occurred which might also be accompanied by opportunistic secondary infections such as *Candida* or *E. coli*. These birds generally die before they reach the feathering stage.

Stunting can occur in any species, however the likelihood increases in the larger parrots such as Amazons, cockatoos and macaws because of the larger volumes of food required for normal growth. In the hands of inexperienced handfeeders these birds are often weaned many weeks before nature intended. For instance, 22 to 26 weeks is average length of time to wean a Hyacinth Macaw at Raintree Macaws.

"Weaned" birds that are 12 weeks old with the classic stunted macaw symptom - normal sized head and feet with a small body size - have commonly been seen at other facilities. This gives the appearance of a huge head, drawing attention away from the small body. Their weights were also less than normal.

Manifestations frequently seen in stunted birds include increased activity levels, overly strong feeding response, restlessness between feedings, lots of vocalizing, signs of dehydration (reddened or dry skin), little or no weight gain and crop stasis. Additional symptoms include conical skull shape, thin, bony extremities (wings, legs and feet), all toes facing forward, primary wing feather development without corresponding contour feather development and pendulous crop. Multiple manifestations are likely to occur in one bird.

REVERSING STUNTING

Once a bird is recognized as stunted, it is important for the veterinarian to rule out any secondary infections that could impede a return to normal growth. The original problem should be identified (i.e., nutritionally deficient diet, diluted formula, overheated brooder, inadequate amounts of formula fed, etc.). If the chick is severely dehydrated, Lactated Ringers or Pedialyte® might be helpful to regain fluid normalcy. Checking weights twice daily on stunted (or sick) birds will frequently help determine if the course of therapy is working. Weight gains can be dramatic once the problem is identified. Nestlings under 300g can gain 40g or more a day. On the older 800g plus birds, gains of 100g per day are not uncommon, especially if fluid therapy is initiated.

Daily evaluation can be initiated utilizing a technique that Brian Speer, D.V.M., has suggested. Analysis is done by taking the current weight and dividing it by the expected weight for that species and age of bird. The result gives you the percent of weight gain. For instance, a 96g chick which should weigh 130.3g is 75% of its normal weight (i.e., $96 \div 130.3 = 74\%$). By doing this calculation on a daily basis, the bird may reach or exceed the 100% ratio if the stunting were successfully being reversed. Obviously this analysis required an accurate weight chart available for the species and age of nestling (Speer 1989).

Stunted birds are not genetically different from other members of their species. Intermediate to advanced stage birds that survive could theoretically be

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predisposed to the following problems:

Females are the most susceptible to complications from their stunted condition. Egg size is controlled by genetics, not body size. Hens may be vulnerable to problems related to smaller pelvic proportions. Probable complications would include egg binding with subsequent severe kidney pressure and functional complications (leg paralysis, embolism stroke), and pelvic proportions incapable of passing a normal size egg. If eggs are successfully laid, her ability to incubate a clutch may be inhibited by her relatively small body size resulting in temperature fluctuations during the incubation period.

Though anatomically stunted, males are physiologically less likely to show detrimental effects. The possibility of a low sperm level can not be ruled out. If sperm levels are unaffected, successful copulations should result in fertile eggs. The cock's ability to feed and care for the young would not be affected.

Stunted birds released back into the wild would probably have a harder time competing with their wild counterparts. There is one report of a stunted Blue and Gold Macaw released into the wild in Peru that was killed by an eagle. Captive

bred stunted birds might conceivably be useful in a captive breeding program or if unsuccessful, as pets.

Weight records are essential to the care of young parrots. Daily weight checks can prevent stunting. Losing weight or failure to gain weight (prior to the peak weight being achieved) should prompt a visit to your avian veterinarian for diagnosis of potential problems. An unnecessary check is better than a dead or severely stunted bird. Networking with other breeders is also useful.

PARENTAL STUNTING

Parent-raised nestlings can also be stunted, but the difference is that without human intervention, they will not survive to fledge. The third or fourth nestling in a clutch might not survive if the hatch interval is too great. The interval gives the oldest birds a strong head start. These older hatchlings are very powerful and can easily push their younger siblings out of the reach of food. At Raintree Macaws, most Green-winged, Blue and Golds and Scarlets will successfully raise three nestlings the majority of the time. However, human intervention was necessary on some occasions, even with pairs that previously raised three successfully. Despite four

fertile eggs in a clutch, four successfully parent-raised nestlings have never been seen. Apparently this is just too taxing for the female, even with the unlimited, high quality food provided in a captive environment.

The first research from the wild on the length of time wild parents feed their nestlings is now being compiled. Meanwhile, aviculturists need to continuously review the limited knowledge we have and apply data from one species to groups of similar species. As accurate computer records continue to be compiled, aviculturists will soon be able to establish normal growth records for each species.

Stunting is a relatively newly defined problem in aviculture. The majority of the birds thus far affected have not yet reached breeding age. Many of the questions raised will be answered over the next three to four years. In the meantime, it is recommended that stunted birds not be used for breeding purposes until more facts are compiled. ➤

Literature Cited

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