

Concepts in Behavior: Section II

Early Psittacine Behavior and Development

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Ethologists have yet to map out the stages of development for psittacine birds. As a consequence, the information about companion psittacine behavior is predominantly anecdotal and experiential. The wide variation in maturation rates between species as well as between individuals within species, as exemplified in [Table 3.2.1](#), further complicates this issue. As a general rule, the smaller the species, the faster an individual of that species will mature. For example, most cockatiels (*Nymphicus hollandicus*) are sexually mature by 6 months of age, whereas the average 6-month-old hyacinth macaw (*Anodorhynchus hyacinthinus*) has not

yet developed the physical coordination to consistently walk without stumbling.

Generally speaking, small species like budgerigars (*Melopsittacus undulatus*) and cockatiels fledge around 3 to 4 weeks, wean around 6 to 11 weeks and enter puberty at 4 to 6 months. Medium-sized birds (*Psittacus erithacus* and *Amazona* sp.) fledge at 10 to 12 weeks, wean around 12 to 16 weeks and enter puberty at 3 to 4 years of age. Larger psittacines such as *Ara* spp. fledge at about 12 to 15 weeks, wean around 16 to 20 weeks and enter puberty at about 4 to 5 years. [Table 3.2.1](#) presents more detailed information regarding representative species.

Table 3.2.1 | Stages of Development

Species	Fledge (weeks)	Wean (weeks)	Puberty Onset	Sexual Maturity (years)	Geriatric** (years)	Life Span ⁴⁷ (years)
Budgerigar (<i>Melopsitticus undulatus</i>)	3-4	6-7	4-6 months	1	6-12	18
Cockatiels (<i>Nymphicus hollandicus</i>)	3-6	7-11	4-7 months	1	12-18+	32
Sun conure (<i>Aratinga solstitialis</i>)	6-7	8-9	9-18 months	2	18-25	25
Green-cheeked conure (<i>Pyrrhura molinae molinae</i>)	4-6	6-12	9-18 months	2	12-15	25
Peach-faced lovebird (<i>Agapornis roseicollis</i>)	3-6	7-11	7-8 months	1	10-15	12
Yellow-naped Amazon (<i>Amazona ochrocephala auropalliata</i>)	11-13	15-18	4-6 years	7	35-45	
Blue-fronted Amazon (<i>Amazona aestiva</i>)	10-12	12-16	3-5 years	6	25-35	80
Congo grey (<i>Psittacus erithacus</i>)	10-12	12-16	3-5 years	6	20-25	50
Eclectus parrot (<i>Eclectus roratus</i>)	10-11	14-16	3-5 years	6	15-20	20
Galah (rose-breasted cockatoo) (<i>Eolophus roseicapillus</i>)	8-10	11-18	1-2 years	4	18-20	20
Umbrella cockatoo (<i>Cacatua alba</i>)	10-12	12-18	3-4 years	8	20?	
Moluccan cockatoo (<i>Cacatua moluccensis</i>)	12-15	16-25	3-5 years	10	25?	
Yellow-collared macaw (<i>Ara auricollis</i>)	9-10	10-12	1-2 years	4-5	22-27	
Blue and gold macaw (<i>Ara ararauna</i>)	10-12	14-22	4-6 years	8	30-40	50
Green-winged macaw (<i>Ara chloroptera</i>)	12-15	16-35	5-7 years	10-11	35-45	

**True onset of "geriatric" in psittacines is subjective and requires several generations of captive-bred individuals of each species to determine.

Behavior Development and Changes

The larger parrots are generally sexually mature by 3 to 5 years of age. This slow rate of maturation often confuses those who assume that the behaviors displayed in this prolonged babyhood will be permanent rather than transient. For instance, a 2-year-old scarlet macaw (*Ara macao*) is not yet an adult and remnants of youthful behaviors exist. This scarlet macaw can be expected to undergo significant behavioral changes in the future.

As a consequence, some owners are startled and upset at the behaviors displayed as their parrots mature. Those caregivers who are unprepared for avian adulthood routinely complain to veterinarians and behavior consultants that they “want their sweet baby back.” The concept of neoteny is powerfully appealing to humans.⁵ However, the reality is that parrots continue to grow, mature and change. Psittacine behavior is readily influenced by positive interactions, so caregivers need not lament passing babyhood, but instead embrace life-long learning.

THE NEONATE

Parrots are altricial and are unable to thermoregulate, even in those species that are born with down feathers. Baby parrots are considered neonates from hatching until their eyes open, and during that time their physical needs are simple but absolutely critical: a warm environment and warm food (Fig 3.2.1).¹⁵

Feeding

Many breeders feed their babies on a rigid schedule of every 1 to 4 hours, depending on their ages.²⁴ Waking baby birds to feed them or forcing hungry babies to wait for food until the next scheduled feeding is needlessly stressful for young birds. The optimal feeding schedule is sensitive to the bird’s needs, including their rapid increases in weight and the concurrent increase in the volume of food required at each feeding.

Young budgerigars and cockatiels have been documented to solicit feeding with typical baby cries only upon the entrance into the nest box of a parent bird. Occasionally a nestling will cry to solicit feeding from a sibling. The only other vocalizations made are the hissing sound (made by cockatiels even at a young age) at the presence of an intruder in the nest box. Extrapolating this to captive bred nestling parrots would indicate that healthy young psittacine hatchlings should not be prone to indiscriminate or long-lasting crying binges.

Concern with the prevention of sour-crop has promoted the axiom that the crop should be completely empty



Alice J. Patterson, courtesy of Santa Barbara Bird Farm

Fig 3.2.1 | Despite its blindness, this Moluccan cockatoo hatchling is still exquisitely sensitive to its environment. At this age, temperature is everything, both in environment and food.

prior to the next feeding. Several pitfalls are inherent if this guideline is followed. Liquid food that is fed tends to stretch the crop, and a small pendulous area of crop may retain liquid food for a prolonged period. Waiting for this material to empty produces a hungry baby and creates both emotional and physical stunting. (*Ed. Note: Retention of a desiccated portion of the hand-feeding formula may indicate a poorly formulated product, improper temperature of the formula when fed, or prolonged crop-emptying related to illness.*) Observation of parent-fed babies demonstrates the normal state of marked crop distention.

Chronically whining baby parrots (especially within the cockatoo family) may be related to prolonged hunger. Breeders who no longer adhere to the rigid scheduled feeding style report neonates that sleep soundly for consecutive hours and awaken eager to eat. Rather than forcing babies to adhere to schedules tailored to human convenience, feeding babies on demand is best for proper physical and emotional growth (*Ed. Note: Recent research on African Greys (Psittacus erithacus) and Pionus spp., showed that many babies from parents fed a seed-based diet had some degree of osteomalacia radiographically. Figs 3.2.2a-b demonstrate an advanced case of bony deformation in a ring-necked parakeet. In addition to physical malformations in severe cases of osteomalacia, chronic pain may be present in subclinical cases. Chronic pain at a young age may contribute to excessive crying and potentially to future behavioral problems. See Chapter 5, Calcium Metabolism for further discussion and references.*)

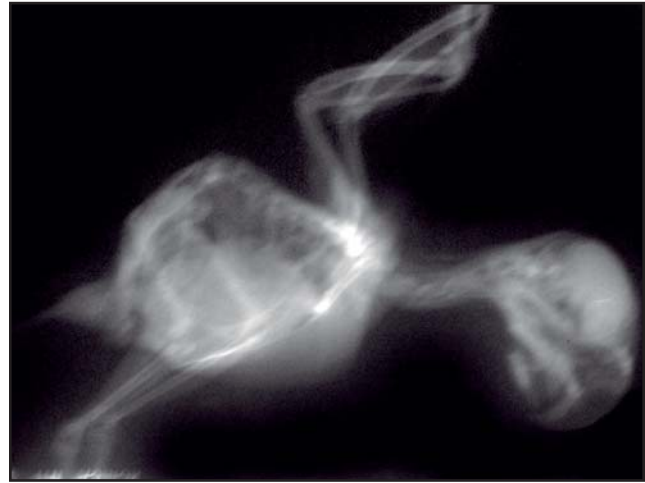
Touch

Psittacines wild-caught as adults and not socialized to humans may be adverse to touch. However, naturally



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Fig 3.2.2a | An extreme example of osteomalacia from a malnourished diet.



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Fig 3.2.2b | The radiograph of the bird in Fig 3.2.2a. Such birds are in pain based on similar problems in species that show more of a pain response, such as monkeys.

occurring parental touch has been reported in many psittacine species. Aviculturist Katy McElroy collects video nest box documentation of Moluccan cockatoos as they lay, incubate, hatch and nurture a baby to fledging. She and subsequent observers are impressed by the “lavish attention” the parents paid to their baby, continuously preening and touching their offspring all over its body between feedings. In one film, McElroy’s parent birds are seen with their single baby; all three birds are asleep in the nest box with the baby tucked under its father’s wing, its head laid across his back. Like most animals, parrots are most likely adverse to rough handling, but readily accept appropriate touching, especially when raised to do so from an early age.²⁰

There is an obvious positive reaction to touch, with neonates responding to soft stroking and wing tip massage by pushing their heads into the human hand. Prior to the opening of their eyes, they also will respond to the sound of a familiar step and voice, popping their heads up on wobbly necks. One author (PL) has noted the importance of duplicating the weight of the parent bird’s wing when raising babies in incubators, especially when a single chick is housed alone. The baby or babies should be placed into a secure container and covered with towels that rest lightly on the neonates. Soft weight on the back quiets a baby after feeding.

McElroy reports that her video has documented the extreme sensitivity of baby cockatoos to parental and sibling touch. “They sit upright on their bottoms a few hours after hatching and use their feet propped out like stabilizers to keep from tipping over. The slightest touch will cause them to spin around in that direction, using one foot as a pivot as they search for food or a warm body. You rarely see a baby that isn’t snuggled up against a sibling or parent. If two blind neonates get acciden-

tally kicked apart when the parents leave the box, they will both stretch their necks out and lurch around in circles until making contact” (K. McElroy, personal communications/e-mail, 2002). The importance of physical contact for neonates should not be ignored. The keeping of multiple chicks together increases normal physical stimulation. Incubator-hatched birds should have touch massage incorporated into their daily care.

Light

Prior to their eyes opening, neonatal parrots are responsive to light. Biologically designed to begin life in the darkness of a tree cavity, baby parrots react adversely to strong light by flinching, hiding or trembling. As a consequence, the popular practice of keeping babies in glass aquariums under fluorescent lights not only is potentially detrimental to the developing eyes of neonates, but also might cause psychological distress.¹⁵ Because their eyes need time to develop slowly in a darkened cavity, many aviculturists supply neonates with a darkened container in which to grow and develop. Hand-raised psittacine babies actually gain weight faster when kept in the dark.²⁵

THE NESTLING

After the neonatal psittacine’s eyes open, the baby is categorized as a nestling. Psittacine birds with recently opened eyes seem to be myopic, which is consistent with most newborn animals. Certainly babies who are confined in a closed container have no need to see across vast distances. If given the opportunity to do so too early in the development process, nestlings will blink, recoil and seek a dark corner. They do, however, move toward and touch objects in close proximity, so boxes can be enriched at this stage to encourage visual development.



Fig 3.2.3a | This African grey baby was raised in a plastic incubator with its physiologic needs met. However, the excessive exposure to light, lack of parental or sibling weight, heat and support, are potentially psychologically devastating. Here the baby is hiding after being frightened by a ringing phone.



Fig 3.2.3b | Baby blue and gold macaws benefit from an enriched cardboard box environment with a covered corner for hiding when needed.

Layne Dicker, courtesy of Santa Barbara Bird Farm

As feathers develop and open, the need for supplemental heat decreases, and young psittacines can be moved out of brooders into unheated containers that allow more movement but still resemble a nest. The limited space has been demonstrated by Nigel Harcourt-Brown to be a critical factor in the prevention of valgus deformities of the legs in neonatal birds.^{15a} When the babies are fully feathered, they can be housed at room temperature, (72-78° F, 22-26° C), which should be carefully monitored. Various containment systems employ the judicious use of towels to provide darkness, privacy, traction and hiding places that appear to be critical to a stress-free environment. For further comfort and physical and psychological safety, food sources must continue in a dependable manner and the environment must remain secure.

Visual Stimulation

Appropriately stimulating environments are vital to mental development; the use of bright colors and accessible, touchable toys are enrichments that are simple to incorporate into young psittacine environments. Designs on nursery walls and colorful mobiles are examples of visual enrichment for birds at the peri-fledgling stage when they are perching intermittently on the edge of the nest box.

As the baby bird develops increased visual ability and physical mobility, increased opportunities for learning must be provided. Fearless curiosity is characteristic of young animals,⁵ and this characteristic is best utilized in teaching the young bird to competently deal with the world. In addition to the previously noted necessities of warmth, food and security, the neonates' environment needs increasing stimulation in terms of vision, touch, sound and interaction.

Borrowing again from early development of more extensively studied species, it is fair to assume the existence of a window of opportunity for the development of visual recognition, learning and acceptance in psittacines. Therefore, to make the view more interesting, one can hang bright posters and add plants (either real or artificial) to the nursery. People can wear bright colors when working with babies. Colorful towels that cover the containers are simple enrichments. By rotating the towels every couple of days, caretakers can ensure the babies become accustomed to different patterns and colors. In this manner, an early foundation is laid that encourages the birds to be receptive to change.

Baby parrots raised in opaque plastic tubs receive no visual stimulation. Cutting a notch in the side of the tub (melting the edges so they are not sharp) so the babies can see out can counteract this lack of visual stimulation. Organic containers are more natural and stimulating: simple cardboard boxes (which can easily be cut to provide a view and disposed of when soiled) or inexpensive natural-colored baskets. Whatever the environment, caretakers should cover most of the container with towels throughout the day, and cover it completely at night. This provides privacy as well as darkness, should a baby become overstimulated (**Fig 3.2.3a**). The towel coverings also influence thermoregulation and should be adjusted as needed (**Fig 3.2.3b**). Both the need to withdraw from stimulation and the need for warmth decrease as the birds continue to develop.²⁷

Most veterinarians use towels to restrain birds. Acclimating a bird to being restrained in a towel will reduce the stress of veterinary visits and aid in grooming at home. Initially, cover the baby with the towel and let



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Fig 3.2.4a | Picking a safe color towel and teaching a bird restraint will make veterinary exams and training easier as a bird matures. Here a bird is introduced to a towel.



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Fig 3.2.4b | Slowly covering the bird with the towel in a reassuring way.



Bob Doneley

Fig 3.2.4c | Adding pressure and restraint slowly over time allows grooming and examination or restraint whenever needed in a safe unafrightening way.

it sleep. As the bird nears fledging, it can be carried around in the towel. It can then be introduced to different areas of the house, people, objects, and other pets, using withdrawal into the towel for security. It is likely, as is documented in dogs and cats, that if a bird is not introduced to certain animal species by a certain age, it will have difficulty accepting the presence of this species in the future without fear. The positive and negative results of creating this fearless state need to be considered (See Socialization and Co-parenting Section to follow [Figs 3.2.4a-c]).

Parrots spend large amounts of time with their faces close to their babies. As the babies develop, visual contact—face-to-face and eye-to-eye—soon expands into vocal interactions post feeding, as the babies respond to gentle murmuring of the hand-feeder. Introduction to adult foods during the neonatal period will increase acceptance and prevent the development of food rigidities in the future (Figs 3.2.5a-b).

Tactile Stimulation

Periodically stroking baby birds with warm hands simulates parental attention. One author (PGL) has observed the following regarding toenail sensitivity in baby birds:

“Touch the toenail clipper to the nail while holding the baby securely. Some birds do not flinch at all, while others react with varying degrees of withdrawal. Interestingly, this relative sensitivity is consistent into fledging.”

Subsequent training exercises are used to desensitize the tender-footed neonate at an early age, while continuing to increase the amount of reinforcement the less reactive baby receives.

Aural Stimulation

Vocal communication between parents and chicks begins early. Hand-feeders are encouraged to talk to the babies in their care, accustoming them to human voices and language. Varieties of other types of sounds also are healthy and useful. The positive aspects of music have been proven repeatedly with animals as well as people.

Reactive Attachment Disorder

Reactive attachment disorder involves children 5 years old or younger. This condition was known in previous centuries as orphanage baby syndrome and is better known in the current lay literature as failure to thrive. Defined as “a disturbance of social interaction and relatedness”, this condition is associated with “grossly pathological care, with persistent disregard for a child’s basic emotional needs for comfort, stimulation and affection, as well as repeated changes of the primary caregiver that prevent the formation of appropriate bonds.”² This severe absence



Fig 3.2.5a | Shown are examples of the most valuable types of moist foods to be offered to baby birds to teach variety. Starting at mid left going clockwise: organic acorn squash, lettuce, beets and beet tops, broccoli, carrots, yams (sweet potatoes) and butternut squash.

Greg J. Harrison



Fig 3.2.5b | An example of the proper kinds, amounts and types of organic dry foods to teach a baby bird to accept, for macaw-sized birds on the left and Amazon-sized birds on the right. These bowls show the amount of food offered to a pair of the respective birds mentioned. The limiting of seeds and nuts is vital; these are offered only to breeding birds until the babies are weaned. Then the nuts and seeds should be stopped altogether for the babies and suspended until the next breeding period for the parents.

Greg J. Harrison

of care can result in serious psychological and *physical* problems in children, such as stunted growth, the inability to socialize appropriately and increased potential for self-destructive behaviors later in life.¹³

Currently, many captive-bred, hand-fed parrots do not know how to play, accept appropriate touching, interact or even how to eat a variety of foods. Perhaps as a result of improper or incomplete early development, increasing numbers of parrots engage in feather destruction and even self-mutilation as adults. Increasing numbers of young domestically bred and hand-fed parrots seem unable to form a healthy relationship with humans. The authors wonder if these increasing problems are related to psittacines being raised in an assembly-line fashion in a cold, clinical nursery. If this is the case, the production-raising of psittacine birds is not the best technique for producing an emotionally and physically stable companion animal. Happily, the industry seems to be turning away from production techniques, as evidenced by the important work being done in large facilities such as the University of California-Davis and Texas A&M.²⁶

The dangers of creating “failure to thrive” are lessened to an extent by raising neonates together rather than in individual enclosures. When aviculturists have substantiated the health of their babies (see Chapter 21, Preventive Medicine and Screening), the young of certain species may be housed together; in these mixed-species settings animation and interaction increase. Early work on raising psittacines in mixed-species groups yielded such good results—youngsters that seek touching, sleep readily, play with and seem curious about others—that the practice is widely accepted by many breeders today.

Socialization and Co-parenting

Socialization is a process by which an individual forms an attachment to other species.³ Time frames for socialization in birds are not established as they have been for dogs and cats. The hand-feeding of psittacine chicks certainly provides exposure to humans. Conversely, provision of all the natural elements outlined in this chapter—feeding, warmth and tactile, visual and vocal stimulation—can be difficult for the human caregiver to provide. Ongoing studies at the University of California-Davis with co-parenting have shown great promise. Pairs of orange-winged Amazons (*Amazona amazonica*) were raised by their parents through fledging, with university students interacting with the young in the nest box for brief but regular periods of time. The study is ongoing, but preliminary results show that limited handling by humans for short periods, several times a week, may produce offspring that are socialized to humans, but benefit from all the inherent advantages of parent-raised birds. Extreme caution should be exercised in the selection of parents and young for this protocol to ensure that parental infanticide, abandonment or abuse does not occur.

THE FLEDGLING

Prior to fledging, babies show increasing interest in the world outside their enclosure. A partial covering of towels will enable the babies to see out of their container or to retreat and hide. As they get braver, they will spend more time looking out of the container and less time in concealment. There is often a great deal of wing flapping that happens inside the nest as babies start building up their pectoral muscles.

As their foot and leg strength develops with exercise, low perches should be added to the inside of the container. In this way, babies can perch when they wish and also stand flat-footed when they prefer.

As their distance vision improves, objects that stimulate vision can be added to the nursery walls. When possible, a view of the outdoors should be provided. Visual acuity continues to increase as the bird spends more time observing objects and movement outside of the nest box. For instance, immediately after opening their eyes, *Eclectus* nestlings will track food as it comes toward their eyes, but remain largely unresponsive to noiseless activities farther away. As the weeks progress, these birds track movements at greater distances. Just prior to fledging, birds can be seen scanning the horizon, (e.g., tracking an airplane's progress in the distant sky), and then quickly adapting their vision to objects presented at close range. Play behavior increases with developing visual acuity. McElroy describes a 6-week-old Moluccan chick that plays with a parent's molted feather in the nest box, flapping her wings wildly and rolling around as if she had another bird as a playmate.

A fledgling is a young bird that is learning to fly. In nature, fledging happens prior to weaning, which is logical when one realizes that a parrot baby must develop the physical strength and dexterity to learn controlled flight before it follows its parents to various and distant food sources. Only then is it sufficiently developed to achieve the complex manual dexterity necessary to eat on its own. Flight competence therefore precedes weaning in psittacine birds.

In the past, aviculturists automatically clipped the wings of baby parrots at their first attempt at flight. The popular belief was that the psittacines would not miss flight if never allowed to fly. However, in the last few years it has been recognized that fledging can make a marked difference in a bird's physical and emotional development, even when the wings are later clipped.¹⁷ Fledging is a normal part of psittacine development and allowing this stage to progress naturally makes the weaning process much easier.¹⁶ An excellent example of this phenomenon is the African grey parrot. African grey babies formerly were perceived as being awkward and prone to falling. Actually, this species is amazingly adept at flight and readily learns to maneuver in mid-air if given adequate opportunity. After all, wild babies that fall frequently surely could not survive. The African grey's reputation for clumsiness has more to do with early wing clipping than with any inherent lack of coordination.

The fledgling psittacine is a creature obsessed. Though still food-dependent, the fledgling often loses interest in eating. Flight becomes all-consuming and weight loss



Lori Reilly Walton, courtesy of Santa Barbara Bird Farm

Fig 3.2.6 | A blue and gold fledgling displays a partial wing clip that slows flight but does not curtail it. Graduated clipping done over a period of several days is recommended over a severe clip that ends flight abruptly.

is normal at this stage, as the youngsters lose baby fat and slim down to a more streamlined, aerodynamic figure. Inexperienced hand-feeders often are confused by this phase if they assume that the lack of interest in food indicates that fledglings are starting to wean. This is not the case. The process of weaning doesn't begin for another week or more after fledging, so caretakers should continue to hand-feed appropriate foods at every possible opportunity. Although requiring a dedicated area to avoid serious damage to the bird or one's environment, fledging confers significant developmental advantages. The young psittacine's coordination, muscular structure and social skills increase as the fledgling learns to interact with a wider variety of flock members once flight is achieved.

Should a new owner wish trimmed wings on his young parrot, a gradual wing clip is preferable to the abrupt curtailment of flight. Instead of a drastic clipping of flight feathers, graduated clips, several days apart, should be performed, gradually limiting flight (**Fig 3.2.6**).

THE WEANLING

"To wean" is defined as "to accustom to take food other than by nursing" and second as "to detach from a source of dependence."²² A weaned parrot is capable of survival with little or no guidance in procuring adequate nutrition. Weaned wild birds, therefore, find and supply themselves with a variety of nutritious foods in sufficient quantity.¹⁴ The best weaning process for psittacine companions allows eating skills to develop gradually over a period of several weeks. Unfortunately, many pet stores and breeders consider a baby parrot "weaned" as soon as it shows interest in eating on its own; which is a regrettable and potentially fatal misconception. The weaning process is a gradual process wherein a baby parrot learns where, what and how to eat. There are



Laura Price, courtesy of Santa Barbara Bird Farm

Fig 3.2.7 | A young female eclectus enjoys a meal of squash and the novelty of new foods. Just as in human children, messy eating and experimentation are part of the process of learning to accept and enjoy foods of various textures, shapes and tastes.

numerous motor skills necessary to accomplish this, and these take time to develop.

Psittacine parents assist in the weaning process by holding food in their beak and feet for their babies. Human caretakers can assist parrot weanlings by finger-feeding warm, wet food. Ideal foods for this technique include chunks of cooked squash, carrots or yams and mango. Weaning pellets, or the type of formulated diet that is to be fed when the bird is weaned, can be soaked and offered in this same manner (Fig 3.2.7). All foods are warmed and moistened in hot water or fruit juice. The temperature range is critical for maximum palatability and digestion. Foods should be warmed to 104 - 105° F (38-38.5° C). Candy thermometers work well for this and are available in any kitchen supply store.

Using a camera in the nest box of a pair of wild-caught Moluccan cockatoos (*Cacatua moluccensis*), the process of raising a youngster was videotaped for 11 months. Although the baby was noted to be typically noisy while being fed, it was never noted to cry for food or to get the parent's attention (K. McElroy, personal communications, 2002).

Conversely, Harrison's observation of a trio of black cockatoos in Australia depicted the parents and their young flying from tree to tree. While the parents located and ingested food, they ignored the crying of their accompanying youngster for 30 minutes. The youngster finally chose and ingested food on its own. This was obviously the final stage of weaning, as the baby was not easily differentiated from the adults.¹⁰

A possible explanation for variations of parental participation in feeding young after fledging may be reflected by the environmental conditions of the species.

Dissimilar environments might produce substantial disparities in the urgency of achieving food-independence. Development is faster in parrots from dry regions than in those from rain forests. This is because the period in which food is most abundant is shorter in an arid environment like the Australian hinterland than on an Indonesian island where there is considerably more tree cover.²⁵ Differences in parental post-fledging feeding have been noted among cockatiels, lovebirds, budgerigars and *Eclectus* sp. (Kavanau 1987).

Reasons for these differences are still speculative. Therefore, we must astutely analyze the circumstances associated with crying in the baby bird in order to respond appropriately.

VOCALIZATION

During a specific developmental period, young psittacine birds develop a loud, repetitive, plaintive call, which would, in the wild, signal parent birds to locate those fledglings. Key developmental events collide at this point: young fledglings learn to fly, navigate, land, come and follow and practice independent eating skills. Therefore, conscientious caregivers are challenged to carefully observe crying fledglings to determine what the cries signal. Does this young psittacine need comfort, exercise or food?

If comfort is needed, the bird should be held only until it settles down. If the bird needs exercise, playtime can be initiated wherein the fledgling is encouraged to try new physical skills such as flapping or climbing. If the bird is hungry, it should be fed a moderate amount of food and then shown how to forage to find accessible foods.

While some parent birds might actually let their babies cry in order to have them practice making a verifiable retrieval signal, this cry has a function separate from the cry of a hungry youngster. In no case should young fledglings be ignored or allowed to go hungry. Teaching a bird to whisper and to hum can be immediately rewarding and contribute to acceptable vocalization for years to come.

Selling Unweaned Parrots and Force-weaning

Avian veterinarians see a multitude of potentially serious medical problems when unweaned parrots are sold to inexperienced caregivers. Some cases of aspiration pneumonia and crop burns are treatable but some are fatal, and most are preventable through ethical breeding and sales practices. Many feel strongly that the practice of selling unweaned birds should be made illegal, as it is with puppies and kittens. However, should that happen, the fear is that baby parrots will be "force-weaned" in an effort to expedite the weaning process.

Force-weaning entails withdrawing hand-feeding when parrots are still begging for it, based on the belief that hunger will *force* the babies to start eating on their own. A multitude of behavioral problems may be associated with forced or stressful weaning.¹⁶

Baby parrots that are force-weaned often later become high strung, hyper-responsive to stimuli, prone to stress and rigid in their eating habits. When eating skills are not firmly in place and readily practiced, underlying undesirable behaviors manifest. Force-weaned African greys, for instance, seem much more prone to developing phobic behaviors later in life than do abundantly weaned African greys.²⁸ Cockatoos that are force-weaned often become chronic whiners, which may contribute to cockatoo prolapse syndrome. The large macaws, probably not truly “food-independent” in the wild until they are at least 6 to 9 months old, often are the victims of force-weaning. When macaws are force-weaned, they generally get into patterns of obsessive food begging, often with repetitive wing flicking and a typical macaw begging sound well into adulthood.⁴ Birds that are weaned prematurely will exhibit chronic begging behaviors. It is common for them to flap one wing and bob their heads for food while crouched down.¹ In contrast, properly weaned birds will run to a food bowl, investigate its contents, and select a morsel and consume it, albeit wastefully. The aberrant behaviors of force-weaned birds are assumed to result from deprivation during a critical period of their development.

THE JUVENILE OR PREADOLESCENT

The hallmark of this period of psittacine development is often the bird’s refusal to cooperate. Increased independence and increased athleticism both necessitate training and learning that is critical to the future development of the parrot and cohabitation with humans. Most of the medium and large species of parrots listed in the “Pets for Sale” section in local newspapers will be between 8 and 24 months of age (Fig 3.2.8). When properly reinforced for desirable behaviors, this need not be an overly stressful time for bird or owner (see Chapter 3, Behavior, Section I, The Natural Science of Behavior).

Juvenile Molt

Juvenile parrots often experience a heavy and uncomfortable molt that may make them irritable when touched. Molting parrots can be testy at any age, so one must assume that they are uncomfortable. Owners should be cautious when petting their birds, as it is easy for human fingers to accidentally inflict pain. Gentle stroking with a feather or toothbrush is suggested at these times, as this may decrease the bird’s discomfort.⁶ Frequent bathing also can help during this period; either self-bathing,



Courtesy of Santa Barbara Bird Farm

Fig 3.2.8 | A juvenile Moluccan cockatoo in full display. Juveniles can be a challenge, but less so if clear, consistent controls and limits are established for their behavior.

enclosure in a bathroom with the shower running to create high humidity, or exposure to actual, warm rainfall. Increased humidity will soften the keratin sheaths of pinfeathers and enable them to open more easily.

Bathing Skills

Bathing skills are critical for good feather and skin health, and a thoroughly soaked parrot is inspired to healthy feather grooming. Many parrots are rain forest species that evolved in environments where annual rainfall is measured in feet, not inches. Even those from arid regions often are found within flying distance of water pools or rain-drenched microhabitats where bathing opportunities abound. With artificial heat and air conditioning, human environments are seriously dry, so periodic soakings are needed to counteract these conditions. Bathing skills are important for young parrots to learn, and caretakers must be patient and creative in discovering an individual bird’s preferred bathing technique. Some parrots prefer pool bathing in a shallow dish, and some leaf bathe in wet kale, romaine and chard. Others prefer rain bathing via a hand-held sprayer, the human’s shower stall, a garden hose or natural rain on warm summer days. It is important for caretakers not to frighten a young parrot with the introduction to bathing. This may create fears that can be difficult to overcome.^{11,12} Additionally, parrots who bathe or shower with vigor also are adept at exercise because the two vital functions reinforce each other. (*Ed. Note: Some believe that blow-drying should be vehemently discouraged, as this can negate the positive effects of bathing by drying out feathers and skin. Others disagree, believing that blow-drying is acceptable if it is tolerated by the bird and carefully regulated to prevent burns or overheating.*)

Exercise

Exercise is important to parrots of all ages, and it is



Courtesy of Santa Barbara Bird Farm

Fig 3.2.9 | Under close supervision, wing-trimmed fledgling macaws play in juniper bush while showering. Exuberant exercise is critical to physical and psychological health for psittacines as well as functionally decreasing problems in the captive environment. Tired parrots tend to be quiet parrots.



Layne Dicker, courtesy of Santa Barbara Bird Farm

Fig 3.2.10 | Prey species like psittacines need the choice to be visible or not, so providing hiding places can greatly decrease stress for any age of psittacine. With his softened face feathers, this fledgling yellow-naped Amazon displays the comfort level allowed by providing such choices.

especially important for juveniles. Parrots evolved to fly many miles each day in the wild, and this inherent need for exercise is critical for success in the captive environment. Flying and/or flapping exercises are a daily necessity, and caretakers should encourage these activities in their parrots. Exercise also is enhanced by the use of movable perches and the provisions of branches, rather than the thick, stationary perches (Fig 3.2.9).

Juveniles should be encouraged to chew, shred and otherwise pulverize a variety of destructible toys. Natural branches from non-toxic, non-sprayed trees, complete with bark and leaves, are ideal for parrots, and caretakers should be encouraged to find a constant source of such things as bamboo and willow for their birds.

The Human Environment and the Companion Parrot

Cage Placement

The ideal area in which to place a bird's cage is dependent on the personality of the specific bird. Most parrots enjoy being in the center of human activity, but care should be taken to allow for the instinctive insecurities of a prey animal. Placing a cage against a solid wall provides security, but many parrots enjoy a window view. Cages may be placed partially against a window and partially against a solid wall to provide the advantages of both security and stimulation.

Extroverted parrots that are caged away from human activities often scream excessively. Anxious, skittish parrots may start showing feather-destructive behaviors if

caged in the middle of a high-traffic area, especially if the bird is startled by people appearing without warning.

The height of the cage also is important. Many parrots appear comfortable when allowed to perch at human chest or shoulder level. If caged too low, an insecure parrot can become seriously frightened. If caged too high, headstrong individuals may be more difficult to handle. Hiding places also are important, so parrots are allowed the choice of whether or not to be visible (Fig 3.2.10). Hiding places can include branches wired to the outside of the cage to produce a "thicket-like barrier" (M.S. Athan, personal communications, 2000), a fabric cover over one corner or wooden boxes attached to the side of the cage.

Environmental Enrichment

Because of the psittacine's need to forage and shred, suitable objects are necessary components of the enriched environment. Destructible objects, such as safe branches with leaves and bark intact, paper cups, tongue depressors and cotton-tipped applicators, also can keep parrots quietly and inexpensively absorbed.⁷ One author's own blue and gold macaw hen (*Ara ararauna*) methodically works its way through an old phonebook once or twice a year, spending several weeks of intensive work to render the entire publication into thumbnail-sized pieces. This activity appears to diffuse aggression.²³

Four categories of parrot toys have been described: chew toys, climbing toys, foot toys and puzzle toys.⁹ A small number of stimulating toys, rotated on a weekly basis, seems to hold a parrot's interest. One toy from each category might satisfy most parrots' need to play, investigate and destroy, and also leave sufficient room

for the bird to move around its cage. In a very large cage or aviary, toys might be placed randomly about in order to encourage the parrots to use their entire territory.

Foraging

A recent study demonstrates the value of environmental enrichment in psittacine birds.²¹ The use of foods and toys for foraging activities and environmental enrichment is a long-standing tradition in many companion and avicultural situations. Foraging is encouraged when foods are offered in new and challenging ways, such as stuffing an empty tissue box with greens or hiding a food within view but not within reach, eg, inside a puzzle toy. Parrot owners must devise methods to keep their birds occupied, especially during the long hours spent alone.

Toys also are useful as deflectors of aggressive energy, especially with species like Amazons. These birds may interact roughly with their toys, dissipating potentially aggressive energy.

Adequate Sleep

Sleep is another important consideration, especially with a young parrot. The actual sleep requirements and the presence of active (REM) vs. slow-wave sleep have not been determined in various psittacine species. In dogs the “active sleep-quiet sleep,” or slow-wave (REM) sleep cycle, is only 20 minutes as compared to 90 minutes in humans. In the absence of controlled data on normal sleep rhythms, extrapolation and observation must be used to tentatively determine a pet bird’s sleep requirements. As tropical and neotropical species, most companion parrot species evolved in an environment that provided 12 hours of darkness and daylight, year-round.

As previously mentioned, due to their social nature, parrots often are caged in high-traffic areas. This places them in locations with extended hours of noise and artificial light. When questioned about sleep, owners generally believe that covering the bird initiates sleep. More accurate information would be derived from asking what time the noise ceases and the lighting is extinguished in the evening.²⁹

Rather than declare major rooms off limits past a certain hour to give a parrot more sleep, veterinary ethologist Andrew Leuscher originated the concept of the “sleep cage.” A sleep cage is a small, sparsely equipped cage that is kept in a room that is unoccupied by humans at night, and it allows parrots to be put to bed at a reasonable hour. This allows them to get the hours of dark and uninterrupted sleep that they appear to need. Behavioral manifestations of sleep deprivation in parrots include hyperactivity, aggression, excessive screaming (especially after sunset) and feather-destructive behaviors such as plucking.

TRAINING THE YOUNG PSITTACINE

Young parrots need reinforcement for appropriate behavior. Parrots, like other animals, will perform best for positive reinforcement and will soon discard behaviors for which they receive no reinforcement. Without training, parrots do not understand how to be good companions and people do not understand how to be good caregivers.

Activities appropriate for the young bird to learn include physical lessons such as swinging, flapping and climbing. With these athletic adventures, young birds learn to burn their calories in appropriate ways and don’t have massive amounts of energy left over at the end of each day for screaming, pacing or hyperactivity. In addition to physical activities, young birds should be encouraged to develop social skills that allow them to take food from human hands, to play with toys with various people, and to step up on either an offered hand or a hand-held perch. Vocal skills also benefit young psittacines who are encouraged to modulate their contact calls with more pleasing and less repetitive, less plaintive vocalizations, such as soft chortling and whistles.

The owner should train the young parrot to accept handling that facilitates life as a successful companion, such as entering and exiting the cage and stepping up and down upon request. Ideally, parrots should be trained to tolerate procedures such as grooming; this can greatly minimize stress but is difficult for most people to accomplish with their pet bird.

Parrots that do not receive rudimentary training are apt to lose their homes for two reasons: (1) caregivers tend to lose interest in “unmanageable” birds; (2) untrained parrots shape their own behaviors into less compatible actions such as screaming and biting.

Parrots should not be making decisions, such as whether or not they wish to go back in their cages or whether or not they wish to get off of the owner’s shoulders. Parrots that learn to respond to reasonable requests are those that consistently benefit most from positive reinforcement, and caregivers should be aided in finding positive ways to teach their birds.

It is also important to understand that parrots are independent creatures. While parrots should step on the human hand on command when they exit their cages, the act of compliance with this command should be made a positive experience. For instance, rather than wait until the last possible second to return birds to their cages when owners are stressed and pre-occupied by being late for work, they will have greater success if they choose to re-cage their parrots earlier under more relaxed circumstances. For example, to remove a parrot

from its cage, the owner may approach the cage and ask the bird if it wants to come out. Observation of body language readily answers this question. If the answer is affirmative, the parrot generally moves forward, and/or picks up a foot. If so the owner opens the cage door and uses the “Up” command to which the bird has been trained. A negative response is equally obvious—the bird moves away and/or turns its back. If the response is negative, the interaction is ended. No command has been given, so no control has been lost.⁸

Birds vary in their reaction to food as a motivator for behavior. Most owners cannot and do not wish to withhold food from their birds in order to stimulate food-motivated behavior. However, some who manipulate delivery of a favorite food report surprisingly good results. Therefore, rewards should be selected for their efficacy in eliciting and reinforcing desired behaviors.²¹

Juvenile Behavior Problems

For detailed analysis of the various problem behaviors seen in companion parrots, refer to Section III of this chapter. Many of the problems seen in older birds have their foundation in mishandling of the youngster.

Inappropriate behaviors become problems when they are inadvertently reinforced, such as the baby that lunges at a stranger, only to be hugged and soothed (and therefore rewarded for aggression) by the owner. Some birds will hold onto their owner, or their cage door, as the owner attempts to return them to their cage. This should be recognized as early defiant behavior and addressed.

SUMMARY

Aviculture undoubtedly will continue to raise psittacine birds destined to become human companions as long as humans demand them. Accordingly, the need continues for examination of psittacine development. Appropriate diets, stimulation, security, regular and consistent sleep, appropriate lighting and sufficient exercise are important for the development of young parrots. Fledging should be part of the optimal psittacine development. Training techniques that enhance success in the human environment include basic handling skills (such as cage entrance and exit competence). When we properly educate ourselves, we can raise young psittacines that have an excellent basis for success in their captive environment.

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