How to Prevent Behavior and Welfare Problems in Parrots: 40 Years and Counting

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Abstract: Preventing behavior and welfare problems in parrots requires acknowledging their needs as non-domesticated, highly intelligent animals with advanced cognitive abilities and social behaviors. Proper housing, nutrition, enrichment, and care are essential, along with opportunities to spend time outside the cage and outdoors. Climate control must be adapted to the species. It is important not to underestimate parrots' sensitivity to human body language and attitudes, or to overlook the significance of lack of privacy as a serious stress factor. Ensuring that parrots are approached and treated with respect—thereby fostering mutual respect and trust—is essential. When parrots are not tame or do not feel comfortable in the presence of their caretaker, behavior and welfare issues are predictable. A 5-step behavioral protocol can be used to reduce fear and stress, foster mutual respect and mutual trust, and shape desired behavior by acknowledging parrots as intelligent prey animals. Definitions of normal, undesired, desired, enforced, and displacement behavior provide tools to understand and manage parrot behavior as well as our behavior. Displacement behavior can be used to prevent and resolve conflicts. Wing clipping may provide more freedom outside the cage and outdoors, promoting social interaction, while acknowledging the need for parrots to be part of the family as the most important form of enrichment. Having a parrot on the shoulder can result in insecure behavior.

Introduction

Preventing behavior and welfare problems begins with optimizing housing, feeding, and caring for parrots in a way that fulfills their needs in captivity. It means creating an environment in which parrots feel comfortable and experience being approached with respect for their intelligence, cognitive abilities, and social skills as non-domesticated prey animals.

Welfare Problems in Parrots Require Acknowledging Their Basic Needs

It is important to acknowledge that malnutrition is a major cause of insecurity, which in turn leads to health, behavior, and welfare problems. In the author's experience, the Association of Avian Veterinarians (AAV) was founded in 1980, and still, after 45 years of AAV, malnutrition remains the leading cause of health and welfare issues in parrots. While proper balanced certified organic nutrition is available, it is not yet universally acknowledged as the standard of care. In my experience most of the birds in The Netherlands are still eating seed mixtures that are nutrient deficient and, as most of the pelleted diets, not certified organic. Malnutrition can be considered as one of the most common captivity-related health and welfare problems. The serious consequences of malnutrition were documented as long ago as 1979. As noted by Prof. Zwart, vitamin A deficiency in parrots is one of the best-known and most common causes of serious health problems.[1,2] Health problems are a major reason for insecure behavior and welfare problems.[3-5] We must also acknowledge that when dealing with vitamin A deficiency caused by malnutrition, we are usually dealing with a combination of deficiencies.

Lack of sunlight, lack of privacy, and lack of positive social relationships all contribute to behavioral and welfare issues, and ultimately to health problems. Climate control is essential to prevent health and welfare problems. For instance, having a budgerigar from the Australian desert is very different from having an Amazon parrot from the tropical rainforests of South America. Temperature and humidity must be adjusted based on the species kept.[6] As established in poultry, optimal ventilation is crucial to prevent respiratory and welfare problems.[7]

In general, there is still a lack of awareness that parrots are non-domesticated prey animals being kept under unnatural conditions in captivity. These highly intelligent birds possess remarkable cognitive abilities. Without understanding their normal behavior, and while underestimating their intelligence, a wide variety of behavioral problems are likely to occur, depending on the species, the individual bird, and its circumstances.[8]

Parrot behavior is influenced by several factors, including hereditary. In nature, behavior is based on innate characteristics and shaped by observational learning, experience, intelligence, and cognitive processing. Behavior is ultimately driven by survival, both individually and as a species. To understand behavior, we must study ethology—the science of animal behavior—by observing how animals act in the wild. In doing so, we also learn about our own behavior acknowledging that we are part of the same animal kingdom.

Parrots are anatomically and behaviorally adapted to life as prey animals. A defining anatomic trait is the placement of their eyes on the sides of their heads, which allows them to observe their entire environment. In contrast, predators such as dogs, cats, owls, and humans have front-facing eyes, enabling binocular vision. Because of this, parrots may interpret our body language and attitude as threatening. Insecurity, stemming from a fear of predation, is a normal and essential aspect of their behavioral repertoire. Humans who smile, show their teeth, or speak animatedly may be perceived as predators. Failing to understand the impact of our predator-like characteristics can lead parrots to develop insecure or defensive behaviors.

Parrots are intelligent birds with exceptional cognitive skills. Studies show that parrots understand human posture, intention, and attitude. They learn by observing other birds, animals, and humans in their environment. Parrots evaluate and process information, draw inferences, and behave accordingly. In many ways, interacting with parrots is like interacting with children; they are eager to demonstrate what they've learned. The Model/Rival technique developed by Irene Pepperberg exemplifies this intelligence and the power of observational learning in parrots.[8,9] On a personal note, the author offers an anthropomorphic reflection: From the parrots' perspective, it must be frustrating to be admired only for their beauty or cuteness, rather than being appreciated for their intelligence, cognitive abilities, and social skills. Showing respect for parrots and acknowledging their evolutionary history spanning over 60 million years is fundamental to prevent behavior and welfare problems.

Definitions of Various Behaviors as Tools to Understand Animal and Human Behavior

These definitions have been developed by the author, with the exception of the definition of displacement behavior. The definitions serve as tools to understand and prevent behavior and welfare problems in parrots, other animals, and humans.

Normal behavior

Normal behavior refers to species-typical, individual behavior that is not intended to manipulate the caretaker or elicit a specific response. It is behavior that does not aim to create a problem. Examples include eating, drinking, grooming, playing, sitting in the cage, or perching on a hand. Normal behavior is not motivated by the desire

to get a treat or reward or any attention/response. In the experience of the author, rewarding normal behavior may lead the bird to develop additional behaviors intended to attract attention from the caretaker. These new patterns, if aimed at prompting a reaction, can be classified as undesired behavior. For this reason, withholding reinforcement for normal behavior can be an effective way to prevent the development of undesired behavior.

Undesired behavior

Undesired behavior is intended to manipulate the caretaker's behavior, elicit a response, or even create a problem. This may include screaming, talking, biting, or feather picking. Any human response such as fear, frustration, anger, concern, or even laughter can be interpreted by the bird as a reward, reinforcing the undesired behavior. Consequently, acknowledging that a bird's behavior is problematic can actually increase its occurrence. Not rewarding undesired behavior is important to prevent it from becoming entrenched and escalating into habitual or maladaptive behavior patterns.

Desired behavior

Desired behavior is created and shaped by the caretaker, acting as a positive role model in a non-intimidating manner, as if the parrot is not there. Desired behavior is not the result of a direct command or request, nor is it behavior motivated by the expectation of a treat. Desired behavior is not the result of fear for punishment. Examples include the parrot showing attention and curiosity toward positive activities by the caretaker, such as talking about novel toys or interacting with its surroundings in a constructive way. Observational learning can be considered as desired behavior. Rewarding desired behaviors in a non-intimidating way is showing respect for the bird. This approach fosters self-esteem, mutual respect, and trust, while simultaneously reducing the likelihood of undesired behavior. In effect, reinforcing desired behavior prevents undesired behavior.

Enforced behavior

Enforced behavior arises from coercion, commands, or external motivation such as treats or fear of punishment. It may also be the result of social pressure or force. In humans, financial incentives often play a similar role in enforcing behavior. Enforced behavior may also be the outcome of fear of punishment. Rewarding enforced behavior is the opposite of rewarding desired behavior. It diminishes autonomy and can undermine mutual respect and mutual trust, particularly in intelligent, socially complex animals like parrots.

Displacement behavior

Tinbergen, one of the founders of ethology, described displacement behavior in gulls during conflict situations involving territorial behavior in breeding colonies. When a gull must choose between fighting or fleeing but neither option is viable, it may instead engage in seemingly unrelated actions such as preening, pulling at grass as if gathering nesting materials, or looking away from a competitor.[10-13] This behavior serves to de-escalate tension. In some instances, a freeze response may also occur.[14] Displacement behavior represents an alternative to the typical fight-or-flight response when those options are not possible, such as when a bird is confined in a cage. Displacement behavior is described as the result of two contradicting instincts in a particular conflict situation. Similarly, parrots in both natural and captive environments may exhibit displacement behavior in response to conflict or stress. While these behaviors may appear unrelated or out of order, they often lead to a shift in the social dynamic for instance, triggering displacement behavior in another parrot and de-escalating the conflict situation. Typical examples of displacement behavior in parrots include nail-biting, scratching, grooming, wing-flapping, tail-shaking, head-shaking, or tilting the head to look upward. While grooming and preening are normally associated with comfort and well-being, they can also emerge as displacement behaviors during conflict situations.[15] If caretakers respond to displacement behavior in ways that are perceived as

rewarding, such as offering attention or comfort, this may inadvertently reinforce the behavior. Over time, this can transform a normal stress response into undesired behavior. Displacement behavior is most frequently observed when parrots, as prey animals, are approached by humans in an intimidating way. For example, face-forward with forward-facing eyes, which mimics the typical gaze of a predator, such as a dog, cat, owl, or bird of prey. It is also common in parrots exhibiting territorial behavior, particularly when perched atop or inside their cages. In these situations, it is essential to understand how parrots perceive and process sensory information. Research suggests that parrots engage in complex information processing, meaning they do not merely react reflexively to stimuli. They interpret their environment and choose how to respond.[9,16,17] Failure to recognize displacement behavior, or responding to it inappropriately, can lead to the development of abnormal repetitive behaviors, also known as maladaptive behaviors, such as feather destructive behavior. These may persist even after the original conflict trigger has disappeared. The expression of displacement behavior likely has a genetic component, which may explain why some species are more prone to developing feather-destructive tendencies.[8] In addition, the way displacement behavior is displayed is influenced by environmental factors and early learning experiences. For this reason, hand-rearing baby parrots is considered problematic; young parrots must observe their parents to learn normal behavioral patterns, including appropriate displacement behaviors in conflict situations.[20,21]

How to manage displacement behavior

It is vital to recognize and validate displacement behavior as normal behavior in a perceived conflict situation. The bird is coping with stress in the only way available. Any direct response in that moment, whether positive, negative, or reassuring, may inadvertently reinforce the behavior and contribute to maladaptive outcomes. The most effective approach is to show displacement behavior, being in the presence of the parrot, avoiding reacting, as if the parrot is not there. By doing so, the caretaker neither escalates the conflict nor rewards the displacement behavior. Recognizing and appropriately navigating displacement behavior is a cornerstone of respectful, informed avian care. To prevent undesired behavior, it is crucial not to reward displacement behavior, intentionally or unintentionally. Preventing undesired behavior begins with awareness, followed by showing displacement via a non-reactive presence.

Preventing Behavior and Welfare Problems by Implementing the 5-Step Behavior Protocol

The 5-step protocol has been developed as a tool to create mutual respect and mutual trust. The most important aspect of working with parrots is the attitude of the person caring for them. A respectful, relaxed, positive and informed approach forms the foundation of showing respect. The following 5-step protocol is designed for veterinarians and caregivers and can be applied to any parrot (animal or child) including individuals already exhibiting behavior or welfare-related concerns.

Step 1. Become a role model, demonstrate being happy and comfortable, while having no negative intentions in the presence of the parrot.

Begin by acknowledging that parrots are prey animals. Avoid direct eye contact, which can be perceived as threatening. Instead, turn your body slightly or show your back. Allow the bird to observe you from a safe distance, as though it were an audience member watching a play. Relax your posture and engage playfully with nearby objects. Toss and catch a parrot toy, fiddle with a pen, tear up paper, or gently rub a towel on your face. These actions should not be directed at the parrot but performed neutrally, as if the bird is not present. Parrots are more likely to feel at ease with people who appear comfortable around birds and with themselves. Your behavior, whether confident or nervous, communicates crucial information to the parrot. By playing a role and creating a positive, interesting, and predictable environment, you are creating desired behavior.

Step 2. Reward the desired behavior created by Step 1.

Through your attitude in Step 1, you have allowed the parrot to feel comfortable, safe, and curious. The bird's attentive observation of you is a reason to reward it, by telling the bird that it is the most beautiful creature on this planet or expressing appreciation for its presence. By rewarding the bird in a non-intimidating posture, you strengthen the parrot's sense of safety and connection.

Step 3. Become a teacher, acknowledging and rewarding the intelligence of the parrot.

Acknowledge and respect the parrot's intelligence by enriching its environment with verbal descriptions of what it can see: birds in trees, colorful toys, the texture of objects, and other items. Describe even its own body parts, like the beak or tail, to help build associative learning. Speak as though the parrot is not present. This technique, based on observational learning skills, allows parrots to absorb information without pressure. Research by Pepperberg has shown that parrots may eventually request labels for new items in their environment.[17] Reward this curiosity gently and avoid a direct gaze, which may be experienced as confrontational.

Step 4. Allow the parrot to learn that it may participate and explore.

Offer the bird the opportunity to engage by showing that it may touch your pen, toy, towel, or paper. It is not uncommon for parrots to reach out gently with their tongue being motivated to touch. Encourage exploration by offering small, non-threatening items and praising each positive action. You may also offer your hand, tell the bird that it may step up. This should not be framed as a command or a way to earn a treat. Instead, it creates an internal motivation to step-up that builds confidence and trust.

Step 5. Build resilience and acceptance through mutual respect and trust.

At this stage, mutual respect and trust have typically been established. The bird feels safe in your presence and is more open to new experiences. If the bird shows fear of an object like a towel, or a setting such as the examination room, do not reassure it. Reassurance in that moment can function as a reward, reinforcing the fear response. Instead, begin again at Step 1, being happy and relaxed, and follow the protocol. Soon, the bird will recognize that the situation poses no threat. This process fosters self-esteem, enabling the bird to confidently face new situations such as a clinical examination, blood draws, grooming, wing clipping, gentle toweling, and more.[8] In the experience of the author, it is amazing to see that birds cooperate during handling or procedures like nail clipping or grooming the beak.

Preventing, Dealing With, and Redirecting Undesired Behavior and Welfare Problems

Preventing and dealing with undesired behavior and welfare problems requires understanding the causes of undesired behavior, seeking a diagnosis. One must endeavor to understand the reason for the behavior as well as the consequences of that behavior. This includes evaluating the environment, the responses the parrot experience and natural instincts of parrots as intelligent, social prey animals. We need to learn to look through the eyes of the parrot to understand its behavior. It is important to consider that in many cases, undesired behavior in captivity originates as the result of rewarding normal behavior. It is important to consider that our behavior, attitude, and mindset can be important factors contributing to behavior and welfare problems.

When dealing with undesired behavior, it is crucial to understand that any response, whether positive, negative, emotional, or even subconscious, can serve as a reward based on the highly developed cognitive abilities of parrots. Even ignoring a behavior can reinforce undesired behavior, because ignoring is experienced as a negative response. Ignoring is the opposite of showing displacement behavior. The key is to avoid unintentionally rewarding undesired behavior.

Preventing behavior and welfare problems begins by ensuring optimal health and welfare by providing certified organic pelleted food, access to sunlight and fresh air, opportunities for exercise, and an enriched environment that encourages the bird's intelligence and natural behaviors. This includes toys and food that stimulate foraging.

Providing privacy is also vital. Using branches with leaves in and around the cage creates hiding spots and a sense of security. Positive social interactions with other birds, animals, and humans, such as participating in walks, bike rides, picnics, or family visits with appropriate safety considerations, can prevent both undesired behavior and welfare problems.

Natural climbing opportunities like offering flexible branches of various diameters to activate and support muscle development and balance, should be provided for exercise. In nature parrots are exploring in the trees, looking for food and even sleeping on flexible branches. These branches also satisfy the bird's instinct to chew and explore.

Understanding a bird's attachment to its cage is important. The cage may be seen as a nesting site, triggering territorial or reproductive behavior.[22] The only time in nature when parrots spend day and night in one spot is during the breeding season in and around their nesting site. To prevent the cage from becoming a trigger for hormonal activity, it is important to have the bird outside the cage and outdoors as much as possible. It is important to provide a separate sleeping cage in a different room, where the parrot can sleep 10-12 hours in complete darkness. In nature, birds do not sleep in the same location where they forage, drink, or spend their time during the day.

Recognize that birds feel more insecure when they are perching in a higher position. It is, in the experience of the author, a common reason for insecurity and aggressive, defensive behavior that looks like dominant behavior when parrots are allowed to sit on the shoulder or when the parrot is sitting on the top of the cage. Owners are amazed when the parrot, that was sitting on the shoulder, feels comfortable sitting on my hand without the intention to climb to my shoulder. Holding the bird on your hand, similar to the way falconers have worked with birds of prey for thousands of years, fosters a better dynamic. The relationship between falconers and their birds of prey can be considered as based on mutual respect and mutual trust.

Redirecting undesired behavior can be accomplished by using displacement behavior. This creates a shift, redirecting the bird's attention away from undesired behavior toward curiosity, making the bird feel comfortable. By using displacement behavior, you do not reward the undesired behavior and instead you create desired behavior. According to the author, this has been successfully applied both in the wild and in clinical practice. The first step of the 5-step behavior protocol is basically showing displacement behavior. This way you create a reason to reward the bird at Step 2 for the created desired behavior; following it up with Step 3 and 4, will prevent or redirect undesired into desired behavior within seconds. This method enables redirection, builds trust, acknowledges and reinforces the parrot's cognitive abilities and intelligence, and is the opposite of encouraging maladaptive responses.[8]

Wing Clipping to Prevent Behavior and Welfare Problems

In nature, flying is essential for the survival of parrots, with the exception of the kakapo (*Strigops habroptilus*). Flying enables parrots to find food, water, and a safe place to sleep. It is also a primary means of escaping predators; flying in flocks provides additional protection. For parrots in captivity, particularly those kept as companion birds, flight is no longer essential for survival. Most parrots are kept under extremely unnatural and bird-unfriendly conditions. They are often confined to small cages or aviaries, primarily because they can fly. Under these conditions, they are unable to fly and spend most of their lives behind bars sitting on stiff horizontal perches. This situation can be compared to a dog living in a small kennel or chained outdoors. Both parrots and dogs subjected to such confinement are prone to predictable behavior and welfare problems. As avian veterinarians, we have a responsibility to safeguard the health and welfare of parrots kept under these extreme and unnatural conditions. A critical aspect of welfare is social integration of parrots as flock animals; they benefit greatly from being considered as part of the family flock. Spending time outside the cage, and especially outdoors with their caretaker or human flock, represents a major enrichment in their lives. Within the Consultancy Practice for Birds, wing clipping may be recommended for safety reasons, but more importantly, it is recommended because it enables parrots to experience more freedom under unnatural circumstances. It allows them to be outside of the cage and to engage in social interactions, both indoors and during daily outdoor activities with their caretaker. In the author's experience, wing clipping, when performed using a parrot-friendly attitude and integrated into behavioral consultations, can help prevent behavior issues and solve welfare problems. When parrots experience being part of the family, the likelihood that they will end up in parrot rescue facilities is significantly reduced. The question of whether wing clipping is ethical seems obvious. Since I was a young boy, I have been a birdwatcher. Watching birds fly in nature has always been fascinating. As an avian veterinarian, I have seen parrots in small cages and small aviaries in which they cannot fly, because they can fly. Most parrots are kept as prisoners, behind bars and caretakers as their guards. Those parrots are not part of the family and do not experience any freedom at all compared with the dog or the children in the same family. Many parrots that are kept as companion birds are hardly or even never outside. Sunlight can be considered as one of the basic rights of prisoners and many parrots don't even get that right. It was reason to start organizing parrot walks and parrot picnics in 2000 for my clients to emphasize that parrots must be part of the family, inside as well as outdoors. The first question to ask is whether it is ethical to have parrots as non-domesticated animals in captivity under extreme unnatural circumstances in which they cannot fly and they are cared for by caretakers who are not aware of their basic needs. I don't think that is ethical. It is the responsibility of avian veterinarians to look for ways to improve the health and welfare of parrots that are kept in captivity under bird-unfriendly circumstances. In my experience wing clipping can be a major tool to prevent behavior problems and to enhance the welfare of companion parrots.[8]

Hand Rearing Baby Parrots

As discussed during the roundtable discussion at the AAV conference in New Orleans in 2011, the necessity for hand-rearing baby parrots in the past was the result of management failures concerning housing, nutrition, and care, complemented with a lack of knowledge about the natural breeding behavior of parrots. It started as a necessary evil. Over the years, hand-rearing baby parrots became a commercial activity because of the experience that females produced more eggs, meaning more babies to sell.

The Dutch Parrot Foundation, supported by the Consultancy Practice for Birds, has successfully campaigned in The Netherlands against the hand-rearing of baby parrots. The outcome has been that since July 1, 2014, it is illegal to separate a baby parrot from the parents until the baby is fully weaned (i.e., able to eat completely on its own). The new legislation puts parrots on the existing list with dogs, cats, rabbits, chimpanzees, and other

species for which the timing of separation from parents has long been regulated. During the past 10 years it has become obvious that less and less young parrots are offered because of the typical behavior and welfare problems, related to hand rearing.

The regulation is based on data from the past 20 years showing the negative consequences of separating baby parrots from their parents. A range of behavioral and welfare issues have been recognized as consequences, particularly when separation occurs before or during the first imprinting phase. Some behavior problems emerge months or even years later, especially when the bird becomes reproductively active. Insecure behavior, phobic reactions, biting, feather picking, and self-mutilation are well-documented outcomes.[19,20] Early enrichment is essential in maintaining healthy interactions later in life.[21]

Conclusions

Parrots are among the most charismatic, intelligent, and socially complex animals on the planet. When provided with a suitable living environment, they can enjoy a remarkably long life. Understanding how to prevent behavior and welfare problems is inseparable from understanding how to address and resolve them. Prevention begins with acknowledging that when parrots are not tame or do not feel safe in the presence of their caretaker, behavior and welfare issues are likely to arise. As caregivers and avian veterinarians, we must learn to view the world through the eyes of parrots as prey animals, navigating a world not designed for them. This requires us to recognize that we, as humans, possess the characteristics of predators, and must consciously adjust both our body language and our mindset. We prevent behavior and welfare problems by meeting parrots' fundamental needs: providing complete and balanced certified organic nutrition. Malnutrition remains a leading cause of health, behavior, and welfare concerns. Offer meaningful enrichment, including access to privacy and ensuring time spent outside of the cage and outdoors, and integrating the parrot into the social life of the family. In the author's experience, this is the most profound enrichment of all. The implementation of the formulated definitions of behavior and the 5-step behavior protocol offers practical and effective tools to build mutual respect and mutual trust between parrots and their caregivers. These tools foster relationships that prevent behavior problems and safeguard welfare. Preventing problems of health, behavior, welfare, and actively contributing to the conservation of parrots in the wild, are core responsibilities of the avian veterinary profession. Parrots' behavior patterns provide feedback on the quality of care they receive, just as students reflect the effectiveness of their teachers. In this way, parrots have been the author's greatest teachers, offering correction, challenge, and insight. For this, the author is deeply grateful.

If Not Us, Who? If Not Now, When?

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