Techniques to Evaluate and Improve the Welfare of Raptors

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It is undeniable that the human-raptor relationship has a rich and complex history. Raptors have hunted alongside humans and have been a source of inspiration and fascination for thousands of years. Habitat loss, hunting, pesticide use, and heavy metal poisoning threaten these keystone species making them popular ambassadors at zoos and facilities all over the world. Raptors can help reconnect people to nature and promote caring attitudes of the natural world. Special considerations must be made to evaluate and improve the welfare of raptors through exceptional husbandry and training.

With a humble start, we've had ample room to improve the welfare of our raptor ambassadors at Carolina Raptor Center. Like many facilities, most of our native raptors were deemed non-releasable and rescued from our rehabilitation clinic as adult, parent-reared birds. As a result, many of our birds experienced reduced welfare due to chronic pain, chronic stress, and poor training techniques. As we evolved, we have found ways to evaluate and improve welfare with regards to their physical, mental and emotional states.

Welfare should be accessed on a continuum throughout a bird's life. Daily observations and semi-annual welfare assessments have become important tools to evaluate the physical and behavioral features of an animal and its habitat. Our Welfare Assessment asks a series of questions to gather factual, objective information to help identify problems and areas of improvement. In my experience, the most common factors that can contribute to reduced welfare in raptors are the lack of choice and control, chronic stress, and chronic pain associated with injuries that prevented release.

CHOICE AND CONTROL

Control is defined as the power to influence the behavior of the course of events. While similar to control, choice is defined as an act of making a decision when faced with two or more possibilities. How can we provide raptors with control in their daily lives, while also empowering them to make choices to engage and participate in training sessions? Below are questions we ask ourselves to assess a bird's level of choice and control.

Welfare Questions	**Comments**
Is the animal able to navigate and move around freely?	
Is positive reinforcement training being used successfully as opposed to force, coercion, or learned helplessness?	
Is the bird free-lofted and able to make use of all available space and perching?	
Does the bird display approach behaviors to initiate training sessions?	
Does the animal have time and a place to escape and rest undisturbed?	
Does the animal have a voice and ability to refuse participation in a training session?	

Raptors are the only birds that are able to physically withstand the use of traditional falconry equipment due to their powerful legs and feet. Tethering is a common practice in which anklets/almeries are attached to a raptors tarsometatarsus combined with, jesses, swivel, and leash, and then attached to a trainer's glove or perch. Tethering can provide ease, efficiency, and

safety to the bird and trainer during training sessions and educational programming. However, if used incorrectly, equipment can negatively impact welfare by limiting their decisions and control aspects of their daily life.

As a trainer, clear and honest communication is essential to all successful training sessions. Trainers can communicate to birds by using prompts, cues, bridging stimuli, and reinforcing consequences. Developing sensitivities to raptor body language is just as important, allowing them to guide all interactions. A clear indication of choice is when a raptor approaches the trainer to initiate training sessions. CRC uses a "working perch" as a tool to provide choice that allows for clear communication between the raptor and trainer. A "working perch" is simply the perch where all training sessions begin. We have found that raptors quickly learn to approach the "working perch" indicating their willingness and motivation to participate in a training session. Raptors can be empowered to become voluntary participants in all aspects of training including step ups, crating, and weighing as well as a variety of husbandry and medical procedures.

Flying away, or stepping away, from a training session can be indicators of escape and avoidance behavior. It is also possible to observe more subtle behaviors that occur before escape responses that allow for better communication between raptor and trainer. Eye changes, feather shifts, or slight head movements may be all that's needed to encourage a trainer to make adjustments. Picking up on subtle behaviors can prevent aggression and/or injury in free-lofted raptors and avoid bates in tethered raptors. Allowing a raptor to leave a training session or situation is a powerful tool to provide control to the bird. CRC commonly provides an "escape perch" or a designated hiding area as a retreat where they will never be approached. Pressure to perform, program demands, and limited ambassador options can also affect a trainer's inclination to give a raptor the control of escape. We have found that having back-up animals, realistic management expectations, and being a "birds first facility" have made a significant impact on our raptor's welfare.

COMFORT: MENTAL AND PHYSICAL WELL-BEING

Many facilities acquire raptors through rehabilitation centers. Rehabilitated raptors are a common choice because they are budget friendly, accessible and would otherwise need to be euthanized. Unfortunately, injuries that deem non-releasable status can also cause chronic pain and/or loss of mobility. Fractures near joints, severely misaligned fractures, non-union fractures and dislocations are all known to be chronically painful conditions. Rehabilitated raptors are often received as parent-reared adults that lack a positive association with people. Due to these circumstances, providing exceptional welfare to these raptors can be extremely challenging. The following questions can help evaluate welfare in regards to mental and physical comfort.

Welfare Questions	**Comments**
Does the animal perform self-care behaviors in presence of trainers/visitors?	
Does the animal have excellent feather condition?	
Is the animal free from pain, injuries and disease?	
If medical conditions are present, can it be treated with high probability of a complete recovery?	
Have adjustments been made to make things as comfortable as possible?	

Does the animal display behaviors that indicate trust, confidence, comfort and/or rest as opposed to escape and/or avoidance behaviors?	
Does the animal interact with objects in its environment such as enrichment, and observed eating, walking, flying, foraging, sunning, etc.?	
Does the animal have an adequate diet and keel score? within 15% of its adlib weight and a keel score of 3 or above?	

While physical and mental well-being are seemingly two separate entities, they are actually intertwined to make up an animal's welfare. Chronic stress can change immune function and increase susceptibility to disease. Pain is often thought of as a purely physical sensation, however, it has biological, physiological, and emotional factors. Both pain and fear ultimately affect raptors overall welfare. Fear is a natural response and plays a role in self-preservation, a basic instinct to protect oneself from harm or death. Animals can become chronically stressed when repeatedly exposed to negative stressors without the ability to respond appropriately. Chronic stress can cause apathy, lethargy, lack of self- care, escape behaviors, atypical species behavior, and overall lack of engagement in their environment, enrichment and training sessions. There are many training strategies available to improve overall comfort.

Trust is the foundation of all strong relationships. Trainers can build trust by using the most positive, least intrusive effective methods available to change behavior. When used correctly, positive reinforcement training is highly effective with raptors and creates endless opportunities for positive interactions. Protected contact is an effective way to build trust and begin positive reinforcement training. Protected contact is when the trainer and the animal do not share the same unrestricted space. A barrier empowers the animal to move away from the training space at any time. It can also enhance our skills as trainers by preventing us from physically approaching or manipulating the bird. Once trust and positive reinforcement training have been established, there are several techniques that can be used to reduce fear in raptors.

Counter conditioning can be used to change fear responses to a stimulus into a desired response by associating positive interactions with the stimulus. Counter Conditioning is the non-contingent pairing of a desired stimulus with an aversive stimulus. It is important to note that the food, or other desired stimulus, is delivered irrelevant of the animal's behavior, e.g., the food is given no matter what the animal is doing. We are simply pairing the food with the occurrence of the aversive stimulus. We have successfully applied this concept in a variety of conditions. Fear inducing stimuli for many raptors can include people, noises, animals, rakes, hoses, buckets, tools, nets, etc. During training sessions, we can offer food when a fear inducing stimulus is suspected or observed. Many times, our raptors have quickly learned to look to trainers for reinforcement rather than attempting to escape the situation.

Systematic desensitization can also be combined with counter conditioning to reduce unwanted responses in raptors. Systematic desensitization is a structured plan that gradually exposes animals to fear inducing stimulus. Before beginning shows or programs with newly trained ambassadors, we make smaller approximations to build confidence. Common approximations include approach behavior, voluntary step up, duration and movement on the glove, securing equipment, exposure to the show/program area without an audience, and then gradually increasing audience size and noise levels. Throughout the process we carefully observe body language while using positive reinforcement to ensure their comfort at all times.

Carolina Raptor Center performs annual well-checks on all resident raptors to help gauge physical and mental well-being. Raptors, like all wild animals, are experts at concealing pain and illness to possibly avoid predation. Well checks can help catch medical issues early and ensure that raptors are comfortable and pain-free. Well checks consist of a thorough physical exam, radiograph, CBC (complete blood count), feather check and keel/fat scoring. Feather condition is essential to a bird's survival in the wild and a key indicator of a raptor's overall health. Feather damage, unpreened feathers, fault bars, and heavy loads of external parasites can signify underlying medical conditions and/or chronic stress. When raptors perceive a threat, they may bate, cling to wire or crash into enclosure walls in an attempt to escape an aversive stimulus. This can result in broken feathers, and injuries to the cere, feet, wrists, and amputation sites. A CBC is one of the fastest and best diagnostic tools available that can reveal early signs of inflammation, infection, and illness. Radiographs are another important diagnostic tool that can help us monitor changes in bones and joints, including painful conditions like osteoarthritis.

Many times, finding the right job for the bird and improving training techniques can help set our birds up for success. Chronic and acute medical conditions and their proposed treatments should be carefully evaluated to ensure there is a high probability of a full recovery with minimal pain and stress. It's important to acknowledge that not all raptors make suitable candidates as ambassadors, especially when faced with chronic pain or stress. In our commitment to being a "Birds First Facility," sometimes we find that euthanasia is the kindest thing we can do as responsible caregivers to end suffering and chronic discomfort. While accessing and improving the lives of our current ambassadors is critical, ambassador selection is always the first step in being able to provide exceptional welfare. Selection criteria should consider species, method of rearing, age, chronic medical conditions, disabilities, learning history, and level of comfort to evaluate their potential for a high-quality life. All raptors deserve lives that are free from pain, fear, and distress. It is our job as caretakers to continually reevaluate and improve our practices in all aspects of avian care using welfare as our preeminent guide.

References

Dean, K. & Roddick, C. (2019) Whether to Tether: Promoting Empowerment by Free-lofting Raptors. Paper presented at International Association of Avian Trainers and Educators Conference.

Freidman, S.G. (2008). What's wrong with this picture? Effectiveness is not Enough. *Good Bird Magazine*, 4(4), 12-18.

Friedman, S.G. (2012). Back in the Black. Rebuild a Bankrupt Relationship. *Bird Talk Magazine*, Sept; 14-17.

Friedman, S.G. (2001). The ABCs of Behavior. *Original Flying Machine*, Issue 9: Nov-Dec.

Lacy, K. (2017). Selection Process for Non-Releasable Birds: The First Step in Bird Welfare. Paper presented at the International Association of Avian Trainers and Educators Conference.

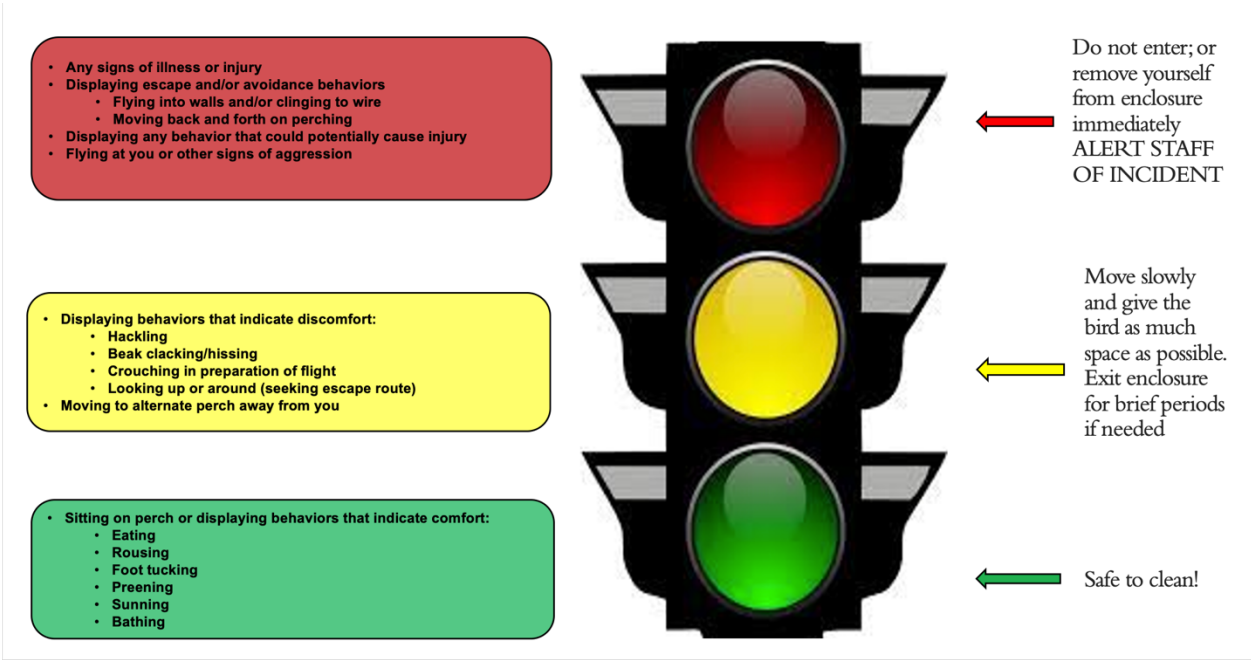
Martin, S. (2015). The Right Tool for the Job. *The Flyer*.

Martin, S. & Freidman, S.G. (2013) The Power of Trust.

Lanner Falcon displaying comfortable body language during a program
Photo Credit: Justin Childress

Reinforcement delivery for CAB (Calm attentive behavior) with a Barn Owl
Photo Credit: Jack Jordon

Colleen Roddick CPBT-KA and Black Vulture during free flight training session.
Photo credit: Ben Reese



***Raptor Stress Chart**, used to help volunteers develop sensitivities to body language.*
Created by Mikayla Baiera, Husbandry Assistant at Carolina Raptor Center