



AMBASSADOR ANIMAL GUIDELINES

EURASIAN EAGLE OWL, *Bubo bubo* | VERREAUX'S EAGLE OWL, *Bubo lacteus*

Created by the Ambassador Animal Scientific Advisory Group in Association
with the Eurasian Eagle Owl Species Survival Plan® Program

Eurasian Eagle Owl and Verreaux's Eagle Owl (Strigidae/Bubo) Ambassador Animal Care Guidelines

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Disclaimer: This manual presents a compilation of knowledge provided by recognized animal and education experts based on the current science, practice, and technology of ambassador animal management and presentation. The manual assembles basic requirements, best practices, and animal care recommendations to maximize capacity for excellence in animal care and welfare. The manual should be considered a work in progress, since practices continue to evolve through advances in scientific knowledge. The use of information within this manual should be in accordance with all local, state, and federal laws and regulations concerning the care of animals. While some government laws and regulations may be referenced in this manual, these are not all-inclusive nor is this manual intended to serve as an evaluation tool for those agencies. The recommendations included are not meant to be exclusive management approaches, diets, medical treatments, or procedures, and may require adaptation to meet the specific needs of individual animals and particular circumstances in each institution. Commercial entities and media identified are not necessarily endorsed by AZA. The statements presented throughout the body of the manual do not represent AZA standards of care unless specifically identified as such.

Due to the similarity in husbandry – including general care, housing, and enrichment; training; handling and handler training; and education messaging for Eurasian Eagle Owls and Verreaux's Eagle Owls, this manual covers both species, with specific differences noted where applicable. It is worth noting, however, that despite similarities, these two species tend to have very different personalities, with Verreaux's Eagle Owls being exceptionally accommodating birds. When considering a large owl species for an ambassador program, Verreaux's Eagle Owl, although rarer and challenging to acquire, may be a better option for staff just beginning to work with large owls.

Table of Contents

1. HUSBANDRY	4
1.1 Housing	4
1.2 Diet.....	6
1.3 Enrichment.....	7
1.4 Animal Training	9
1.5 Social grouping	11
1.6 Signs of stress	11
2. PROGRAMS.....	12
2.1 Program types.....	12
2.2 Temperature guidelines	12
2.3 Transport.....	13
2.4 Display options.....	14
2.5 Messaging.....	18
3. HANDLING AND STAFF TRAINING	20
3.1 Handling limits.....	20
3.2 Handlers and Handler Training	21
3.3 Handler Certification	22
Appendix A: Ambassador Animal Policy and Position Statement.....	24
References.....	28

AZA recognizes many public education and conservation benefits from ambassador animal presentations. AZA's Conservation Education Committee's Ambassador (previously called Program) Animal Position Statement (Appendix A) summarizes the value of ambassador animal presentations. For the purpose of this policy, an ambassador animal is described as an animal presented either within or outside of its normal habitat or holding area that is intended to have regular proximity to or physical contact with trainers, handlers, the public, or will be part of an ongoing conservation education/outreach program.

Ambassador animal presentations bring a host of responsibilities, including the welfare of the animals involved, the safety of the animal handler and public, and accountability for the take-home, educational messages received by the audience. Therefore, AZA requires all accredited institutions that give ambassador animal presentations to develop an institutional ambassador animal policy that clearly identifies and justifies those species and individuals approved as ambassador animals and details their long-term management plan and educational program objectives. The policy must incorporate the elements contained in AZA's "Recommendations For Developing an Institutional Ambassador Animal Policy". If an animal on loan from another facility is used as an ambassador animal, the owner's permission is to be obtained prior to program use.

1. HUSBANDRY

AZA's accreditation standards require that the conditions and treatment of animals in education programs must meet standards set for the remainder of the animal collection, including species-appropriate shelter, exercise, sound and environmental enrichment, access to veterinary care, nutrition, and other related standards (AZA Accreditation Standard 1.5.4).

1.1 Housing

Providing ambassador animals with options to choose among a variety of conditions within their environment is essential to ensuring effective care, welfare, and management (AZA Accreditation Standard 1.5.2.2). Some of these requirements can be met outside of the primary exhibit enclosure while the animal is involved in a program or is being transported. For example, housing may be reduced in size compared to a primary enclosure as long as the animal's physical and psychological needs are being met during the program; upon return to the facility the animal should be returned to its species-appropriate housing as described above.

Careful consideration must be given to the design and size of all ambassador animal enclosures, including exhibit, off-exhibit holding, hospital, quarantine, and isolation areas, such that the physical, social, behavioral, and psychological needs of the species are met and species-appropriate behaviors are facilitated (AZA Accreditation Standard 10.3.3, 1.5.2, 1.5.2.1).

Enclosure Size:

With reference to the Association of Zoos and Aquariums Owl Care Manual, the minimum requirements for housing two Eurasian Eagle Owls or two Verreaux's Eagle Owls together is 6m x 3.9m x 3.7m (19.7 ft x 13.1 ft x 12.1 ft). The AZA Owl Care Manual states an acceptable enclosure size for a pair equals three to four times the wingspan of a bird in all dimensions. Owls that are utilized in ambassador programs may be housed individually in mews, which are smaller than exhibits for breeding birds. Mew size for ambassador birds is recommended to be a minimum of 2x the wingspan (length) by 2x the wingspan (width). It is recommended ambassador eagle-owls are housed in enclosures that are no less than 2.4m (8ft) in height. Ergo, approximate minimum housing dimensions for a single ambassador eagle-owl would be 3m x 3m x 2.4m (10ft x 10ft x 8ft).

Ambassador eagle-owls of both species have been successfully housed in both behind-the-scenes areas as well as in public view. There is no evidence that one housing area is better than the other, although individual preferences and needs should be considered to maximize welfare of the individual bird. It is recommended that ambassador eagle-owls be housed on varied natural substrate, such as grass, dirt, or pea gravel, with mixed perching of varied location, stability (swinging perches, some with give/bounce, or fully stable), texture (ex. natural bark, Monsanto or Astroturf covered, rope-wrapped), and diameter - anywhere from 5-13 cm (2-5 in.). To maximize foot health, perches should be regularly maintained and changed out when showing signs of wear. Providing choices for eagle-owls is a recommended best practice

for exhibit design, and exhibits should provide a variety of opportunities for owls to shield themselves from rain/poor weather and exposure to light/natural light. There is no clear perching preference for eagle-owls as they appear to use high, medium, and low perching. In order to prevent damage to flight and tail feathers, perch placement should be mindful of tight corners or other locations where the owl might rub/bump its tail/wings and thereby damage their feathers. It is recommended the enclosure be constructed with materials that reduce the possibility of damage to the feathers or to the owl itself (for example, bare wire mesh is less desirable than vertical bars or coated mesh, see Figure 1.1). Care should be taken to place perches and other objects in locations that mitigate chance of collision injury and/or deterioration of flight and tail feathers on enclosure materials. Stumps, platforms (Figure 2.2), and grass locations are other forms of perching used by eagle-owls. Most enclosures offer some sort of nest box, but only some owls seem to use the box provided.

It is important to provide bathing options for eagle-owls. Enclosures should contain a bath pan of minimum dimensions necessary to allow the individual to submerge and bath freely without bumping its wings on the sides of the pan. Bath pans should be kept full, to within one inch of the top, for easy bathing access. It is also appropriate to provide misters in enclosures, particularly in hotter climates.



Figure 1.1 (above left): Vertical bar enclosure (Photo credit: Natural Encounters, Inc.).
Figure 1.2 (above right): Platform perch (Photo credit: Cascades Raptor Center).



Figure 1.3: Bath pan with covered rim for easier perching access (Photo credit: Cascades Raptor Center).



Figure 1.4 and 1.5: Verreaux's Eagle Owls enjoy water; whether that be pool bathing in pond or showering in mist (Photo credit: Tracy Aviary).

Temperature Guidelines:

Eurasian Eagle Owls are a temperate species with a large range; Verreaux's Eagle Owls are native to warmer savanna habitats. That said, as with most species, temperature restrictions for eagle-owls of either species depend on the environment to which they are acclimated and the policies of the institution's management team. There should be additional environmental considerations when transporting and using the animal for programs.

Ideal temperature range for Eurasian Eagle Owls is 0–29.4 °C (32–85 °F). In temperatures below freezing, it is recommended to provide supplemental heat, most typically overhead radiant heaters or heat lamps. Fans, misters, and ice blocks are all recommended in temperatures above 29.4 °C (85 °F) or when the bird is open-mouth breathing/panting or drooping wings. Extra care should be considered for elderly birds who may have a lower cold or heat tolerance. Care should also be taken to not expose the owls to direct sunlight for extended periods of time. Verreaux's Eagle Owls may be a little more sensitive than Eurasian Eagle Owls to colder temperatures; some facilities provide heat at 32 °F, as with Eurasian Eagle Owls, some facilities choose to be a little more conservative, providing supplemental heat at 40 °F.

1.2 Diet

A formal nutrition program is recommended to meet the nutritional and behavioral needs of any species (AZA Accreditation Standard 2.6.2). Diets should be developed using the recommendations of nutritionists, including the Nutrition Scientific Advisory Group (NAG) feeding guidelines: (http://www.nagonline.net/Feeding%20Guidelines/feeding_guidelines.htm), and veterinarians as well as AZA Taxon Advisory Groups (TAGs), and Species Survival Plan® (SSP) Programs. Diet formulation criteria should address the animal's nutritional needs, feeding ecology, as well as individual and natural histories to ensure that species-specific feeding patterns and behaviors are stimulated.

Wild eagle-owls are predatory, obligate carnivores with a generalist diet that varies throughout their range and includes both mammalian and avian prey items. Invertebrates, reptiles, and fish are also eaten opportunistically, though mammals make up the majority of their diet. The diet offered to ambassador owls should be nutritionally complete while also replicating the average wild diet as closely as possible with commercially-available substitutes. Typical whole prey diet items can include mouse, rat, rabbit, day-old chick, quail, fish, and commercially-made bird of prey diet. Note that chicks and fish are less nutritionally valuable than whole adult prey, such as mouse, rat, rabbit, and quail. A healthy diet should include a variety of prey items. When feeding previously frozen food items, it is recommended to include a vitamin supplement, such as Vitahawk, to compensate for potential loss of vitamins during the freeze/thaw process. If/when feeding items that are not whole prey (i.e. just the muscle meat), it is also recommended to dust

with calcium supplement. Though ambassador owls are frequently on a managed diet for training purposes (see below on training using weight management), which may involve food being divided into small pieces, it is also beneficial to provide whole prey items to assist with beak maintenance and to provide enrichment.

Diet amounts and food presentation may vary depending on the bird, but should be mindful of the appropriate weights and body condition scores of this species as well as the individual ambassador. Regular checks by trained keepers and/or veterinary staff to evaluate body condition are recommended and can be used in conjunction with behavior to determine if diet amounts need adjustment. For the purposes of this manual, the authors have not included “ideal” weight ranges or food amounts intentionally, as each individual is unique and motivation and weights vary. Instead, the authors recommend that weights should be taken frequently enough to provide information to trainers, vet staff, and keepers to monitor the animal’s health and training needs. Intake and leftover food should be monitored to ensure appropriate amounts are being consumed. It is important to know your individual and what its healthy weight ranges are, and maintain accordingly. Because every bird is an individual and metabolic rate and healthy weight range can vary dramatically between one individual and the next, it is not good practice to suggest a one-size-fits-all diet for eagle-owls. As has been stressed throughout this document, it is critical to know the specifics and data on the individual in order to provide the most ideal healthy diet amount, and to understand that this amount may fluctuate seasonally. A general guide for average daily diet amount may be developed for each individual based on its working history, size, body condition, age, and other factors. The goal should be to maintain the highest healthy weight possible and provide the greatest amount of food while maintaining desired behavioral responses.

As is true with all owls, eagle-owls experience seasonal weight fluctuations, and tend towards heavier average body weights during winter regardless of whether or not they are on a managed diet. Ideally, this normal fluctuation should be encouraged in ambassador owls whenever possible. Note that this seasonal fluctuation in appetite and weight may disrupt motivation for food reinforcers. In this case, institutions should consider suspending program use of the individual owl for the season if training using positive reinforcement is hindered. It is not recommended to use “traditional weight management” techniques (i.e. dropping a bird’s weight repeatedly until motivation increases) to increase motivation during seasonal behavior changes as this may result in unhealthily low weights or other welfare concerns.

Two strategies that are often used to create motivation when training owls are food management and weight management. Managing when and how food is delivered, what food items are offered, and the ratio of the type of food items offered can motivate owls to present desired behaviors. This practice is referred to as food management. Weight management refers to the practice of monitoring a bird’s weight and appetite in regards to its motivation to present desired behaviors. This practice involves identifying a target weight range for an individual based upon a combination of behavior, body condition, and weight. These ranges are a moving target and require adept trainers with close relationships with their birds to identify small changes in behavior and motivation and to adjust their diets accordingly.

Using food and/or weight management to facilitate training creates a learning environment in which owls are motivated to participate. Training strategies that involve reducing food to the point of compromising the health of the bird are considered unacceptable. It is recommended to use food and weight management practices that encourage voluntary participation in training, but more importantly provide for the health and welfare of the owl.

1.3 Enrichment

AZA defines enrichment as “a process to ensure that the behavioral and physical needs of an animal are being met by providing opportunities for species-appropriate behaviors and choices (2019 AZA Accreditation Standards).” AZA standards require that institutions follow a formal written enrichment program that promotes species-appropriate behavioral opportunities (AZA Accreditation Standard 1.6.1.).

It is recommended that animal care staff and management personnel work together to develop enrichment protocols addressing considerations such as frequency of presentation, duration of use, variety of opportunities, record keeping, and safety. Enrichment should be monitored for degradation, cleaned regularly, and removed in a timely manner so enrichment items offered maintain the benefit of novelty and

do not become “furniture.” Consideration of safety issues requires knowledge of the natural history of eagle-owls, the individual history of each bird, and the use of an approval process for new items that will reduce the risk of injury or accidents, such as entanglement or ingestion of foreign objects.



Figures 1.6 and 1.7 (above left and right): Eurasian Eagle Owl interacting with enrichment (Photo credit: Virginia Zoo)

Figure 1.8 (below): Young Verreaux's Eagle Owl interacting with enrichment (Photo credit: Tracy Aviary)



Eagle-owls benefit from hunting opportunities and exploring novel items. The most successful environmental enrichment devices appear to be items that can be footed and shredded, such as paper products, cardboard boxes, lettuce, melons, squash or other produce. These items can be provided alone or stuffed with prey or diet, although owls should be monitored for ingestion of foreign objects if food is delivered with a novel item. Other successful items include tennis balls, holl-ee rollers, and canvas dog toys, which present opportunities for seizing, grabbing, mock “killing,” and mantling.

Training for shows or public interactions is a form of enrichment and provides an opportunity for the bird to engage in both cognitive and physical activity. Training with opportunities to free fly or otherwise voluntarily participate provide owls with the ability to get additional exercise and conditioning. Manipulating the environment, including changing out perching, rotating birds in mews, the addition of live plants/browse, water or dust pans, and misting can all provide an enriching environment for owls. AZA's Raptor TAG has

a comprehensive list of raptor-appropriate enrichment as well as other suggestions on raptor enrichment programs on their website. (<https://www.raptortag.com/enrichment.html>)

1.4 Animal Training

Ambassador eagle-owls are involved in a variety of animal training programs. Approximately 85% of owls involved in formal training programs are in some way hand-reared. This number includes owls that have been hand-reared alone, which is the most widely used method, followed by hand-rearing in a crèche situation, and being hand-reared alone but within sight of conspecifics.

Hand-rearing:



Figure 1.9 (above left): Owlets being hand-raised in a creche situation (Photo credit: Natural Encounters, Inc.).

Figure 1.10 (above right): Gentle exposure to crowds at an early age (Photo credit: Dallas Zoo)

To maximize lifelong welfare, it is recommended to hand-rear owls slated to become ambassadors in order to appropriately condition them to close contact with humans and a variety of other stimuli that could otherwise be intimidating or inductive of stress if the individual is not used to them. Hand-rearing should occur during the formative stage of life, within the first few months of hatching. Hand-rearing owls at this stage allow for human caretakers to expose the owl to a variety of conditions (Figure 1.10) it may encounter as an ambassador (crowds, vehicles, buildings, novel noises, etc.). Hand-rearing generally helps owls adapt to human care and their roles as ambassadors better than owls who are raised by their parents. Human-reared owls appear to display more comfort behaviors while in the presence of humans, such as rousing, feeding in the presence of people, interacting with enrichment, participating in training, and generally lacking escape/avoidance behaviors and aggression.

It should be noted that every animal is an individual and exceptions to generalizations do occur. For example, a parent-reared owl brought into an ambassador training program during its first year of life may adapt in ways similar to a human-reared owl under the care of sensitive, experienced trainers. Also to note, eagle-owls are not a “beginner bird” for novice or new handlers, or considered easy for any/all level of trainer experience. Considering the experience and skill level of handlers is one of the most critical elements for success in raising and training well-adapted eagle-owls (see **Section 3.2** Handlers and Handler Training).

Positive Reinforcement Training:

Training using positive reinforcement is the predominant type of training used in zoos today (Westlund, 2014). Food is often used as a primary reinforcer, and can be an essential tool for shaping the behavior of owls housed in zoos. Most zoos and aquariums use a portion of the owl's diet for training.

The delivery of reinforcement may vary depending on specific behaviors being asked of the owl. Several common behaviors trained include: scale, crate, step up onto a perch/glove, standing calmly on glove/perch

for presentations, stationing, and free flight. Many institutions choose to train voluntary behaviors for husbandry and medical management such as voluntary tactile, voluntary nail trims, and voluntary insertion/removal of jesses. It is important to note, for safety reasons, procedures such as coping and blood-draws should not be attempted as voluntary trained behaviors, as the risk of injury to the bird in such cases is great.



Figure 1.11 (above left): Voluntary crate behavior (Photo credit: Denver Zoo).
Figure 1.12 (above right): Voluntary scale behavior (Photo credit: Audubon Zoo)

Positive reinforcement training can also provide opportunities for animals under human care to use their senses and adaptations, similar to their wild counterparts, to obtain food or other primary reinforcers. It empowers them to make decisions and experience learning the outcomes of their decisions, giving them choice and control over their everyday lives and interactions. AZA Accreditation Standard 1.5.2.2 requires providing animals with choice in their environment as a matter of good welfare. Providing opportunities for choice and control in training and programming starts with training for voluntary behaviors.

A few behavioral challenges have been observed when training and desensitizing ambassador eagle-owls. A common challenge is getting owls comfortable around objects with wheels – wheelchairs, strollers, carts, wagons, etc. Owls will often try to fly off or away from the object. This challenge can be avoided by being especially mindful of exposing young owls to this particular stimulus during its first few weeks/months of life (see **Section 1.4 Hand-rearing**). Owls can also overcome their aversion to wheels later on in life using slow desensitization to objects with wheels, but it is noted this process may take a longer time and requires significant patience and sensitivity. Another challenge experienced, with Eurasian Eagle Owls predominantly, is biting the handler's glove. Again, this can be avoided using positive reinforcement training methods during the initial stages of life. By providing opportunities for owls to make their own choices about when or whether they step onto the glove, including respecting their choice to not perform the desired behavior, a history can be built upon reinforcing desired behavior on the glove.

Equipment for Eagle-owls:

Equipment used for eagle-owls is based mostly on trainer and institution preference. Permanent or removable anklets can be used, depending on a variety of factors – including the individual bird's preferences, the wear on their leg feathers, or the particular training program the owl participates in. The material that is most popular for an anklet is kangaroo leather, but other institutions also use bison leather and biothane. Biothane is a high-quality strapping material used for a variety of applications and is becoming increasingly more popular with falconers. Should a facility use removable equipment (anklets or jess/anklet combos) on their birds, it is recommended that a training program be put into place to reduce stress and maximize cooperation when putting on and taking off equipment. Jesses can be used either

connected to a paracord leash (with a swivel or with a swivel-less setup) or simply held during demonstrations - the latter is only recommended for birds that are highly trained for recall or free-flight and who are used to doing presentations on a glove with minimal equipment. Careful consideration should be taken when using jesses on eagle-owls during flight displays due to the risk of entanglement should the bird fly off, and it is recommended to either remove the jesses before flight or use flying jesses. The most popular choice of material for jesses is paracord, although leather is also used. When flying birds are outside for shows or educational programming, leg mounts, backpacks, and tail mounts have also been used to attach telemetry in situations where it might be needed.

Both Eurasian and Verreaux's Eagle Owls have feathered legs, making choices for falconry equipment particularly important. Proper care and maintenance must be taken when using permanent anklets (or traditional jesses left in place permanently), and legs should be regularly checked for ingrown feather follicles. Some eagle-owls may pick at or destroy anklets left on permanently, and in these cases, birds should be trained for voluntary placement of removable anklets.

Any time jesses and anklets are employed with eagle-owls, trainers should be mindful of their use as a safety tool and not as a means of restraint or as a training tool. When falconry equipment is used to restrict the bird's ability to leave the glove as a means to escape aversive stimuli, it is considered negative reinforcement and positive punishment. These particular methods of training are unsuitable for this species and have demonstrated negative consequences including escape/avoidance, apathy, aggression, and phobias. Current trends include working owls completely without jesses or not holding onto jesses during programs, which requires a much higher level of training and staff competency. Best practices for presentation should strive for owls voluntarily participating in programs using trained behaviors to stand calmly and comfortably on a glove or perch without employing restraint, with or without falconry equipment, or training birds to be presented fully free-flight.

1.5 Social grouping

In their natural environment, Eurasian Eagle Owls are one of few species of owls that remain together even during the non-breeding season (Campioni, Delgado & Penteriani, 2010). In zoological facilities, breeding pairs given adequate space may be co-housed. Additional individuals may be co-housed with a breeding pair on a case-by-case basis. They should be monitored closely, as breeding pairs can be territorial.

Ambassador owls can be allowed to breed, and can participate in educational programming outside of their breeding season. It should be noted that some individuals may still demonstrate a change in behavior during the breeding season even if they are not participating in a breeding program. Participation in programming during breeding season should be treated as any other programming time and remain voluntary for participation.

In case of Verreaux's Eagle Owls, due to the low number of breeding pairs and age of current ambassador owls, data is deficient on co-housing and breeding of ambassador Verreaux's Eagle Owls.

1.6 Signs of stress

Stress in both Eurasian and Verreaux's Eagle Owls may be caused by heat, over-stimulation, or distress from being placed in a position which causes fear or loss of control. Some of the signs of stress may include but are not limited to: tight grip on the perch or glove, biting, dilating pupils, loose stools and/or watery mutes, feathers pulled in tight to the body, wrists held slightly away from body and wings dropping, "whiny" vocalizations, gular fluttering, and escape and avoidance behaviors – such as quick darting looks and bating.

One of the most serious and easily observable signs of discomfort is bating. Bating off the glove, i.e. an attempt by the owl to fly off the glove that results in it flapping rapidly or even, in extreme cases, hanging upside down from the glove, is an attempt by the individual to escape a situation or stimulus with which it is uncomfortable. In these situations, it is the responsibility of the handler to remove the owl from the situation with which it is uncomfortable. This may mean ending a training session/program or returning the bird to its crate or enclosure. Unsuccessful attempts to escape due to being restrained on a glove can be

considered flooding, where the full strength of the aversive stimulus cannot be avoided. Not only can this have detrimental effects on the relationship between bird and handler, but it can also result in learned helplessness and/or reduce the bird's willingness to participate in future programming. Ideally, handlers will be in tune with less obvious signs of discomfort in their individual and remove it from situations before a bate occurs.

If stress is due to heat, move the bird into a preferably familiar location that is cool and has water available to drink and bathe in. For stress that appears to be from over-stimulation or other distress, remove bird from the current situation and return to travel crate or familiar enclosure. Counter-conditioning training techniques should be used before the owl encounters the same stress-inducing situation again. Supervisory staff should be notified in all cases and, if warranted, medical staff should be contacted for heat stress.

2. PROGRAMS

2.1 Program types

Any institution using ambassador owls must have a written ambassador animal policy on the use of animals for programs which follows the AZA's "Recommendations for Developing an Institutional Ambassador Animal Policy" (AZA Accreditation Standard 1.5.4). Ambassador owls work in a variety of settings to engage, educate and create connections with zoo visitors. Charismatic species such as Eurasian Eagle Owls in ambassador programs provides an invaluable opportunity to engage visitors while spreading important avian conservation messages.

Ambassador eagle-owls of both species are presented both on and off-grounds in formal (captive audience) and informal (casual walk-by programs, chats or displays) programs. They are successfully presented both indoors and outdoors, on a glove, perch, or in a free-flight program with proper training and attention to the safety. Free-flight programs in particular afford larger audiences the opportunity to see this large bird in action, making them a popular addition to amphitheater-style shows. However, audience size should be considered for each bird, as well as presentation style (free flight vs on glove), as different audience sizes, proximity, and volume of venue may affect specific individuals differently.

2.2 Temperature guidelines

Eurasian Eagle Owls are a species that's adapted to colder climates. Low temperatures, even under 0°C (32°F) are not a typical concern for this species - but high temperatures, over 35°C (95°F) can be. Verreaux's Eagle Owls are also surprisingly tolerant of low temperatures for short periods, but more attention should be paid to their comfort in temperatures below freezing. When working with eagle owls in warmer temperatures, special attention should be paid to the comfort of the owl during programs and particularly if/when transporting in a crate. During programming, whether on glove or in free-flight, owls should be monitored for observable signs of temperature discomfort, such as open-mouth breathing and drooping wings.

When transporting either owl species from site to site, it is recommended to use a vehicle if temperatures are under 0°C (32°F) or above 29.4°C (85 °F). Air conditioning can be used in the summer, but vehicles should be carefully heated in the winter to prevent overheating. If the program takes place in an area without temperature regulation, logistics and potential risks should be discussed with the animal management team. Options for altering the physical environment (shade, portable heat, ice blocks, battery operated crate fans) can sometimes be utilized to maintain the safety and comfort of the owl. If the owl is showing signs of heat stress (gular fluttering, etc.) or the heat index is above 37.7°C (100°F), it is recommended that your owl not be included in that programming. If the heat index is at 35°C (95°F) or above, it is recommended that the owl be out for 15 minutes or less.

Temperatures for indoor presentations should be considered in the winter months for both transportation and presentation space. Time spent indoors in the winter should be minimized to prevent overheating, especially for birds that are housed outdoors.

2.3 Transport

Consideration needs to be given to the means in which an animal will be transported both within the Institution's grounds, and to/from an off-grounds program. Animal transportation must be conducted in a manner that is lawful, safe, well planned, and coordinated, and minimizes risk to the animal(s), employees, and general public (AZA Accreditation Standard 1.5.11).

Ambassador eagle-owls can be trained to voluntarily enter/exit a transport carrier, to "step up" and be placed into the carrier by their handler, or voluntarily enter/exit their enclosure for a free-flight show. Deciding which method to use will depend on the bird, the program needs, and the equipment available. Operant conditioning training techniques should be utilized to condition birds to enter and exit the enclosure and/or transport crate. Birds naive to a transport crate should be trained using approximations and desensitization with positive reinforcement, i.e. reinforce the owl for stepping towards the crate, stepping into it, duration of staying inside, closing and opening the door, allowing small movements of the crate, etc. The bird should not be forced into a crate, but rather their choice to enter reinforced and their choice to exit respected.



Figure 2.1 (above left) Perched dog kennel style crate (Photo credit: Dallas Zoo).

Figure 2.2 (above right): Door with corrugated plastic panel mounted to the inside of door, secured with zip ties (Photo credit: Dallas Zoo)

Figure 2.3 (below): Perch-less crate lined with AstroTurf (Photo credit: San Francisco Zoo).



To transport an ambassador owl in a crate, there are a few variations of crate setup and furnishings that can optimize comfort for the bird (see **Figures 2.2** and **2.3**). Two primary options are available for crates - a crate with a perch, and a perch-less crate. Depending on the bird, they may prefer to ride flat on the floor of the crate rather than on a perch. Perches should be installed parallel to the door and should be high enough so that the bird's tail will not be damaged by coming into contact with the floor, but low enough that the bird is not crouching when inside (**Figure 2.1**). Providing a substrate of indoor-outdoor carpet or AstroTurf will give a perch-less crate some traction during transport and is a good option even for perched crates (**Figure 2.3**). If perching is used, it should be of appropriate thickness so the bird can perch securely and can be natural wood or wrapped with AstroTurf, depending on the individual bird's preference.

Some owls may prefer to be in covered kennels, while others may do better in crates with the option to see out of their crate via windows or door. Crates with fenced "windows" or doors may be covered to promote calm behavior during transport (**Figure 2.2**). In general, it is most typical to cover the sides and door with a towel, burlap, or other breathable fabric that can be loosely tossed over the crate to give the bird a sheltered environment, or other permanent modifications can be made to the crate. Crate openings or fencing can also be modified with corrugated plastic and secured with zip ties or nuts and bolts (**Figure 2.2**). Alternatively, some eagle-owls are transported in kennel type crates that are used upside-down, so the "windows" are on the bottom and are left uncovered. This allows light and airflow, and gives the bird the option to look out if desired, while avoiding the potential overstimulation of uncovered windows at eye-level. Other crate modifications may include drilling small (2.5 cm/0.5-1in.) holes in the roof of the crate for additional ventilation. Drilling of a 2.5 cm (1in.) hole in the roof also provides the opportunity to reinforce crating behavior and remaining calm while in transport. As with any animal, finding the ideal transport set-up will take time and consideration of the individual's needs.

When placing the transport crate into a vehicle, it is recommended that crates with perches should be placed so that the perch is parallel to the direction of motion/vehicle travel, i.e. the perch faces the side of the vehicle rather than the front. This allows the bird to grip more sturdily and "surf" in response to vehicle acceleration and deceleration, prevents them from being thrown off the perch, and is a more stable configuration in case of bumps or other unexpected hazards on the road.

Disinfecting and Cleaning Crates, Prevention of Zoonotic Diseases:

Ambassador animals that are taken off zoo or aquarium grounds for any purpose have the potential to be exposed to infectious agents that could spread to the rest of the institution's healthy population. AZA-accredited institutions must have adequate protocols in place to avoid this (AZA Accreditation Standard 1.5.5). Ideally, each individual will have a dedicated transport crate that is not shared with any other ambassadors - this is good practice not only for reduction of disease transmission but also emergency preparedness. Disease risk is inherent in all environments and it is impossible to eliminate this risk totally. It is best to review each program event and look at potential risks and try to minimize them.

All transport carriers should be cleaned thoroughly with facility-approved cleansers and disinfectants after each use. The use of chemical sanitation is important not only transport carriers, but also presentation surfaces and maintenance tools. Consultation with the institutional animal management team and/or veterinary staff will identify the best chemicals for each situation. In most instances, protocols used to sanitize carriers used for carnivorous birds will be sufficient. Abrasive chemicals should be avoided to avoid irritation to the feet. It is recommended to use hand-washing stations, wipes and/or gels to limit disease transfer and contamination for all staff involved with program animals. At outreach events, all efforts should be made to prevent exposure of the birds to animals from other facilities and or wild bird interaction.

2.4 Display options

Careful consideration should be given to the presentation of ambassador animals, including safety of the animal, handler and public, as well as the messages associated with the visual display of the animal.

Both Eurasian Eagle Owls and Verreaux's Eagle Owls can be displayed via free-flight programs, on the glove, or on a perch with or without the use of falconry equipment. The SSP does not recommend pinioning or clipping flight feathers as a means to restrain flight.

When choosing a method of display, it is important to consider the training and handling history of each individual animal, as well as skill level and experience of the handlers. All ambassador eagle-owls should be properly desensitized through positive reinforcement to any display perches, or to sitting on a glove, if that is the end program goal. However, not all individuals may be well suited for display on glove or with crowds in close proximity but may do better with free-flight programs. Some facilities additionally use a voluntary crate behavior to ensure a force-free experience, whereby the owl is not handled at all but rather voluntarily loads into a crate, flies directly from it, returns to the crate during the program without being handled directly by a person. Additionally, at all events, indoor or outdoor, it is recommended that the ambassador birds have dedicated carriers to hold them anytime they are not needed for a presentation. These carriers should be kept away from visitors, other animals, and disturbances.

Outdoor Free-flight Programs:



Figures 2.4 and 2.5 (above): Eurasian Eagle Owl in free-flight demonstration (Photo credit: Natural Encounters, Inc.)
Figure 2.6 and 2.7 (below): Verreaux's Eagle Owl in free-flight demonstration (Photo credit: Tracy Aviary)



Careful consideration must be taken when flying birds in an outdoor program. Free flying birds during programs have immensely positive audience-benefits, and allow ambassador animals not only to

demonstrate amazing adaptations, such as silent flight in owls, but also engage in highly stimulating exercise and enrichment. However, it should be noted that free-flight programs should only be attempted with skilled staff who are experienced with training and maintaining free-flight birds. Hazards include but are not limited to: proximity of roads, buildings, other habitats, other native raptors in the area, and time of flight display (i.e. considering the time necessary to recover from a fly-off should it occur during a program). It is highly recommended that a written fly-off protocol be in place before a flight display takes place. All staff should be prepared and trained accordingly to deal with fly-off situations.

The use of telemetry is recommended when using eagle-owls during free-flight displays outdoors. The preferred way of attaching a telemetry unit is via leg mount, where a zip-tie or bewit is threaded through the anklet grommet to attach the unit. Tail mounts and backpack mounts are also widely used to attach telemetry units to a bird, but may cause irritation if not monitored properly and requires extra training to allow for voluntary attachment to these new locations.

Before free-flying eagle-owls in programs it is recommended to have a variety of protocols in place.

Effectively trained birds should demonstrate:

- A strong recall on cue and reliable crating behavior.
- A reliable response to cues in a variety of indoor and secure outdoor areas before flying free outside.
- An ability to perform reliably with multiple trainers, in diverse locations and with a variety of perches, props etc.
- Flight skills such as descending, controlled landing, and negotiating steep angles, blind corners and obstacles.
- Physical condition to perform the desired behavior without exhibiting signs of exhaustion or stress.

Telemetry protocol should include:

- Species appropriate telemetry selection (mounting system, transmitter weight and signal range).
- A training plan to acclimate a bird to attachment, operation and wearing of a transmitter.
- Testing the transmitter and receiver prior to each use.
- A schedule for battery testing according to the manufacturer's recommendation.
- Scheduled practice in the use of telemetry.

A fly-off protocol should be different than the facility's animal escape protocol and should include:

- A plan for communication between trainers and facility staff.
- A pre-established point person to make decisions regarding recovery and show continuation or modification.
- Pre-established points of best visibility.
- A plan for recovering birds.
- A schedule of practice drills.

Tethering for Display:

When tethering a bird, it is important to place the bird in an area away from dangerous environmental factors. The bird should be placed in an area where it will be protected from native wildlife, have access to a bath pan, and the ability to seek shelter from environmental factors. When tethering your eagle-owl, proper tethering equipment should be used (see **Section 1.4 Equipment for Eagle-owls**) and it is best practice to place the bird where it can be supervised. Tethering should only be used as a means to temporarily restrain birds before being moved into new areas for programs, transport, or as temporary environmental enrichment, and should not be employed as a permanent housing solution.



Figure 2.8: Appropriate temporary tethering set up with access to multiple perching options and bath pan (Photo credit: Natural Encounters, Inc.)

Presentations on Glove:



Figure 2.9 and 2.10 (above): Eurasian Eagle Owls on glove (Photo credit: left Dallas Zoo, right Zoo Atlanta)

Figure 2.11 and 2.12 (below): Verreaux's Eagle Owl ambassador in action (Photo credit: Tracy Aviary)



Handling owls on glove using falconry equipment is a form of tethering. The owl is tethered to the glove of the handler as opposed to a perch or other stationary object. If/when using falconry equipment to tether an owl to the glove, it is important to remember that the jesses are a safety measure and not a training tool or compensation for improper training. Owls presented on glove should first be trained so that they choose to sit on the glove voluntarily through positive reinforcement training (see **Section 1.4 Equipment for Eagle-owls**). Care should be taken to avoid flooding the owl into learned helplessness, where restraint by jesses is the result of its inability to be successful in using natural escape/avoidance behaviors (See **Section 3.1 Handling Limits**).

When working with an owl for presentation on glove, it is recommended to do all initial training in a confined space without the use of jesses. This empowers the owl to make choices and encourages the trainer/handler to develop sensitivity to the owl's body language without forcing the owl to sit on the glove with restraints. As progress is made and the owl is demonstrating the choice to remain on the glove for increasing durations of time, training can proceed to introducing other stimuli and eventually moving outside of an enclosed area. Sensitive trainers will move through successive approximations of training this finished behavior at the pace of the individual owl, all the while avoiding instances of bating off the glove (see **Section 1.6 Signs of Stress**).

Visitor Management During Programs:

The SSP recommends that the handler of ambassador eagle-owls be aware of visitor behaviors at all times. Food and beverage consumption for the handlers should be limited to non-animal areas, and should be limited by the public during programs whenever possible. Monitoring visitor behavior and proximity to the animal, as well as knowing the personality of the owl will help ensure a positive interaction for everyone. Additionally, familiarity with the program venue should dictate the individuals used for programming, depending on individual bird's tolerance to crowds, loud noises, etc. This species is sensitive to loud noises, so most ambassadors may be less tolerant of noisy venues or crowds.

Public Contact:

It is not recommended to allow public contact with ambassador eagle-owls, in the form of direct contact, such as petting or feeding the owl. However, some facilities do allow members of the public to hold eagle-owls on a glove. Facilities that choose to offer this opportunity should include a risk management assessment, as per AZA Standard 11.4.1 that addresses public contact. This plan should follow best practices to protect humans (paid and unpaid staff, visitors, etc.) from potential injury or disease resulting from physical contact with animals. The plan should include an assessment, and determination of those species and individual animals with which staff (paid and unpaid) and visitors may, or must not, have direct or indirect contact.

To maximize welfare of the owl and safety to public and handlers, care and sensitivity to the comfort level of the owl should be demonstrated at all times and participation in such practices should be within the choice and control of the individual owl.

Preventing Zoonotic Diseases:

Ambassador animals that are taken off zoo or aquarium grounds for any purpose have the potential to be exposed to infectious agents that could spread to the rest of the institution's healthy population. AZA-accredited institutions must have adequate protocols in place to avoid this (AZA Accreditation Standard 1.5.5). Disease risk is inherent in all environments and it is impossible to eliminate this risk totally. It is best to review each program event and look at potential risks and try to minimize them. See **Section 2.3 Disinfecting and Cleaning Crates, Prevention of Zoonotic Diseases** for more on minimizing the spread of zoonotic diseases when transporting ambassadors.

2.5 Messaging

AZA's policy on the presentation of animals is as follows: AZA is dedicated to excellence in animal care and welfare, conservation, education, research, and the presentation of animals in ways that inspire respect

for wildlife and nature. Education and conservation messaging must be an integral component of any ambassador animal demonstration (AZA Accreditation Standard 1.5.3).

The Conservation Education Committee recommends that facilities design educational experiences with ambassador animals with one or more the following outcomes in mind:

1. Species information: Understanding of the species natural history, role in the ecosystem, and/or status in the wild.
2. Animals in human care: Understanding of the commitment of AZA facilities to excellence in animal care and conservation and appropriate pet choices, where applicable.
3. Empathy development: Foster a sense of empathy and wonder by connecting visitors and audiences to the individual animal.
4. Conservation action: Empower audiences and visitors to take action to protect the species and wildlife in general.

Owls presented in an educational setting provide an opportunity to achieve these outcomes in a number of different ways. Suggested messaging for owls prepared by the Raptor TAG Education Advisors are listed below.

Outcome 1: Taxon information

- Owls are important predators that help to control pest populations and reduce the spread of disease. They fulfil an important role in their ecosystem, as many of them function as apex predators or at very high trophic levels.
- There are many myths and misperceptions about owls, for example, the idea that they are bad omens. In fact, owls are remarkable animals that are important to their ecosystems and should inspire wonder and curiosity!

Outcome 2: Animals in human care

- Presenters should discuss the importance of training, proper handling methods, and the dedicated work put in to building relationships to ensure the birds are comfortable.
- It is important to stress the difference between wild bird behaviors versus those under human care, which also provides an opportunity to discuss life history traits.
- Owls seen in many zoos and aquariums as ambassadors on glove or in flight may give the impression to guests that they can be good pets, which they are not. They require skilled handlers and highly specific housing and care needs that the average person cannot accommodate in their homes. It should be stressed to guests that the calm, collected owl in front of them is the result of most likely hundreds of hours of training and relationship building, as well as benefits from the management by skilled and experienced staff.

Outcome 3: Empathy development

- Setting visitor or audience expectations before presenting a bird (in its habitat or on the glove), is an opportunity to foster the development of empathy. The presenter should let the audience know what to expect from the interaction with the owl(s), whether or not they will be able to hold or touch the owl and how the owl might react to an audience.
- The presenter can also provide direction on how visitors or program participants should behave in the presence of the animal. This time can be an opportunity to help the audience connect emotionally with the owl. If traveling with an owl, it is recommended that this be done before bringing the bird out of its enclosure/secure area.
- For more information on fostering the development of Empathy, see Seattle Aquarium's ["Best Practices in Developing Empathy Toward Wildlife."](#)

Outcome 4: Conservation action

Wild owl populations face a multitude of threats; fortunately, there are a number of individual and community-level actions that people can take to help to protect owls in the wild. Some examples are listed below.

Pesticide and Rodenticide Use:

- As predators of rodents, all raptors, including owls, are incredibly vulnerable to rodenticide poisoning. Encourage responsible use and properly manage rodenticides.
- Owls are also susceptible to pesticide biomagnification and mercury poisoning. Encourage people to avoid using pesticides on their lawns, and instead rely on native plantings or other environmentally responsible methods of pest management.

Human-Wildlife Interactions

- Roadside litter is a threat to many owl species. Rodents are attracted to the litter, and a low-flying owl in pursuit of a rodent is vulnerable to a vehicular collision. Encourage visitors to dispose of their trash in an appropriate receptacle, not on the roadside, even if it is biodegradable.
- Owls are also susceptible to death through barbed wire or electrocution from power lines. We can help by supporting man-made barriers that keep birds away from high-electricity areas.
- Owls are highly sensitive nesters, and even slight disturbances can lead to abandonment. We can help by reducing activity in known nesting areas and avoiding owl nests when trimming trees or in forestry management.

Habitat Loss

- Habitat loss, removal of old growth forests, and tree crags affects owl populations not only due to loss of nesting sites, but also due to decline in prey availability. Protecting habitat and supporting conservation organizations can help to protect populations of both predator and prey species.

Climate Change

- Like so many species, owls are negatively impacted by climate change. Individual and community level actions to help curb climate change by reducing our carbon footprint are critical to save owls and other wildlife.

Evaluation:

It is strongly recommended that programs and experiences with ambassador owls be evaluated to measure the impact of the programs education and conservation messaging on visitor knowledge, attitudes, and/or behavior. Recommended methods include pre-post surveys, delayed surveys, participant observation, and participant interviews.

3. HANDLING AND STAFF TRAINING

3.1 Handling limits

Consideration should be given as to appropriate times for handling ambassador animals during presentations, and rest breaks scheduled accordingly. Program handlers should maintain the animal's basic husbandry needs and a medical protocol should be in place in case concerns arise.

- Most eagle-owls appear comfortable participating on glove up to 30 minutes, some up to one hour. Many institutions have been successful working with ambassador eagle-owls regularly for to 2-4 hours per day, with rest periods in between programs.
- Many eagle-owls travel well, and overnight outreaches are acceptable as long as the owl's basic husbandry needs are addressed and a medical protocol is in place in case of concerns. Accommodations of bringing a diet and water should be made for long-distance travel.

It is important to note that all birds are individuals and some owls may be comfortable participating more or less. Handlers should be familiar with the individual they are handling and ready/able to respond to its observable behavior if it appears uncomfortable. Handlers should be familiar with signs of stress and discomfort, listed in section **1.6 Signs of Stress**, and owls demonstrating these behaviors should be removed from situation causing discomfort in order to avoid continued exposure to stressors that could result in a reduction in welfare.

Breeding Season:

A few facilities that have acquired Eurasian Eagle Owl pairs have identified the birds for educational programming and have also allowed them to breed in the offseason. The owl pairs have successfully returned into an ambassador program after the breeding season. There is currently no data on this practice for Verreaux's Eagle Owls due to the low number of breeding pairs currently housed in AZA facilities.

It has been noted that some individuals of this species will demonstrate behavioral changes, including in their willingness to participate in programs, during breeding season. Again, a comprehensive understanding of the individual and its seasonal norms will enable programming to be scheduled appropriately during breeding season. Breeding season should be treated as any other programming time and remain voluntary for participation. Most facilities note they do not have issues using eagle-owls during breeding season, but those that do note changes in behaviors are either still able to work with them despite behavior change or allow the bird to choose to not work via a voluntary gloving or packing behavior.

3.2 Handlers and Handler Training

Animal care and education staff should be trained in ambassador animal-specific handling protocols, conservation, and education messaging techniques, and public interaction procedures. Paid and/or unpaid staff assigned to handle animals during demonstrations or educational programs must be trained in accordance with the institution's written animal handling protocols. Such training must take place before handling may occur (Accreditation Standard 1.5.12). These staff members should be competent in recognizing stress or discomfort behaviors exhibited by the ambassador animals and be able to address any safety issues that arise. Additionally, when in operation, animal contact areas must be supervised by trained paid and/or unpaid staff (AZA Accreditation Standard 1.5.13).

It is important to note that both Eurasian Eagle Owls and Verreaux's Eagle Owls are large and powerful birds, and, improperly handled, they could pose threat of injury to staff or guests. Handlers should always be aware of their individual owl's preferences and comfort, and respond accordingly to avoid injuries. Institutional policy should be followed in the event of an injury.

As with any bird, eagle-owls can pose a zoonotic risk to handlers if appropriate sanitation protocols are not followed. Proper hand washing and sanitizing protocols should be followed immediately after handling any ambassador owl and or their food items. See **Sections 2.2 Disinfecting and Cleaning Crates, Prevention of Zoonotic Diseases** and **2.4 Preventing Zoonotic Diseases** for more comprehensive details on prevention of zoonotic disease transmission.

Training staff to properly handle owls is as important to providing positive welfare as is enclosure size, husbandry protocols, enrichment, and diet. It should be noted that owls, in general, require skilled handlers in order to maximize their welfare and their success as ambassador birds. Eagle-owls are not considered to be "beginner" birds, so prospective handlers should have prior experience working with other raptor species, namely other owls, before they are considered as an eligible handler for this species. Handling consistency for those who handle ambassador owls can have a profound impact on the welfare of the birds in our care. This is best achieved through careful and species-specific training to handle owls. Regardless of institutional variables, such as staff size, program demands, and size of ambassador animal collection, to ensure safety of handlers and welfare of birds, attention to the skill level of the handler should not be overlooked.

While many Eurasian Eagle Owls are comfortable on glove between multiple handlers, some individuals do demonstrate discrimination between handlers and are more suited to a limited number of handlers with whom they have a strong relationship. Verreaux's Eagle Owls may be more easily generalized to multiple handlers although, to note, individuals may still show preferences and discrimination between handlers. The increased level of comfort around humans in hand-reared Eurasian Eagle Owls can occasionally lead to demonstration of behaviors towards some handlers that is normally reserved for other owls and could be interpreted as aggression; for example, there have been occurrences of imprinted female Eurasian Eagle Owls exhibiting territorial behaviors toward humans just as it would with members of its own species. Data is deficient for whether hand reared Verreaux's Eagle Owls demonstrate similar behaviors toward handlers

The individual owl's preferences and comfort level should be taken into consideration when determining how many handlers are feasible for the owl. In order to set the owl and its handlers up for success, the training/certification process for new handlers should:

- Begin with observational learning - trainee handlers should observe certified handlers working with the owl, both in its enclosure and in a variety of programming situations. This should occur on multiple occasions before advancing to handling the owl themselves.
- Similarly, before advancing to working with the owl in programming situations, trainee handlers should demonstrate confidence and competency (see list below to define what competency looks like) working with the owl in neutral situations, i.e. situations that lack excessive environmental stimulation as could occur out in public, while being observed by a seasoned handler.
- Progression through the training and certification process for handling the owl should be determined by the demonstrated comfort of both owl and trainee handler, rather than on a designated timeline.

Institutions may decide to have different levels for handlers, such as onsite versus offsite or stationary on-glove versus free-flight programming. At a minimum, anyone handling the owl in any situation should be taught and evaluated on the following:

- Comprehensive understanding of the species natural history.
- Comprehensive understanding of the individual's preferences and behavioral and seasonal nuances.
- Recognizing the signs of distress and discomfort for both the species and the individual, as well as demonstrating a comprehensive understanding of handling limitations.
- Comprehensive understanding of protocols for maintaining voluntary participation, including but not limited to:
 - How to deliver reinforcement.
 - Asking the owl to step up for removal from enclosure.
 - Returning to enclosure.
 - How to properly place and remove jesses, if applicable, as well as an understanding of appropriate use of equipment.
 - Asking the owl to step into and out of its transport crate.
- Safe handling and presentation of the owl during ambassador programs.
- Institution protocol for dealing with distress and discomfort (i.e. ending the program, returning the owl to its crate or enclosure) and empowerment to act in a way that maximizes welfare of the individual owl.
- Understanding of institution protocol for dealing with human or animal injury.
- Understanding of institution handling certification process and consequences of failing to demonstrate competency in any of the above.

Handlers working with owls in free-flight situations should be trained in and demonstrate competency in all of the above, plus:

- Institutional free-flight protocols, including dealing with a fly off.
- Application and use of telemetry.
- How to cue and reinforce flight behaviors.

3.3 Handler Certification

Each institution should create an ambassador animal handling policy that conforms to AZA guidelines as well as any local legislation. The program, including species/individual animals, program types/messaging, and all handlers, should be reviewed regularly. Handler competency should be evaluated, and concerns with training performance should be addressed.

Certifying handlers as trained and evaluated competent to handle any individual eagle owl may be part of this policy.

- Only individuals that have received training within the institution relevant to working with owls should be allowed to participate in any public demonstrations involving the owl. Specific protocols

that address staffing and proper training plans should be developed and implemented to ensure that anyone handling eagle owls remains safe and focused on the owl during any demonstrations as well as consistent in handling technique. Individuals certified to handle owls should be competent in recognizing stress or discomfort behaviors exhibited by any owl used in programs/demonstrations, and be able to communicate these issues effectively using institution-specific animal care protocols so that welfare or safety concerns can be specifically addressed.

- Individuals certified to handle an owl should be trained in program animal-specific handling protocols, conservation and education messaging, and public interaction procedures. This means all program staff should go through a structured training program and meet specific approval for all elements of handling program owls.
- It is recommended that certification exist for each individual owl, that is, certification to handle one particular eagle owl does not mean the handler is certified to handle ALL eagle owls in the institution's collection. Recognizing each bird is an individual with potential for differing technique to maximize welfare and safety is important during the handler certification process.
- It is recommended that presentation and handling guidelines and protocols should be re-evaluated annually or bi-annually. All individuals involved in the program should have access to these guidelines and be provided with updates as needed. All new potential handlers should be signed off on receiving and reading the standards and protocols during orientation and before commencing work in the area.
- In order to be certified to handle an eagle-owl unsupervised, an individual should demonstrate competency in ALL categories of the handling training protocols, and in order to maintain certification said individual should be evaluated periodically for consistency. Any failure to demonstrate competency in ANY of the requirements for handling an individual owl should result in retraining before being allowed to handle the owl unsupervised, either in or out of programs.

Appendix A: Ambassador Animal Policy and Position Statement

Ambassador (Program) Animal Policy

Originally approved by the AZA Board of Directors – 2003

Updated and approved by the Board – July 2008 & June 2011

Modified from "Program Animal" to "Ambassador Animal" to avoid confusion with "Animal Programs," approved by the CEC; no change to meaning of these terms - January 2015

The Association of Zoos & Aquariums (AZA) recognizes many benefits for public education and, ultimately, for conservation in ambassador animal presentations. AZA's Conservation Education Committee's *Ambassador Animal Position Statement* summarizes the value of ambassador animal presentations (see pages 42–44).

For the purpose of this policy, an Ambassador animal is defined as "an animal whose role includes handling and/or training by staff or volunteers for interaction with the public and in support of institutional education and conservation goals." Some animals are designated as Ambassador Animals on a full-time basis, while others are designated as such only occasionally. Ambassador Animal-related Accreditation Standards are applicable to all animals during the times that they are designated as Ambassador Animals.

There are three main categories of Ambassador Animal interactions:

1. On Grounds with the Ambassador Animal Inside the Exhibit/Enclosure:
 - a. Public access outside the exhibit/enclosure. Public may interact with animals from outside the exhibit/enclosure (e.g., giraffe feeding, touch tanks).
 - b. Public access inside the exhibit/enclosure. Public may interact with animals from inside the exhibit/enclosure (e.g., lorikeet feedings, 'swim with' programs, camel/pony rides).
2. On Grounds with the Ambassador Animal Outside the Exhibit/Enclosure:
 - a. Minimal handling and training techniques are used to present Ambassador Animals to the public. Public has minimal or no opportunity to directly interact with Ambassador Animals when they are outside the exhibit/enclosure (e.g., raptors on the glove, reptiles held "presentation style").
 - b. Moderate handling and training techniques are used to present Ambassador Animals to the public. Public may be in close proximity to, or have direct contact with, Ambassador Animals when they're outside the exhibit/enclosure (e.g., media, fund raising, photo, and/or touch opportunities).
 - c. Significant handling and training techniques are used to present Ambassador Animals to the public. Public may have direct contact with Ambassador Animals or simply observe the in-depth presentations when they're outside the exhibit/enclosure (e.g., wildlife education shows).
3. Off Grounds:
 - a. Handling and training techniques are used to present Ambassador Animals to the public outside of the zoo/aquarium grounds. Public may have minimal contact or be in close proximity to and have direct contact with Ambassador Animals (e.g., animals transported to schools, media, fund raising events).

These categories assist staff and accreditation inspectors in determining when animals are designated as Ambassador Animals and the periods during which the Ambassador Animal-related Accreditation Standards are applicable. In addition, these Ambassador Animal categories establish a framework for understanding increasing degrees of an animal's involvement in Ambassador Animal activities.

Ambassador Animal presentations bring a host of responsibilities, including the safety and welfare of the animals involved, the safety of the animal handler and public, and accountability for the take-home, educational messages received by the audience. Therefore, AZA requires all accredited institutions that make Ambassador Animal presentations to develop an institutional Ambassador Animal policy that clearly identifies and justifies those species and individuals approved as Ambassador Animals and details their long-term management plan and educational program objectives.

AZA's accreditation standards require that education and conservation messages must be an integral component of all Ambassador Animal presentations. In addition, the accreditation standards require that the conditions and treatment of animals in education programs must meet standards set for the remainder of the animal collection, including species-appropriate shelter, exercise, appropriate environmental enrichment, access to veterinary care, nutrition, and other related standards. In addition, providing Ambassador Animals with options to choose among a variety of conditions within their environment is essential to ensuring effective care, welfare, and management. Some of these requirements can be met outside of the primary exhibit enclosure while the animal is involved in a program or is being transported. For example, free-flight birds may receive appropriate exercise during regular programs, reducing the need for additional exercise. However, the institution must ensure that in such cases, the animals participate in programs on a basis sufficient to meet these needs or provide for their needs in their home enclosures; upon return to the facility the animal should be returned to its species-appropriate housing as described above.

Ambassador Animal Position Statement

Last revision 1/28/03

Re-authorized by the Board June 2011

The Conservation Education Committee (CEC) of the Association of Zoos and Aquariums supports the appropriate use of Ambassador Animals as an important and powerful educational tool that provides a variety of benefits to zoo and aquarium educators seeking to convey cognitive and affective (emotional) messages about conservation, wildlife and animal welfare.

Utilizing these animals allows educators to strongly engage audiences. As discussed below, the use of Ambassador Animals has been demonstrated to result in lengthened learning periods, increased knowledge acquisition and retention, enhanced environmental attitudes, and the creation of positive perceptions concerning zoo and aquarium animals.

Audience Engagement

Zoos and aquariums are ideal venues for developing emotional ties to wildlife and fostering an appreciation for the natural world. However, developing and delivering effective educational messages in the free-choice learning environments of zoos and aquariums is a difficult task.

Zoo and aquarium educators are constantly challenged to develop methods for engaging and teaching visitors who often view a trip to the zoo as a social or recreational experience (Morgan & Hodgkinson, 1999). The use of Ambassador Animals can provide the compelling experience necessary to attract and maintain personal connections with visitors of all motivations, thus preparing them for learning and reflection on their own relationships with nature.

Ambassador Animals are powerful catalysts for learning for a variety of reasons. They are generally active, easily viewed, and usually presented in close proximity to the public. These factors have proven to contribute to increasing the length of time that people spend watching animals in zoo exhibits (Bitgood, Patterson & Benefield, 1986, 1988; Wolf & Tymitz, 1981).

In addition, the provocative nature of a handled animal likely plays an important role in captivating a visitor. In two studies (Povey, 2002; Povey & Rios, 2001), visitors viewed animals three and four times longer while they were being presented in demonstrations outside of their enclosure with an educator than while they were on exhibit. Clearly, the use of Ambassador Animals in shows or informal presentations can be effective in lengthening the potential time period for learning and overall impact.

Ambassador Animals also provide the opportunity to personalize the learning experience, tailoring the teaching session to what interests the visitors. Traditional graphics offer little opportunity for this level of personalization of information delivery and are frequently not read by visitors (Churchman, 1985; Johnston, 1998). For example, Povey (2001) found that only 25% of visitors to an animal exhibit read the accompanying graphic; whereas, 45% of visitors watching the same animal handled in an educational presentation asked at least one question and some asked as many as seven questions. Having an animal accompany the educator allowed the visitors to make specific inquiries about topics in which they were interested.

Knowledge Acquisition

Improving our visitors' knowledge and understanding regarding wildlife and wildlife conservation is a fundamental goal for many zoo educators using Ambassador Animals. A growing body of evidence supports the validity of using Ambassador Animals to enhance delivery of these cognitive messages as well.

- MacMillen (1994) found that the use of live animals in a zoomobile outreach program significantly enhanced cognitive learning in a vertebrate classification unit for sixth grade students.
- Sherwood and his colleagues (1989) compared the use of live horseshoe crabs and sea stars to the use of dried specimens in an aquarium education program and demonstrated that students made the greatest cognitive gains when exposed to programs utilizing the live animals.
- Povey and Rios (2002) noted that in response to an open-ended survey question ("Before I saw this animal, I never realized that . . ."), visitors watching a presentation utilizing a Ambassador Animal provided 69% cognitive responses (i.e., something they learned) versus 9% made by visitors viewing the same animal in its exhibit (who primarily responded with observations).
- Povey (2002) recorded a marked difference in learning between visitors observing animals on exhibit versus being handled during informal presentations. Visitors to demonstrations utilizing a raven and radiated tortoises were able to answer questions correctly at a rate as much as eleven times higher than visitors to the exhibits.

Enhanced Environmental Attitudes

Ambassador Animals have been clearly demonstrated to increase affective learning and attitudinal change.

- Studies by Yerke and Burns (1991), and Davison and her colleagues (1993) evaluated the effect live animal shows had on visitor attitudes. Both found their shows successfully influenced attitudes about conservation and stewardship.
- Yerke and Burns (1993) also evaluated a live bird outreach program presented to Oregon fifth-graders and recorded a significant increase in students' environmental attitudes after the presentations.
- Sherwood and his colleagues (1989) found that students who handled live invertebrates in an education program demonstrated both short and long-term attitudinal changes as compared to those who only had exposure to dried specimens.
- Povey and Rios (2002) examined the role Ambassador Animals play in helping visitors develop positive feelings about the care and well-being of zoo animals.
- As observed by Wolf and Tymitz (1981), zoo visitors are deeply concerned with the welfare of zoo animals and desire evidence that they receive personalized care.

Conclusion

Creating positive impressions of aquarium and zoo animals, and wildlife in general, is crucial to the fundamental mission of zoological institutions. Although additional research will help us delve further into this area, the existing research supports the conclusion that Ambassador Animals are an important tool for conveying both cognitive and affective messages regarding animals and the need to conserve wildlife and wild places.

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- IAATE Position Statement: Food Management and Weight Management
- IAATE Position Statement: Enrichment
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