An Informal Review of Captive Wildlife in British Columbia

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Published by:

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INTRODUCTION

In May 2007, 32 year old Tanya Dumstry-Soos was mauled to death after a captive tiger grabbed her leg through the barrier of its cage. Her two young children who were standing nearby witnessed the incident and phoned local police.

Ms. Dumstry-Soos sensational death generated worldwide attention. Almost immediately, members of the public, animal welfare groups, wildlife protection organizations and even newspaper editorial boards expressed concern that the keeping of wild animals was relatively uncontrolled in British Columbia. They called for stricter controls on the way wild animals are kept and displayed.

The tiger that killed Ms. Dumstry-Soos was owned by her boyfriend Kim Carlton. He kept several cats near the Town of Bridge Lake in northern British Columbia and used them for photo sessions and special events. Mr. Carlton was just one of many private individual keeping wild animals, including many potentially dangerous species. In fact, just one week later, a tiger escaped from a private menagerie on Vancouver Island.

British Columbia has been home to a range of zoos and zoo-type facilities for many years including, but not limited to, traditional menagerie-style zoos, roadside zoos, game ranches, safari parks, rescue sanctuaries and, of course, private citizens who keep wildlife for personal amusement and/or occasional display purposes. This diversity is due to the fact that in British Columbia, laws and regulations governing who may own wild animals and under what conditions they may be kept are minimal and many species are not subject to any controls at all.

Spurred by the death of Ms. Dumstry-Soos and the resulting worldwide attention, the Government of British Columbia is now considering new legislation that will control the ownership and display of wild animals in the province. While such a law is desperately needed and long overdue, there are some who feel the status quo is acceptable.

Proponents of private wild animal ownership often cite the Criminal Code of Canada and/or provincial anti-cruelty legislation as being sufficient to deal any problems associated with the proliferation of zoos, wildlife displays and wild animals held by private citizens. Nothing could be further from the truth.

While existing federal and provincial legislation can be used in limited circumstances to address some of the problems associated with the keeping of captive wild animals, they are, for the most part, ineffectual. They do not contain standards for wild animal housing and care, so enforcement agencies are faced with trying to enforce rather vague, highly subjective provisions. As well, these laws tend to be retroactive, meaning that an offence must have occurred before enforcement agencies are able to take action.

Most significantly, there is no up front regulation of wild animal keeping. Any person or business can open a zoo or acquire wild animals; there is nothing requiring them to obtain a permit, prove they have the necessary expertise and experience, a feasible business plan or even the financial ability to construct safe cages. Right now, to all intents and purposes, it is pretty much anything goes.

Several people have suggested that captive wild animals are not a significant problem in British Columbia, so they claim there is no need for new laws or regulations. While British Columbia has never been home to as many zoos and wild animal displays as some other provinces, that does not mean their numbers are inconsequential. At any point during in time during the past several decades, tens of thousands of wild animals have been held captive in the province.

This report provides a "snapshot" image of a few of the better known animal displays and private menageries in British Columbia. **Note:** Primate Estates reportedly closed down while this document was being prepared.

Many other jurisdictions around the world already regulate the keeping of wild animals in zoos, zoo-type exhibits and private hands. We encourage British Columbia to do the same by developing and delivering their own comprehensive laws and regulations. We hope this report plays a role in making that happen.

GENERAL COMMENTARY

Animal Welfare

In past years, it was considered acceptable to keep captive wild animals in relatively sterile, easy-to-clean cages and enclosures. Animal lives were subject to pre-arranged schedules that removed any ability for them to make a meaningful contribution to the quality of their own lives. These institutionalized, jail-like conditions did little to promote good welfare.

Animal welfare involves much more than just satisfying an animal's physical survival needs (i.e., food, water, shelter) or the absence of injury or disease. Certainly, physical functions and overall condition are important aspects of welfare, but an animal's welfare can still be poor in the absence of obvious physical problems. Fear, boredom, frustration, anxiety, various states of deprivation and chronic stress may be experienced by an animal and result in poor welfare, even when everything appears "normal".

Animals housed in behaviorally impoverished environments often experience a decrease in behavioural variability and an increase in behaviours directed at themselves (e.g., hair pulling) or their immediate surroundings (e.g., bar licking).
In a failed effort to cope, some animals incrementally close themselves off from their surroundings becoming withdrawn and inactive; sitting, lying or sleeping for abnormally long periods of time. Some develop stereotypic behaviours (prolonged, obsessive, repetitive, apparently purposeless activities that do not occur in the wild) or other kinds of abnormal behaviours that are often a sign of poor welfare.

Stereotypic behaviours, such as rocking, pacing, weaving and bar biting, typically occur when animals have failed to cope with a chronic stressor or are unable to remove themselves from stressful situations.

Satisfying the behavioural requirements of wildlife in captivity is essential to their welfare, yet it is an area that has routinely been overlooked or ignored by many zoos. All captive animals must be given some control over their environment and an opportunity to make choices - in short, they must be allowed to make a meaningful contribution to the quality of their own lives.

Accommodation

Animal accommodation should be designed according to the specific needs of the species to be kept. In all cases, cages and enclosures must be designed to make animals feel comfortable, secure and they should encourage a full range of species-typical movements and behaviours.

The physical environment provided to captive animals is directly linked to animal welfare because it is what the animal interacts with on a daily basis.

A variety of cages and enclosures are in use today. They include glass aquariums, aviaries, homemade chainlink cages, old-style, bar and concrete exhibits, moated islands, open paddocks and naturalistic exhibits that attempt to replicate natural conditions. In most cases, natural conditions provide a far greater range of behavioural opportunities than their more artificial counterparts.

The shape of an animals living space can be an important factor in animal health and wellbeing. Arboreal mammals require high enclosures that allow them to climb, while many group-housed animals should be kept in enclosures that are free from dead ends or sharp corners or alcoves where dominant animals can potentially trap their subordinate cagemates.

As well, shape can contribute to the complexity of an animal's living space making it more interesting, providing secure rest areas and ensuring that there are areas in which animals can escape from public view. All captive animals must be able to move about and behave in a similar way to their wild counterparts.

Space

Space is probably the most critical consideration in wild animal housing. Typically the size of cages and enclosures is determined by available space and budget and not on the biological and behavioural needs of the animals themselves. The fact is that most cages and enclosures are thousands or millions of times smaller than the home ranges or territories of animals in the wild. Therefore, a good rule of thumb when considering the allocation of space for wild animals in captivity, regardless of species, is the bigger the better. There is no upper limit to cage size.

At the least, all animals should be provided with enough space to express natural movements (such as flying, running or swimming at speed) and a full range of species-typical behaviours. Three questions relating to space should always be considered: 1) Do the animals have enough space to behave normally; 2) Do the animals have enough space to feel secure; and 3) What are the consequences of not providing enough space?

Bigger really is better. It is always better for animals to have more space than they need, than to need more space and not have it. There is no downside to more space, but a considerable downside when there is not enough space.

However, it is also important to recognize that a large barren, cage or enclosure can be as damaging to an animal's well-being as an enclosure that is too small. While enclosures should be as large as possible, they should also be inherently complex and high quality.

Barriers

The barriers that confine animals should be solidly constructed, free from defects, species-appropriate and able to safely contain the animals.

Materials like weld-mesh and bars can often be cheaper than many alternatives and if used creatively with an understanding of an animal's biology and behaviour, can form effective enclosures that provide opportunities for animals to climb or perch.

Moated enclosures are often used because they look better to visitors, but they are very expensive, take up a lot of space and they are often constructed without thought for animals that may inadvertently fall into them. The base of dry moats should usually be cushioned with soft substrate material to prevent injury if animals fall in, while wet moats should contain features that allow animals to get out quickly and easily.

Glass and other transparent barriers have become increasingly popular, but they are expensive and can make temperature and humidity difficult to control as they restrict air flow. As well, some animals (e.g., certain lizards and turtles) have difficulty recognizing transparent walls as barriers they cannot pass through resulting in excessive Interaction with Transparent Boundaries (ITB), a type of obsessive abnormal behaviour.

Areas where different materials meet (e.g. wooden fences to brick walls, wire mesh to wooden frames etc.) should be considered potential weak points and monitored for wear and tear. Broken wires /

masonry, rusted metal, rotten wood, etc. should all be replaced or repaired as they may present a danger to animals, staff and visitors.

Whenever weld-mesh, chainlink or other materials are affixed to a post or support structure, they should ideally be fixed to the interior side of the support to prevent detachment if an animal pushes or leans against it. As well, fences containing animals that dig should be buried at least three feet into the ground and angled inward at a 45 degree angle to prevent them from digging out beneath the fence. For animals that climb or jump, fencing should be high enough to prevent them from jumping over, with a section angled inward at a 45 degree angle at the top.

Substrates

All terrestrial animals have evolved specific physical and behavioural traits that allow them to exist comfortably on particular kinds of substrates, so those substrates should be provided in captivity. Concrete, gunite (a molded, concrete-like material) and hardpan (earth compacted to a concrete-like consistency) substrates are not acceptable.

Hard surfaces may often be preferable from a management perspective as they are easier to clean and maintain than natural surfaces, but they are antithetical to good animal husbandry. Hard surfaces can be uncomfortable or physically damaging to animals; increase the thermal load animals experience by radiating heat in hot weather and cooling down rapidly in cold weather; are inherently boring; and they hinder public education by presenting animals in a situation far removed from their natural ecological context.

Raised wire floor surfaces are usually the most inappropriate. They are typically employed for convenience reasons, because they allow feces to drop through, facilitating quick and easy cleaning. However, raised wire floors can cause discomfort, pain, infection and injury, even when great care is taken in choosing the type and gauge of wire.

Wire floors can also make heat regulation difficult, because air flows freely through the floor from below, as well as through any other barriers that are constructed of wire. In certain circumstances, they also make it difficult to provide proper bedding, since straw, wood chips and other materials may work their way through the wire to the ground below.

All animals should be provided with soft substrate floor surfaces that are comfortable and that provide a range of behavioural opportunities.

Permanent Exhibit Features & Non-Permanent Furnishings

All wild animal cages and enclosures should be interesting and as complex as possible. This can sometimes be achieved in part through structures, furnishings and husbandry practices aimed at increasing behavioural opportunities available to the animals and that encourage the expression of species-typical behaviours and movements.

Satisfying the behavioural requirements of wild animals in captivity is essential to their welfare. Captivity imposes biological and behavioural constraints on animals that they may have no natural way of coping with. Since the nature of their confinement often offers few opportunities for coping, especially when compared to the range of options that would typically be available to them in the wild, they must be given as complex an environment as possible. All captive animals must be given some control over their environment and an opportunity to make choices.

Since most zoo conditions are not going to change right away, enrichment of cages and enclosures through the provision of structures, furnishings and changes in management should be considered a vital part of daily husbandry. They should not be considered optional.

Keeping animals engaged and active through enrichment of artificial environments is a challenging, dynamic process that requires thought, effort, evaluation and revision. It is not a simple endeavour. Most animals quickly tire of the same old thing day after day.

While enrichment can take many forms, the bulk of it falls into one of four basic categories: permanent exhibit features, furnishings, objects and management.

Structural enhancement through the provision of permanent exhibit features (e.g., contoured surface topography, giant rocks, mature trees, streams, pools) must be carefully considered during the initial exhibit design phase, since the likelihood of those features being changed after construction is minimal. Of course, it goes without saying that the biology and behaviour of the species to be confined must be a major factor in all decisions regarding which features to incorporate into an exhibit.

One often overlooked aspect of enclosure design is the use of vertical space. Incorporating appropriate design features and structures that allow utilization of the vertical dimension will increase opportunities for movement and exercise, even for animals that are mostly terrestrial in nature.

There are an almost endless variety of furnishings can be incorporated into exhibits. Some examples are small trees, branches, logs, log piles, small rock piles, brush mounds, root balls, moveable sand/bark/mulch pits, other novel substrates, nesting boxes, pipes, tubes, visual baffles, shade structures, moveable climbing apparatus, platforms, hammocks, bungy cords, rope ladders, hanging rings, scratching posts, pools, streams, sprinklers, water jets, rafts, brushes, puzzle feeders, boomer balls, nylabones, traffic cones, wooden rings, cardboard boxes, etc. Most of these are things that animals can use and manipulate.

Food Enrichment

Food-related enrichment strategies can be an important facet of enrichment programming. For many species, food acquisition activity represents a significant percentage of their daily routine. In fact, the process of acquiring food is extremely important for nearly all animals, with most species having evolved specific physical and behavioural traits that favour food acquisition over other kinds of activity.

Study of the activity budgets of wild animals provides a basis for comparison with captive animals. Food acquisition activity can comprise 50% or more of a wild animals daily activity, so it's important that expression of species-typical food-related behaviours in captive animals be encouraged and facilitated by animal caretakers.

Historically, many captive animals have been fed infrequently, often once or twice a day according to a fixed schedule. This virtual elimination of food acquisition activity leaves animals bored and inactive. Staggered feeding schedules, the introduction of live food items, hiding food items, painting food treats such as jam or honey in hard to reach locations to encourage stretching and climbing, whole carcass feeds for carnivores, the provision of multiple foraging opportunities for ungulates and other strategies that make animals search and work for their food can all be used to increase activity.

The idea that animals should be fed on a fixed timetable with no variation as part of a regime of total institutionalized care should be considered an anachronistic method of animal husbandry that is no longer acceptable.

Shelter & Privacy

Shelter is an important aspect of animal care that is surprisingly often overlooked or ignored. Shelters come in many shapes and sizes, including artificial structures (e.g., wooden boxes), building interiors, underground dens, hollow trees or even dense thickets of vegetation.

Shade shelters may simply be camouflage netting draped on top of a cage, purpose-built canopies or even large trees that animals can stand under.

Shelter should be always be available so that all animals are able to retreat from adverse weather conditions or remove themselves from excessive sunlight when required. Shelter should not be reliant on indoor holding areas alone, but should be available in the primary living space as well.

When animals are housed in groups, all individuals must be able to access shelter at the same time, even if they are unlikely to do so. As well, shelters should be constructed so there is no possibility of dominant animals trapping subordinate animals inside.

Shelter boxes should be weatherproof and raised off the ground if flooding is a concern. In cold climates, sleeping boxes should also have an appropriate door flap or covering so that heat generated by the animal is trapped in the interior of the shelter. In addition, sleeping boxes should be freely accessible to the animals, contain bedding materials and, in most cases, their interiors should not be open to public view.

Privacy areas are also important as animals must always have the opportunity to remove themselves from public view or, in some cases, the view of their cagemates. Strategically placed visual baffles and the provision of multiple shelters can help satisfy this need.

Lack of privacy is particularly problematic when viewing stations allow visitors to get so close to the animals that their "fight or flight" response (the distance at which an animal would want to flee from or defend itself against a perceived threat) is triggered. Violation of the "fight or flight" distance can result in high levels of stress and/or attempts to flee, often resulting in physical injury or, in extreme cases, death.

Privacy from cagemates can also be an important husbandry consideration. Many animal species establish social hierarchies in captivity, where dominant individuals exercise first choice of food, preferred areas for resting, sunning, etc. For this reason, it is important that subordinate animals not only be able to avoid physical contact with dominant cagemates, but that they are able to remove themselves from visual contact as well.

Privacy can also be important for species that delineate a territory through visual means. Placing them together in groups can be very stressful.

Environmental Conditions

Animal welfare is based, in part, on an animal's ability to successfully adapt to changes in environmental conditions without suffering. So all captive animals should have conditions of temperature, humidity, light and ventilation consistent with their biology and behaviour.

High temperature and humidity can be particularly challenging to deal with. Many animals (i.e., most mammals, birds) have the ability to elevate internal heat production when they get cold, but they have difficulty cooling themselves down when they get excessively hot because they can only reduce heat production to a level compatible with continuation of their basic metabolic processes. This may not be sufficient to deal with conditions of high heat, so captive animals must be given the opportunity to thermoregulate by moving to cooler, shady areas such as forest cover, burrows, rock cavities, pools, etc. They must also be provided with potable water at all times.

Also problematic is the structuring of zoo husbandry practices around staff timetables. Doing so often ignores the need of animals to maintain a natural cycles, such as photoperiod. While this is less of a problem for animals housed in outdoor exhibits (unless they are out of their normal geographic range and their biology and behaviour is related to or dependent on normal photoperiod), it can be a real problem for animals housed inside. Behaviour is often influenced by the amount of light and dark animals experience. Species originating in equatorial regions tend to require relatively constant hours of light and dark, but this changes substantially as you move further from the equator.

This should be a consideration when dealing with animals in captivity. Turning the lights on when staff arrive in the morning and shutting them off when they go home may not be an appropriate husbandry protocol for many species.

Light and ventilation are important husbandry considerations. If a species is nocturnal it should not be forced to be active or on constant display during the day, unless displayed in a suitable reverse lighting, nocturnal exhibit. Inadequate ventilation in any enclosure may result in over-heating and unnecessary stress.

Drinking Water

All enclosures should be outfitted with a supply of fresh, potable water at all times. In group housing situations, each enclosure should contain a sufficient number of watering stations to prevent dominant animals from monopolizing access to drinking water. In cold climates, drinking water should be presented in a way that it does not freeze.

Safety

Whenever wild animals, especially potentially dangerous species, are confined, safety of the animals, staff, visitors and neighbours must always be a primary consideration.

All enclosures should be designed with enough space and complexity that animals will not be preoccupied with escape. Contented animals that are able to engage in a range of normal behaviours are less problematic in this regard.

All barriers (including gates and doors) must be constructed with the physical abilities of the animals in mind. Walls must be high enough that animals cannot jump over them, moats must be too wide for animals to leap across and fences must be strong enough that animals can't push them over.

Gates and doorways should fit snugly against fences and walls, leaving no gaps in between and they should not bend or warp when locked. They should always open inwards and sliding barriers should be constructed to prevent animals from lifting them off their hinges or tracks.

Enclosures should ideally be equipped with double door entry systems that allow staff to enter through one door, closing it behind them, before opening the second door into the exhibit. This prevents the inadvertent escape of animals that may 'sneak' past anyone entering the exhibit. While this system is advisable for all enclosures, it is absolutely essential for exhibits housing potentially dangerous animals.

As well, all enclosures housing potentially dangerous animals must be equipped with secondary containment areas, where animals can be secured during routine enclosure maintenance, cleaning or for veterinary purposes. This area should be secured by a sliding door that can be safely operated from outside of the exhibit.

All enclosures should be locked, regardless of species. Not only does this prevent animal escapes, particularly with intelligent animals that can learn to open doors and gates, but it may prevent entry into exhibits by trespassers, vandals and thieves.

A stand-off barrier to keep visitors a safe distance from the animal cages is also important.Visitors should not be able to put their fingers, hands or arms into cages or even make contact with the cage itself. This protects both visitors and animals and prevents the transmission of disease between animals and humans.

An essential component of any zoo security strategy is a perimeter fence. Some zoo associations have made perimeter fencing a mandatory requirement for accreditation. Perimeter fencing should ideally be 2 meters in height, topped with barbed wire and the base of the fence should be buried into the ground to a depth of at least 1 meter or affixed to a concrete curb or base. Not only will a perimeter fence discourage escaped animals from leaving the zoo grounds, it will also discourage unwanted entry by human trespassers and feral animals. Large trees that overhang the fence should be trimmed to ensure that they do not fall, thereby creating openings that animals could escape through.

Night lighting should be considered in key areas as an aid to security personnel.

Protocols to deal with animal escape, human injury, natural disasters and other emergency situations must be in place. Drugs to immobilize potentially dangerous, escaped animals and firearms to prevent loss of life should be on site and in good working order. All staff should be familiar with emergency plans and protocols that are outlined in a manual that all staff are required to review.

LAWS AND REGULATIONS

Regulations regarding the ownership and possession of wildlife in British Columbia are set out with respect to the provincial Wildlife Act. Wildlife is defined by the Act as "raptors, threatened species, endangered species, game or other species of vertebrates prescribed as wildlife and includes fish" (Wildlife Act 1.1). Under the Wildlife Act Permit Regulation, zoo is defined as "a place or enclosure where animals are kept in captivity for public viewing or public display" (Wildlife Act section 1). No person is entitled to keeping a wild animal in captivity as all wildlife "is vested in the government" (Wildlife Act section 2.1). Permits are required for possession of wildlife and can be applied for by obtaining proper documentation forms from a regional Fish and Wildlife manager, government agent, the Permits and Authorizations Service Bureau or online.

Regional managers may authorize permits to people to possess wildlife, capture live wildlife, traffic legally captive wildlife, export wildlife or to release them from captivity, all of which apply to animals held in captivity in a commercial business established as a zoo. These permits must meet the regional managers satisfaction as set out in the Wildlife Act, which basically states that the captive wildlife will not affect "proper management of wildlife resources" and cannot be issued to someone under 10 years old or 19 years old with parental consent (Permit Regulation, sections 5, 6). Permits may also not be issued if the wildlife has been "taken, captured, possessed, trapped, imported or hunted illegally (without a license), unless the wildlife or parts of wildlife are for educational or scientific purposes and are given to an educational or scientific organization that hold a valid permit.

These particular permits may have conditions attached to them with respect to "location, dimensions, construction and maintenance of and the materials to be used in constructing and maintaining, enclosures for wildlife" and may also have rules set out with regard to health and safety of both the animals and the public. (Wildlife Act, Permit Regulations, section 12). Every permit issued must maintain specific up to date records in relation to the wildlife being held (Wildlife Act, Permit Regulations, section 13).

In order to hold a permit as a zoo one must first acquire insurance in the minimal amount of $1 million dollars for a time period that corresponds to the life of the permit and is applicable to the operation of a zoo.

The cost of a permit required for the purpose of possessing live wild animals is $100 with a $30 surcharge fee that is donated to a habitat conservation trust fund. Surcharges are waived for those who belong to a government agency, are working on behalf of a government agency, are a municipality under the Local Government Act, are in the city of Vancouver or are doing non-profit scientific research.

On application there must be proof that the facilities have been inspected by Ministry personnel. The number, age and gender of wildlife, active identification (tags, tattoos, etc), supplier of the wildlife and its purposed use must be indicated. A Public Safety Plan form also must be filled out that includes a series of five questions: How is the wildlife being transported into/from British Columbia? How is wildlife being transported while in British Columbia? How is wildlife being contained while in British Columbia? What preventative measures are in place to prevent escape? What measures are in place should wildlife escape? (Permit and Authorization Service Bureau – Environment – Province of British Columbia).

Two types of permits may be authorized in this instance, allowing the permit holder to conduct specific activities, or exempt the permit holder from having to comply with certain regulations, and they usually expire within one to five years. (Permit and Authorization Service Bureau – Environment – Province of British Columbia).

It is considered an offence to not adhere to the regulations set out by the Wildlife Act and doing so can result in possible “fines of $100,000 and one year in prison” (Permit and Authorization Service Bureau – Environment – Province of British Columbia).

METHODOLOGY

This review of zoos and zoo-type displays in British Columbia was conducted in March 2008. None of the facilities reviewed were notified in advance. This was done to avoid the facilities making cosmetic improvements or animals being shifted prior to the review date.

Each facility was visited during regular business hours. Two facilities were not open, so observations were made from neighbouring properties and public space.

The time frame at each facility was limited to a maximum of one day, so the timeframe and, in some cases, the circumstances were restrictive. However, sufficient observations were made to allow for an informed commentary to be developed about particular aspects of each facility, such as the type, appearance and number of animals, as well as individual exhibit size, shape, substrate, features and furnishings, shelter, etc. No attempt was made to assess public education and conservation programs or aspects of each facility that would require a longer, more involved review process (e.g., daily animal management protocols, long term health management plans).

In all cases, notes were made, photographs taken and video obtained. When it was not feasible to take notes during a review, notes were made immediately upon exiting the facility. Public promotional materials, media stories, other printed and web materials were also reviewed.

Note: Commentary regarding the Hidden Valley Mini Zoo is based on a 2007 British Columbia SPCA report, including photographs taken in 2006 and 2007. Additional information was obtained from published media articles.

BRITISH COLUMBIA WILDLIFE PARK

The British Columbia Wildlife Park (BCWP), founded by John J. Moelaert, originally opened under the name of Kamloops Zoo in the mid 1960s. The park's first major exhibit opened in 1966 and featured two moose in a large paddock. That was followed by a children's zoo (the layout developed by the designers of the San Diego Zoo), a zoo that apparently provided animals to the park. Other features of the BCWP were added incrementally during the intervening years.

Located just east of the City of Kamloops, the 50 hectare BCWP features approximately 65 animal species, including grizzly bears, cougars, gray wolves and mountain goats. In addition to the various animal exhibits, the park offers visitors an educational Discovery Center, outdoor amphitheatre, children's playground, splash park and several signature event activities.

The BCWP promotes itself as a facility where visitors can experience wildlife up close and personal. They publicize their involvement in several organized breeding programs (e.g., burrowing owl) and employ the motto "conservation through education" in their promotional materials. The park takes in a number of injured and orphaned native wild animals annually for rehabilitation and release purposes.

Overview

The BCWP features a range of animal accommodation types, including open paddocks, wire-mesh pens and several, small, old-style animal cages (e.g., walled pit, aviary, corn-crib cage).

The showcase exhibit, located across from the Discovery Center entrance building, is a fenced pen housing grizzly bears. No bears were observed, presumably because they were denning for the winter. The exhibit is essentially a contoured, open grassy area with a central hillock being the dominant feature. Structural enhancements and furnishings include a shallow concrete pond, a small area of scrub, several medium-sized trees and a number of horizontal logs positioned on the ground throughout the exhibit. Overall, the exhibit appeared relatively barren, although there was still some snow cover on the ground, so it is possible that vegetation growth in the spring may make it appear less Spartan and more natural.

A complex of old-style, small animal enclosures, most of them abutting service buildings, are presumably a hold-over from the original children's zoo. While a number of these cages appeared empty, the rest were occupied by a variety of species, including guinea pigs, swift fox and squirrel monkeys. The latter, housed in a refurbished indoor/outdoor exhibit, are one of only a small number of exotic species at the BCWP.

All cages and enclosures were furnished, although the type and extent of furnishings varied considerably. For example, the swift fox cage was minimally equipped with a few rocks, two tires, ground level logs and a sleeping box that was open to public view, while the squirrel monkey exhibit was more extensively furnished with ropes, ladders, horizontal branch-work, platforms, hammock and other materials.

A birds of prey exhibit complex was situated at approximately the midpoint of the zoo. The complex appeared to be relatively new and consisted of a several aviary-style enclosures surrounding a central visitor gallery. Viewing was achieved through large wire-mesh windows. This complex housed a variety of raptor species, including bald eagle, golden eagle, snowy owl, Great-horned owl and barred owl. A number of the birds appeared to have damaged wings, presumably non-releasable birds donated to the zoo by wildlife agencies.

Several of the cages were long and rectangular in shape, while others were irregularly shaped. All were minimally furnished with vertical, diagonal and horizontal branch-work and sheltered perches. Visual baffles were not observed, although it appeared the birds could achieve a distance from the visitor gallery at which they would not be stressed. Having said that, it did appear as though several of the birds were purposely positioned as far away from the visitor viewing station as possible (e.g., barred owl, Great gray owl, Great horned owl).

A modestly-sized, fenced paddock containing two Bactrian camels lacked structural enhancements and furnishings Extensive chewing of a number of fence posts was noted.

The petting area contained several domesticated animals (e.g., goats, rabbits) in simple pens, including two llamas in a barren pen with a low fence and no visitor stand-off barrier. A sign warned visitors that the llamas may bite, but whether or not it would deter unsupervised children from accessing the animals is open to question.

The majority of the remaining exhibits were moderately-sized, fenced, ungulate pens along one side of the central visitor pathway. They confined elk, caribou, pygmy goat/Jacobs sheep/Barbados sheep, California bighorn sheep and Mountain goat. All exhibits were similar to each other, the bulk of each consisting of a relatively level grassy/earth substrate with light to intermediate mature tree cover. The rear of the California bighorn sheep extended partially up the hillside and the Mountain goat pen extended up the hill and over a rocky promontory. A hiking trail wound its way along the outside perimeter of this exhibit and up the hill allowing visitors who an opportunity to look down at the Mountain goat pen.

Three wolves were observed in an open, semi-naturalistic pen that contained scrub vegetation, several mature trees, logs, rocks and a number of other items. Topographic features included a hillock on one side of the pen and what appeared to be a pond area. The wolves had worn distinct pathways in the ground throughout the exhibit, suggesting considerable pacing. One wolf was observed pacing along these pathways.

Across from the wolf exhibit was a smaller exhibit containing two coyotes. Although the exhibit contained several mature trees and a brush area, it was still quite stark. Some privacy could be obtained in the brush area and in a corrugated metal pipe embedded in the ground. Distinct pathways had been worn in the earth from pacing and one of the animals appeared agitated. Since the primary viewing station overlooked the exhibit, most of which was below the level of the visitor pathway and viewing station, the animals were viewed from above. One coyote was observed pulling apart a cardboard box to obtain something inside, presumably an enrichment activity.

Fenced compounds containing moose and Plains bison/mule deer/white-tailed deer were situated close to several of the carnivore pens. These exhibits were similar to the ungulate exhibits described previously.

A relatively small exhibit, essentially a fenced depression in the ground, contained several lynx. The primary visitor viewing station was positioned so that visitors could look down at the animals. It was similar in many respects to the coyote exhibit. Two of the lynx were manipulating boxes containing food treats.

The cougars were housed in an enclosed, wire mesh cage minimally furnished with logs, rocks and other items. Privacy areas were minimal and vertical space usage was poor.

Discussion

The BCWP's focus on native British Columbian wildlife is well-suited to the region and its climate. It appeared that the small number of exotic species (e.g., squirrel monkey, Bactrian camel) currently held at the facility will be phased out over time.

While the BCWP visit occurred during the winter, it was easy to visualize the park-like setting that would be present during the warmer summer weather when ground vegetation has turned green and trees are in full foliage. The park-like impression will almost certainly be enhanced by the rocky, hillscape that provides a backdrop to the property.

While there are a number of cages and enclosures that can be substantially improved, both spatially and otherwise, when compared to other zoos across the country, a considerable portion of the animal accommodation was more spacious and, in some cases more naturalistic, than that found in other zoos. Several of the ungulate paddocks and the wolf compound stood out in that regard. As well, several cages in the birds of prey complex were larger than those observed in many other Canadian facilities.

One of the zoo's major exhibits housed brown (grizzly) bears, although the bears were not on view. The compound was sizeable when compared to most urban zoos, but still seemed rather small for these wide-ranging animals.

Cages and enclosures housing some of the other animals were not particularly large. For example, several of the carnivore cages (e.g., cougar, lynx, coyote, swift fox, red fox) were relatively small, while enclosures for the Bactrian camels and llamas were small.

While the cold weather and lack of foliage may have contributed to the rather Spartan appearance of many cages and enclosures, it was clear that a significant percentage of them could be improved through additional structural enhancements, furnishings and objects. For example, the children's petting zoo area and Bactrian camel exhibits were bland and unimaginative and the lynx and cougar enclosures were only minimally furnished, so there was considerable room for improvement. As well, several of the birds of prey exhibits could benefit from additional kinds of perches, screened, sheltered perching sites and visual baffles at strategic locations.

Most of the animals appeared to be in reasonably good physical condition (i.e., not obviously injured or diseased), but a number of them were observed expressing repetitive, presumably stereotypic, movement patterns. For example, one of the wolves was viewed pacing a repetitive pattern along one of a number of interlinked pathways in its enclosure, while a coyote in a nearly enclosure was observed doing the same. Some of the wooden fence posts and struts in the Bactrian camel enclosure were heavily chewed, possibly an indication of boredom or frustration.

The BCWP is a mixture of new and old. Some exhibits appear spacious and natural, while others are in need of improvement. There are several positive aspects to the BCWP, such as their wildlife rehabilitation activities and their involvement in local conservation initiatives. Hopefully, these activities will be expanded and housing conditions for the animals continually improved.

This unimaginative bison enclosure leaves little for the animals to do.

The struts in the camel enclosure fence have been heavily damaged by chewing.

Pacing pathways were evident in this seemingly spacious, but rather stark, wolf enclosure.

Pacing in the coyote pen has created paths in the snow, a possible indicator of boredom.

GREATER VANCOUVER ZOO

The Greater Vancouver Zoo (GVZ), located in Aldergrove, British Columbia about 45 minutes from Vancouver, was started in the late 1960s when Pat Hines purchased 120 acres of land to fulfill his dream of creating a game farm. The facility officially opened in August 1970 under the name of World Wide Game Farm LTD. Other name changes followed, but it wasn't until 1999 that it was finally called itself the Greater Vancouver Zoo.

The GVZ exhibits approximately 600 animals representing 135 species, including big cats, primates, exotic ungulates, birds, reptiles and amphibians. The zoo operates a miniature train and rents out Quadra-cycles for visitors who wish to pedal their way through the facility. Bus tours are available for anyone wanting to view the larger native ungulates, bears and wolves in the paddocks housed in the exhibits at the rear of the property.

The GVZ claims it is "dedicated to preservation, conservation and protection of endangered species" and publicizes their involvement in a program to breed endangered Oregon spotted frogs.

In recent years, the GVZ has been heavily criticized by animal welfare and wildlife protection organizations. They received a great deal of negative attention for maintaining Tina, a single female Asian elephant, alone for a number of years. Eventually, Tina was moved to the Elephant Sanctuary in Tennessee. Most recently, the zoo was criticized for keeping Hazina, a single young hippopotamus, alone in a barn for more than a year. Various other actions and policies of the zoo have also been criticized over the years.

Overview

The majority of the GVZ consists of large, relatively open paddocks housing a variety of ungulate species, bears and wolves. Smaller enclosures house a number of carnivore species, while a few cages situated near the zoo entrance house small mammals and birds. Interior shelter for some outdoor exhibits consists of wooden sheds, barns and brick buildings, some of them doubling as service buildings. A rudimentary, indoor vivarium housing a variety of amphibians, reptiles and small mammals in aquariums, terrariums and other kinds of glass-fronted, jewel enclosures is situated next to the gift store.

With just a few exceptions (e.g., new hippo enclosure), the overall conditions at the GVZ are substantially the same as outlined in past Vancouver Humane Society/ Zoocheck Canada reports, so this review provides rather general commentary only. Some of the outdoor paddocks were reasonably spacious and allowed normal locomotion over short distances and the expression of at least some natural behaviours (e.g., elk, wolf). However, a number of other enclosures were excessively small and boring. For example, the giraffe enclosure was undersized, bland and consisted of a relatively flat grassy surface with no outstanding features.

Cages housing small mammals, such as raccoons and coatimundis, were small, while vivarium exhibits ranged in size from small (e.g., marmosets) to excessively small (e.g., ornate nile monitor, tortoise).

The outdoor paddocks all featured natural earth substrates, but there was still a problem with dampness (e.g., peccary, elk) and excessive standing water in some areas. While this appeared to be somewhat improved over past years, that impression may be due to the relatively dry conditions during this most recent visit. Regardless, there still seems to be a need for ongoing mitigation measures, including landscaping and additional elevated dry rest areas.

Some of the small animal exhibits (e.g., raccoon) featured pebble floor surfaces that restricted ground-oriented behaviours, while a number of the vivaria animals (e.g., Burmese python) were displayed in hard, gunite-floored exhibits.

While some of the GVZ cages and enclosures were reasonably complex (e.g., elk, wild pig) featuring contoured, natural terrain and natural features (such as earth mounds, logs, trees, ground vegetation, rocks), others were relatively barren, devoid of significant sources of stimulation (e.g., giraffe, big cats) and in need of improvement. One giraffe was observed with overgrown hooves, presumably the result of inactivity and predominantly soft substrates, while several of the lions appeared obese, possibly due to lack of exercise. In both cases, the exhibits did not provide a level of complexity that would encourage and facilitate natural movements and behaviours. Many exhibits were rather stark with minimal furnishings, so there was considerable room for increasing environmental complexity.

In a number of exhibits, natural objects (e.g., branches, vegetation) were sparse and had a decorative function. They are meant to create a more natural look, but often had little relevance to the animals. For example, in the vivarium, the caiman pool featured a raised backdrop and side walls draped with living plants, creating a green frame to their rather bland living space below.

Another vivarium exhibit featuring a leopard gecko had a photo backdrop of a natural desert scene. While this image may make the display more aesthetically pleasing to visitors, but it is biologically irrelevant to the gecko confined in the small, artificial space in front of it.

Discussion

Some of the key problems outlined in the 2003 Vancouver Humane Society/ Zoocheck Canada report, *Broken Promises? A report on the well-being of animals at the Greater Vancouver Zoo*, remain unaddressed or only partially addressed. They include, but are not limited to, lack of space, lack of stimulation to encourage a full range of natural movements and behaviours, inappropriate social environments and excessively soggy or waterlogged enclosures.

Space is a significant concern for a number of the small animals housed in the vivarium. For example, the Burmese python, Ornate nile monitor, spectacled caiman, leopard gecko and African spurred tortoise were all kept in grossly undersized exhibits that severely restricted normal movement, resulting in a state of forced idleness. Several reptiles displayed abnormal behaviours, such as pacing back and forth along a barrier (e.g., African spurred tortoise) or swimming repetitively along the glass barrier of their aquarium, a behaviour known as ITB (Interaction with Transparent Boundaries).

Lack of stimulation, something that was identified in previous reports about the GVZ remains a concern. As indicated previously, many of the vivarium animals were housed in grossly undersized, behaviourally impoverished, thermally simplistic exhibits that fail to facilitate natural movements and behaviours. The raptor row cages were also small and provided minimal stimulation. Flight was not possible and the birds had little to do except remain on their perches. Some of the large animals (e.g., giraffe) also had little stimulation. Their fenced pen resembled a close-cropped lawn. One of the animals had developed slipperfoot (excessive hoof growth), presumably because of inactivity and inappropriately soft substrates. The big cat exhibits were not qualitatively much better. The cages were minimally equipped and contained little to encourage movement and activity. Presumably, that is why some of the cats (e.g., lions) appeared obese.

Social environments for some species were also inappropriate. For example, a single white rhinocerous and a single River hippopotamus, both social species, were kept alone in their respective pens. Another social animal kept in a rather abnormal social setting were the giraffes. In the wild, female giraffes typically live in small herds of a dozen or more individuals, juvenile males may congregate in bachelor

herds and adult males often live alone. Maintaining only two giraffes at the GVZ is not a normal, natural social situation.

Soggy substrates and waterlogged sections in some of the outdoor pens were observed, although some improvement seems to have occurred in this regard when compared to past visits. However, this remains a concern, especially for animals that are adapted to warm, dry climates. The peccary pen was largely devoid of vegetation and virtually the entire ground surface was damp and spongy. A number of the ungulate pens were also soggy and/or contained substantial areas of standing water.

Winter housing may be a concern for some of the more sensitive species. Most of the interior accommodations appeared quite small, simplistic and not acceptable for long-term housing. Two examples are the rather Spartan giraffe and rhino houses.

There does not seem to be a definitive zoogeographic or taxonomic organization to the GVZ's exhibits, although some of the animals are displayed in loosely-associated taxonomic groupings. Examples include the big cat complex, the multi-species ungulate exhibits and reptiles in the vivarium.

A number of improvements have occurred at the GVZ during the past few years. Some of the old cages have been removed, while several others have been amalgamated into larger cages (e.g., Eurasian lynx, coyote). Several of the fenced ungulate pens are spacious and relatively complex, particularly the European wild boar exhibit, which is one of the best in the zoo. The grizzly bear paddock is larger and more complex than bear exhibits in most traditional zoos, while the wolf pen is sizeable, but in need of increased complexity.

Having said that, it is safe to say that a number of problems still exist, many of them highlighted in previous reports, and there is considerable room for improvement. There is a need for increased space for some species; structural enhancements and the addition of furnishings and objects to stimulate natural movements and behaviours are needed in many cases; an increased number of dry areas in soggy and waterlogged pens; a refurbishment of the vivarium building and its many exhibits, are just a few of the recommended actions for the future.

As well, it is important to note that this review did not examine aspects of the zoo operation not accessible to public view, such as off-exhibit and service areas, ongoing animal management practices and veterinary health programming, nor did it look at overall zoo policies and procedures. These should be examined at some future point.

This monitor lizard enclosure is small, simplistic and inadequate.

This seemingly large grizzly bear enclosure may be too small for such a wide-ranging species.

The hippo enclosure provides a relatively large, simple pond but little space for grazing.

A European Wild Boar lounges in a complex, spacious enclosure, one of the best in the zoo.

GROUSE MOUNTAIN REFUGE FOR ENDANGERED WILDLIFE

The Grouse Mountain Refuge for Endangered Wildlife (GMREW) opened in North Vancouver in 2001. The facility features two major exhibits. At the top of Grouse Mountain is a five acre exhibit housing two grizzly bears. The second exhibit, a 2.5 acre compound located at the base of the mountain, contains a pack of grey wolves retired from the film industry.

Grouse Mountain Park is open year round but viewing of the GMREW grizzly bears and their exhibit is limited to specific hours and times of the year (due to hibernation), while the grey wolf exhibit is available for viewing on a more expansive basis. The facility conducts interpretive talks and school programs.

Over the years, the GMREW has also taken in a merlin, spotted owls and peregrine falcons for assessment and rehabilitation purposes.

Enclosure

The 2.5 acre GMREW wolf exhibit lies at the base of Grouse Mountain, one of Vancouver's most popular tourist destinations. Visitors can view the wolves by walking from the main parking area up a short incline to a designated observation station. Alternatively, visitors can view the wolf enclosure from overhead in cable cars taking visitors to the top of the mountain.

The exhibit is an irregular shape (somewhat rectangular) with a moderately contoured foreground. The back portion of the exhibit extends a short distance up onto the forested slope of the mountain. On one side of the exhibit, a recessed shelter area has been constructed in the hillside.

The entire exhibit is surrounded by a large gauge, wire mesh fence that appears to be slightly less than 2 m in height. A secondary barrier consisting of three strands of hot wire is positioned a few feet inside the main barrier fence. Whether it continued around the entire interior perimeter of the exhibit could not be determined.

Three wolves were observed, two of them lying in the trees at the back of the exhibit. The third wolf was observed standing near the front fence and then a short while later pawing at the ground. Pathways in the snow were noted along portions of the interior side of the front fence, presumably the result of pacing, although no pacing was observed during this review.

Discussion

While the GMREW wolf exhibit is larger than those found in most urban zoos, it is simplistic in design and lacks imagination. The open front portion of the exhibit and the sloping forest backdrop are visually appealing and allow easy observation of the wolves, but the layout diminishes the exhibit's complexity.

It may have served the wolves better to have more forest cover throughout the exhibit, additional scrub areas to act as visual baffles, several raised rest areas that give the wolves extended sightlines beyond the confines of their exhibit, a natural stream and a more varied topography. This would presumably necessitate a change in the type and number of visitor viewing stations resulting in a more involved viewing process and a greater educational function than exists at present. Most visitors attending during the observation time stood for only a few minutes and then left. If the wolves were not moving, the time at the exhibit was brief.

The primary exhibit fence was constructed of large gauge wire mesh less than 2m high. It was accessible to visitors because there was no secondary stand-off barrier keeping them back. A three strand hot wire barrier approximately 1m high was positioned inside the main fence. While this interior barrier created a buffer zone between the wolves and the primary fence, hot wires should not be considered a foolproof containment system. There could be a safety issue if the hot wire barrier malfunctions at a time when a visitor pokes their hand or arm through the main fence.

The location of the wolf pen on a small hill above the main Grouse Mountain parking lot raises some concern about safety and security. There were no staff at the exhibit and there did not seem to be any kind of remote monitoring. Unrestricted, unmonitored access creates the potential for vandals to harass the animals, toss objects into the exhibit, damage the barriers or even enter the exhibit.

Incorporating the wolf exhibit into one of Vancouver's most popular tourist attractions was presumably done to maximize the number of people viewing the animals, and then subsequently attempting to educate them about wolves and conservation. If that presumption is correct, then the exhibit appears to fall far short in that regard. There was no informational graphics at the exhibit and no information about interpretive programming. This deficiency could easily be corrected.

A wolf paws at the snow next to electric barrier inside of low, primary perimeter fence.

This enclosure is large but may be too open for the wolves.

HIDDEN VALLY EXOTICS MINI ZOO

The Hidden Valley Exotics Mini Zoo (HVZ) is a small, privately-operated facility located in Taylor, British Columbia. Originally opened and operated by Penny and Phil Bruvold, the zoo was sold sometime between 2004 and 2006 and most recently has been operated by Marie Duffus.

In 2006, the HVZ attracted considerable media attention when a three year old tiger being transported from the Vancouver region to Taylor escaped after the pickup truck pulling the trailer containing the tiger collided with a gravel truck. The pickup entered a roadside ditch causing the tiger cage to open allowing the animal to escape to a nearby pasture. The tiger was later coaxed back into a cage and taken to the facility.

Overview

According to real estate listings published when it was offered for sale, the HVZ and its property is approximately six acres in size and features a 12.2m (40 ft) x 18.3 (60 ft) building with some adjoining cages and several separate, free-standing enclosures.

A variety of animal species, including rabbits, wallabies, llamas, tigers, lions, lynx, primates and several kinds of birds, have been housed at the facility over the years. Animal acquisition seems to be somewhat opportunistic and does not appear to follow any kind of taxonomic or zoogeographic pattern. All species kept at HVZ are common in captivity and already in a surplus situation.

The animal accommodation is not purpose-built according to the biology and behaviour of each species being kept, but appears instead to be "cookie-cutter," meaning each animal is housed in the same general kind of cage regardless of its needs. The majority of the cages and enclosures are undersized and poorly equipped.

Several species of psittacine birds (e.g., blue and gold macaws) are housed in rudimentary, vertically-oriented, indoor cages that provide no opportunity for flight. Cage furnishings consist of several horizontal and/or diagonal perches, commercially-produced bird toys (e.g., rings, bells) and sundry other items. Floors are flat and covered with a layer of wood chips. The macaws had abraded tail feathers, presumably a result of rubbing against the sides of their narrow cages. Several other bird cages, generally rectangular in shape, are also located indoors.

Small primate species, including ring-tailed and brown lemurs, are kept in indoor/outdoor cages. Their cages allow basic movement, but are rather Spartan, containing a few pieces of children's play furniture (e.g., picnic table, ladder) and a small number of miscellaneous items. Their environment is entirely artificial and lacks sufficient complexity to facilitate a full range of natural movements and behaviours.

A number of animals (e.g., big cats) are kept in outdoor pens. A small, rectangular compound houses three African lions. The primary barrier is chainlink fence, supported by metal posts and struts. The barrier is not topped with an additional barbed-wire section or an overhanging, inwardly angled section that would deter climbing or jumping out of the cage. The floor surface is predominantly hardpan (earth compacted to a concrete-like consistency) with moderate straw cover in places. No structural enhancements or furnishings were noted. The lions all appeared to be obese, presumably from lack of activity. Rotting meat and bones, excessive feces, a strong urine odour and large numbers of flies were apparent. Nearby, a tiger with lower body caked in mud was observed in a similar cage.

A pair of leopards shared a small, bland indoor/outdoor exhibit. During a BC SPCA inspection, Ms. Duffus indicated to the SPC that she was missing one leopard cub and did not know if it had squeezed through the chainlink into a neighbouring cage or if it had escaped.

A rectangular, chainlink cage with an interior fence bisecting the cage into two separate sections contained a female lynx with three kittens on one side and an adult male lynx on the adjacent side. The male exhibited aggressive, defensive behaviours, including hissing, swatting and charging when approached too closely.

Additional outdoor cages consisted of a grass-floored exhibit housing wallabies and a cage holding two Japanese macaques (snow monkeys). The cages are all poorly designed (primarily rectangular and/or box-like spaces) and are sparsely equipped.

Stand-off barriers to keep visitors a safe distance from the animal cages are not in place. The only stand-off present was a single strand of rope placed approximately five feet from the tiger enclosure. Entering the cages of potentially dangerous animals is also a concern. During one inspection, a volunteer entered the lynx cage with a piece of meat in his hand to entice the female lynx into the adjoining cage. The female jumped and swatted at the meat prior to it be tossed into the adjacent cage. Ms. Duffus also indicated that her spouse, Wayne Harvey, entered the big cat cages on occasion.

Discussion

While the motivation of the HVZ proprietors to keep and display wild animals may be honourable, it appears they lack the experience, expertise and funding necessary to initiate and operate a quality zoological facility. In fact, the principal animal custodian, Marie Duffus, acknowledged to a British Columbia SPCA Special Constable (SPC) in 2007 that her exotic animal husbandry knowledge has largely been obtained from the internet. While some useful information can be obtained online, it is not a replacement for proper training in a professional situation. Apparently, Ms. Duffus is assisted in the cleaning of cages and feeding of animals by a number of volunteers, who presumably are trained by her. She also indicated that she manages most medical concerns herself and does not engage a veterinarian on a regular basis.

The HVZ animal accommodation is small, rudimentary and is not designed according to the specific biological and behavioural needs of the animals in mind. The cages provide more or less the same kinds of conditions to species that evolved in widely differing habitats and who have very different requirements.

Structural enhancements, furnishings and object enrichment are poor, so there is little to encourage and facilitate species-typical movements and behaviours. This may be a key factor in the obesity in the lions.

Safety and security are major concerns at HVZ as proper safeguards for humans and animals are not in place. As well, the practice of entering cages housing potentially dangerous animals is foolhardy and dangerous to staff, volunteers, visitors and neighbouring property owners.

The HVZ lacks the necessary expertise and financial resources to properly operate a zoological facility housing a wide range of exotic species. Unless significant funding is acquired and professional staff brought in, the HVZ animal collection should be dispersed to more appropriate accommodation elsewhere.

Three lions housed in an undersized pen that lacks meaningful furnishings or enrichment.

Soiled tiger lies on the floor of rudimentary enclosure.

This sparsely-equipped, vertical caging is inappropriate and does not allow macaws flight space.

MOUNTAIN VIEW CONSERVATION AND BREEDING CENTER

Mountain View Conservation and Breeding Center (MVC) is situated on over 200 acres of property near Langley, British Columbia. Founded by Gordon and Yvonne Blankstein in 1986, the facility is focused on the maintenance and breeding of endangered species from around the world. While MVC originally operated as a private facility with no public access, in recent years the facility has offered controlled, guided tours to small groups of visitors. It is now operated as non-profit, charitable organization.

MVC currently houses more than 50 species, including one of the world's largest collections of small cats. High profile endangered species include African hunting dogs, pygmy hippos, bongos and the Indian rhinocerous. Several off-exhibit areas house sensitive, critically endangered species, including some of the small cats and the Vancouver Island marmot.

MVC has linked to several in-situ conservation projects and a number of its animals have been used in reintroduction programs.

Overview

After receiving an orientation explaining the history and philosophy of the MVC, a guided walking tour of the facility was conducted. The majority of the property consists of large, outdoor paddocks, with the remainder being made up of several cage complexes for smaller species (e.g., small cats) and barns/service buildings, some that are used as interior accommodation and/or winter housing for particularly sensitive species. All barriers and buildings appeared in good condition and well maintained.

The outdoor paddocks were far more spacious than most zoological facilities, with the majority being between two and 10 acres in size. A much larger paddock at the rear of the property contained a small group of bison. Most paddocks were relatively level, grassy fields (e.g., Maasi giraffe, Malayan tapir, Indian rhinocerous, Cape buffalo), while others were on undulating terrain (e.g., cheetah, Cape hunting dog) that incorporated natural forest and scrub areas (e.g., pygmy hippo).

The small animal complexes consisted of mid-sized exhibits radiating out from central service building hubs. These cages all featured natural substrates, were structurally enhanced and reasonably furnished with small trees, ground vegetation, branch work, platforms, climbing apparatus, etc.

Another row of exhibits next to the service building near the MVC entrance housed lemurs. These exhibits were moderately-sized, but well-equipped with natural vegetation, climbing materials and other furnishings. Abutting that area was an aviary-style complex, with individual cages being predominantly long, low, rectangular spaces with natural grass substrates. These moderately well-equipped cages, housed Andean condors, bat-eared foxes and other species.

Interior accommodation for animals appeared simple, functional and relatively spacious. It was not determined whether artificial heat was provided or how long animals were housed indoors during the colder months of the year. Some interior accommodation (e.g., lemurs) was not observed.

The animals all appeared to be in good condition, relatively active and no abnormal behaviours were observed.

Discussion

The MVC is designed as a breeding center for rare and endangered species and not as a public zoo. Until very recently, members of the public were unable to visit the facility, except by invitation. Today, anyone wishing to visit must book a place on one of the organized tours that are conducted periodically. Each tour is supervised and visitors are not allowed unfettered access to any part of the facility.

The outdoor ungulate paddocks are spacious, many of them being up to 10 acres in size, and are far larger than those found in most zoos. As well, unlike commercial drive-through safari park zoos that may also have large enclosures, the density of animals in each of the paddocks was very low.

The large carnivore enclosures (e.g., African painted dog, cheetah) were much smaller than the ungulate paddocks, but still far more spacious than those found in most zoos. The complexes of cages housing small cats, lemurs, bat-eared fox, Andean condor and other species, were moderate in size, but generally larger than those in many other zoological facilities.

The outdoor paddocks, by virtue of their size, may provide enhanced opportunities for animals to engage in a moderately increased range of normal movements and behaviours. In smaller enclosures, interior furnishings and, in some cases, object enrichment, presumably encourage species-typical movements and behaviours. The attempt to assemble "natural" social groupings may facilitate an increase in social interactions and some natural behaviours.

Most of the interior accommodation appeared simple but functional. Since a number of MVC's animals originate from warmer, drier environments, very unlike British Columbia's climate, presumably some of them are housed indoors during the cooler months. However, no information about winter housing was acquired, so commentary on this aspect of the MVC is not offered.

In recent years a small visitor orientation building has been opened and organized tours have been offered.

Two Cape buffalo walk along perimeter of their expansive paddock.

This Indian rhinocerous walks through part of 10-acre enclosure.

VANCOUVER AQUARIUM

The Vancouver Aquarium (VA) was founded by Murray Newman in 1956 in Vancouver's Stanley Park. The facility began as a 836 sq m (9,000 sq ft) operation with seven employees and gradually expanded into the 9,290 sq m (100,000 sq ft) facility with 385 staff that it is today.

According to VA materials, it is now Canada's largest aquarium and houses approximately 70,000 individual animals.

In recent years, the VA has been the target of considerable criticism from local and regional animal welfare and wildlife protection organizations, a great deal of it focused on the keeping of orcas, belugas and dolphins and their incursions into new areas of Stanley Park.

In 2001, the VA made a decision to end their display of orcas. Bjossa, their sole surviving orca at the time, was then shipped to Sea World, San Diego.

Overview

As Canada's largest aquarium, the VA houses a broad range of species in a diversity of captive environments. They include, but are not limited to, aquariums of all shapes and sizes, touch tanks, terrariums, a landscape immersion gallery and outdoor pools.

The VA's major indoor exhibit areas are the Pacific Coast, Treasures of the BC coast, Exploration Gallery, Giant Fishes and Amazon Rain Forest, while the outdoor pool exhibits are the Wild Coast (dolphins), sea lions/seals, sea otter, beluga whales, invertebrate touch tank and the BC Forest Headwaters display. The major outdoor pools have substantive underwater viewing galleries.

The various aquariums ranged in size from small to large and the majority housed multiple species. Most of the aquarium exhibits were furnished with natural-looking substrate materials, rocks and living plants, creating a somewhat naturalistic appearance. A few exhibits, such as those housing jellyfish, were entirely devoid of furnishings, presumably so that attention is focused on the animals themselves.

Interactive exhibits were situated throughout the various galleries, including domed glass observation stations allowing 360 degree viewing of select aquaria and an outdoor invertebrate touch tank.

The Tropic Zone's Graham Amazon Gallery is an immersion exhibit in which visitors walk along a slightly elevated wooden walkway into an open gallery that superficially resembles a South America rainforest environment. Some of the animals (e.g., sloth, birds) are able to move freely throughout this area, while others are confined in specific sections. Several other exhibits are located in the Tropic Zone area but are separate from the main gallery. They include a gunite-floored marmoset exhibit furnished with vertical trunks, horizontal branches and some living vegetation, and a number of extremely small, rudimentary reptile exhibits. Two of these exhibits were extremely small and provided little opportunity for the snakes they contained to locmote in a natural manner.

The outdoor marine mammal pools were comparable in size to many other aquariums and marine parks, but not particularly large when the natural lifestyles of these animals are considered. The pool surfaces were framed by simulated, molded gunite, rockwork perimeters and planted vegetation, while the below water situation was decidedly different, being relatively simplistic and barren. A mock "West Coast Field Station" is positioned above the dolphin pool.

The sea lions were observed in what appeared to be a stereotypic swimming pattern, moving back and forth along the length of their exhibit at the same depth, surfacing at the same location each time.

Discussion

With such an enormous array of species, many with profoundly different husbandry requirements, housed in such a diversity of environments, it was impossible to conduct a comprehensive review of this facility in the timeframe available. However, sufficient observations were made to allow for some general commentary to be developed.

The comments that follow are, for the most part, generally relevant to other aquariums and marine parks and many of the ideas expressed have already been more comprehensively and effectively articulated in other books and reports (see recommended reading).

With such a large number of species and an even larger number of individual animals forced to live within the limited footprint of the Vancouver Aquarium, space is at a premium. When one considers that space must also be allocated for the aquarium's considerable infrastructure, including offices, laboratories, service areas, restaurants, gift stores, visitor viewing stations, pathways and galleries, it becomes clear that most animals are relegated to rather confined circumstances.

Through careful design of visitor and exhibit areas, the VA has succeeded, in part, in creating an impression of spaciousness. The large entrance hall, relatively wide visitor pathways, expansive viewing areas around outdoor pools and multiple underwater viewing stations all contribute to lessening the sense of visitor crowding. To a certain extent, a good deal of the VA growth seems to have occurred vertically, instead of horizontally.

Exhibit framing through the prodigious use of molded gunite, complemented with living vegetation, vegetated buffer zones, green backdrops, carefully placed natural furnishings, mirrored walls and other design features also create the impression of spaciousness in some of the exhibits. However, many of these design features are entirely for human visitors and have little or no biological relevance to the animals themselves. Upon close examination, many of the animal living spaces appear remarkably small, especially for large, wide-ranging species.

In addition, at a time when other sectors of the zoo industry claim to have reduced their reliance on wild-caught animals, aquariums, including the VA, still seem to acquire a significant portion, if not the majority, of their live collections from the wild. In fact, the VA website states unequivocally that they remove animals from the wild. According to the VA website,

Most of the tropical fish are flown to the Aquarium from dealers around the world. The Aquarium tries to buy fish from sustainable fisheries and conservation-based associations and only purchases from dealers who collect fish with nets, and not chemicals or explosives.

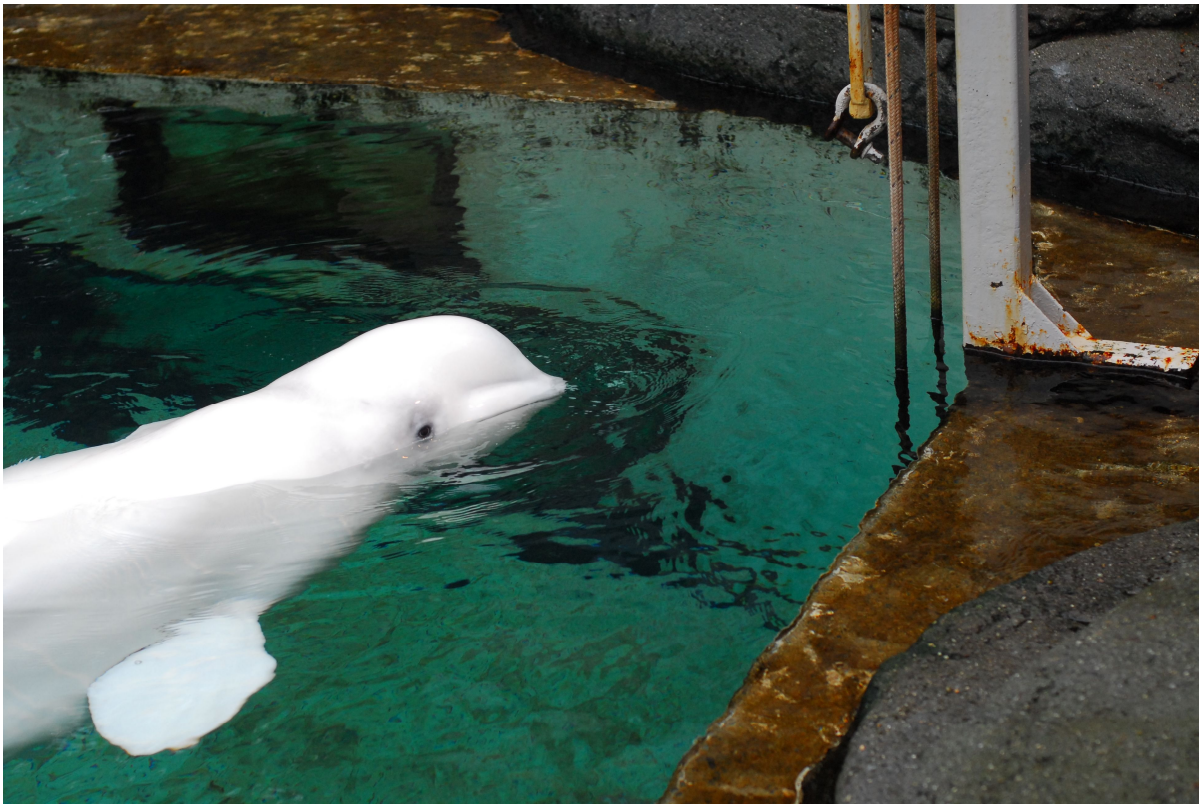
Many animals are donated to the Aquarium by fishers, aquarists, sport divers and scientists. Some are caught with nets or lines from boats. Aquarium divers have permits to collect marine invertebrates including octopuses, sea stars, sea anemones, and species of fish. Other collectors walk out from the beach with seine nets to gather local invertebrates and fishes.

There is no information on the VA website regarding the mortality rates of these animals die during capture or in transport (or even if the VA knows) or how often existing stock is replaced by additional

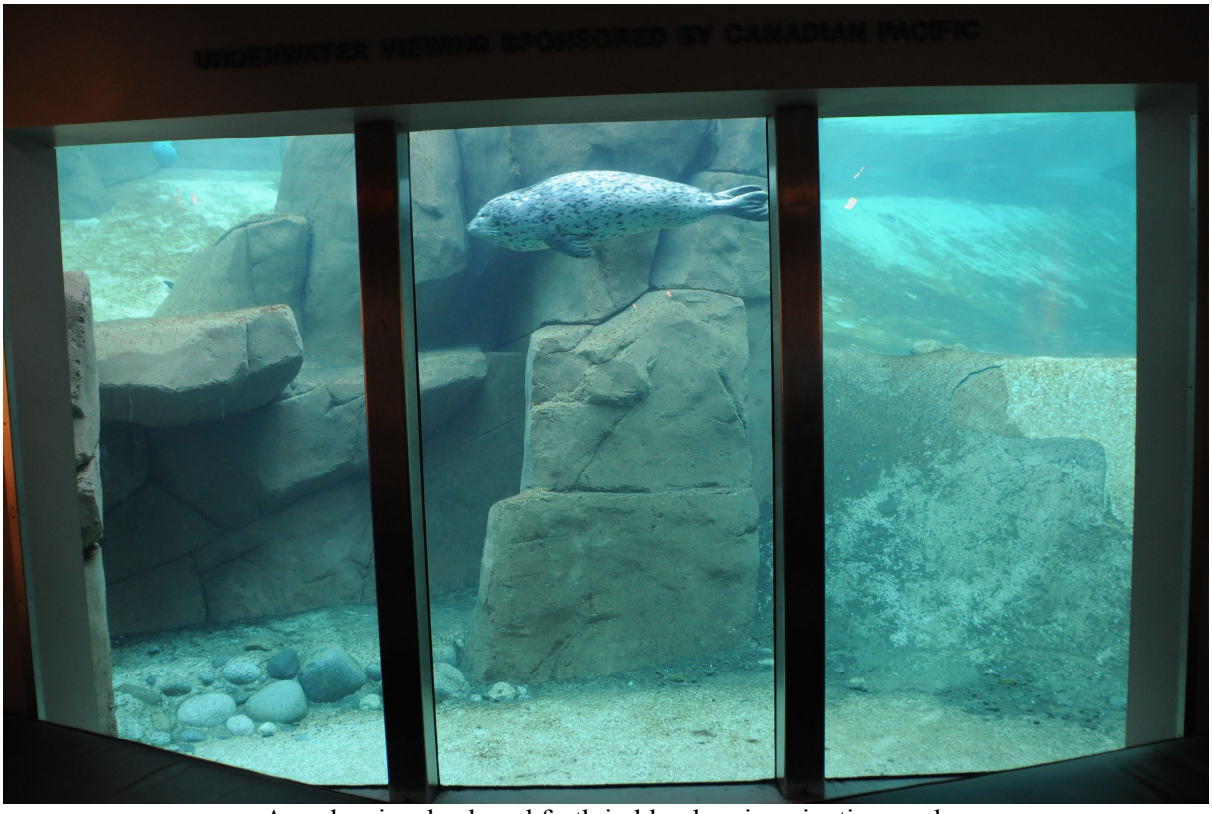
wild-caught individuals. Whenever wild animals of any species are chased, caught, transported and then confined in restricted artificial environments, they experience trauma and stress, resulting in a certain level of mortality. The entire process is rife with animal welfare concerns.

A particularly contentious aspect of the VA operation is the keeping of marine mammals, specifically whales and dolphins (cetaceans). While the VA claims that the captivity of cetaceans performs a vital educational function, those claims are rigorously refuted by animal welfare and wildlife protection organizations around the world.

Even in the largest captive facilities, the space available to captive cetaceans is thousands or millions of times smaller than their minimum home ranges in the wild. As well, the complexity of the marine environments they inhabit and the social context they live in cannot be replicated in captivity. For example, beluga whales are known to travel thousands of kilometers seasonally and can dive to depths exceeding 1,000m. Family groups stay together for extended periods and congregations of groups, sometimes numbering the thousands, are not uncommon. Life is captivity is entirely contrary to everything these animals experience in the wild. These animals should be phased out the VA altogether.

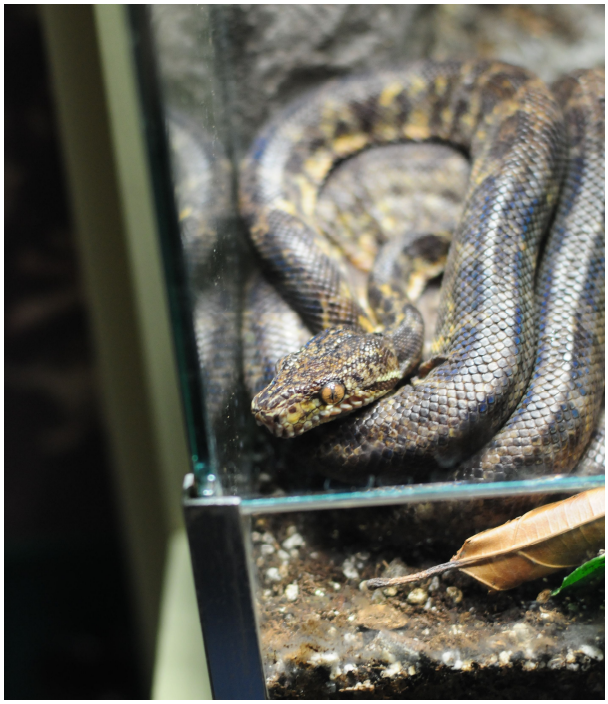


Belugas are confined in pools millions of times smaller than their natural home range.



A seal swims back and forth in bland, unimaginative pool.

Two caiman are kept in a very small, simplistic environment.



A snake is housed in a glass container with little to do.

OTHER ZOO-TYPE COLLECTIONS

CREATIVE ANIMAL TALENT

Located in Abbotsford, approximately 45 minutes from the City of Vancouver, Creative Animal Talent (CAT) is one of several suppliers of wild animals for the movie industry. This facility is not open to the public.

The CAT property sits on a rural road populated with residences and farm properties. Several buildings, wooden fencing and vegetation block roadside viewing of the facility. However, a significant portion of the facility can be observed from neighboring properties and public space.

Various animal pens, cages and service buildings are situated along the length of the property. Perimeter fencing on one side (the opposite side was not observed) consisted of a large gauge wire fence approximately 1.5m in height with a single hot wire strand running along its top.

A number of cages and pens were observed, housing animals, such as a polar bear, grizzly bear, wolves, coyote, caribou and miniature ponies. The pens were primarily constructed out of chain-link or wire mesh fencing of varying heights with those housing carnivores having an additional low, hot wire barrier positioned approximately 1m from the interior side of the main fencing. A number of basic, concrete-floored cages equipped with roofs were also situated throughout the property. One of these confined a coyote, while another served as part of the grizzly bear pen, presumably acting as a shelter area should the animal need to escape from rain or excessive sun.

The majority of the pens and cages (except the covered, concrete-floored cages) had grass, earth and/or gravel substrates and all appeared to be relatively devoid of structural enhancements, furnishings or other forms of enrichment. The polar bear pen contained a small, rectangular in-ground swimming pool.

The animal cages and pens were rudimentary with relatively modest amounts of space provided to the animals. Structural enhancements, furnishings and objects should be introduced into each animal environment to facilitate species-typical movements and behaviours. Other forms of enrichment (e.g., olfactory, temporal) can be employed to add additional levels of complexity.

Safety and security could be a concern. The barrier fence confining the polar bear appeared to be about 2.5 - 3m in height and was not equipped with an inwardly angled or barbed wire top. The fence appeared to be standard chain-link supported by metal posts. Some sections of fencing did not have horizontal cross-struts and could presumably be pushed over should the bear be motivated to do so. The three strand hot wire barrier inside the primary fence acts as a deterrent to keep the bear away from it, but, on its own, may not be a particularly dependable system. As well, the lack of a sufficiently high, well constructed perimeter fence may be problematic should an animal, specifically a potentially dangerous large animal, such as a bear, escape from its cage or pen.

PRIMATE ESTATES

Note: While this review was being prepared, PE was reportedly closed down and the animals moved out of the province.

Primate Estates (PE) was a small, private facility located on Vancouver Island near the Town of Lake Cowichan. PE was not open to the public during this investigation and the proprietor did not return telephone calls. However, sufficient observations were made from neighbouring properties and adjacent public space to allow for some commentary to be developed, as well as information from community members and media articles.

According to newspaper accounts, in 2007, the PE menagerie consisted of more than 80 exotic animals including various primates (some apparently bred for sale), big cats, peacocks, a horse, miniature ponies and an assortment of dogs. The owner and custodian of the animals is Jamie Bell, who acknowledges that she is self-taught in wild animal husbandry and care.

The facility appeared to consist of a variety of homemade wire and chain-link cages, residence, barn and service buildings. Cages housing various primate species were simplistic and poorly equipped. A macaque was observed engaged in a repetitive behaviour involving a vertical circling of its cage ending in a violent shaking of the chain-link roof. The property was unkempt with debris (discarded construction materials, farm equipment) littering the property. Fencing around the property was approximately 1.2m (4 ft) high and in places was damaged or entirely collapsed.

Animal escapes have generated considerable local controversy. Neighbours have voiced concerns about the security of PE and their own safety. Local residents have reported several monkey escapes and ponies leaving the property. As well, on May 20, 2007, a tiger escaped from PE and was encountered approximately one mile from the property. That incident led to local residents initiating a letter writing campaign urging the Government of British Columbia to prohibit the keeping of exotic animals by private residents.

There is little doubt that Primate Estates was a poorly funded, ad hoc, amateur facility that was inhumane and unsafe. It served as a potent reminder as to why comprehensive wildlife in captivity legislation is required in British Columbia.

OTHER FACILITIES

Emerald Forest Bird Garden
Kicking Horse Grizzly Bear Refuge
Pacific Undersea Gardens
Parrot Island
Rainforest Reptile Refuge Sanctuary
Speedwell Bird Sanctuary

CONCLUDING COMMENTARY

While the number of publicly accessible zoos and zoo-type displays in British Columbia seems to have remained relatively stable in recent years, no one is entirely sure how many wild animals are being kept in the province or under what conditions, primarily because the keeping of most wildlife species is not fully monitored or regulated.

The problems, both real and perceived, associated with the keeping of wild animals in captivity, especially in largely unregulated environments, are numerous. One problem in particular, human safety, achieved a very high profile with the death of Tanya Dumstry-Soos in 2007. Of course, there are many other problems, including, but not limited to, poor animal welfare, nuisance issues, potential negative impacts to native wildlife, misguided conservation initiatives that waste resources and inadequate counterproductive, educational programming.

While the standard of facilities reviewed in this report range from unacceptable to good, there is room for improvement in all of them. In some cases, relatively minor housing and husbandry changes would improve the wellbeing of animals, while in other cases, more substantial changes, such as an increase in the space available to animals or even facility closure, are needed.

Many problems occur in both small and large facilities. For example, the small, impoverished conditions experienced by the lions at Hidden Valley Mini Zoo restrict or eliminate their ability to engage in natural movements and behaviours. At the GVZ, many of the animals confined in the vivarium are subject to similar constraints, while the living conditions of a variety of creatures, from whales to jellyfish, at the Vancouver Aquarium also hinder or prevent many natural movements and behaviours.

This review shows a profound disparity in the way wild animals are kept in captivity in British Columbia and points to the need for strong provincial regulations governing the housing and care of all wild animals in the province. Those regulations should deal with wild animals kept in a variety of circumstances, including, but not limited to, zoos, zoo-type collections and by private individuals and all regulations should be part of one comprehensive licensing regime.

The Vancouver Humane Society and Zoocheck Canada object in principle to the keeping, confinement, use, exhibition and performance of wild animals in captivity as captivity is not in the best interests of those animals. Further, we do not believe the exhibition of live wildlife provides a positive educational experience for the general public. Wild animals removed from their natural environment and ecological context bear little or no meaningful resemblance to their counterparts in the wild. Indeed, there is no empirical data that proves that any positive education is derived from observing animals in captivity.

Nonetheless, animals are kept in zoos and similar captive situations at present and for these animals, improvements in the conditions to which they are subjected are urgently needed. The onus must be on the owners/operators of facilities who choose to keep these animals captive, to provide for them the best possible care in the circumstances.

The Vancouver Humane Society and Zoocheck Canada believe that whenever wild animals are held captive, satisfying their biological, behavioural and social needs must be the highest priority. If those needs cannot be met, then the captivity of those animals must be reconsidered. Placing the needs of the animals first should be the foundation upon which a British Columbian regulatory regime is constructed.