



# TORONTO ZOO ANIMAL LIVES WITH PURPOSE INSTITUTIONAL ANIMAL PLAN



## **OUR MISSION:**

**Our Toronto Zoo - Connecting animals, people and conservation science to fight extinction**

## **OUR VISION:**

**A world where wildlife and wild spaces thrive**

## **TABLE OF CONTENTS**

EXECUTIVE SUMMARY .....	3
Position Statement .....	4
A Living Plan .....	4
Species Scoring and Selection Criteria .....	5
Themes and Storylines.....	7
African Rainforest Pavilion .....	9
African Savanna .....	13
Indo-Malaya Pavilion .....	16
Eurasia Wilds.....	19
Australasia Pavilion .....	22
Americas Pavilion .....	25
Tundra Trek & Canadian Domain .....	29
Outreach & Discovery and Kids Zoo .....	33
Wildlife Health Centre .....	36
APPENDIX I – Current Animal Status .....	39
APPENDIX II – Species Scoring Matrix .....	74
APPENDIX III – Toronto Zoo Official Policy A & P – 001 Responsible Population Management: Acquisitions, Transfers and Transactions .....	83

**Nature is declining globally at rates unprecedented in human history – and the rate of species extinctions is accelerating, with grave impacts on people around the world now likely, warns a report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services released in May 2019.**

***“Ecosystems, species, wild populations, local varieties and breeds of domesticated plants and animals are shrinking, deteriorating or vanishing. The essential, interconnected web of life on Earth is getting smaller and increasingly frayed,”*** said Prof. Josef Settele, Co-Chair of the IPBES, ***“This loss is a direct result of human activity and constitutes a direct threat to human well-being in all regions of the world.”***

# Toronto Zoo Wildlife Species Plans 2020



## EXECUTIVE SUMMARY

At a time when wildlife and wild places around the world are disappearing fast, the role of accredited zoos and aquariums has never been so important. As recognized leaders in conservation breeding and population management, our combined knowledge base and collaborative practices are increasingly sought and utilized for the preservation of species and the conservation programs they require. The Toronto Zoo, as an accredited member of the Association of Zoos and Aquariums (AZA) and Canada's Accredited Zoos and Aquariums (CAZA) realizes this urgency and is committed to strengthening cooperative participation with accelerated resolve by developing and implementing an *Animal Lives with Purpose Plan* (ALPP). This Plan utilizes our resources to maximum effect and to the ultimate benefit of the wildlife populations that we work together to preserve.

## Position Statement

*Our Toronto Zoo will be home to animals that thrive in our care and contribute to species sustainability, supporting research and conservation of the natural world while educating and engaging our guests and our community. The choices we make outlined in this plan will ensure the animals in our care have lives with purpose.*

We value the life of every animal in our care, as we do their wild counterparts. Animal welfare is integral to our mission and foremost in all of our operations. We will continuously assess and improve their physical and mental well-being by reviewing their status, their numbers and their conditions and evaluating them to make sure we are meeting our position statement. We will enact best practices to achieve the highest standards of care, which will meet or exceed all Zoo accreditation standards. Our Animal Lives with Purpose planning process will further support this alignment.

We will focus resources on priority areas where the Toronto Zoo team can have optimal positive impact for the animals here and those in the wild. To accomplish this, we will reduce the number of species in our care and concentrate on those that we can most significantly contribute to in terms of population sustainability and *in situ* conservation. In line with this direction, we will refine and enhance the messaging our guests and our community receive. We will employ innovative technologies to monitor the wellbeing of our animals, to build their profile, and to optimize the research and conservation efforts of our team and our partners.

## A Living Plan

The Toronto Zoo's Animal Lives with Purpose Plan (ALPP) is a complete list of all species at the Toronto Zoo and the rationale for continuing to support them in our care. It constitutes the main reference and guide in decision making that pertains to the present and future animals in our care. The ALPP is a living document that catalogues the species in taxonomic groups within the zoogeographic areas of the zoo. Within this schema each individual animal or group representative of the species is listed in columns that detail current status in terms of numbers and those projected in our plans. Species designation on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species is shown in these columns. Actions such as Species Survival Plan (SSP) participation, breeding recommendations and acquisition recommendations for our populations are also listed in these columns. The ALPP will be revised on a yearly basis to reflect changes in acquisitions and dispositions recommended and contained therein, to ensure its continued alignment with the Zoo's goals and objectives, and to record adjustments made in response to unforeseen situations. As the directory of our living residents with recommendations associated with their status, the ALPP will inform the strategic and master planning processes to support our mission and vision.



Zoogeographic area themes and storylines that reinforce our choices and commitment to species are outlined and reviewed at the top of each section. Our plan will identify the key centerpiece species in each area around which the thematic and conservation objectives are most effectually expressed and fulfilled. These will reflect our vision in demonstrating our institutional commitment to saving species and wild places.

The area animal recommendations and associated infrastructural plans are listed in Appendix I. These plans will also be revised annually to connect to our masterplan and annual capital plan.

The new ALP Plan will be developed by working with staff from across the Zoo as well as external agencies and engaged collaborators. Decisions that pertain to planning or those that affect the Zoo's wildlife population are made in accordance with Toronto Zoo Policy A&P-001 Responsible Population Management: Acquisitions, Transfers & Transitions (see Appendix III). Certain acquisitions and dispositions will be contingent on approval by the Board of Management of the Toronto Zoo. In addition, all decisions will comply with the appropriate City of Toronto bylaws. All acquisitions and dispositions also require the signed approval of the Chief Executive Officer.

## **Species Scoring and Selection Criteria**

Every species in the ALPP will be assessed and entered into a supporting scoring matrix which computes values of how that species rates accumulatively in relation to a set of mission-appropriate criteria. These values are set within a scoring rubric and remain fixed across all taxa. The whole constitutes a Species Scoring Template which is essentially a summary reference of justification for a species inclusion in the Plan. The score that a species achieves will not in itself determine inclusion or exclusion, but quantitatively indicates suitability.

Although priority will be given to species that meet these mission-based criteria, exceptional circumstances occasionally arise where we may provide a home for rescue or confiscated animals. Notwithstanding these exceptions, the following lists and explains the determining factors, or criteria required for inclusion:

### **Animal Welfare**

Animal welfare overrides all other criteria for keeping animals in our Zoo. If the welfare requirements of a species cannot be met, the species will not be considered for inclusion. Species already in our care that demonstrate poor welfare will be phased out if the welfare issues identified cannot be solved. Welfare assessments will be carried out on every animal in our care on a yearly basis or as required as its circumstances change.

### **Exhibit Suitability**

This category gives us the opportunity to rate and assess our exhibits over time as standards and priorities change and evolve. We may still want to include a particularly important species but need to expand its holding or exhibit to do so.

## **Canadian**

An important category for consideration in any Canadian zoo. Although we support a global zoogeographic theme, it is important for us to highlight iconic Canadian species for our guests in order to connect them with their native wildlife. We are also leaders or major partners in numerous conservation programs involving endangered species in Canada and locally in Ontario and the majority of our breeding for release programs involve Canadian species. In addition, we are heavily involved in Reproductive Science and Nutritional studies with a number of Canadian Species.

## **Conservation Status**

This factor indicates the status of the species in the wild, as designated by a recognized body such as the IUCN or the appropriate federal or provincial agency. If the species is a priority for a Taxon Advisory Group (TAG), or a Species Survival Plan® (SSP), this will be indicated by its *ex situ* status and sustainability. SSPs have color designations denoting the long-term genetic health of their programs. Green SSPs are populations that retain at least 90% gene diversity over 10 generations. Yellow SSPs are populations that contain less than 90% gene diversity over that time, and Red SSPs again have less than 90% but also have less than 50 individual animals in the captive population.

## **Staff Expertise**

Expertise of our staff is an essential provision in acquiring or maintaining a species. Staff must have the skills and knowledge base to provide the species with the highest standards of care. Specialized training and updated practices are considerations, particularly when committing to breeding programs.

## **Impact on Program**

This puts a value on the Zoos' role in conservation programs that relate to the species. Our participation in SSP programs and compliance with SSP recommendations support sustainable population management and can be vital to the continued success of a program. Our continued collaboration with a number of species recovery programs in Canada can be critical, particularly when we are major partners and a main breeding and release facility.

## **Guest Engagement**

An animal's exhibit suitability and appeal are important considerations for inclusion. Some animals are more active or generally more visible or popular than others. Each exhibit contributes to building a memorable experience for guests and connecting them to the natural world to help us achieve our mission and vision. An animal may provide the opportunity for a lasting impression through a close encounter or a keeper interaction. The species social structure or longevity can encourage return visits and personal engagement with that species or individual animal as emotional connections develop and build with their stories.

## **Partnerships**

We work with agencies and organizations that promote conservation and support the survival of species. These may be federal, provincial or international. We collaborate with AZA TAGs in

SSP programs and with government agencies on recovery programs. We partner with a number of NGOs, universities and other institutions on various research programs, involving behaviour, endocrinology, nutrition, veterinary sciences and reproductive technologies.

### **Staff Time**

Refers to the amount of staff resources it takes to adequately care for the species. An animal may require an inordinate amount of staff time for any aspect of its husbandry. It may require extra staff time and commitment if breeding is a consideration. An animal may require a higher level of veterinary care, nutritional requirements or have exceptional ongoing complex needs.

### **Cost of Care**

The main cost of care is the direct cost of feeding the species along with any associated costs such as shipment of food, specialized diet, browse costs and any other immediate considerations.

The Species Scoring Matrix can be viewed in Appendix II.

## **Themes and Storylines**

As outlined above, it is clear that nature is under siege and our communities are becoming disconnected with the natural world. The following reports on the state of wildlife influence our themes and storytelling at our Toronto Zoo:

- International organizations such as the United Nations (UN) as well as non-government organizations such as the International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) all declare that biodiversity is declining at an unprecedented rate.
- The IUCN Red List of Threatened Species (IUCN 2020) has identified 27% of animal and plant species assessed to be threatened with extinction.
- The human population continues to grow exponentially. By 2030 it is projected to reach 8.5 billion.
- Human impacts on the natural world are ubiquitous and profound. Our footprint and exploitation of ecosystems in every biome is ongoing and unsustainable.
- We have changed the global climate which affects weather systems around the world

These conditions and trends apply to different degrees in all regions of the world. Scientists agree that the dire outcomes from these trends can be avoided and even reversed if we act cooperatively now. Our zoogeographic themes and storylines will reflect how wildlife



communities in the specific biomes are surviving under these pressures and how we can help in the fight against extinction.

Accredited zoos collaborate on conservation breeding programs and support *in situ* conservation programs around the world. We will strategically focus on those species at risk that we can successfully breed and maintain, in cooperation with SSPs, and their recommendations. To support our AZA partners, we will participate in AZA SAFE (Saving Animals from Extinction) programs for the SAFE species in our care.

# African Rainforest Pavilion



## THEMES AND STORYLINES

Logging roads that penetrate deep into formally remote jungle habitat have enabled artisanal mining and the bush-meat trade to expand prolifically in the rainforests of Africa. Eighty percent of the world's coltan, a metallic ore from which tantalum is extracted, which is used in most of our electronic devices, is found in the Congo basin. Coltan is considered a "conflict mineral" and gorillas and other wildlife are collateral victims of its production. Our gorilla family is featured centrally in the Rainforest Pavilion, and are key ambassadors for their wild counterparts and the ecosystems they depend on. Other inhabitants of the African Rainforest Pavilion such as pygmy hippos and red river hogs support their story.

To support these themes with conservation actions, the Toronto Zoo initiated its Phone Apes Program in 2006 which accepts and recycles cell phones and reduces the need for this mining. All funds raised in the process directly support field conservation for great apes in the wild. Protecting gorillas and gorilla habitat saves a myriad of other species with diverse and unique adaptations.

Life in and around the rivers and lakes of central Africa, their importance to local communities and their conservation in the face of human pressures are explored through the pavilion. The spectacular diversity of African cichlids is highlighted in this pavilion. The Toronto Zoo breeds and maintains a number of critically endangered and genetically valuable African fishes, including the Lake Victoria cichlid or ngege, which was the first fish species to be part of an SSP. Our AquaLinks program originated from connecting schools from communities on Lake Victoria



with schools around our own Great Lakes. Reintroducing native species and sustainable fishing practices that support communities is a theme in this central area of the Rainforest. Toronto Zoo staff have rescued critically endangered Madagascar fish species from the field and have initiated cooperative breeding programs with other institutions for these fish.

The Island of Madagascar is undergoing deforestation at an unprecedented rate. Critical habitat of the unique endemic flora and fauna is being eradicated for human use. We have partnered with Planet Madagascar to bring the situation to the attention of our guests and to support *in situ* conservation projects there. Our ring-tailed lemurs are the primary ambassador species in this narrative.

At over an acre in size the African Rainforest is the largest pavilion at the Toronto Zoo.

### CENTERPIECE SPECIES / PROGRAM



## **ANIMAL RECOMMENDATIONS**

Current animal status available in Appendix I – African Rainforest Pavilion.

### **Immediate Actions**

Phase out Nile monitor

Reduce to one species of chameleon

Surplus 2.0 red river hogs

Surplus 2.0 gorillas

Phase out spotted necked otters

Phase out naked mole rats

Rotate warthog with red river hogs

SSP placement of pygmy hippo young. Continue to breed.

Until phase-out, relocate crested porcupines in with meerkats

Coordinate breeding programs and promote the profile of Madagascar fishes.

### **Long-Term Plans**

Work with ring-tailed lemur SSP to bring in new founder stock for managed breeding.

Lake Malawi renewal. Lake Victoria fish management conservation programs.

Acquire Congolese giant toads instead of ball pythons

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Aldabra tortoise heat pad repairs.

Vents and window operation repairs

### **Long-term Plans**

Eliminate spotted-necked otter exhibit and open up area further, renovating the water feature and adding wading birds such as spoonbill and ibis.

The “Burrows and Caves” area which formerly opened to the wide stairway into the centre of the pavilion, is currently a small nocturnal cul-de-sac area only accessible from the top of the boardwalk by the washrooms. Reopen this area that leads into the centre of the pavilion and utilize the space for educational programming or guest engagement opportunities.

Major project to expand and amalgamate pygmy hippo/ red river hog/ Nile softshell turtle exhibit area to allow for rotating or mixed exhibits. Phasing out warthogs and river hippos will provide new spaces for these priority species including outdoor space which will greatly increase overall wellbeing/welfare. With pool filtration and underwater viewing we could add selected cichlid

species. A 'wildlife corridor and crossing' could add the warthog exhibit to this habitat which ultimately could extend to the existing river hippo exhibit space across the public path.

Convert outdoor crane exhibit to an outdoor lemur mixed exhibit with walk-thru opportunities for guests.

Cover and expand ibis exhibit to join hornbill aviary which will eliminate the need for wing clipping and enlarge our capacity for mixed species including bats.





# African Savanna



## THEMES AND STORYLINES

The iconic animals of the African Savanna are subject to a range of threats to their long-term survival. Mega-projects threaten even sacrosanct parks and poaching has reached critical levels for some species. Human-animal conflict is widespread as people expand into established wildlife territories for grazing livestock and subsistence farming. As habitat is reduced mega-fauna like rhino and giraffe become easier targets of poachers for meat or body parts. Where demand for their horns has decimated rhino populations, giraffe numbers are now declining dramatically in much of their range as well.

We successfully breed Grevy's zebra and cheetah for the SSP and support *in situ* conservation programs for both of these endangered species that live side by side in the wild as they do in our African Savanna. Cheetah cubs from a female born at Toronto Zoo have recently been selected for a reintroduction program in South Africa.

The practice of poisoning wildlife has also had deadly outcomes for many species. Poachers poison carcasses to kill vultures which they know can lead anti-poaching teams to their locations. People also lace carcasses with poison to kill carnivores like lions that they suspect prey on their livestock. Seven of 11 African vulture species are now on the brink of extinction and the population and range of lions continues in decline.

Survival of these celebrated savanna animals depends on protecting their home ranges and migratory routes. Empowering communities with stewardship of their wildlife and enabling them to coexist with dangerous animals has long-term benefits both for wildlife and people and is a model that has been adopted with success in rural Kenya. The large charismatic species bring in tourist revenue that is invested in projects that benefit the community and reduce wildlife-

animal conflict. For this model to be sustainable protected areas must be expanded and linked with neighboring conservancies and parks as the complete community of iconic wildlife require huge territories and ranges to thrive.

Non-tourist based programs helping people live with wildlife include the livestock guard dog project with cheetahs; Living with Lions/boma construction which ties together predators (lions, hyenas) and Watusi; the Grevy's Zebra Trust's Scout and Ambassador programs.

Human impact and influence extends to the oceans where unsustainable fishing practices and pollution threatens marine life and the species that depend on it such as the African penguin. These themes are directly communicated to our guests through keeper talks and encounters and are supported by our involvement and funding of a number of *in situ* conservation programs related to the area.

### CENTERPIECE SPECIES / PROGRAM





## **ANIMAL RECOMMENDATIONS**

Current animal status available in Appendix I – African Savanna.

### **Immediate Actions**

Phase out crested porcupines. Try in Rainforest

Phase out river hippos.

Surplus 1.1 spotted hyena and be a non-breeding facility for the SSP

Replace aging Savanna birds- marabou storks, crowned cranes

### **Long-term Plans**

Phase out white lions and revert to tawny

Phase out olive baboons (Non SSP)

Acquire African vultures

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Relocate giraffe chute to scale pen to expand giraffe space

Install more permanent shade arrangement at penguins

Provide more shade options in Savanna exhibits

Hippo house interim roof repairs required

Replace the fictional themed “Kesho Park” with a representation of a wildlife conservancy such as Lewa Conservancy in central Kenya or some such site supported by the Kenyan Wildlife Service. This would provide opportunities to focus our conservation messaging to *in situ* situations and to directly strengthen our conservation involvement.

### **Long-term Plans**

Combine the existing wildebeest and ostrich exhibits creating more mixed exhibit opportunities. Expand off-exhibit /housing space to support this.

When river hippos are phased out, utilize the exhibit space for rotating warthogs, pygmy hippos and red river hogs. The existing hippo house would need to be replaced or the roof repaired before we house other animals there.

When baboons are phased out, modify exhibit for another taxon



# Indo-Malaya Pavilion



## THEMES AND STORYLINES

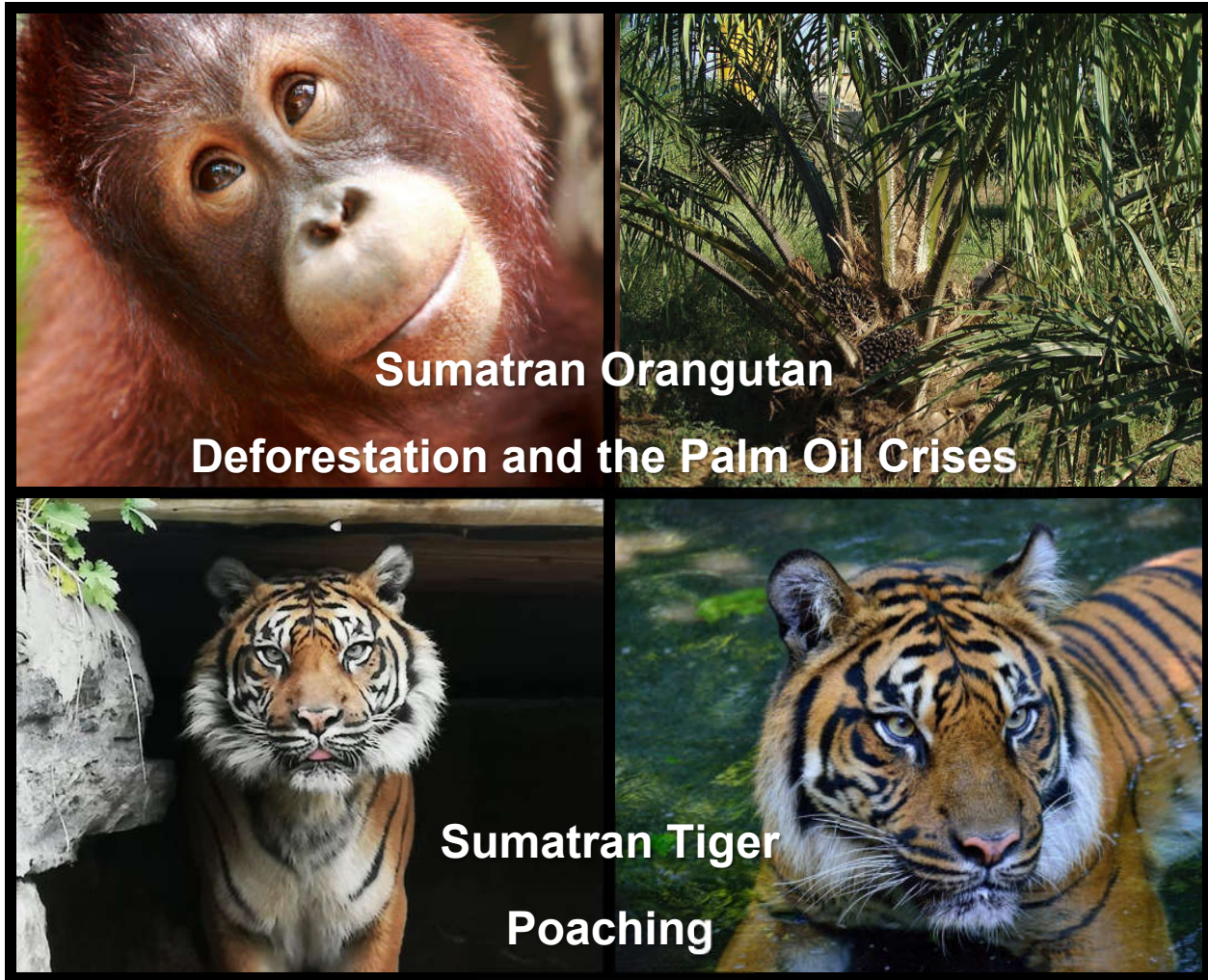
The formerly extensive rainforests of South East Asia are being systematically eradicated by unsustainable exploitation and development. Clear cutting and burning for palm nut plantations to produce cheap palm oil for the world market constitutes the most recent and widespread threat to the wildlife, the biodiversity and the integrity of the regions ecosystems. Orangutans and Sumatran tigers are both critically endangered as a result of this loss of habitat. As two of our most charismatic and popular animals we support their role as ‘flagship species’ knowing that affording them the protection they need guarantees protection for all the other species that live in that habitat. Our Toronto Zoo operations sources, and educates on, sustainable palm oil and this campaign will expand with our new outdoor orangutan exhibit.

Poaching and illegal trafficking also threaten the wildlife in this region. Sumatran tigers and greater one-horned rhinos are hunted for body parts that are thought by some cultures to contain medicinal properties. Orangutans, gibbons and other primates are killed so their young can be sold in the pet trade. Trapping and selling birds for ‘singing contests’ has created an Asian songbird crisis. Our animals and their stories educate guests on these important issues and the need for change.

Water and how it cycles through the forest is a storyline that runs through the pavilion. Some of our reptiles are confiscations and casualties of the Asian turtle crisis, so they relate directly to this illegal and unsustainable harvest. Asian carp, exhibited in the pavilion in their natural habitat, are an invasive species elsewhere with potential for world-wide distribution - the effects when this occurs is another important story we tell here.



## CENTERPIECE SPECIES / PROGRAM



## ANIMAL RECOMMENDATIONS

Current animal status available in Appendix I – Indo-Malaya Pavilion.

### Immediate Actions

- Phase out clouded leopard
- Surplus greater one-horned rhinos
- Acquire breeding female Sumatran tiger
- Acquire fairy bluebirds
- Relocate Malayan Woods animals



## **Long-term Plans**

Phase out Himalayan tahr and replace with markhor

Phase out greater one-horned rhino. This space could house an alternative species of large herbivore or could house our babirusa in a mixed species exhibit.

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Outdoor orangutan exhibit with cables & towers

The tiger transfer between exhibits should be relocated above the new boardwalk to provide an exciting experience for guests. Expand tiger space around boardwalk.

Close Malayan Woods, reallocate space

Training wall installation in tiger viewing glass area in the pavilion allows guests to see cats interact closely with keepers and provides educational opportunities.

Greater one-horned rhino wallow barriers

### **Long-Term Plans**

The current reproductive success rates of tiger species in accredited institutions needs to show a marked improvement for these populations to remain viable. The existing Sumatran tiger holding should be expanded to provide us with the capacity to hold cubs for a number of years.

Giant salamander exhibit relocated from the Special Events Tent to Pavilion

Tomistoma exhibit pool to be enlarged to house adult animals

Redesign greater one-horned rhino facility for alternative species

# Eurasia Wilds



## THEMES AND STORYLINES

Eurasia contains some of the harshest environments on earth. The higher altitudes of the Himalayas and the Gobi Desert push life to its limits and only those animals that have very specialized adaptations to deal with such extreme conditions can thrive here. Survival strategies and the endurance of some of these species are themes and stories that run through Eurasia. Life on the steppes of Mongolia and in the Gobi Desert are explored on the trail and also in the drive-thru paddocks. The Przewalski's horse and Bactrian camel are two physiologically resilient species that were driven to extinction in the wild but have recovered thanks to globally collaborative conservation breeding programs. Toronto Zoo participates actively in these programs.

Two very rare and elusive species found in the Himalayas are snow leopard and red panda. Snow leopards roam the remote Himalayas, but increasingly overlap with humans and their domestic animals. Conservation strategies focus on providing communities compensation for loss and benefits of living with snow leopards. Red panda conservation mobilizes community stewardship and forest guardian programs to protect the remaining 2,500 wild red pandas. Our Toronto Zoo is a long-time supporter of these conservation initiatives.

## CENTERPIECE SPECIES / PROGRAM



## ANIMAL RECOMMENDATIONS

Current animal status available in Appendix I – Eurasia Wilds.

### Immediate Actions

Phase out lion-tailed macaque

Phase out Barbary ape

Phase out chamois

## **Long-Term Plans**

Phase out domestic yak

Phase out mouflon

Phase out Barbary sheep

Relocate Przewalski's horses to mouflon exhibit

West Caucasian tur to be phased out and replaced with an SSP species from the same genus, markhor. We will manage this species more effectively by having a second enclosure, which will be the case when we phase out Himalayan tahr from Indo-Malaya.

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Shade for snow leopards

Shade for eagles

### **Long-Term Plans**

Once the species occupying the closed northern end of Eurasia are phased out, complete the demolition of dated facilities at this location.

Tiger tug-of-war install

Future Wilderness North which would link the Tundra Trek to Eurasia Wilds. A Bear Centre that would include the existing polar bear facility with an added exhibit for grizzly bears could provide a rotational set of exhibits for both species. Canadian species relocated from the Canadian Domain, specifically bison, cougar and possibly moose.





# Australasia Pavilion



## THEMES AND STORYLINES

The unique and unusual nature of Australasian wildlife is explored in this pavilion. Geographically isolated since the Jurassic period, the continent became the stronghold of marsupials and monotremes. Our kangaroo walk-through enables guests to appreciate up close the characteristic marsupial features with joeys in pouches among our kangaroo mob. Kangaroos occupy the ecological niche that large herbivores like deer do elsewhere, and many such examples of convergent evolution are presented in this pavilion. The distinctive nature of the wildlife from this region applies not only to mammals. Komodo dragons, kookaburras, and Victoria-crowned pigeons are all species that are the largest members of their taxonomic families.

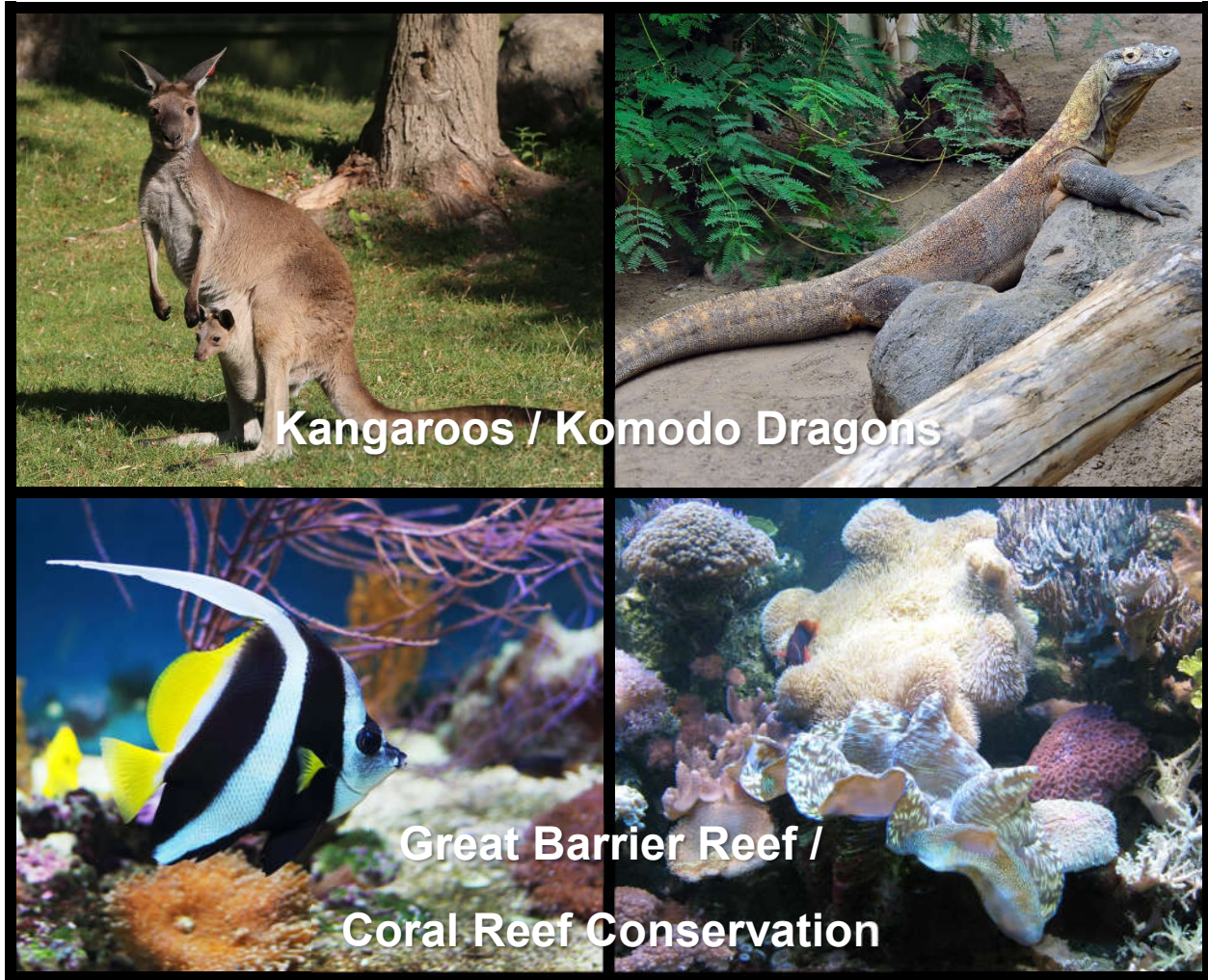
Invasive species, climate change and habitat loss are the three main threats to Australasian wildlife. Australia has lost more species than any other continent. Foxes and feral cats are particularly detrimental and responsible for the extinction of dozens of species already and continue to impact endemics. Climate change has brought more extreme weather events and conditions to an already drought-prone continent. The most recent bush fire season was devastating for habitats and wildlife.

The Great Barrier Reef is one of the natural wonders of the world and the largest coral reef system on the planet. Over 1500 species of fish and 400 species of coral inhabit this complex array of ecological communities. Ocean warming due to climate change poses the greatest threat to this ecosystem. Coral bleaching events are increasing and are devastating reef communities world-wide. Pollution and other human activities also impact the vitality of the reefs.



The importance of coral reefs and our need to preserve them is the main theme of this wing of the pavilion.

## CENTERPIECE SPECIES / PROGRAM



## ANIMAL RECOMMENDATIONS

Current animal status available in Appendix I – Australasia Pavilion.

### Immediate Actions

Phase out Matschie's tree kangaroo

Wallaby / kangaroo to occupy the tree kangaroo area in winter

Addition of more species of reef fish

Phase out bearded dragons for a species of higher conservation value

Acquire female Komodo dragon and female Fiji iguana

### **Long-Term Plans**

Convert Birdwing area to kangaroo winter home-mixed walk thru exhibit with kookaburras and crowned pigeons

Phase out Stimson's python and red-tailed green ratsnake

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Offer refuge/home to koala victims of bushfires

### **Long-Term Plans**

Re-open the outside aviary to offer an immersive experience for guests. Wallaby's or geriatric kangaroos could be exhibited here along with selected bird species.

Modify Birdwing to house kangaroos in winter

Fewer reptile species in larger exhibits

Outdoor exhibit for Komodo dragon





# Americas Pavilion



## THEMES AND STORYLINES

The Tropical Americas is the most biodiverse region on earth. The consistently warm and wet environments combined with the availability of the basic elements essential to life, create conditions that are conducive to life in all forms. However, from Central America to the Amazon basin, forests have been compromised and reduced by a combination of destructive activities. Rampant burning, logging, mining and other intrusions continue to dismantle the integrity of these ecosystems. A key storyline repeated through the Americas is the incredible variety of life present in this biome and the threats to each taxon represented here, as a result of human activity.

Amphibians are showcased as examples of animals being particularly vulnerable to changing conditions. Diverse habitats and the associated diversity of frogs is represented and the amphibian crises explained. From lowlands to cloud forests populations of frogs have been devastated by Chytrid fungus. Toronto Zoo's involvement in amphibian rescue and recovery programs has been significant and this theme links into the Wetlands area of the pavilion where our beaver and otter exhibits provide views of our local wetlands beneath the surface. The importance of these wetlands and our involvement in their conservation includes Adopt-A- Pond, native turtle recovery programs and various Citizen Science Programs. The Blanding's turtle is one of our signature programs and is a feature exhibit in this area. Other Canadian recovery programs that Toronto Zoo participates in are also featured here. Eastern loggerhead shrikes and black-footed ferret exhibits with accompanying video messaging represent their respective programs here.

Other storylines tied to our reptile exhibits in the pavilion include adaptations to desert habitats, venomous lizards, road ecology, and living with venomous snakes in Ontario. The Toronto Zoo has been a leader in massasauga rattlesnake conservation and the program is highlighted here.

Birdlife of tropical Americas is represented in the two free-flight areas of the pavilion. Neotropical migrant birds that undergo lengthy migrations to our Boreal Forests is a theme that could be expanded on in this pavilion. The invertebrate species exhibited here reinforce the theme of biodiversity. Whether in marine, freshwater or terrestrial habitats the ubiquitous presence of invertebrates is testament to their importance in every ecosystem.

The importance of water in its various forms and in the different ecosystems of the Americas is a common thread throughout. From the Great Lakes to the sea coast, from wetlands to flooded forests, water systems, their cycles and the life forms that depends on them is a constant theme. The Mayan Temple exhibits opens to a dramatic waterfall feature.

### CENTERPIECE SPECIES / PROGRAM



### ANIMAL RECOMMENDATIONS

Current animal status available in Appendix I – Americas Pavilion.

### **Immediate Actions**

Phase out spider monkeys

Reduce number of outreach snake species

Exhibit more native and conservation-program fish such as Atlantic salmon and red side dace including them into mixed exhibits

Combine marmoset exhibits to give tamarins more space

Acquire sloth and armadillo

Acquire Surinam toads

Acquire outreach flamingos

### **Long-term Plans**

Phase out common marmoset

*(Alternatively –AODA dependent: Phase out desert and tropical species and concentrate on native/recovery species particularly associated with our wetlands but also species such as marmots, ferrets and shrikes)*

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Combine jaguar and spider monkey exhibit space when monkeys leave

Beaver/ otter filtration system

Beaver/otter roof repairs

### **Long-term Plans**

The Americas has a high number of taxonomically based themes and related storylines. The existing design and route through the pavilion limits our ability to effectively present our messaging in a cohesive manner.

Amalgamate primate wing to exhibit fewer species in larger areas. More mixed and interchangeable species in the aviary exhibits at this end of the pavilion is possible. Sloths and armadillos could have an outreach presence in this area.



As the guest-facing location for our Canadian recovery program animals, the current shrike and ferret exhibits should be improved or relocated with the addition of a Vancouver Island marmot program presence.

The Everglades loop and the existing Invertebrate section may be renovated to a bat cave with interactive bat graphics. This project is funded by Nuclear Waste Management Organization. If this proceeds, a selected number of Invertebrate species would be relocated to alternative exhibits yet to be determined.

The Mayan Temple section be opened up to enable rotation or exchange between the flamingo and the capybara exhibits. More flamingoes will be acquired and some form of 'Flamingo Mingle' will be initiated. By phasing out spider monkeys, the jaguar holding space and exhibit can be expanded, which could include an underwater viewing opportunity. Jaguars are an AZA SAFE species and we will promote and participate in this program.

# Tundra Trek & Canadian Domain



## THEMES AND STORYLINES

The Tundra Trek showcases iconic species from Canada's far north set along an immersive path with renderings of cultural and natural features specific to life in the Arctic. Adaptations and strategies for survival in the extreme cold is the common thread and is demonstrated in some capacity by each of the species in our care here. Interpretive stations and signage illustrate the narrative and lend weight to the storyline.

The climate crisis has worldwide implications but few places see changes on such a drastic scale as the Arctic region. The shrinking sea-ice presents ominous predictions for species like polar bear and walrus that directly depend on this platform to survive. The corresponding effects on the tundra will result in permafrost melt releasing unknown amounts of greenhouse gases. The warming of this region impacts all taxa, not least invertebrates, from the essential biomass of krill to the concentration of flies on the summer tundra. Our Arctic wolves represent the vast tundra though polar bears are the most recognized ambassadors of the far north. People see them as powerful symbols of the Arctic and connecting with them draws attention to the dramatic effects of climate change. We can relate this to our unsustainable practices and provide ways that people can make a difference for polar bears by their own behaviour and by the choices they make in their daily lives.

Our polar bears also contribute to the science and knowledge base of their wild counterparts. Our nutrition and growth studies and the data from our animal scoring techniques collected over years of seasonal feeding can be applied to energy models to predict survival in the wild. Expertise in operant conditioning enables us to acquire various samples voluntarily from these animals and we also select priority behavioural studies. Similar research is possible with the two female walrus we will be receiving on loan from Quebec Aquarium. Following recommendations

of the Walrus Commission we will augment and align the research we undertake with that of our polar bears. For instance, we have the capacity to apply reproductive technologies and hormone analysis to such specific non-invasive research as sexual hormone evaluation and metabolic rates at rest and when foraging in this species.

The existing Canadian Domain lacks a supportive narrative because the exhibit settings largely correspond to the natural habitat of the animals. The underlying theme is Canadian animals in a Canadian setting. The Aboriginal Trail, an interpretive path through the bush at the far side of Weston Pond, is a recent addition with stations identifying plants and other features of the landscape used by First Nation communities.

Our wood bison herd will continue to participate in scientific research such as the Assisted Reproductive Technologies for Endangered Bovids project. This program consistently produces results that advance techniques in the use of frozen sperm and embryo transfer that have implications for future wildlife management. This will continue regardless of the future location of our bison herd.

### CENTERPIECE SPECIES / PROGRAM



## **ANIMAL RECOMMENDATIONS**

Current animal status available in Appendix I – Tundra Trek & Canadian Domain.

### **Immediate Actions**

Manage breeding of Arctic wolves and surplus pups

Send male polar bears to Quebec. Acquire walrus on loan

Phase out snowy owl

Apply to acquire Whooping cranes

Relocate moose

Surplus/phase out Canadian lynx

Our wood bison are part of a large initiative for reproductive technologies / biobanking for disease mitigation in the wild. Working on a sperm / embryo sexing project in an effort to skew offspring sex ratio towards females.

Caribou are a focal species for reproductive work. It is the only species in which we are working with MNR from each province/territory, as well as federal herds (Environ. Can). Currently working on generating interest and approval for AI in this species.

### **Long-term Plans**

Surplus selected male bison

Explore AI with moose (no live imports available)

Reallocate space and relocate species from Canadian Domain

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Alteration of Arctic fox house/exhibit animal access door for whooping cranes

Renovate polar bear exhibit and pools for walrus. Walrus will share the polar bear facility separately with our bears. Walrus, a hugely charismatic and novel species for Toronto Zoo, will enhance guest engagement significantly and strengthen peoples' connections to our Arctic species and their plight in the face of climate change.

Install training wall at wolves

Install training wall at grizzly bears

Repair polar bear moat



## **Long-term Plans**

Decommission the Canadian Domain as an area open to regular zoo visits as it does not meet AODA standards.

Relocate Canadian Domain species to tablelands - Wilderness North project. This relocation project, a subject of past Master Plans and already mentioned in this plan for Eurasia, identifies grizzly bears and cougars as species we could exhibit between the polar bear habitat and the snow leopard area.

Bison will replace those species currently in the drive-thru.

The Canadian Domain itself could become an area where some of our species breeding programs could be expanded and further managed. Sustainability is an issue for many captive populations and holding space can be key in plans to attain numbers to achieve long-term population goals. Whether this would only involve Canadian species would have to be determined



# Outreach & Discovery and Kids Zoo



## THEMES AND STORYLINES

Outreach & Discovery staff connect people with nature from a number of platforms and with age-appropriate strategies. The Kids Zoo engages our youngest guests with themed play areas, educational activities and introductions to some of our animals and their homes. The area affords opportunities to get close to some of our program animals as well as some domestic and semi domestic species. Backyard wildlife is an integral theme of the area. Kids Zoo is a place where very young children are introduced to nature in a fun and safe way.

Zoo School and other classroom-based education programs are offered in the Education Portables which are located beside the Bird Barn. One of these portables houses a selection of reptiles, amphibians and invertebrates for outreach and educational purposes. Outreach & Discovery staff care for these animals.

Waterside Theatre is the venue for our animal demonstrations and shows. A variety of our animals including some that are exhibited in the Kids Zoo present trained behaviours on cue to an accompanying educational narrative themed around conservation in a fun and engaging way. These animal demonstrations and shows can change focus and themes yearly to align with current strategic goals. They require staff training, event planning and conditioning of animals involved. Meet and greets and other encounter opportunities are offered on the stage area where they can be managed in a controlled and professional way.



The third responsibility of staff in this area is the Animal Outreach component. A number of our ambassador animals can be walked or are crate-trained and brought to all parts of the Zoo to provide casual encounters for guests. This is an opportunity to bring our animals out among guests in a random and unscheduled manner creating a great element of surprise and delight and enabling a wonderful connection to our animals. Our outreach team bring ambassador animal to all kinds of events, primarily on the Zoo site, including special occasions, picnics, birthdays, openings and celebrations. These are scheduled, managed visits that are booked and approved in advance. We also endeavour to accommodate requests from the community with off-site animal visitors whenever we can. Community outreach and engagement are important strategic objectives for our zoo.

### CENTERPIECE SPECIES / PROGRAM





## **ANIMAL RECOMMENDATIONS**

Current animal status available in Appendix I – Outreach & Discovery and Kids Zoo.

### **Immediate Actions**

Acquire more impactful animals – sloth and armadillo

Kids Zoo aviary set up as a venue for scheduled animal encounters

Acquire male eagle for flying in show

Acquire parrot with human vocabulary for show

### **Long-term Plans**

Expand goat yard as a walk-thru area

Phase out semi domestic species ferrets and guinea pigs

Relocate raccoons from Canadian Domain

## **GUEST EXPERIENCE / INFRASTRUCTURE RECOMMENDATIONS**

### **Immediate Actions**

Install a staging station for scheduled encounters within the aviary where the rabbit exhibit is located.

The reptiles and invertebrates in the Education Portable will continue to provide live classroom opportunities. A plan exists to replace this portable and expand these opportunities.

Goat World

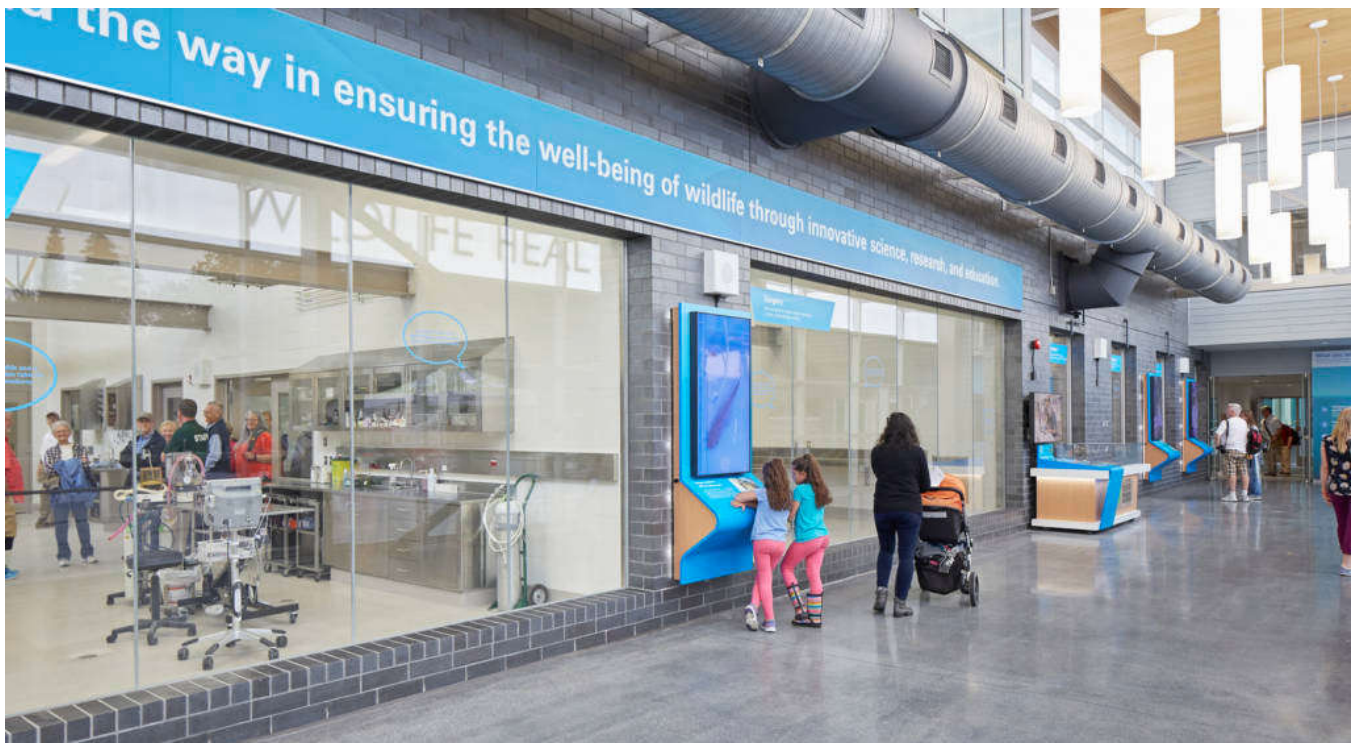
### **Long-term Plans**

The area's biggest need is for more permanent housing or winter holdings for our program animals. Some Kids Zoo exhibits are seasonal so their occupants are wintered in other areas of the Zoo. There is space behind the Dinosaur Dig to build a barn which would accommodate these needs.

Relocate capybara and incorporate the small alpaca exhibit, to expand the goat enclosure and make it a walk-thru interactive experience.

Install dig barrier for former prairie dog exhibit

# Wildlife Health Centre



## THEMES AND STORYLINES

The state of the art Wildlife Health Centre (WHC) was opened in 2017. It is an investment in the long-term well-being of our animals as well as an on-going commitment to scientific research in veterinary medicine, nutrition science and reproductive technologies. A viewing gallery is open to guests which provides a window into our health practices and allows for a more thorough understanding of our veterinary procedures and laboratory services.

In addition to animal health services, the WHC has taxonomic research and quarantine areas and quarantines that house a number of our recovery animals and conservation program animals which are listed in the spreadsheets. The Invertebrate Breeding Centre is located in this complex.

The upper level of the Wildlife Health Centre contains the specialized facilities of our Reproductive Sciences Unit. These labs have capabilities for endocrine, gamete and genetic analyses, as well as the biological materials bank (biobank). This frozen repository of living cells is a dynamic source of valuable genetic material that connects our animals on site with their historical and wild counterparts. Current biobank activities are focused on research and development of reproductive technologies for key species, including wood bison, caribou, and Oregon spotted frog, to name a few.

The Wildlife Nutrition Centre is located close by in the Zoo's Administrative Support Centre and is responsible for meeting the full dietary needs of every animal in our care. The wide variety of specialized diets includes unique formulations and original recipes based on our Nutritional Science programs and research.

### CENTERPIECE SPECIES / PROGRAM



### ANIMAL RECOMMENDATIONS

Current animal status available in Appendix I – Wildlife Health Centre.

#### Immediate Actions

Black-footed ferret caging replacement

Surplus off-exhibit Invertebrate species



Eastern loggerhead shrike pen improvements

Humidifier system install in Reptile Research Wing

Continued support and participation in key recovery and reintroduction programs

Expansion of Massasauga Rattlesnake Conservation Program

### **Long-term Plans**

Support and expand veterinary research programs

Support and expand nutrition-based research programs with applications for *in situ* conservation of endangered species such as polar bears and walrus.

The biobank in the Reproductive Science Unit will become an important tool for the reproductive and genetic management of threatened species by facilitating the distribution of genetic material between *ex situ* and *in situ* populations.

## APPENDIX I – Current Animal Status

- Sex Ratio Legend: 1.1.1 = Male, Female, Undetermined
- Current numbers accurate to November 15<sup>th</sup>, 2020



### African Rainforest Pavilion

#### MAMMALS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Western lowland gorilla</b> <i>Gorilla gorilla gorilla</i>	3.5	CR	SSP-Green 2 Groups	Surplus 2.0	3.4	20
<b>Ring-tailed lemur</b> <i>Lemur catta</i>	4.6	EN	SSP-Yellow non-breeding	Hold	6.6	18
<b>Pygmy hippopotamus</b> <i>Choeropsis liberiensis</i>	1.2	EN	SSP-Red Breed	Surplus 0.1	1.1	19
<b>Red river hog</b> <i>Potamochoerus porcus</i>	3.1	LC	SSP-Yellow Suspend breeding	Surplus 0.2	1.1.2	12
<b>Warthog</b> <i>Phacochoerus africanus</i>	2.2	LC	SSP-Yellow Mixed exhibit	Surplus 2.0	0.2	11
<b>Spotted necked otter</b> <i>Hydrictis maculicollis</i>	1.1	NT	SSP Red Surplus	Phase out	0	13
<b>Slender-tailed meerkat</b> <i>Suricata suricatta</i>	1.2	LC	SSP Yellow Geriatric	Acquire	2.4	9
<b>Naked mole rat</b> <i>Heterocephalus glaber</i>	6.5.31	LC	Non SSP Colony	Phase out	0	9
<b>Straw-coloured fruit bat</b> <i>Eidolon helvum</i>	9.9	NT	SSP Yellow Breed to sustain	Hold	8.12	12

## BIRDS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Blue bellied roller</b> <i>Coracias cyanogaster</i>	1.0	N/A	SSP-Yellow	Hold	1.0	9
<b>African spoonbill</b> <i>Platalea alba</i>	1.3.2	LC	SSP-Yellow Mixed aviary	Acquire 1.0	2.3	12
<b>Sacred ibis</b> <i>Threskiornis aethiopicus</i>	5.3.5	LC	SSP-Yellow Mixed aviary	Surplus 2.0	5.5	11
<b>South African sheduck</b> <i>Tadorna cana</i>	1.1	LC	Non SSP Mixed aviary	Hold	1.1	10
<b>Black crane</b> <i>Zapornia flavirostra</i>	1.2	LC	SSP-Yellow Mixed aviary	Surplus 0.0.1	1.1	10
<b>Golden-breasted starling</b> <i>Lamprotornis regius</i>	2.0	LC	SSP-Yellow Mixed aviary	SSP Exchange	1.1	12
<b>Speckled mousebird</b> <i>Colius striatus</i>	2.1	LC	SSP- Candidate Mixed aviary	SSP Exchange	2.2	11
<b>White-vented bulbul</b> <i>Pycnonotus barbatus</i>	1.0	LC	Non SSP mixed aviary	Acquire 0.1	1.1	9
<b>Grey crowned crane</b> <i>Balearica regulorum</i>	1.0	EN	SSP-Green Mixed exhibit	Acquire 0.1	1.1	15
<b>Superb starling</b> <i>Lamprotornis superbus</i>	0.0.6	LC	SSP Candidate Mixed aviary	Hold	0.0.6	7
<b>White-cheeked turaco</b> <i>Tauraco leucotis</i>	1.1	LC	SSP-Yellow Mixed aviary	SSP Exchange	0.2	7
<b>Hammerkop</b> <i>Scopus umbretta umbretta</i>	2.0	N/E	SSP- Yellow Mixed aviary	SSP Exchange	1.1	9
<b>Speckled pigeon</b> <i>Columba guinea</i>	0.0.2	LC	Non SSP Mixed aviary	Hold	1.2	7



<b>Violet turaco</b> <i>Musophaga violacea</i>	1.0	LC	SSP-Yellow Mixed aviary	Acquire 0.1	1.1	7
<b>Wattled crane</b> <i>Bugeranus carunculatus</i>	1.0	VU	SSP-Yellow	Acquire 0.1	1.1	13

## REPTILES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Meller's chameleon</b> <i>Trioceros melleri</i>	2.0.2	LC	Non SSP Replace with Veiled	Phase out	2.5	8
<b>Aldabra giant tortoise</b> <i>Geochelone gigantea</i>	0.2	VU	Non SSP Mixed Exhibit	Acquire 1.0	1.2	10
<b>Nile softshelled turtle</b> <i>Trionyx triunguis</i>	1.0	VU	Non SSP Explore mixed exhibit	Hold	1.0	8
<b>Northern spider tortoise</b> <i>Pyxis arachnoides brygooi</i>	2.1.1	N/A	SSP- Breed	Acquire 0.1	2.2.1	8
<b>Radiated tortoise</b> <i>Astrochelys radiata</i>	2.2	CR	SSP Green No Breeding recommendations	Hold	1.2	10
<b>Royal/ball python</b> <i>Python regius</i>	1.3.1	LC	Non SSP Replace with new species	Phase out	0	10
<b>Dwarf crocodile</b> <i>Osteolaemus tetraspis tetraspis</i>	0.1	N/E Breed	SSP Candidate	Acquire 1.0	1.1	9
<b>Western gaboon viper</b> <i>Bitis rhinoceros</i>	1.0	LC	Non SSP Exhibit only	Hold	1.0	9

## AMPHIBIANS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>African clawed frog</b> <i>Xenopus laevis</i>	1.2	LC	Non SSP Breed to sustain	Hold	3.3	8

<b>Betsileo mantella</b> <i>Mantella betsileo</i>	0.0.6	LC	Non SSP Breed to sustain	Hold		8
<b>Golden mantella</b> <i>Mantella aurantiaca</i>	0.0.3	CR	SSP Breed	Acquire	0.0.20	11
<b>Hybrid mantella frogs</b> <i>Mantella sp</i>	0.0.4	N/A	Surplus	Phase out	0	8
<b>Painted mantella</b> <i>Mantella baroni</i>	0.0.2	LC	Non SSP Breed to sustain	Hold		8
<b>Sambava tomato frog</b> <i>Dyscophus guineti</i>	5.3 0.0.10+	LC	SSP Breed to sustain	Hold	2.2	9

#### FISHES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Leopard ctenopoma</b> <i>Ctenopoma acutirostre</i>	0.0.5	LC	Non-SSP Mixed exhibit			
<b>Garra gotyla</b>	0.0.5	LC	Exhibit			
<b>Aba aba</b> <i>Gymnarchus niloticus</i>	0.0.1	LC	Non-SSP Exhibit	Hold	1	12
<b>Two-stripe white lip</b> <i>Haplochromis</i>	0.0.29	LC	SSP-Yellow F9,10	Breed	50	
<b>Ngege</b> <i>Oreochromis esculentus</i>	0.0.100	CR	SSP-Yellow F3,4	Breed		
<b>Betsiboka killifish</b> <i>Pachypanchax arnoulti</i>	0.0.8	VU	AZA Conservation F5	Breed		
<b>Andapa cichlid</b> <i>Paratilapia</i>	0.0.12	DD	Exhibit	Hold		
<b>Congo tetra</b> <i>Phenacogrammus interruptus</i>	0.0.34	LC	Exhibit	Hold		

<b>Mottled bichir</b> <i>Polypterus weeksii</i>	0.0.1	LC	Exhibit	Hold		10
<b>Perrieri</b> <i>Prognathochromis perrieri</i>	0.0.40	CR	SSP-Yellow F9	Breed		
<b>African lungfish</b> <i>Protopterus annectens</i>	0.0.1	LC	Exhibit	Hold		1
<b>Malagasy cichlid</b>			AZA Conservation sp			
<i>Ptychochromis grandidieri</i>	0.0.1	LC	F4			F4
<i>Ptychochromis insolitus</i>	0.0.5	CR	F1	Breed		F1
<i>Ptychochromis loisellei</i>	0.0.3	EN	F1	Breed		F1
<i>Rheocles vatosoa</i>	0.0.3	EN	F2/0		Breed	F2/F0
<b>Polka-dot upside-down catfish</b> <i>Synodontis angelicus</i>	0.0.2	LC	Exhibit	Hold		2
<b>Featherfin squeaker catfish</b> <i>Synodontis eupterus</i>	0.0.3	LC	Exhibit	Hold		3
<b>Ocellated catfish</b> <i>Synodontis ocellifer</i>	0.0.3	LC	Exhibit	Hold		3
<b>Bristlenose catfish</b> <i>Xenocara</i>	0.0.7	LC	Exhibit	Hold		7
<b>Lake Malawi cichlid</b>			Exhibit			
<i>Fossorochromis rostratus</i>	0.0.2	LC				
<i>Placidochromis phenochilus</i>	0.0.2	EN		Breed		
<i>Melanochromis auratus</i>	0.0.75	LC				
<i>Labidochromis caeruleus</i>	0.0.200	LC				
<b>Maylandia cichlids</b>			Exhibit			
<i>Maylandia</i>	0.0.15					
<i>Maylandia callainos</i>	0.0.25	LC				
<i>Maylandia estherae</i>	0.0.250	LC				
<i>Maylandia zebra</i>	0.0.0.350	LC				



**Blue mbuna cichlid**

Exhibit

*Labeotropheus fuelleborni* 0.0.30 LC*Labeotropheus trewavasae* 0.0.35 LC*Tropheops* 0.0.90 LC*Pseudotropheus socolofi* 0.0.250 LC Exhibit*Protomelas spilonotus* 0.0.8 LC**INVERTEBRATES**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
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None



**MAMMALS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Spotted hyena</b> <i>Crocuta crocuta</i>	2.2	LC	SSP Yellow Exhibit	Surplus 1.1	1.1	15/25
<b>African crested porcupine</b> <i>Hystrix africaeustralis</i>	1.1	LC	SSP Yellow- no breeding.	Phase out	0	9
<b>Blue wildebeest</b> <i>Connochaetes taurinus</i>	3.0	LC	SSP -Bachelor herd Mixed exhibit	Hold	3.0	8
<b>Ankole watusi</b> <i>Bos Taurus africanus</i>	1.2	N/A	Non SSP Exhibit	Hold	3.2	11
<b>Lion</b> <i>Panthera leo melanochaita</i>	1.2	VU	SSP-non breeding Exhibit	Phase out White lion	1.2	17
<b>African cheetah</b> <i>Acinonyx jubatus jubatus</i>	3.3	VU	SSP Yellow Breed	Acquire 1.1	2.4	16
<b>Olive baboon</b> <i>Papio anubis</i>	4.6	LC	Non SSP Exhibit	Phase out	0	7
<b>Southern white rhinoceros</b> <i>Ceratotherium simum simum</i>	2.2	NT	SSP Yellow Breed	Surplus 1.0	1.2	19
<b>Grevy's zebra</b> <i>Equus grevyi</i>	2.3	EN	SSP Green Breed	Surplus 1.0	2.3	15
<b>Masai giraffe</b> <i>Giraffa camelopardalis</i>	1.2	EN	SSP Yellow Breed	Acquire 0.1	1.3	20
<b>Greater kudu</b> <i>Tragelaphus strepsiceros</i>	1.3	LC	SSP Yellow Breed. Mixed exhibit	Hold	1.3	12

<b>Common eland</b> <i>Tregelaphus oryx oryx</i>	4.0	LC	SSP Neutered Exhibit	Hold	4.0	9
<b>Hippopotamus</b> <i>Hippopotamus amphibius</i>	0.2	VU	SSP Yellow - elderly siblings Surplus	Phase out	0	18

## BIRDS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Southern ostrich</b> <i>Struthio camelus australis</i>	1.3	LC	Non-SSP Mixed exhibit	Hold	1.3	11
<b>White headed vulture</b> <i>Trigonocepes occipitalis</i>	1.0	CR	SSP Mixed exhibit	Acquire	1.1	13
<b>Southern ground hornbill</b> <i>Bucorvus leadbeateri</i>	4.1	VU	SSP Yellow Mixed exhibit	Breed	Family	14
<b>Marabou stork</b> <i>Leptoptilos crumenifer</i>	1.2	LC	SSP Yellow Mixed exhibit	Acquire 1.0	2.2	12
<b>African penguin</b> <i>Spheniscus demersus</i>	16.12	EN	SSP Green Breed	Follow SSP	14.14	20
<b>White-breasted cormorant</b> <i>Phalacrocorax ludicus</i>	2.0	LC	Display only Mixed exhibit	Hold	1.1	



**MAMMALS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Sumatran orangutan</b> <i>Pongo abelii</i>	2.4	CR	SSP Green Breed	Surplus 1.0	1.4	19
<b>White handed gibbon</b> <i>Hylobates lar</i>	1.1	EN	SSP Yellow Geriatric pair	Hold	1.1	16
<b>Babirusa</b> <i>Babyrousa celebensis</i>	1.1	VU	SSP Red surplus Exhibit	Hold	1.1	12
<b>Sumatran tiger</b> <i>Panthera tigris sumatrae</i>	1.1	CR	SSP Yellow Breed	Acquire 0.1	1.1	19
<b>Himalayan tahr</b> <i>Hermitragus jemlahicus</i>	4.1	NT	Non SSP Exhibit	Surplus	0	8
<b>One-horned rhinoceros</b> <i>Rhinoceros unicornis</i>	2.1	VU	SSP Yellow Surplus	Phase out	0	17
<b>Clouded leopard</b> <i>Neofelis nebulosa</i>	1.1	VU	SSP Yellow Surplus	Phase out	0	12

**BIRDS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Nicobar pigeon</b> <i>Caloenas nicobarica</i>	10.9.4	NT	SSP-Yellow Breed to sustain	Hold	10.10	11
<b>Crested wood partridge</b> <i>Rollulus rouloul</i>	4.6	NT	SSP-Yellow Breed to sustain	Hold	6.6	11
<b>Wrinkled hornbill</b> <i>Aceros corrugatus</i>	1.0	EN	SSP Red Shipping out	Scheduled to move	0	16

<b>Black-throated laughing thrush</b> <i>Garrulax chinensis</i>	1.0	LC	SSP Hold	Acquire 0.1	1.1	10
<b>Pied Imperial pigeon</b> <i>Ducula bicolor</i>	0.8	LC	Freeflight Breed to sustain	Hold	0.8	8
<b>Malayan crested fireback</b> <i>Lophura ignita</i>	1.1	NT	Freeflight	Surplus	0	8
<b>Palawan peacock pheasant</b> <i>Polyplectron napoleonis</i>	1.0	VU	Breed	Acquire 0.1	1.1	
<b>Pheasant pigeon</b> <i>Otidiphaps nobilis</i>	1.2	LC	Breeding Exhibit	Surplus 0.1	1.1	10
<b>Fairy bluebird</b> <i>Irena puella</i>	1.0	LC	SSP-Yellow Geriatric	Acquire 1.1	1.1	12
<b>Great hornbill</b> <i>Buceros bicornis</i>	1.0	VU	SSP-Red Geriatric	Hold	1	16
<b>Indian peafowl</b> <i>Pavo cristatus</i>	8.7	LC	Free range	Winter housing	10.5	9
<b>Green-winged dove</b> <i>Chalcophaps indica</i>	1.2	LC	Free flight Breed	Hold	2.2	12
<b>Luzon bleeding heart dove</b> <i>Gallicolumba luzonica</i>	4.2	NT	SSP Breed to sustain	Surplus 0.0.2	2.2	11
<b>Red-billed blue magpie</b> <i>Urocissa erythrorhyncha</i>	0.1	N/A	Aviary Surplus	Phase out	0	11
<b>Mandarin duck</b> <i>Aix galericulata</i>	1.0	LC	Freeflight Exhibit	Acquire 1.1	1.1	9
<b>Western cattle egret</b> <i>Bubulcus ibis</i>	2.0	LC	Freeflight Exhibit	Acquire 0.2	2.2	9
<b>Western cattle egret</b> <i>Bubulcus ibis</i>	2.0	LC	Freeflight Exhibit	Acquire 0.2	2.2	

## REPTILES & AMPHIBIANS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Tentacled snake</b> <i>Erpeton tentaculatum</i>	3.2	LC	Breed to Sustain	Hold	3.4	10
<b>False gharial</b> <i>Tomistoma schlegelii</i>	1	VU	Hold for SSP	Exhibit	1	12
<b>Spiny hill turtle</b> <i>Heosemys spinosa</i>	3.1	EN	Surplus Asian turtle crises	Phase out	0	10
<b>Spotted pond turtle</b> <i>Geoclemys hamiltonii</i>	1.2	EN	SSP- Breed Asian turtle crises	Exhibit	1.2	8
<b>Burmese star tortoise</b> <i>Goechelone platynota</i>	4.1	CR	SSP -Breed Asian turtle crises	Exhibit	3.3	11
<b>Asian brown tortoise</b> <i>Manouria emys emys</i>	2.1	N/A	Surplus Asian turtle crises	Phase out	0	11
<b>Malaysian painted river terrapin</b> <i>Batagur borneoensis</i>	2.4.6	CR	SSP-Breed	Mixed exhibit	2.4	13
<b>Chinese softshell turtle</b> <i>Pelodiscus sinensis</i>	0.1	VU	Surplus	Phase out	0	8
<b>Reticulated python</b> <i>Malayopython reticulatus</i>	1.1	LC	SSP Non-breeding	Exhibit	0.1 1.1 hard to manage	10
<b>Boelen's python</b> <i>Simalia boeleni</i>	1.0	DD	Exhibit	Acquire 0.1	1.1	9
<b>Chinese crocodile lizard</b> <i>Shinasaurus crocodilurus</i>	1.0	EN	SSP Surplus	Phase out	0	11
<b>Monocellate cobra</b> <i>Naja naja kaouthia</i>	1.0	LC	Hold	Exhibit	1	9
<b>Black-breasted leaf turtle</b> <i>Geomyda spengleri</i>	2.9	EN	SSP Breed	Surplus 0.0.2	4.5	11



<b>Tokay gecko</b> <i>Gecko gecko</i>		N/A	Sustain Pest control		20+	
<b>Emperor newt</b> <i>Tylototriton sharjing</i>	2.4.10	NT	SSP Breed to sustain	Surplus	4.8	10
<b>Chinese giant salamander</b> <i>Andrias dividianus</i>	0.1	CR	New exhibit	Acquire	1.1	

## FISHES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Asian bonytongue</b> <i>Scleropages formosus</i>	1.0	EN Breed		Acquire 1	1.1	13
<b>Bighead carp</b> <i>Hypophthalmichthys nobilis</i>	0.0.14	DD	Exhibit	Invasive species Community tank	14	
<b>Black carp</b> <i>Mylopharyngodon piceus</i>	0.0.12	DD			12	
<b>Grass carp</b> <i>Ctenopharyngodon idella</i>	0.0.6	N/A			6	
<b>Gunther's Catfish</b> <i>Horabagrus brachysoma</i>	0.0.1	VU			1	
<b>Clown loach</b> <i>Chromobotia macracanthus</i>	0.0.2	N/A			2	
<b>Giant barb</b> <i>Catlocarpio siamensis</i>	0.0.2	CR			2	
<b>Goldfin tinfoil barb</b> <i>Barbodes</i>	0.0.4	DD			4	
<b>Tinfoil barb</b> <i>Barbonymus schwanenfeldii</i>	0.0.10	LC			10	
<b>Tri-colour sharkminnow</b> <i>Balantiocheilus melanopterus</i>	0.0.3	N/A			3	
<b>Giant gourami</b> <i>Osphronemus goramy</i>	0.0.8	LC	Exhibit		0.0.8	
<b>Iridescent shark catfish</b> <i>Pangasianodon hypophthalmus</i>	0.0.1	EN	Exhibit	Acquire 1	2	

<b>Archer fish</b> <i>Toxotes jaculatrix</i>	1.1	LC	Exhibit	1.1
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<b>Denison's barb</b> <i>Sahyadria denisonii</i>	0.0.66	EN	Exhibit	80
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**INVERTEBRATES**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Malaysian blue shrimp</b> <i>Macrobrachium rosenbergii</i>	1.0	LC				

**MAMMALS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Snow leopard</b> <i>Panthera uncia</i>	1.2	VU	SSP Yellow Breed	Ship1.1 Acquire1.0	1.1	19
<b>Amur tiger</b> <i>Panthera tigris alticacia</i>	1.1	EN	SSP -Green Breed	Hold	1.1	21
<b>Red panda</b> <i>Ailurus fulgens</i>	1.1	EN	SSP Yellow Breed	Acquire 0.1	1.1.2	16
<b>Bactrian camel</b> <i>Camelus bactrianus</i>	2.4	CR	SSP Candidate Breed	Hold	2.4	15
<b>Alpine chamois</b> <i>Rupicapra rupicapra</i>	1.1	LC	Exhibit Surplus	Phase out	0	8
<b>Przewalski's horse</b> <i>Equus caballus przewalski</i>	4.7	EN	SSP Yellow Breed	Surplus 0.0.2	2.7	17
<b>Domestic yak</b> <i>Bos grunniens</i>	1.7	N/A	Mixed species Surplus	Phase out	0	10
<b>West caucasian tur</b> <i>Capra caucasica caucasica</i>	7.9	EN	Non SSP Surplus	Phase out	0	8
<b>Mouflon</b> <i>Ovis aries musimon</i>	5.13	N/A	SSP candidate Mixed exhibit	Phase out	0	9
<b>Barbary sheep</b> <i>Ammotragus lervia</i>	1.1	VU	Non SSP Mixed exhibit	Phase out	0	10
<b>Lion-tailed macaque</b> <i>Macaca silenus</i>	2.1	EN	SSP Red Surplus	Phase out	0	11
<b>Barbary macaque</b> <i>Macaca sylvanus</i>	0.2	EN	Non-SSP Surplus	Phase out	0	11





## Australasia Pavilion

### MAMMALS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Western grey kangaroo</b> <i>Macropus fuliginosus</i>	4.4.1	LC	SSP Yellow Breed to sustain	Mixed exhibit	6.6	16
<b>Red-necked wallaby</b> <i>Macropus rufogriseus</i>	1.1	LC	SSP Green Breed to sustain	Acquire 1.1	2.2	11
<b>Matschie's tree kangaroo</b> <i>Dendrolagus matschiei</i>	0.1	EN	SSP Red Surplus	Phase out	0	18
<b>Southern hairy-nosed wombat</b> <i>Lasiornhinus latifrons</i>	1.1	NT	SSP Red Breed	Mixed exhibit	1.1	19
<b>Short-beaked echidna</b> <i>Tachyglossus aculeatus</i>	0.1	LC	SSP Red	Acquire 1.0	1.1	9
<b>Brush-tailed bettong</b> <i>Bettongia penicillata</i>	2.1	CR	SSP Yellow Surplus	Phase out	0	11

### BIRDS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Tawny frogmouth</b> <i>Podagurus strigoides</i>	1.0	LC	SSP Green Exhibit	Acquire 0.1	1.1	9
<b>Victoria crowned pigeon</b> <i>Goura victoria</i>	2.2	NT	SSP Yellow Exhibit	Hold	2.2	13
<b>Crested pigeon</b> <i>Ocyphaps lophotes</i>	3.5.2	LC	Non SSP Exhibit	Hold	3.5	10
<b>Galah</b> <i>Eolophus roseicapilla</i>	1.0	LC	Non SSP Surplus	Phase out	0	9
<b>Pied imperial pigeon</b> <i>Ducula bicolor</i>	4.0	LC	Non SSP No breeding	Hold	4	10

<b>Scarlet-chested parrot</b> <i>Neophema splendida</i>	1.0	LC	Non SSP Breed	Acquire 0.1	1.1	10
<b>Green winged dove</b> <i>Chalcophaps indica</i>	0.1	LC	SSP Yellow Breed	Move 1 from Indo	1.1	12
<b>Kookaburra</b> <i>Dacelo novaeguineae</i>	1.1	LC	SSP Yellow Breed	SSP switch	1.1	12
<b>Ring-necked pheasant</b> <i>Phasianus colchicus torquatus</i>	1.1	N/A	Non SSP Surplus	Phase out	0	10

### REPTILES & AMPHIBIANS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Lau banded iguana</b> <i>Brachylophus faciatus</i>	1.0	EN	SSP Yellow Breed	Acquire 0.1	1.1	11
<b>Inland bearded dragon</b> <i>Pogona vitticeps</i>	1.2	LC	Non SSP Surplus	Phase out	0	9
<b>Stimson's python</b> <i>Antaresia stimsoni</i>	1.1	LC	Non SSP Mixed exhibit	Phase out	0	8
<b>Green tree python</b> <i>Morelia viridis</i>	2.3.4	LC	Non SSP Breed to sustain	Hold	2.2	9
<b>Emerald tree python</b> <i>Corallus caninus</i>	2.2.1	LC	Non-SSP Breed to sustain	Hold	2.2	9
<b>Red tailed ratsnake</b> <i>Gonyosoma oxycephala</i>	2	N/A	Non SSP Exhibit	Surplus from Indo	2	10
<b>Black tree monitor</b> <i>Varanus beccarii</i>	2.1	DD	SSP Yellow Breed	Hold	2.2	11
<b>Red bellied short-necked turtle</b> <i>Emydura subglobosa</i>	3.3	LC	Non SSP Mixed exhibit	Hold	3.3	9
<b>Fly river turtle</b> <i>Carettochelys insculpta</i>	1.1	EN	SSP Breed	Hold	1.1	10

<b>Komodo dragon</b> <i>Varanus komodoensis</i>	1.0	VU	SSP Yellow Breed	Acquire 0.1	1.1	20
<b>Prehensile tailed skink</b> <i>Corucia zebrata</i>	1.1	N/A	SSP Yellow Breed to sustain	Hold	1.1.2	10
<b>Solomon Island leaf frog</b> <i>Ceratobatrachus guentheri</i>	0.0.46	LC	Non SSP Breed to sustain	Surplus 20	3.7	8
<b>White's tree frog</b> <i>Litoria caerulea</i>	2.0.11	LC	Non SSP Breed to sustain	Hold	6.6	10

## FISHES & INVERTEBRATES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Umbrella false coral</b> <i>Discosoma</i>			Mixed Exhibit	Maintain	Colony	15
<b>Mat anemone</b> <i>Zoanthus</i>						
<b>Star coral</b> <i>Favia</i>						
<b>Candycane coral</b> <i>Caulastrea</i>						
<b>Mushroom coral</b> <i>Fungia</i>						
<b>Blue devilfish</b> <i>Assessor macneilli</i>	0.0.1	N/A	Mixed exhibit aquarium	Maintain	1	10
<b>Flame angelfish</b> <i>Centropyge loricula</i>	0.0.1	LC			1	
<b>Yellow tang</b> <i>Zebrasoma flavescens</i>	0.0.1	LC			1	
<b>Pot-bellied seahorses</b> <i>Hippocampus abdominalis</i>	16.15.15	LC	SSP Yellow Breed	Surplus young	15.15	18
<b>Lionfish</b> <i>Pterois volitans</i>	0.0.1		Exhibit Invasive species	Hold	1	11
<b>Snowflake moray</b> <i>Echidna nebulosa</i>	0.0.1	LC	Mixed exhibit			10

<b>Moon jellyfish</b> <i>Aurelia aurita</i>	0.0.50		Exhibit	Hold	50	13
			Breed to maintain			
<b>Mimic surgeonfish</b> <i>Acanthurus pyroferus</i>	0.0.1	LC	Community tank	Acquire	Increase species and numbers	15
<b>Fire anemonefish</b> <i>Amphiprion melanopus</i>	0.1	LC	Reef species			
<b>Clown triggerfish</b> <i>Balistoides conspicillum</i>	0.0.1	N/A				
<b>Featherfin butterflyfish</b> <i>Chaetodon auriga</i>	0.0.2	LC				
<b>Blackback butterflyfish</b> <i>Chaetodon melannotus</i>	0.0.1	LC				
<b>Scribbled angelfish</b> <i>Chaetodontoplus duboulayi</i>	0.0.1					
<b>Brownbanded bamboo shark</b> <i>Chiloscyllium punctatum</i>	0.0.1	NT	SSP			
<b>Longnose butterflyfish</b> <i>Forcipiger flavissimus</i>	0.0.2	LC				
<b>Pennant coral fish</b> <i>Heniochus acuminatus</i>	0.0.4	LC				
<b>Palette surgeonfish</b> <i>Paracanthurus hepatus</i>	0.0.2	LC				
<b>Orbiculate batfish</b> <i>Platax orbicularis</i>	0.0.1	LC				
<b>Bluegirdled angelfish</b> <i>Pomacanthus navarchus</i>	0.0.1	LC				
<b>Queensland red claw</b> <i>Cherax quadricarinatus</i>	Colony	LC	Yabby colony		1 Colony	
<b>Mcleay's spectre</b> <i>Extatosoma tiaratum</i>	Colony		Exhibit		Colony	9
<b>Thorny devil</b> <i>Eurycantha calcarata</i>	Colony		Exhibit		0	8
			Phase out			





**MAMMALS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>North American otter</b> <i>Lutra canadensis</i>	1.1	LC	SSP Green Breed	Hold	1.1.?	23
<b>Beaver</b> <i>Castor canadensis</i>	1.1	LC	Exhibit only Old siblings	Acquire young	1.1	14
<b>White faced saki</b> <i>Pithecia pithecia</i>	1.1	LC	SSP Green Breed	Hold	1.1	14
<b>Golden lion tamarin</b> <i>Leontopithecus rosalia</i>	2.4	EN	SSP Green Breed	Surplus 0.0.1	3.3	15
<b>Common marmoset</b> <i>Callithrix jacchus</i>	2.1	LC	Non SSP Surplus	Phase out	0	11
<b>Linne's two-toed sloth</b> <i>Choloepus didactylus</i>	0.1	LC	SSP-Yellow Acquire	Acquire 1.1	2.1	14
<b>Prehensile-tailed porcupine</b> <i>Coendou prehensilis</i>	0.1	LC	SSP Yellow Exhibit	Phase out	0	13
<b>Black-footed ferret</b> <i>Mustela nigripes</i>	0.1		SSP-Yellow Exhibit	Hold	1	21
<b>Jaguar</b> <i>Panthera onca</i>	1.1	NT	SSP Yellow SAFE SPECIES	Acquire young	1.1	14
<b>Spider monkey</b> <i>Ateles geoffroyi geoffroyi</i>	1.2	EN	SSP Yellow Non breeding	Phase out	0	16
<b>Capibarra</b> <i>Hydrochoerus hydrochaeris</i>	1.0	LC	SSP Yellow Mixed exhibit	Acquire 0.1	1.1	13

**BIRDS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Blue-crowned motmot</b> <i>Momotus momota</i>	1.0	LC	SSP Yellow Breed	Acquire 0.1	1.1	9
<b>Blue-throated piping-guan</b> <i>Pipile cumanensis</i>	0.0.1	LC	Non SSP Surplus	Phase out	0	8
<b>Green aracari</b> <i>Pteroglossus viridis</i>	0.1	LC	SSP Yellow Breed	Acquire	1.1	10
<b>Scarlet ibis</b> <i>Eudocimus ruber</i>	2.2	LC	SSP Green Breed	Hold	2.2	8
<b>Spectacled owl</b> <i>Pulsatrix perspicillata</i>	1.1	LC	SSP Yellow Exhibit	Hold	1.1	10
<b>Sunbittern</b> <i>Eurypyga helias</i>	1.1	LC	SSP Yellow Breed	Hold	1.1	11
<b>Plush-crested jay</b> <i>Cyanocorax chrysops</i>	1.1	LC	SSP Red Breed	Hold	1.1	10
<b>Elegant crested tinamou</b> <i>Eudromia elegans</i>	1.0	LC	SSP Red Breed	Acquire 1	2.2	12
<b>Double-striped thick-knee</b> <i>Burhinus bistriatus</i>	0.1	LC	Non SSP	Phase out	0	9
<b>Loggerhead shrike</b> <i>Lanius ludovicianus migrans</i>	1		Recovery Program exhibit	Hold	1	24
<b>Northern great horned owl</b> <i>Bubo virginianus virginianus</i>	0.1	N/A	Non SSP Exhibit	Hold	0.1	12
<b>Opal-rumped tanager</b> <i>Tangara velia</i>	1.1	LC	Breed Exhibit	Hold	1.1	9

<b>Turquoise tanager</b> <i>Tangara mexicana</i>	1.1	LC	SSP Red Breed	Hold	1.1	11
<b>Paradise tanager</b> <i>Tangara chilensis paradisea</i>	1.0	LC	Non SSP	Hold	1.0	
<b>White-lined tanager</b> <i>Tachyphonus rufus</i>	1.0	LC	Breed	Acquire 0.1	1.1	8
<b>Silver-beaked tanager</b> <i>Ramphocelus carbo</i>	1.0	LC	SSP Yellow Breed	Acquire 0.1	1.1	8
<b>Red-crested finch</b> <i>Coryphospingus cucullatus</i>	1.3	LC	SSP Candidate Old birds	Phase out	0	9
<b>Rufous-collared sparrow</b> <i>Zonotrichia capensis</i>	1.3	LC	Breed	Hold	2.2	8
<b>American Flamingo</b> <i>Phoenicopterus ruber ruber</i>	9.8	LC	SSP- Green Breed	Acquire	0.0.20	14
<b>Blue-and-yellow macaw</b> <i>Ara ararauna</i>	2.0	LC	Mixed exhibit	Hold	2.0	
<b>Green-winged macaw</b> <i>Ara chloropterus</i>	0.1	LC	Mixed exhibit	Hold	0.1	

## REPTILES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>American alligator</b> <i>Alligator mississippiensis</i>	0.2	LC	Non SSP Exhibit	Hold	0.2	8
<b>Boa constrictor</b> <i>Boa constrictor constrictor</i>	2.1	N/A	Non SSP Not Breed	Hold	2.2	10
<b>Eastern fox snake</b> <i>Pantherophis vulpinus</i>	1.0	LC	Canadian	Hold	Snake Talk snakes Outreach snakes	
<b>Great Basin gopher snake</b> <i>Pituophis catenifer deserticola</i>	0.0.1	LC	Outreach			
<b>Honduran milksnake</b> <i>Lampropeltis triangulum hondurensis</i>	0.1.1	N/A	Outreach	Phase out		

<b>Red-sided gartersnake</b> <i>Thamnophis sirtalis parietalis</i>	1.0	N/A	Outreach			
<b>Royal/ball python</b> <i>Python regius</i>	2.0	LC	Outreach			
<b>Western ratsnake</b> <i>Pantherophis obsoletus obsoletus</i>	1.1	LC	Outreach			
<b>Desert grassland whiptail</b> <i>Aspidoscelis uniparens</i>	0.19	LC	Parthenogenises Mixed exhibit	Hold	15	11
<b>Dwarf caiman</b> <i>Paleosuchus palpebrosus</i>	2.0	LC	Breed to sustain Mixed exhibit	Acquire	3.1	9
<b>Eastern spiny softshelled turtle</b> <i>Apalone spinifera spinifera</i>	0.1	N/A	Priority Can Sp Breed	Acquire 1.0	1.2	13
<b>Eyelash palm pitviper</b> <i>Bothriechis schlegelii</i>	2.0.1	LC	Surplus	Phase out	0	8
<b>Guatemalan beaded lizard</b> <i>Heloderma horridum charlesbogerti</i>	0.1	LC	SSP Breed to sustain	Acquire 1.0	1.2	14
<b>Jamaican boa</b> <i>Chilabothrus subflavus</i>	2.1.3	VU	SSP- Yellow Breed to sustain	Hold	2.2	12
<b>Massasauga</b> <i>Sistrurus catenatus</i>	1.1	LC	SSP-Yellow Breed to sustain	Hold	1.1	21
<b>Matamata turtle</b> <i>Chelus fimbriatus</i>	0.1	N/A	Non SSP Breed to sustain	Acquire	2.2	9
<b>Pacific gopher snake</b> <i>Pituophis catenifer catenifer</i>	1	LC	Surplus	Phase out	0	
<b>Reticulate gila monster</b> <i>Heloderma suspectum suspectum</i>	0.5	NT	SSP Breed to sustain	Hold	2.2	8
<b>San Esteban Island chuckwalla</b> <i>Sauromalus varius</i>	1.1	VU	SSP-Yellow Breed to sustain	Acquire 1.1	2.3	10
<b>Snapping turtle</b> <i>Chelydra serpentina</i>	1.2	LC	Priority Can Sp Exhibit	Hold	1.2	15



<b>Spotted turtle</b> <i>Clemmys guttata</i>	2.3.1	EN	Priority Can Sp Breed	Hold	2.5	13
<b>Yellow-spotted Amazon river turtle</b> <i>Podocnemis unifilis</i>	0.0.2	VU	SSP Breed	Hold	1.3	10
<b>Midland painted turtle</b> <i>Chrysemys picta marginata</i>	1.5	N/A	Priority Can Sp	Hold	1.4	13
<b>Wood turtle</b> <i>Glyptemys insculpta</i>	1.0	EN	Priority Can Sp	Hold	Exhibit	21
<b>Blanding's turtle</b> <i>Emydoidea blandingii</i>	0.1.59	EN	SSP Yellow Raise for Release	Hold	50	24

#### AMPHIBIANS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Splash-backed poison frog</b> <i>Adelphobates galactonotus</i>	0.2.4	LC	SSP Breed to sustain	Hold	Mixed Exhibit	
<b>Lemur leaf frog</b> <i>Agalychnis lemur</i>	0.0.77	CR	Breed to sustain Mixed exhibit	Surplus 20	15.15	12
<b>Panamanian golden frog</b> <i>Atelopus zeteki</i>	10.9	CR	SSP Yellow Breed to sustain	Hold	15.15	12
<b>Green &amp; Black Poison Arrow Frog</b> <i>Dendrobates auratus</i>	6.5.24	LC	Breed to sustain	Hold	Mixed Exhibit	11
<b>Yellow-banded poison dart frog</b> <i>Dendrobates leucomelas</i>	3.1.21	LC	Breed to sustain	Hold	Mixed Exhibit	11
<b>Yellow &amp; Blue Poison Arrow Frog</b> <i>Dendrobates tinctorius</i>	1.1.12	LC	Breed to sustain	Hold	Mixed Exhibit	11
<b>Blue dyeing poison frog</b> <i>Dendrobates tinctorius azureus</i>	5.2.30	LC	Breed to sustain	Hold	Mixed Exhibits	11

<b>Puerto Rican crested toad</b> <i>Peltophryne lemur</i>	8.0	CR	PRCTC	Hold	0.0.8	16
<b>Axolotl</b> <i>Ambystoma mexicanum</i>	4.2	CR	Breed to sustain	Hold	3.4	13
<b>Marsupial frog</b> <i>Gastrotheca riobambae</i>	2.4	EN	Breed/Exhibit		Endangered	

## FISHES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Pumpkinseed sunfish</b> <i>Lepomis gibbosus</i>	0.0.9	LC	Native Sp	Mixed exhibit		
<b>Atlantic salmon</b> <i>Salmo salar</i>	0.0.0	LC	COSEWIC	Mixed Species		
<b>Mexican blind cavefish</b> <i>Astyanax mexicanus</i>	3.1.0	LC		Phase out		
<b>Electric eel</b> <i>Electrophorus electricus</i>	0.0.1	LC		Exhibit		
<b>American eel</b> <i>Anguilla rostrata</i>	0.0.4	EN		Exhibit		
<b>Bristlenose catfish</b> <i>Xenocara</i>	0.0.3	LC				
<b>Butterfly goodeid</b> <i>Ameca splendens</i>	0.0.38	CR	AZA Conservation	Exhibit		
<b>Florida gar</b> <i>Lepisosteus platyrhincus</i>	0.0.2	LC		Exhibit		
<b>Red piranha</b> <i>Pygocentrus nattereri</i>	0.0.17	N/A		Exhibit		
<b>Zebra pleco</b> <i>Hypancistrus zebra</i>	0.0.1	N/A				

**Grunt sculpin** 0.0.2 N/A Mixed Exhibit  
*Rhamphocottus richardsonii*

**Shiner surfperch** 0.0.8 LC Mixed Exhibit  
*Cymatogaster aggregate*

**MARINE INVERTEBRATES**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Leather sea star</b> <i>Dermasterias imbricata</i>	0.0.4	N/A	Native Sp	Mixed Exhibit		
<b>Giant green anemone</b> <i>Anthopleura xanthogrammica</i>	0.0.5	N/A	Native Sp	Mixed Exhibits		
<b>Clonal anemone</b> <i>Anthopleura elegantissima</i>	0.0.2	N/A	Native Sp			
<b>Strawberry anemone</b> <i>Urticina lofotensis</i>	0.0.2	N/A				
<b>Strawberry false coral</b> <i>Corynactis californica</i>	0.0.10	N/A		Mixed Exhibit		
<b>Clonal plumose anemone</b> <i>Metridium senile</i>	0.0.2	N/A				
<b>Painted anemone</b> <i>Tealia crassicornis</i>	0.0.2	N/A	Native Sp			
<b>Purple sea urchin</b> <i>Strongylocentrotus purpuratus</i>		N/A		Mixed Exhibit		
<b>Green sea urchin</b> <i>Strongylocentrotus droebachiensis</i>		N/A		Mixed Exhibit		

**TERRESTRIAL & AQUATIC INVERTEBRATES**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Brazilian blue violet tarantula</b> <i>Pterinopelma vitiosum</i>	0.1	N/A				10
<b>Vinegaroon</b> <i>Mastigoproctus giganteus</i>	0.1	N/A				10

<b>Brazilian giant cockroach</b> <i>Blaberus giganteus</i>		N/A	Colony	10
<b>Eastern lubber</b> <i>Romalea microptera</i>		N/A	Group	10
<b>Chilean rose hair tarantula</b> <i>Grammostola rosea</i>	0.1	N/A		10
<b>Ferocious waterbug</b> <i>Abedus herberti</i>	0.0.24	N/A	Group	
<b>Sunburst diving beetle</b> <i>Thermonectus marmoratus</i>	0.0.1	N/A	Mixed Exhibit	
<b>Desert hairy scorpion</b> <i>Hadrurus arizonensis</i>	0.0.1	N/A		10
<b>Hatian brown tarantula</b> <i>Phormictopus atrichomatus</i>	0.1	N/A		10
<b>Peruvian black bird-eating spider</b> <i>Pamphobeteus nigricolor</i>	0.1	N/A		
<b>South American bird-eating spider</b> <i>Lasiadora parahybana</i>	0.1	N/A		11



**MAMMALS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Polar bear</b> <i>Ursus maritimus</i>	2.3	VU	SSP-Yellow Exhibit	2.0 Loan	0.3	20
<b>Arctic wolf</b> <i>Canus lupus hudsonicus</i>	8.6	LC	Non SSP Exhibit	Surplus pups	2.5	17
<b>Porcupine caribou</b> <i>Rangifer tarandus granti</i>	0.9	N/E	Non SSP AI	Acquire 1.0 or AI	1.9	17
<b>Eurasian tundra reindeer</b> <i>Rangifer tarandus tarandus</i>	0.1	VU	Non SSP	Phase out	0	17
<b>American elk</b> <i>Cervus canadensis canadensis</i>	0.1	N/E	Non-SSP	Phase out	0	13
<b>Canadian lynx</b> <i>Lynx canadensis canadensis</i>	0.1	N/E	SSP-Yellow Surplus	Phase out	0	12
<b>Cougar</b> <i>Puma concolor</i>	1.0	LC	SSP-Yellow Exhibit	Hold	1.1	15
<b>Grizzly bear</b> <i>Ursus arctos horribilis</i>	1.1	LC	Non SSP Exhibit	Hold	1.1	16
<b>Moose</b> <i>Alces americanus</i>	0.2	N/E	SSP Red Exhibit	Acquire 1.0 or AI	1.2	16
<b>Wood bison</b> <i>Bison bison athabascaae</i>	6.18	N/E	Recovery Program Breeding Research	Surplus 3.0	4.18	20
<b>Raccoon</b> <i>Procyon lotor</i>	1.2	LC	Exhibit-Non breeding	Hold	1.2	11

## BIRDS

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
Northern bald eagle <i>Haliaeetus leucocephalus alascensis</i>	1.0	LC	Rehab bird	Phase out	0	12
<b>Lesser snow goose</b> <i>Anser caerulescens caerulescens</i>	0.0.3	LC	Breed for Exhibit	Hold	2.2	9



## Outreach & Discovery and Kids Zoo

### MAMMALS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Alpaca</b> <i>Lama pacos</i>	3.0	N/A	Outreach	Hold	3.0	
<b>Miniature donkey</b> <i>Equus asinus domestic miniature</i>	1.0	N/A	Outreach	Hold	1.0	
<b>Capybara</b> <i>Hydrochoerus hydrochaeris</i>	1.0	LC	SSP-Yellow Outreach	Relocate	1.0	13
<b>Domestic ferret</b> <i>Mustela putorius furo</i>	5.0	N/A	Show	Phase out	0	
<b>Domestic goat</b> <i>Capra hircus</i>	1.3	N/A	Outreach	Expand	3.3	
<b>Domestic guinea pig</b> <i>Cavia porcellus</i>	0.10	N/A	Exhibit	Phase out	0	
<b>Domestic rabbit</b> <i>Oryctolagus cuniculus domestic</i>	1.0	N/A	Outreach	Phase out	0	
<b>Ring-tailed lemur</b> <i>Lemur catta</i>	1.0	EN	SSP-Green Outreach	Hold	1.0	18
<b>Striped skunk</b> <i>Mephitis mephitis</i>	4.0	LC	Outreach	Hold	4.0	
<b>Woodchuck</b> <i>Marmota monax</i>	0.1	LC	Exhibit	Hold	0.1	

## BIRDS

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Abyssinian ground hornbill</b> <i>Bucorvus abyssinicus</i>	1.1	VU	SSP-Yellow	Surplus 1.0	1.1	N/A
<b>American kestrel</b> <i>Falco sparverius</i>	1.1	LC	Outreach	Hold	1.1	
<b>American peregrine falcon</b> <i>Falco peregrinus anatum</i>	1	LC	Bird show	Hold	1	
<b>Blue-and-yellow macaw</b> <i>Ara ararauna</i>	1	LC	Outreach	Hold	1	
<b>Green-winged macaw</b> <i>Ara chloropterus</i>	1	LC	Outreach	Hold	1	
<b>Eastern red-tailed hawk</b> <i>Buteo jamaicensis borealis</i>	1.1	LC	Bird show	Hold	1.1	
<b>Eurasian eagle owl</b> <i>Bubo bubo</i>	1	LC	Bird show	Hold	1	
<b>Harris' hawk</b> <i>Parabuteo unicinctus</i>	1.1	LC	Bird show	Hold	1.1	
<b>Lanner falcon</b> <i>Falco biarmicus</i>	1	LC	Outreach	Phase out	0	
<b>Marabou stork</b> <i>Leptoptilos crumenifer</i>	0.1	LC	SSP-Yellow Bird show	Hold	1	
<b>Northern bald eagle</b> <i>Haliaeetus leucocephalus alascensis</i>	2.1	LC	Bird show	Hold	1.1	
<b>Pied imperial pigeon</b> <i>Ducula bicolor</i>	0.0.1	LC	Outreach	Surplus	1	
<b>Raven</b> <i>Corvus corax</i>	2.1	LC	Bird show	Hold	2.1	

<b>Red-legged seriema</b> <i>Cariama cristata</i>	0.1	LC	SSP- Yellow	SSP exchange	1.1
<b>Secretary bird</b> <i>Sagittarius serpentarius</i>	1	VU	SSP- Red Bird show	Hold	1
<b>Spectacled owl</b> <i>Pulsatrix perspicillata</i>	1.0.1	LC	SSP-Yellow	Surplus 1	0.1
<b>Steller's Sea-eagle</b> <i>Haliaeetus pelagicus</i>	1.1	VU	SSP-Red Exhibit	Breed	1.1
<b>Trumpeter swan</b> <i>Cygnus buccinator</i>	1.1	LC	SSP-Yellow		Free Range
<b>Turkey vulture</b> <i>Cathartes aura</i>	1	LC	Bird show	Hold	1

#### REPTILES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>Eastern foxsnake</b> <i>Pantherophis vulpinus</i>	5.2	DD	Education Outreach	Hold		
<b>Hog Island boa</b> <i>Boa constrictor imperator</i>	1.1	EN	Education Outreach	Hold		
<b>Inland bearded dragon</b> <i>Pogona vitticeps</i>	1.1	LC	Education Outreach	Hold		
<b>Mali spiny-tailed lizard</b> <i>Uromastyx maliensis</i>	0.0.2	N/A	Education Outreach	Hold		
<b>Royal/ball python</b> <i>Python regius</i>	1.1	LC	Education Outreach	Hold		
<b>Western ratsnake</b> <i>Pantherophis obsoletus obsoletus</i>	0.1	LC	Education Outreach	Hold		



## INVERTEBRATES

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
<b>West African giant land snail</b> <i>Archachatina ventricosa</i>			Education	Hold		
<b>Eastern lubber</b> <i>Romalea microptera</i>			Education	Hold		
<b>Malayan wood nymph</b> <i>Heteropteryx dilatata</i>			Education	Hold		
<b>Madagascar hissing cockroach</b> <i>Gromphadorhina portentosa</i>			Education	Hold		



**RECOVERY PROGRAM ANIMALS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Loggerhead shrike</b> <i>Lanius ludovicianus migrans</i>	7.9.2		Select/ Breed		Release program	24
<b>Black-footed ferret</b> <i>Mustela nigripes</i>	9.12	EN	SSP-Yellow		Reintroduction Program	
<b>Vancouver Island marmot</b> <i>Marmota vancouverensis</i>	8.9	CR	Select/Breed		Release Program	
<b>Oregon spotted frog</b> <i>Rana pretiosa</i>	10.10	VU	Select/Breed		Release Program	
<b>Puerto Rican crested toad</b> <i>Peltophryne lemur</i>	20.15	CR	Select/Breed		Release Program	
<b>Wood turtle</b> <i>Glyptemys insculpta</i>	0.0.95	EN	Raise hatchlings		Headstart/Release	21
<b>Blanding's turtle</b> <i>Emydoidea blandingii</i>	0.0.50	EN	Hatched from eggs		Headstart/Release	

**CONSERVATION/RESEARCH PROGRAMS**

<b>SPECIES</b>	<b>SEX</b>	<b>IUCN</b>	<b>ACTION</b>	<b>RECOMMEND</b>	<b>PLAN</b>	<b>SCORE</b>
<b>Massasauga</b> <i>Sistrurus catenatus</i>	4.1	LC	SSP-Yellow		Breeding Program	
<b>Eastern foxsnake</b> <i>Pantherophis vulpinus</i>	4.2	LC	Breed for Outreach		Threatened	

<b>Pot-bellied seahorse</b> <i>Hippocampus abdominalis</i>	5.5.82	LC	SSP-Yellow	Breeding
<b>Ngege</b> <i>Oreochromis esculentus</i>	0.0.219	CR	SSP-Yellow	Founder stock
<b>Perrieri</b> <i>Prognathochromis perrieri</i>	0.0.75	CR	SSP-Yellow	Founder Stock
<b>Butterfly Goodeid</b> <i>Ameba splendens</i>	0.0.21	CR		
<b>Silverside</b> <i>Bedotia marojejy</i>	0.0.19	EN	Madagascar	
<b>Ventitry</b> <i>Paretroplus loisellei</i>	0.0.2	EN	Madagascar	
<b>Malagasy cichlid</b> <i>Ptychochromis insolitus</i>	0.0.46	CR	Madagascar	
<b>Green garaka</b> <i>Ptychochromis loisellei</i>	0.0.23	EN	Madagascar	
<b>Zonobe rainbowfish</b> <i>Rheocles vatosoa</i>	0.0.79	EN	Madagascar	

#### INVERTEBRATE BREEDING CENTRE

SPECIES	SEX	IUCN	ACTION	RECOMMEND	PLAN	SCORE
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#### African giant land snail

*Achatina*

#### Tarantula

*Aphonopelma*

#### Painted tarantula

*Brachypelma emilia*

#### Fruit fly

*Drosophila melanogaster*

**Mcleay's spectre**

*Extatosoma tiaratum*

**Chilean rose hair tarantula**

*Grammostola rosea*

**Madagascar hissing cockroach**

*Gromphadorhina portentosa*

**African two-spotted cricket**

*Gryllus bimaculatus*

**Desert hairy scorpion**

*Hadrurus arizonensis*

**Cecropia moth**

*Hyalophora cecropia*

**Cameroon red baboon spider**

*Hysteroocrates gigas*

**South American bird-eating spider**

*Lasiadora parahybana*

**Peruvian black bird-eating spider**

*Pamphobeteus nigricolor*

**Haitian brown tarantula**

*Phormictopus*

**Brazilian blue violet tarantula**

*Pterinopelma vitiosum*

**Eastern lubber**

*Romalea microptera*

**Sunburst diving beetle**

*Thermonectus marmoratus*

## APPENDIX II – Species Scoring Matrix

### Scoring Rubric

#### DEFINITIONS/EXAMPLES:

<b>Welfare</b>	A species whose welfare does not meet an acceptable standard must be accommodated or removed from the collection.
<b>Exhibit Suitability</b>	A species like the pygmy hippo might score a "1", since they lack outdoor access and grazing opportunities, whereas the tomistoma would score a "0" because the exhibit is too small to accommodate a full-grown male.
<b>Conservation Status</b>	A "recognized" level of concern means that the species has been identified as at risk according to a global (i.e IUCN), national, or provincial/state body. Categories like Critically Endangered or Endangered would correspond to "high"; categories like Vulnerable and Near Threatened would be considered "medium to low".
<b>In Situ Opportunities</b>	<i>In situ</i> opportunities could refer to either opportunities for staff to participate in the field or simply channels for financial support.
<b>Impact On Program</b>	Impact On Program refers to the role that the Zoo plays in supporting a conservation or sustainability program related to the species in question. A "critical" role implies that the program may be at risk of failure if support from the Zoo were to discontinue, "moderate" implies that lack of support would likely harm the program but to a lesser extent.
<b>Staff Time Investment</b>	Staff time may refer to regular commitments required by keepers, health care staff, maintenance staff, etc.
<b>Direct Cost of Care</b>	Direct Cost of Care is meant to include cost of food and other consumptive care supplies, though not basic exhibit elements related to infrastructure (i.e. filter material, lights, utility expenses, etc.).

	<b>CENTREPIECE SPECIES</b>	<b>CENTREPIECE SCORING LEGEND</b>
<b>Welfare</b>	Pass or Fail	
<b>Exhibit Suitability</b>	2	2 = excellent, 1 = fair, 0 = notable deficiency
<b>Canadian</b>	1	1 = Canadian, 0 = Other
<b>Conservation Status</b>	2	Recognized level of concern: 2 = high, 1 = medium to low, 0 = none)
<b>In Situ Opportunities</b>	2	2 = lots, 1 = limited, 0 = none
<b>Staff Expertise</b>	2	2 = extensive, 1 = adequate, 0 = further training required
<b>Sustainability</b>	2	2 = effective management plan, 1 = developing, 0 = none
<b>Impact On Program</b>	2	2 = critical, 1 = moderate, 0 = low
<b>Public Appeal</b>	5	5 = "star" exhibit, 0 = not a "star" exhibit



<b>Partnerships</b>	1	1 = yes, 0 = no
<b>Staff Time Investment</b>	3	3 = limited, 2 = moderate, 1 = extensive, 0 = very extensive
<b>Direct Cost of Care</b>	3	3 = < \$1,000, 2 = \$1,000 - 10,000, 1 = \$10,000 - 100,000, 0 = > \$100,000
	<b>25</b>	<b>TOTAL</b>

	<b>CONSERVATION</b>	<b>CONSERVATION - Scoring Legend</b>
<b>Welfare</b>	Pass or Fail	
<b>Exhibit Suitability</b>	2	2 = excellent, 1 = fair, 0 = notable deficiency
<b>Canadian</b>	5	5 = GTA, 4 = Ontario; 3 = Canadian; 0 =Other
<b>Conservation Status</b>	3	Recognized level of concern: 3 = high, 2 = medium, 1 = low, 0 = none)
<b>In Situ Opportunities</b>	2	2 = lots, 1 = limited, 0 = none
<b>Staff Expertise</b>	2	2 = extensive, 1 = adequate, 0 = further training required
<b>Sustainability</b>	2	2 = effective management plan, 1 = developing, 0 = none
<b>Impact On Program</b>	2	2 = critical, 1 = moderate, 0 = low
<b>Public Appeal</b>	1	1 = charasmatic, 0 = not charasmatic
<b>Partnerships</b>	1	1 = yes, 0 = no
<b>Staff Time Investment</b>	3	3 = limited, 2 = moderate, 1 = extensive, 0 = very extensive
<b>Direct Cost of Care</b>	2	2 = < \$1,000, 1 = \$1,000 - 10,000, 0 = > \$10,000
	<b>25</b>	<b>TOTAL</b>

	<b>BIODIVERSITY/ EDUCATION</b>	<b>BIODIVERSITY/EDUCATION SCORING LEGEND</b>
<b>Welfare</b>	Pass or Fail	
<b>Exhibit Suitability</b>	2	2 = excellent, 1 = fair, 0 = notable deficiency
<b>Canadian</b>	2	2 = Ontario, 1= Canadian, 0 = Other
<b>Conservation Status</b>	2	Recognized level of concern: 2 = high, 1 = medium to low, 0 = none)
<b>In Situ Opportunities</b>	2	2 = lots, 1 = limited, 0 = none
<b>Staff Expertise</b>	2	2 = extensive, 1 = adequate, 0 = further training required
<b>Sustainability</b>	5	5 = effective management plan, 3 = developing, 0 = none
<b>Impact On Program</b>	2	2 = critical, 1 = moderate, 0 = low
<b>Public Appeal</b>	2	2 = big draw, 1 = little draw, 0 = no draw (species or exhibit)
<b>Partnerships</b>	1	1 = yes, 0 = no
<b>Staff Time Investment</b>	3	3 = limited, 2 = moderate, 1 = extensive, 0 = very extensive
<b>Direct Cost of Care</b>	2	2 = < \$1,000, 1 = \$1,000 - 10,000, 0 = > \$10,000
	<b>25</b>	<b>TOTAL</b>

## Example of how rubric was used: African Rainforest Pavilion

### Data Entry

Pavilion/Area/Exhibit:	Africa Rainforest	Canadian?	No
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CENTREPIECE	SPECIES	
OBJECTIVE	Western Lowland Gorilla	Pygmy Hippo
Welfare	PASS	PASS
Exhibit Suitability	Fair	Notable deficiency
Canadian	Other	Other
Conservation Status	High	High
In Situ Opportunities	Lots	Lots
Staff Expertise	Extensive	Extensive
Sustainability	Effective management	Limited
Impact On Program	Critical	Critical
Public Appeal	Star exhibit	Star exhibit
Partnerships	Yes	Yes
Staff Time Investment	Extensive	Moderate
Direct Cost of Care	\$1,000-\$9,999	\$1,000-\$9,999
Taxonomic group	Mammal	Mammal
Exhibit	Under Construction	

CONSERVATION	SPECIES				
OBJECTIVE	Ngege	Perrieri	Two-stripe White Lip	Paratilapia sp	Rainbow killifish
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Excellent	Excellent	Excellent	Excellent	Excellent
Canadian	Other	Other	Other	Other	Other
Conservation Status	High	High	High	High	High
In Situ Opportunities	Limited	Limited	Limited	Limited	Limited
Staff Expertise	Extensive	Extensive	Extensive	Extensive	Extensive
Sustainability	Effective management	Effective management	Effective management	Limited	Effective management
Impact On Program	Critical	Critical	Critical	Critical	Critical
Public Appeal	Not charismatic	Not charismatic	Not charismatic	Not charismatic	Not charismatic
Partnerships	Yes	Yes	Yes	Yes	Yes
Staff Time Investment	Limited	Limited	Limited	Limited	Limited
Direct Cost of Care	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999
Taxonomic group	Fish	Fish	Fish	Fish	Fish
Exhibit	Under Construction				

BIODIVERSITY	SPECIES				
OBJECTIVE	Ring-tailed Lemur	Warthog	Red River Hog	Naked Mole-Rat	Spotted-necked Otter
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Fair	Fair	Fair	Fair	Fair
Canadian	Other	Other	Other	Other	Other
Conservation Status	High	Medium - Low	Medium - Low	None	High
In Situ Opportunities	Lots	None	None	None	None
Staff Expertise	Extensive	Extensive	Extensive	Extensive	Extensive
Sustainability	Effective management	Effective management	Limited	Effective management	Effective management
Impact On Program	Low	Low	Moderate	Low	Moderate
Public Appeal	Big draw	Big draw	Big draw	Little draw	Little draw
Partnerships	Yes	No	Yes	No	Yes
Staff Time Investment	Moderate	Moderate	Moderate	Moderate	Moderate
Direct Cost of Care	\$1,000-\$9,999	\$1,000-\$9,999	\$1,000-\$9,999	\$1,000-\$9,999	\$1,000-\$9,999
Taxonomic group	Mammal	Mammal	Mammal	Mammal	Mammal
Exhibit	Under Construction				

BIODIVERSITY	SPECIES				
OBJECTIVE	Slender-tailed Meerkat	Straw-colored Bat	Hamerkop	Speckled Pigeon	Violet Turaco
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Fair	Fair	Excellent	Fair	Fair
Canadian	Other	Other	Other	Other	Other
Conservation Status	None	Medium - Low	None	None	None
In Situ Opportunities	None	None	None	None	None
Staff Expertise	Extensive	Extensive	Adequate	Adequate	Adequate
Sustainability	Limited	Effective management	Effective management	None	Effective management
Impact On Program	Low	Moderate	Low	Low	Low
Public Appeal	Little draw	Little draw	Little draw	No draw	Little draw
Partnerships	Yes	Yes	No	No	No
Staff Time Investment	Moderate	Moderate	Moderate	Limited	Extensive
Direct Cost of Care	\$1,000-\$9,999	\$1,000-\$9,999	\$1,000-\$9,999	\$0-\$999	\$1,000-\$9,999
Taxonomic group	Mammal	Mammal	Bird	Bird	Bird
Exhibit	Under Construction				

BIODIVERSITY					
OBJECTIVE	Golden-breasted Starling	Black Crake	Speckled Mousebird	White-vented Bulbul	Sacred Ibis
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Excellent	Excellent	Excellent	Excellent	Excellent
Canadian	Other	Other	Other	Other	Other
Conservation Status	None	None	None	None	None
In Situ Opportunities	None	None	None	None	None
Staff Expertise	Adequate	Adequate	Extensive	Extensive	Extensive
Sustainability	Effective management	Effective management	Limited	None	Effective management
Impact On Program	Moderate	Low	Low	Low	Low
Public Appeal	Little draw	No draw	Little draw	No draw	Little draw
Partnerships	No	No	No	No	No
Staff Time Investment	Limited	Limited	Limited	Limited	Limited
Direct Cost of Care	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999	\$1,000-\$9,999
Taxonomic group	Bird	Bird	Bird	Bird	Bird
Exhibit (Under Construction)					

BIODIVERSITY					
OBJECTIVE	African Spoonbill	Cape Shelduck	Gray-necked Crowned Crane	Wattled Crane	W African dwarf crocodile
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Excellent	Excellent	Excellent	Notable deficiency	Fair
Canadian	Other	Other	Other	Other	Other
Conservation Status	None	None	High	Medium - Low	Medium - Low
In Situ Opportunities	None	None	None	Limited	None
Staff Expertise	Extensive	Extensive	Extensive	Extensive	Adequate
Sustainability	Effective management	None	Effective management	Effective management	Limited
Impact On Program	Low	Low	Low	Moderate	Low
Public Appeal	Big draw	Little draw	Big draw	Little draw	Little draw
Partnerships	No	No	No	No	No
Staff Time Investment	Limited	Limited	Limited	Limited	Moderate
Direct Cost of Care	\$1,000-\$9,999	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999
Taxonomic group	Bird	Bird	Bird	Bird	Reptile
Exhibit (Under Construction)					

BIODIVERSITY					
OBJECTIVE	N Madag. spider tortoise	Nile softshell	Radisted tortoise	Royal Python	Gaboon Viper
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Fair	Fair	Notable deficiency	Fair	Fair
Canadian	Other	Other	Other	Other	Other
Conservation Status	High	Medium - Low	High	None	None
In Situ Opportunities	None	None	None	None	None
Staff Expertise	Adequate	Adequate	Adequate	Adequate	Adequate
Sustainability	Limited	None	Limited	Effective management	Limited
Impact On Program	Low	Low	Low	Low	Low
Public Appeal	Little draw	Little draw	Little draw	Little draw	Little draw
Partnerships	No	No	No	No	No
Staff Time Investment	Limited	Moderate	Limited	Limited	Limited
Direct Cost of Care	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999
Taxonomic group	Reptile	Reptile	Reptile	Reptile	Reptile
Exhibit (Under Construction)					

BIODIVERSITY					
OBJECTIVE	Veiled chameleon	Meller's chameleon	Nile monitor	Tomato frog	Golden mantella
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Fair	Fair	Fair	Fair	Fair
Canadian	Other	Other	Other	Other	Other
Conservation Status	None	None	None	None	High
In Situ Opportunities	None	None	None	None	None
Staff Expertise	Further training required	Further training required	Adequate	Adequate	Adequate
Sustainability	Limited	Limited	Limited	Limited	Limited
Impact On Program	Low	Low	Low	Low	Low
Public Appeal	Little draw	Little draw	Little draw	Little draw	Little draw
Partnerships	No	No	No	No	No
Staff Time Investment	Limited	Limited	Limited	Limited	Limited
Direct Cost of Care	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999
Taxonomic group	Reptile	Reptile	Reptile	Amphibian	Amphibian
Exhibit (Under Construction)					

BIODIVERSITY					
OBJECTIVE	Mixed mantella	Clawed frog	Aldabra tortoise	Polypterus	Abs Abs
Welfare	PASS	PASS	PASS	PASS	PASS
Exhibit Suitability	Fair	Fair	Notable deficiency	Excellent	Excellent
Canadian	Other	Other	Other	Other	Other
Conservation Status	None	None	Medium - Low	Medium - Low	Medium - Low
In Situ Opportunities	None	None	None	None	None
Staff Expertise	Adequate	Adequate	Adequate	Adequate	Adequate
Sustainability	Limited	Limited	Limited	Limited	Limited
Impact On Program	Low	Low	Low	Low	Moderate
Public Appeal	No draw	No draw	Big draw	No draw	Little draw
Partnerships	No	No	No	No	No
Staff Time Investment	Limited	Limited	Limited	Limited	Limited
Direct Cost of Care	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999	\$0-\$999
Taxonomic group	Amphibian	Amphibian	Reptile	Fish	Fish
Exhibit (Under Construction)					

BIODIVERSITY		
OBJECTIVE	African Lungfish	Lake Malawi Cichlids
Welfare	PASS	PASS
Exhibit Suitability	Excellent	Excellent
Canadian	Other	Other
Conservation Status	Medium - Low	High
In Situ Opportunities	None	None
Staff Expertise	Adequate	Extensive
Sustainability	Effective management	Effective management
Impact On Program	Low	Low
Public Appeal	No draw	Big draw
Partnerships	No	No
Staff Time Investment	Limited	Limited
Direct Cost of Care	\$0-\$999	\$0-\$999
Taxonomic group	Fish	Fish
Exhibit (Under Construction)		



Score

BIODIVERSITY		SPECIES				
OBJECTIVE	Ring-tailed Lemur	Warthog	Red River Hog	Naked Mole-Rat	Spotted-necked Otter	
Welfare	1	1	1	1	1	
Exhibit Suitability	1	1	1	1	1	
Canadian	0	0	0	0	0	
Conservation Status	2	1	1	0	2	
In Situ Opportunities	2	0	0	0	0	
Staff Expertise	2	2	2	2	2	
Sustainability	5	2	1	2	2	
Impact On Program	0	0	1	0	1	
Public Appeal	2	2	2	1	1	
Partnerships	1	0	1	0	1	
Staff Time Investment	2	2	2	2	2	
Direct Cost of Care	1	1	1	1	1	
<b>SUM</b>	<b>18</b>	<b>11</b>	<b>12</b>	<b>9</b>	<b>13</b>	
<b>FINAL SCORE</b>	<b>18</b>	<b>11</b>	<b>12</b>	<b>9</b>	<b>13</b>	
FINAL SCORE (percentage)	72.0%	60.0%	60.0%	52.0%	52.0%	
FINAL GAP (percentage)	20.0%	32.0%	32.0%	40.0%	40.0%	
Functional limitation %	8.0%	8.0%	8.0%	8.0%	8.0%	

BIODIVERSITY		SPECIES				
OBJECTIVE	Slender-tailed Meerkat	Straw-colored Bat	Hamerkop	Speckled Pigeon	Violet Turaco	
Welfare	1	1	1	1	1	
Exhibit Suitability	1	1	2	1	1	
Canadian	0	0	0	0	0	
Conservation Status	0	1	0	0	0	
In Situ Opportunities	0	0	0	0	0	
Staff Expertise	2	2	1	1	1	
Sustainability	1	2	2	0	2	
Impact On Program	0	1	0	0	0	
Public Appeal	1	1	1	0	1	
Partnerships	1	1	0	0	0	
Staff Time Investment	2	2	2	3	1	
Direct Cost of Care	1	1	1	2	1	
<b>SUM</b>	<b>9</b>	<b>12</b>	<b>9</b>	<b>7</b>	<b>7</b>	
<b>FINAL SCORE</b>	<b>9</b>	<b>12</b>	<b>9</b>	<b>7</b>	<b>7</b>	
FINAL SCORE (percentage)	48.0%	48.0%	48.0%	48.0%	48.0%	
FINAL GAP (percentage)	44.0%	44.0%	44.0%	44.0%	44.0%	
Functional limitation %	8.0%	8.0%	8.0%	8.0%	8.0%	

Functional limitation %	20.0%	20.0%	20.0%	20.0%	20.0%
Functional limitation:	5				

BIODIVERSITY					
OBJECTIVE	Golden-breasted Starling	Black Crane	Speckled Mousebird	White-vented Bulbul	Sacred Ibis
Welfare	1	1	1	1	1
Exhibit Suitability	2	2	2	2	2
Canadian	0	0	0	0	0
Conservation Status	0	0	0	0	0
In Situ Opportunities	0	0	0	0	0
Staff Expertise	1	1	2	2	2
Sustainability	2	2	1	0	2
Impact On Program	1	0	0	0	0
Public Appeal	1	0	1	0	1
Partnerships	0	0	0	0	0
Staff Time Investment	3	3	3	3	3
Direct Cost of Care	2	2	2	2	1
<b>SUM</b>	<b>12</b>	<b>10</b>	<b>11</b>	<b>9</b>	<b>11</b>
<b>FINAL SCORE</b>	<b>12</b>	<b>10</b>	<b>11</b>	<b>9</b>	<b>11</b>
FINAL SCORE (percentage)	44.0%	44.0%	44.0%	44.0%	44.0%
FINAL GAP (percentage)	48.0%	48.0%	48.0%	48.0%	48.0%
Functional limitation %	8.0%	8.0%	8.0%	8.0%	8.0%

BIODIVERSITY					
OBJECTIVE	African Spoonbill	Cape Shelduck	Gray-necked Crowned Crane	Wattled Crane	W African dwarf crocodile
Welfare	1	1	1	1	1
Exhibit Suitability	2	2	2	0	1
Canadian	0	0	0	0	0
Conservation Status	0	0	2	1	1
In Situ Opportunities	0	0	0	1	0
Staff Expertise	2	2	2	2	1
Sustainability	2	0	2	2	1
Impact On Program	0	0	0	1	0
Public Appeal	2	1	2	1	1
Partnerships	0	0	0	0	0
Staff Time Investment	3	3	3	3	2
Direct Cost of Care	1	2	2	2	2
<b>SUM</b>	<b>12</b>	<b>10</b>	<b>15</b>	<b>13</b>	<b>9</b>
<b>FINAL SCORE</b>	<b>12</b>	<b>10</b>	<b>15</b>	<b>13</b>	<b>9</b>
FINAL SCORE (percentage)	44.0%	40.0%	40.0%	40.0%	40.0%
FINAL GAP (percentage)	48.0%	52.0%	52.0%	52.0%	52.0%
Functional limitation %	8.0%	8.0%	8.0%	8.0%	8.0%



BIODIVERSITY					
OBJECTIVE	N Madag. spider tortoise	Nile softshell	Radiated tortoise	Royal Python	Gaboon Viper
Welfare	1	1	1	1	1
Exhibit Suitability	1	1	0	1	1
Canadian	0	0	0	0	0
Conservation Status	2	1	2	0	0
In Situ Opportunities	0	0	0	0	0
Staff Expertise	1	1	1	1	1
Sustainability	1	0	1	2	1
Impact On Program	0	0	0	0	0
Public Appeal	1	1	1	1	1
Partnerships	0	0	0	0	0
Staff Time Investment	3	2	3	3	3
Direct Cost of Care	2	2	2	2	2
<b>SUM</b>	<b>11</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>9</b>
<b>FINAL SCORE</b>	<b>11</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>9</b>
FINAL SCORE (percentage)	40.0%	40.0%	36.0%	36.0%	36.0%
FINAL GAP (percentage)	52.0%	52.0%	56.0%	56.0%	56.0%
Functional limitation %	8.0%	8.0%	8.0%	8.0%	8.0%

BIODIVERSITY					
OBJECTIVE	Veiled chameleon	Meller's chameleon	Nile monitor	tomato frog	golden mantella
Welfare	1	1	1	1	1
Exhibit Suitability	1	1	1	1	1
Canadian	0	0	0	0	0
Conservation Status	0	0	0	0	2
In Situ Opportunities	0	0	0	0	0
Staff Expertise	0	0	1	1	1
Sustainability	1	1	1	1	1
Impact On Program	0	0	0	0	0
Public Appeal	1	1	1	1	1
Partnerships	0	0	0	0	0
Staff Time Investment	3	3	3	3	3
Direct Cost of Care	2	2	2	2	2
<b>SUM</b>	<b>8</b>	<b>8</b>	<b>9</b>	<b>9</b>	<b>11</b>
<b>FINAL SCORE</b>	<b>8</b>	<b>8</b>	<b>9</b>	<b>9</b>	<b>11</b>
FINAL SCORE (percentage)	36.0%	36.0%	36.0%	36.0%	36.0%
FINAL GAP (percentage)	56.0%	56.0%	56.0%	56.0%	56.0%
Functional limitation %	8.0%	8.0%	8.0%	8.0%	8.0%

BIODIVERSITY					
OBJECTIVE	Mixed mantella	clawed frog	Aldabra tartoise	Polypterus	Aba Aba
Welfare	1	1	1	1	1
Exhibit Suitability	1	1	0	2	2
Canadian	0	0	0	0	0
Conservation Status	0	0	1	1	1
In Situ Opportunities	0	0	0	0	0
Staff Expertise	1	1	1	1	1
Sustainability	1	1	1	1	1
Impact On Program	0	0	0	0	1
Public Appeal	0	0	2	0	1
Partnerships	0	0	0	0	0
Staff Time Investment	3	3	3	3	3
Direct Cost of Care	2	2	2	2	2
<b>SUM</b>	<b>8</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>12</b>
<b>FINAL SCORE</b>	<b>8</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>12</b>
FINAL SCORE (percentage)	32.0%	32.0%	32.0%	32.0%	32.0%
FINAL GAP (percentage)	60.0%	60.0%	60.0%	60.0%	60.0%
Functional limitation %	8.0%	8.0%	8.0%	8.0%	8.0%

BIODIVERSITY		
OBJECTIVE	African Lungfish	Lake Malawi Cichlids
Welfare	1	1
Exhibit Suitability	2	2
Canadian	0	0
Conservation Status	1	2
In Situ Opportunities	0	0
Staff Expertise	1	2
Sustainability	2	2
Impact On Program	0	0
Public Appeal	0	2
Partnerships	0	0
Staff Time Investment	3	3
Direct Cost of Care	2	2
<b>SUM</b>	<b>11</b>	<b>15</b>
<b>FINAL SCORE</b>	<b>11</b>	<b>15</b>
FINAL SCORE (percentage)	28.0%	28.0%
FINAL GAP (percentage)	64.0%	64.0%
Functional limitation %	8.0%	8.0%
<b>Functional limitation:</b>	<b>2</b>	

# APPENDIX III – Toronto Zoo Official Policy A & P – 001

## Responsible Population Management: Acquisitions, Transfers and Transactions



### OFFICIAL POLICY

Section: Animals & Plants

Subject: **RESPONSIBLE POPULATION MANAGEMENT:  
ACQUISITIONS, TRANSFERS AND TRANSITIONS**

<b>PURPOSE</b>	Responsible management and the long-term sustainability of wildlife <i>ex situ</i> populations require changes within the population at the level of the individual. Acquiring, transferring or transitioning of wildlife may be necessary at certain times.
<b>POLICY</b>	This policy outlines the processes and rationale for the Toronto Zoo to maintain healthy, viable populations, of a diversity of species, to fulfill its vision and mandate to participate in conservation, education and science for living <i>ex situ</i> wildlife. In attaining this objective, the Zoo will adhere to all professional standards and legislative requirements.
<i>Acquisition</i>	<p>Acquisition of wildlife species may occur through breeding (births, hatching, cloning <i>e.g.</i> coral colonies), trade, donation, lease, loan or transfer, purchase, collection, confiscation, presence on Zoo property, rescue or rehabilitation for release.</p> <p>The Zoo shall accept or acquire wildlife for the <i>ex situ</i> population only if:</p> <ol style="list-style-type: none"> <li>1. The specimens are relevant to, and consistent with, its mandate, vision, programs and activities; and</li> <li>2. The Zoo can provide for the care and management of the specimens in accordance with professionally accepted standards and consistent with all relevant legislation.</li> </ol>
<i>Clarification</i>	Wildlife accepted for humane reasons and those temporarily held for governmental agencies will be reviewed after their arrival.
<i>Transfer/transition</i>	Transfer/transition occurs when an individual of a species leaves the Zoo for any reason. Such reasons may include cooperative population management (genetic, demographic or behavioural management), welfare or behavioural management. Transfers may include withdrawal through a donation, trade, loan, inter/intra-institutional transfers, sale, escape or theft. Transitions may include reintroductions to the wild, humane euthanasia or natural death.

The transfer/transition of the Toronto Zoo's wildlife shall be consistent with all relevant legislation, professionally accepted standards and approvals as set out in this policy.

The Zoo will not sell, trade or transfer wildlife to individuals or organizations which allow (or will transfer wildlife to another organization or individual which allows) the hunting, or breeding for hunting, of animals. In conjunction with the Association of Zoos and Aquariums' (AZA's) intent, the Zoo requires a written agreement from recipients stating that they will treat the transferred wildlife in accordance with accreditation standards or the Code of Professional Ethics of Canada's Accredited Zoos and Aquariums (CAZA) and/or Association of Zoos and Aquariums (AZA).

**PROCEDURE**

*Title*

The Zoo shall, wherever possible, obtain free and clear title to all wildlife acquired for its *ex situ* population. Where wildlife are accepted with restrictions or limitations, as with those received under special permits or breeding loans, the conditions shall be a part of the Zoo's accession records for the *ex situ* wildlife and will be strictly observed.

*Permanent records*

The Zoo Registrar shall maintain on permanent file a record adequate to identify every individual accessioned to the Zoo population where possible, whether or not the individual remains within the population. In the case of certain species identified by the Director of Wildlife Care & Welfare that are maintained in large numbers, the species record will indicate the presence of a changing population. The Senior Director of Wildlife & Science, shall keep a permanent file on each transaction, including permits, all correspondence and Animal Acquisition Committee (AAC) approvals where required.

*Outside use of records*

The Zoo shall make population records available for census and record programs organized for professional and scientific purposes, as approved by the Senior Director of Wildlife & Science.

*Authority for acquisitions, transfers and transitions*

Wildlife and Science staff (Director of Wildlife Care & Welfare, Wildlife Care Manager, pertinent Wildlife Care Supervisor(s), Head of Wildlife Health and Veterinary Services) shall be involved in the decision to acquire, transfer or transition animals. The Director of Wildlife Care & Welfare shall ensure that relevant Wildlife & Science staff are aware of any staffing, facility and other operational changes, as a result of an acquisition, transfer or transition. The intent is to ensure that the necessary finances and facilities are in place.

An acquisition recommendation from the appropriate Lead keeper will be forwarded to the Director of Wildlife Care & Welfare for review and to the Senior Director of Wildlife & Science for approval. The recommendation will be forwarded to the Chief Executive Officer, if the transaction is greater than \$2,500, or processed directly if transaction is less than \$2,500. The Chief Executive Officer is authorized to acquire wildlife and to transfer/transition wildlife declared surplus, subject to By-law 2-2019. In accordance with By-law 2-2019, animal transactions for cash or trade for less than \$30,000 (including shipping charges and currency exchange), shall be approved by the Chief Executive Officer. (The Chief Executive Officer has

delegated transactions of less than \$2,500 to the Senior Director of Wildlife & Science).

*Animal Acquisition  
Committee approval*

In accordance with By-law 2-2019, animal transactions of \$30,000 to \$100,000 (including shipping charges and currency exchange), shall be approved by the Animal Transaction Committee.

*Board approval*

Animal transactions of \$100,000 or greater (including shipping charges and currency exchange) shall receive prior approval from the Board of Management upon recommendation of the Animal Transaction Committee

*Council approval*

An expenditure exceeding the uncommitted cash balance in the Animal Transaction Reserve Fund requires the prior approval of Council.

*Animals in holding*

Wildlife Care and Welfare staff will make a concerted effort to transfer or transition wildlife not used for exhibitry, breeding, education research or other conservation purposes, to ensure the well-being of individuals and to free up holding space for others designated for the above purposes.

*Population  
management  
planning*

The following outlines the procedures to be followed for proper administration of this Policy:

1. Population Management planning must occur for future initiatives prior to the annual budget process. As such, animal population plans are submitted and a list is prepared and prioritized by the Wildlife & Science Divisional Managers in accordance with the level of spending guidelines established by the Director of Finance and Computer Services.
2. Staff planning a new acquisition must prepare an individual summary and a related budget for the project. Once approved, this individual summary becomes part of the budget documentation.
3. The prioritized acquisition project list and back-up summaries are presented to, amended and approved by the Chief Executive Officer.
4. An itemized Animal Transaction Reserve Fund budget will be submitted for approval to the Board of Management and the amount will be included in the annual budget submission to the City of Toronto.
5. No variation from the approved annual Animal Transaction Reserve Fund budget is allowed unless specifically authorized by the Chief Executive Officer.
6. Tracking information for incoming and outgoing wildlife transactions is maintained by the Animal Logistics Coordinator. The Wildlife & Science staff managing a respective project can use this information to determine the status of the transaction.

*Non-living animals  
and specimens*

1. Any acquisitions, transfers, and transitions must meet the requirements of all applicable local, provincial, state, federal and international laws and regulations. Ownership and any applicable chain-of-custody must be documented. If such information does not exist, an explanation must be

provided regarding such wildlife and specimens. Any acquisition of *in situ* animals must be done in accordance with all local, provincial, state, federal, and international laws and regulations and must not be detrimental to the long term viability of the species in the wild.

2. Use of specimens to create live animal(s), will follow the same guidelines for acquisitions and transfers. If germplasm is acquired or transferred with the intention of creating live wildlife, ownership of the offspring must be clearly defined in transaction documents (for example breeding loan agreements).
3. In the case of wildlife (living or non-living) and their parts, materials, or products (living or non-living) held on loan, the owner's written permission needs to be obtained prior to any transfer and shall be documented in Toronto Zoo records.
4. AZA SSP, TAG and other approved necropsy and sampling protocols should be accommodated.

*General:  
acquisitions,  
transfers or  
transitions  
requirements*

1. Any receiving institution must have the necessary expertise and resources to support and provide for the professional care and management of the species, so that the physical, psychological, and social needs of individual wildlife and species are met.
2. If the acquisition, transfer or transition involves a species managed by CAZA, AZA, or international animal program, the Zoo should communicate with the animal program leader and, in the case of AZA Green SSP Programs, must adhere to the AZA Full Participation Policy.
3. Wildlife may be acquired through public donations and other non-AZA/CAZA entities when it is in the best interest of the animal and/or species.
4. The Zoo will consult conservation authorities such as the AZA WCMC approved TAG Regional Collection Plans, Animal Program Leaders, animal care manuals, Recovery Teams, and other government agencies when making acquisition, transfer or transition decisions for wildlife (or wildlife specimens such as parts, materials and products).

*Feeder animals*

Species acquired as animal feed are not typically accessioned into the collection. There may be occasions, however, when it is appropriate to use accessioned animals that exceed population carrying capacity as feeder animals to support other wildlife. In some cases, accessioned species may be transitioned to "feeder animal" status for long-term sustained population management of the species

*Loans*

All wildlife loans will be annually documented including the conditions of any loaned specimen(s). If the conditions and care of animals are in violation of the loan agreement, the loaned wildlife will either be recalled or a prompt correction of the situation will be arranged.

*Acquisitions from the  
wild*

It is recognized that there are circumstances where acquisitions from the wild are needed in order to maintain healthy, diverse populations and to support the



objectives of managed species programs, in which case acquisitions from the wild may be a preferable choice to breeding in human care.

Before acquiring individuals from the wild, alternative sources will be sought, including other regional accredited zoos and aquariums, rehabilitation centres, public and private organizations and individuals known to maintain wildlife colonies (universities, breeders, etc.)

When acquiring individuals from the wild, both the long-term health and welfare impacts on the wild population as well as on individual animals will be considered. In crisis situations, when the survival of a population is at risk, rescue decisions will be made on a case-by-case basis in consultation with the appropriate agency and institution.

Toronto Zoo shall only accept wildlife species from the wild after a risk assessment determines the zoo can mitigate any potential adverse impacts on the health, care and maintenance of the permanently housed *ex situ* wildlife species being acquired. Some governments maintain ownership of the species found within their borders. Toronto Zoo will determine whether animals they are acquiring or transferring are owned by a government entity, foreign or domestic, and act accordingly by reviewing the government ownership policies available on the CAZA, AZA or websites of other professional sources. In the case of government owned wildlife, proposals for and/or notifications of transfers must be sent to the appropriate authority for the government owned species.

*Disposition to outside persons and institutions*

Upon the recommendation of the Director of Wildlife care & Welfare to the Senior Director of Wildlife & Science, or Chief Executive Officer as appropriate, live specimens may be transferred:

1. By sale, exchange or gift to accredited institutions or qualified persons.
2. By loan to accredited institutions for exhibition and propagation, in accordance with the Zoo breeding loan forms and conditions.
3. To a research institution for observational studies, but not for stressful biomedical research<sup>1</sup>. These projects should be reviewed and approved by the Toronto Zoo's Animal Care & Research Committee and the receiving institution.
4. To other public and private organizations or individuals who have the qualifications and facilities to care for the wildlife species appropriately and in accordance with the Code of Professional Ethics of CAZA, AZA, and EAZA.
5. Through liberation within their native ranges subject to all relevant local laws and regulations.

*Pre-screening*

Institutions and persons who are not accredited members of CAZA, AZA, or EAZA, etc. must be pre-screened to qualify as recipients of specimens. The Lead Keeper and Director of Wildlife Care & Welfare recommending transfer or transitions must be reasonably certain that the intended facility has adequate care, facility and knowledgeable staff for the species. In some cases, a site visit to the facility may be appropriate. The Director of Wildlife Care & Welfare will then make a recommendation for approval to the Senior Director of Wildlife & Science. In some cases this may need approval of the Chief Executive Officer, as appropriate.

*Disposition to employees*

Live individuals shall not be transferred to Zoo employees, former employees, Volunteers and members of the Board. Rare exceptions can be considered, as approved by the Director of Wildlife Care & Welfare, the Senior Director of Wildlife & Science and Chief Executive Officer when it is in the interest of the Zoo. Notwithstanding the paragraph immediately above, live domestic species such as rats and rabbits may be transferred to Zoo employees on a case by case basis, upon the recommendation of the appropriate Director of Wildlife Care & Welfare, the Senior Director of Wildlife & Science and the Chief Executive Officer.

*Euthanasia*

Live specimens may be transitioned by humane and merciful euthanasia, if other modes are not feasible or acceptable. Follow the recommendations of current AVMA Guidelines for the Euthanasia of Animals and Ontario and Canadian requirements or guidelines:

<https://www.avma.org/KB/Policies/Documents/euthanasia.pdf>) or the AAZV's Guidelines on the Euthanasia of Non-Domestic Animals. Refer to the Toronto Zoo Euthanasia Policy, A&P-002 for specific procedures.

*Educational display*

On the recommendation of the Director of Wildlife Care & Welfare, the Senior Director of Wildlife & Science the Chief Executive Officer may authorize donating the remains of a deceased specimen to an appropriate institute (museums, universities), or to approved education or conservation programs

*Non-living animals and specimens*

The Senior Director of Wildlife & Science after recommendation of a staff veterinarian may authorize an offsite veterinary facility to perform a necropsy to provide additional diagnostic pathological or other data on Toronto Zoo wildlife.

1. Optimal recovery may include performing a complete necropsy including, if possible, histologic evaluation of tissues which should be a key component of optimal recovery before specimens' use in education/exhibits. Professional necropsy and sampling protocols should be accommodated. This information should be available to conservation partners such as AZA SSP Programs, National Recovery Teams or government agencies for population management.
2. Non-living wildlife, if handled properly to protect the health of the recipient specimens may be utilized as feeder animals to support other wildlife as deemed appropriate by the institution.
3. The Director of Wildlife Care and Welfare should consult with AZA Animal Program Leaders prior to transferring remains/samples to determine if existing projects or protocols are in place to optimize use.

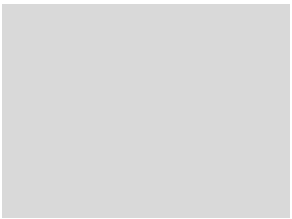
**REFERENCE**

Euthanasia, A&P-002  
Financial Authorities - By-law 2-2019

**FOOTNOTES**

<sup>1</sup>Examples of biomedical research are:

- a) Complete confinement for periods of time (e.g. "chair" experiment in psychology).

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- b) Immobilization or frequent physical restraint in order to collect samples (pertains to wild animals).
  - c) Subjected to painful procedures, without the benefit of pain relievers.
  - d) Subjected to noxious chemicals, poisons, or irritants.
  - e) Deprivation of food or water or social interaction for long periods of time.