



toronto
ZOO



Conservation Science Plan

December 2021

OUR VISION

A WORLD WHERE WILDLIFE AND
WILD SPACES THRIVE



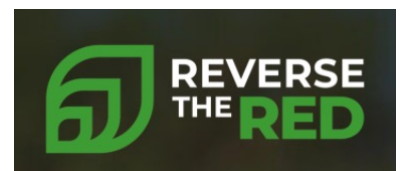
OUR MISSION

CONNECTING PEOPLE, ANIMALS, AND
CONSERVATION SCIENCE TO FIGHT
EXTINCTION

Conservation Science Statement

At your Toronto Zoo, we are committed to fighting the crises our wildlife, environment, and natural resources are facing.

Conservation Science is the study of the Earth's loss of biological diversity, and the ways that we can prevent it. We aim to use our expertise in reproductive science, welfare science, species recovery, nutrition science, veterinary science, and research and compliance operations to broaden our understanding of animals in our care and in the wild as we strive to **Reverse the Red**.



www.reversethered.org

Conservation Science

Our Approach:

Technology-based Conservation

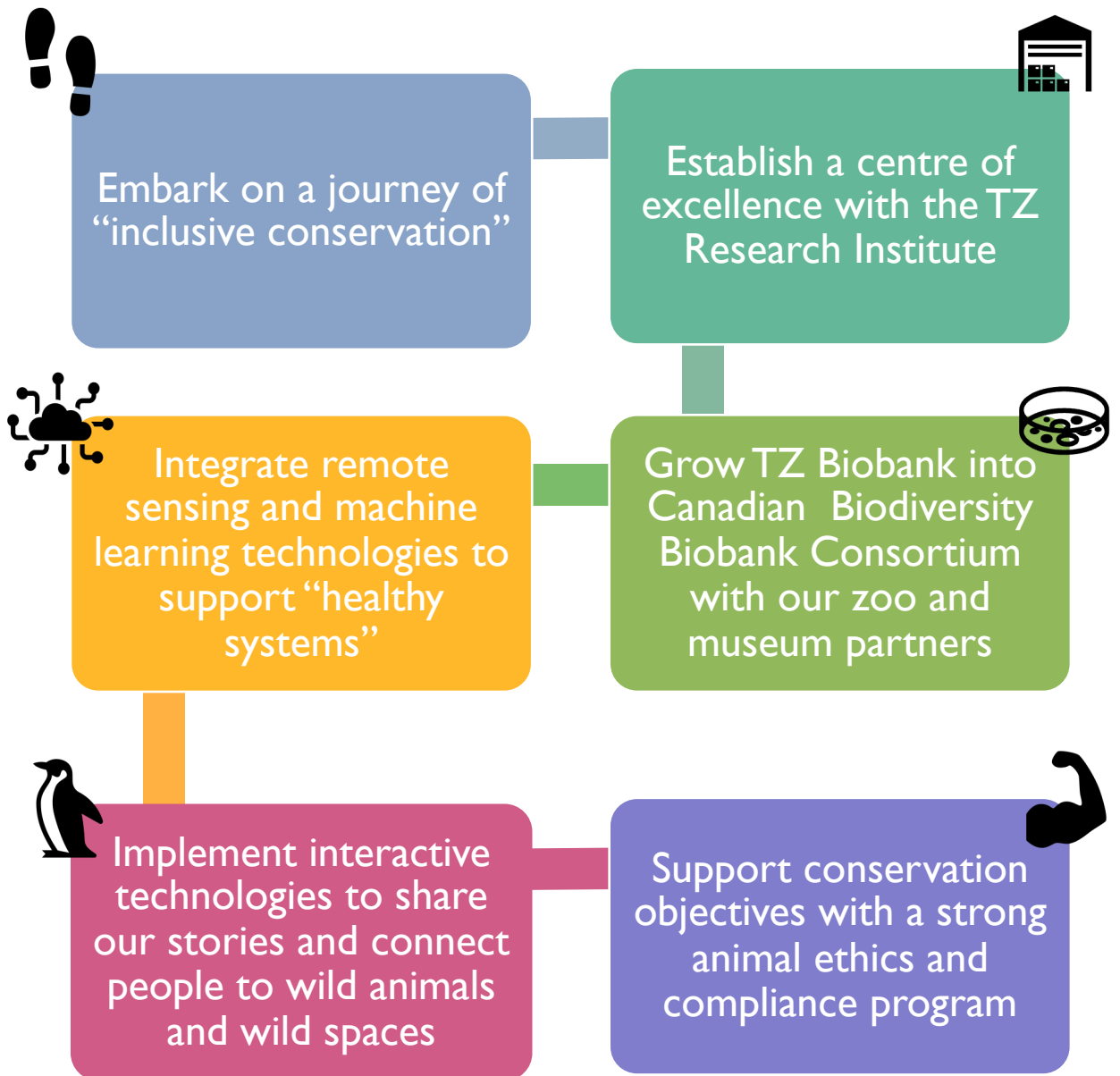
- Foster a culture that embraces creative and innovative practices to enhance research and conservation impact
- Expand multi-disciplinary science initiatives and raise TZ's profile for excellence in research and conservation
- Implement technological advances to understand and resolve complex animal needs

Our Strengths:

- Expertise in wildlife reproduction, restoration, nutrition, medicine, and welfare
- Knowledge transfer and training of future conservationists and researchers
- Strong partnerships created by leveraging our expertise in interdisciplinary studies



A Roadmap to Our Toronto Zoo's **50th** Birthday:



Aligning to the Toronto Zoo Strategic Plan

Save Wildlife

- Strengthen and align science within and out of TZ
- Establish research institute framework with UTSC
- Implement funding and collaboration models that support TZ science team efforts
- Initiate partner recruitment

Ignite the Passion

- Science team engagement – align interests and goals with Science Reboot Workshop and regular science team meetings
- Career growth initiatives – support skills training and knowledge acquisition

Create the WOW

- Share our story
- Establish a communication plan that targets all our communities

Our Community + Our Zoo

- MOU activities – support completion of action items
- Community engagement – identify novel opportunities for interaction and knowledge sharing with our communities

Revolutionize Technology

- Science technology framework – identify priorities through Technology Master Planning process
- OTU Biomonitoring Project – initiate polar bear study
- TZ Biobank – develop sample and data management system for vet and repro archives

What We Do



**Reproductive
Science**



**Nutrition
Science**



**Welfare
Science**



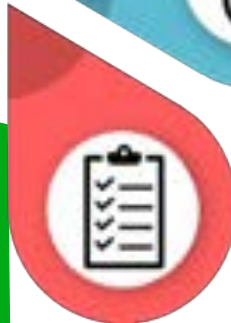
**Veterinary
Science**



**Species Recovery
& Program
Assessment**



**Research &
Compliance
Operations**



Wildlife Care



Finance & Technology

Facilities & Infrastructure



REPRODUCTIVE SCIENCE

Providing physiology-based solutions for species survival

- Reproductive Physiologist
- Reproductive Research Coordinator
- Reproductive Research Assistants
- Reproductive Laboratory Technicians
- Reproductive Science Postdoctoral Fellows





PRIORITY:
CARIBOU

HEALTHY SYSTEMS

In situ population monitoring with external partners to support species-at-risk management plans

SUSTAINABLE FUTURE

Reproductive technologies and biodiversity banking to support long-term genetic management of species-at-risk



CHANGING ENVIRONMENTS

Knowledge building on climate change effects on reproductive success of temperate and Arctic species



PRIORITY:
WOOD BISON

PRIORITY:
VANCOUVER ISLAND MARMOT





WELFARE SCIENCE

Building a foundation of animal welfare and well-being

- Welfare Scientist
- Behavioural Husbandry Specialist
- Welfare Research Assistant
- Welfare Science Postdoctoral Fellow





PRIORITY:
ALL TAXA

HEALTHY SYSTEMS

Welfare assessment and behavioural husbandry implementation and resolutions for comprehensive and consistent well-being of animals

SUSTAINABLE FUTURE

Research and implementation of monitoring technologies to fill gaps in species biases

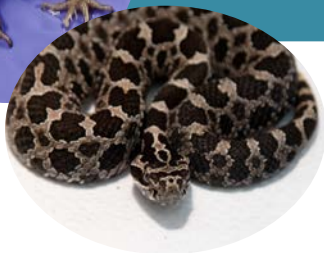


CHANGING ENVIRONMENTS

Public engagement to evaluate perception and enhance awareness on zoo bioethics related to animal welfare and conservation



PRIORITY:
REPTILES &
AMPHIBIANS



PRIORITY:
COMMUNITY





SPECIES RECOVERY

Taking local action to support recovery goals for Species-At-Risk

- Conservation Biologist
- Adopt-a-Pond Coordinator
- Conservation Program Specialists
- Program Assessment Postdoctoral Fellow





PRIORITY:
BLANDING'S
TURTLE

HEALTHY SYSTEMS

Support local populations of species-at-risk through threat mitigation and population augmentation

SUSTAINABLE FUTURE

Public engagement and education to build awareness of threats to species-at-risk and promote behavioural change



CHANGING ENVIRONMENTS

Coordinated population monitoring through technological advancements and community science engagement



PRIORITY:
FRESHWATER
SPECIES-AT-
RISK

PRIORITY:
NORTHERN
MYOTIS





NUTRITION SCIENCE

Evidence based approach to optimizing welfare and supporting conservation

- Nutrition Scientist
- Nutrition Supervisor
- Nutrition Resident
- Nutrition Laboratory Assistant





PRIORITY:
VANCOUVER
ISLAND MARMOT

HEALTHY SYSTEMS

Improving diet programs for ex situ conservation programs using data from the wild

SUSTAINABLE FUTURE

Infuse science, technology and the community into diet programs to support long-term welfare goals



CHANGING ENVIRONMENTS

Assessing the impact of seasonality and climate change on body composition and physiology



PRIORITY:
HERBIVORES &
CARNIVORES



PRIORITY:
POLAR BEAR





VETERINARY SCIENCE

Ensuring healthy populations to support conservation targets

- Senior Veterinarian
- Staff Veterinarians
- Conservation Veterinarian
- Veterinary Residents & Interns
- Veterinary Technicians
- WHC Clerk





PRIORITY:
CARNIVORES

HEALTHY SYSTEMS

Real-time biomonitoring to enhance well-being and promote conservation goals

SUSTAINABLE FUTURE

Improved health assessment and management strategies for managed and wild populations of species-at-risk



CHANGING ENVIRONMENTS

Knowledge building of climate change effects on health parameters of specialized species



PRIORITY:
CANADIAN SPECIES

PRIORITY:
VANCOUVER ISLAND MARMOT

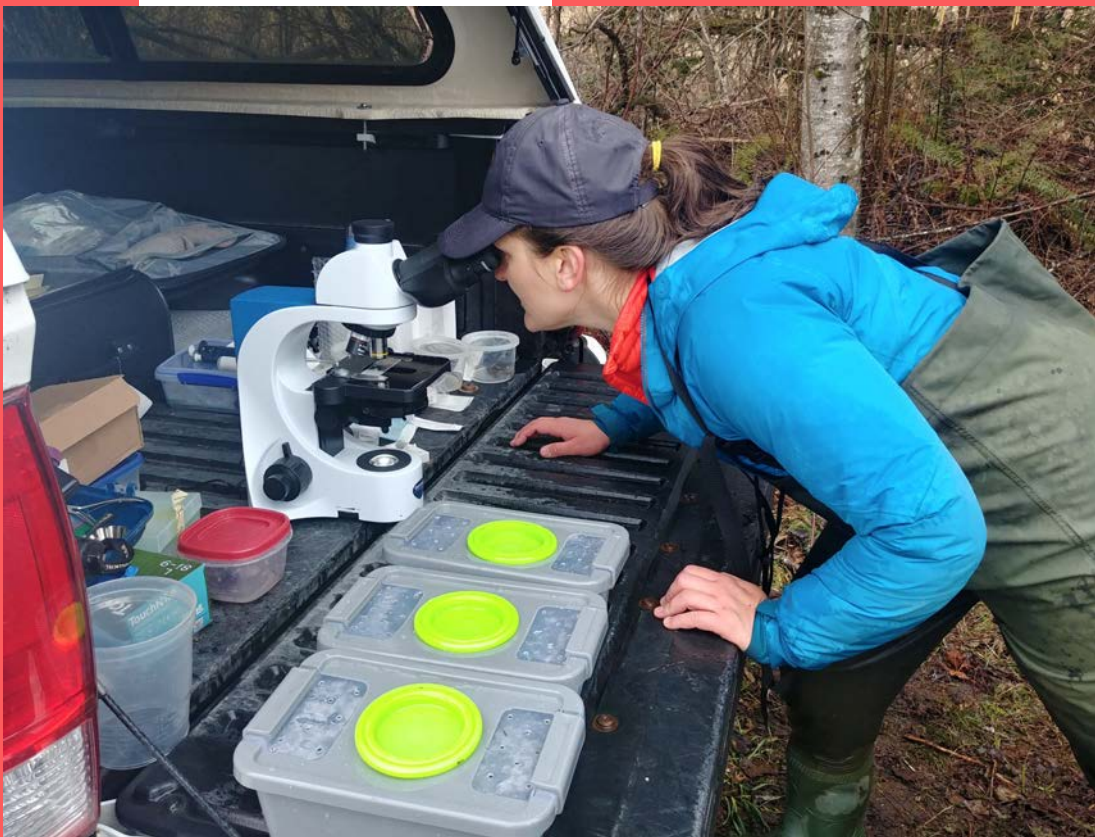




RESEARCH & COMPLIANCE OPERATIONS

Supporting conservation objectives with a strong animal ethics and compliance foundation

- Research & Compliance Officer
- Program Assistant





**PRIORITY:
ALL PERSONNEL**

HEALTHY SYSTEMS

Resource development to support institutional training programs for ACCs, conservation science, and research personnel

SUSTAINABLE FUTURE

Establish research management program to support animal use needs for internal and external clients



CHANGING ENVIRONMENTS

Understand and address challenges and potential barriers in animal use programs, and provide advice and solutions



**PRIORITY:
ANIMAL
USERS**



**PRIORITY:
INTERNAL/
EXTERNAL
CLIENTS**

Outcomes

Our Animals

- Technology to support health and welfare goals
- Conservation impact assessment to guide conservation breeding and species recovery activities

Our Team

- Young conservationist training to build the team of the future
- Professional mentorship in science and research to support staff growth and engagement

Our Guests

- Multi-platform communication to enhance conservation science literacy
- Interactive opportunities to connect guests with our animals' health and welfare outcomes

Our Community

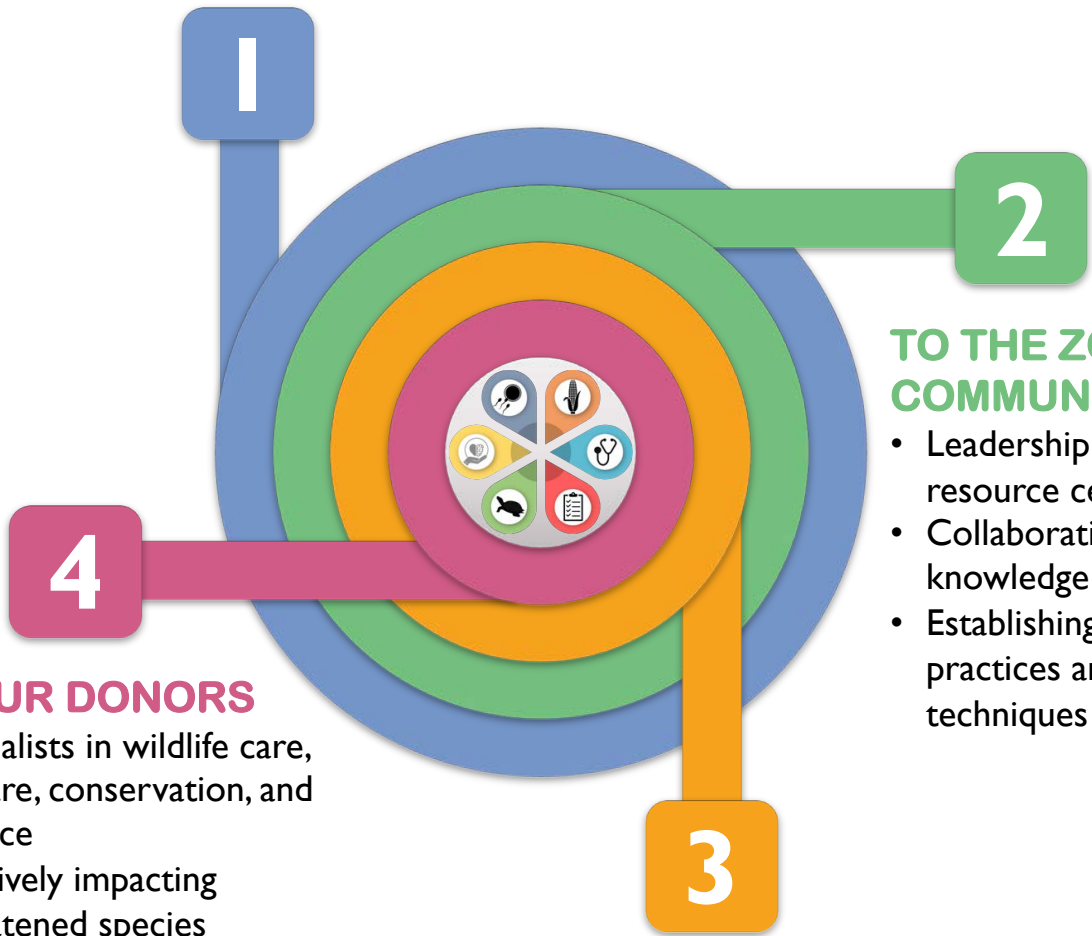
- Network of traditional knowledge holders
- Local and global partnerships for conservation and research success



Who We Are

TO THE PUBLIC

- Education institution
- Wildlife conservation organization
- Place to inspire, connect with nature and observe science in action
- Advocates for animals and their welfare



TO OUR DONORS

- Specialists in wildlife care, welfare, conservation, and science
- Positively impacting threatened species

TO THE ZOO COMMUNITY

- Leadership and resource centre
- Collaboration and knowledge sharing
- Establishing best practices and techniques

TO OUR PARTNERS

- Leaders and innovators
- Opportunities to learn, research, fund, and create action



World Association of Zoos and Aquariums | WAZA
United for Conservation



CANADIAN
WILDLIFE HEALTH
COOPERATIVE



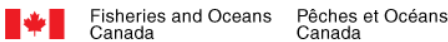
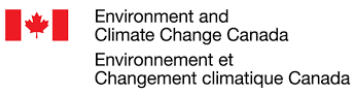
Invasive
Species
Centre



Changing the Future for Wildlife



Ministry of Natural Resources



Ministry of Agriculture, Food and Rural Affairs