ZB7.5 Schedule A

Schedule "A"
Project #E1

PROJECT SUMMARY

PROJECT TITLE: Beaded Lizard Community Based Conservation - Enhancement

GOALS OF THE PROJECT:

1) To implement a community based project that engages school aged children and their families in beaded lizard conservation.
2) To provide funding from the Toronto Zoo in order to meet USFWS enhancement requirements to facilitate SSP management recommendations. We are required to demonstrate enhancement for wild populations as part of permit approvals.

PROJECT OUTLINE:

Toronto Zoo now houses captive bred Guatemalan beaded lizards, the rarest and most endangered of these venomous lizards. In order to bring these rare lizard to Toronto Zoo we were required to fund *in situ* field conservation aspects of Conservation Heloderma which is a comprehensive conservation program. This funding will continue these valuable community based conservation activities.

BACKGROUND

The Conservation Heloderma program incorporates- Land preservation (500 acre footprint and close to 1,500 total acres in the preserve, educational conservation awareness programs (over 75,000 school children have been exposed to the presentations), natural history studies and social programs (building homes for homeless at our sites; youth training programs), reforestation (a goal of over 20,000 plantings), local engagement, local economic help. With our over 10 years of study (radio telemetry) and mark recapture we know the critical landscape needs and the population size that is between 300-500 individuals left. The project also provides English lessons to school age children between 15-18 years of age- 500 have attended so far. They have distributed conservation branded, much needed clothing and school materials including t-shirts, notebooks and computers.

METHODOLOGY

The money would go towards funding staff and materials for continued reforestation within the protected and managed lands. The money will be allocated to items listed in the budget below.

Anticipated date of completion: 2020-12-31

BUDGET

Toronto budget items Conservation Heloderma 2020-2021

1tem	***Description***	***Other sources-USD***	***Toronto zoo-USD***	***Total-USD***
Laboratory consumables	Supplier quote	300	**0**	300
Laboratory reagents	"	1500	**0**	1500
Fragment size analysis service	"	1300	**0**	1300
Awareness brochure and poster graphic design	"	0	**200**	200
Brochure and posters printing	30 posters @ $10.00/poster	0	**300**	300
Consultancy work (legal) for the declaration of new protected area	$25.00/hr for 12 hrs	0	**500**	500
Food and hotel for eight workshops and house visit trips for two persons	Eight trips @ 100/trip	800	**0**	800
Fuel for 24 trips for workshops, school visits and survey trips	24 trips @ 40/trip	950	**0**	950
School presentations and community workshop manager	$20/day for planning and execution of school talks and community workshops x 30 work days	0	**600**	600
Workshop materials, equipment and other expenses	Based on similar work	0	**400**	400
Locally hired field assistants for survey and mapping	20 work days @ $15/day	300	**0**	300
Activity books for children	150 books @ $2.00/book	300	0	300
Conservation themed backpacks	150 packs @ $4.00/pack	600	0	600
Metal signs for new protected area	10 signs @ $50.00/sign	500	0	500
Volunteer team t-shirt (locals to help at different activities)	$6.50/t-shirt x 30 t-shirts	200	0	200
Consultancy work (animal and plant species identification and licensed validation of Rapid Ecological Assessment) for the declaration of new protected area	30 work days @ $33.00/day	1000	0	1000
Food and hotel for six survey trips for ecological evaluation of protected area for two persons	Six trips @ 100/trip	600	0	600
Food and hotel for eight school program trips for two persons	Eight trips @ 100/trip	800	0	800
Totals		**9150**	**2000**	**11150**

Item	*Justification*
Awareness brochure and poster graphic design	Important to solidify the educational program message
Brochure and posters printing	Important to solidify the educational program message
Metal signs for new protected area	Critical to fulfill requirements for designation of protected area
Consultancy work for the declaration of new protected area	Critical to fulfill requirements for designation of protected area
School presentations and community workshop manager	Important for educational program and for local community engagement
Workshop materials, equipment and other expenses	Important for educational program and for local community engagement

The total budget from the Endangered Species Reserve Fund for this larger project is $2,000 USD.

FUNDING

Endangered Species Reserve Fund $2,000 USD

PROJECT CONTACT: Rick Vos
Toronto Zoo
361A Old Finch Ave
Toronto, ON M1B 5K7

Cheque payable to:
Oklahoma Zoological Society
Attn: Brad Bohn
PO Box 18424
Oklahoma City, OK 73154
Guatemalan programs

Schedule "A"
Project #E2

PROJECT SUMMARY

PROJECT TITLE: "Long-term Monitoring of the Demographic Status of Komodo Dragon Populations and their Prey in Komodo National Park"

GOALS OF THE PROJECT:

1) To fund Long-term monitoring to evaluate the population status of Komodo dragons.
2) To fund field equipment or resources for monitoring and conservation.
3) To fund short-term employment/training need to increase capacity building of local villagers and Komodo National Park Staff.
4) This project meets USFWS enhancement requirements and will facilitate SSP management recommendations.

PROJECT OUTLINE:

It is recommended that Toronto Zoo provide US $1000.00 from the Endangered Species Fund for Komodo dragon IN SITU SSP sponsored field conservation projects of the Komodo Survival Program (KSP). The KSP is a non-profit Indonesian NGO and they have proven be a very effective and reliable conservation partner. Project supported by: AZA Komodo Dragon SSP; AZA Lizard Taxon Advisory Group; USFWS.

BACKGROUND

Komodo dragons are found on a few small islands east of Bali and south of Borneo including Komodo Island, Flores Island, Rinca Island and Padar Island. The entire range of Komodo dragons is close to areas of volcanic eruption that could decimate the entire remaining population of 3,000-5,000 animals. They are also vulnerable due to earthquakes, loss of habitat, fire, loss of prey, tourism and poaching. Climate change and rising sea levels will likelty impact this species as well.

METHODOLOGY

The goal is to provide infra structure support for protection of Komodo dragons in protected areas, education capacity building, and to provide research data to ensure the sustainability of isolated populations. Island specific management plans are the long term outcome of this SSP supported research programme and re-introduction to historic range islands will be considered if a prey base can be established and sustained. Much of the project work will be undertaken by local students and communities. Success will be measured by supplementation and protection of deer populations; an increase in size and number of dragons; recruitment of juveniles into the population; and increased security presence.

Anticipated date of completion: 2020-12-31

BUDGET

Field research equipment US $1,000. All SSP members are being requested to support IN SITU field conservation projects through the Komodo Dragon SSP conservation fund. This will in part meet USFWS requirements for field conservation programmes and enhancement criteria.

The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 USD.

FUNDING

Endangered Species Reserve Fund	$1,000 USD

PROJECT CONTACT: Rick Vos
Toronto Zoo
361A Old Finch Ave
Toronto, ON M1B 5K7

Send check to:
Komodo SSP Conservation Fund
Dana Nelson, Finance Manager
San Antonio Zoo
3903 N. St. Mary's St.
San Antonio, TX 78212

Schedule "A"
Project #E3

PROJECT SUMMARY

PROJECT TITLE: Securing the Last Wild Siamese Crocodile Population in Indonesia: Preliminary Results of Surveys at Lake Mesanga

GOALS OF THE PROJECT:

This project meets USFWS enhancement requirements and will facilitate SSP management recommendations. We are required to demonstrate enhancement for wild populations as part of permit approvals.

PROJECT OUTLINE:

To survey populations of crocodiles in the Lake Mesangat area in Borneo. To assess and protect the remnant populations of Siamese crocodiles and Tomistoma in that area.

BACKGROUND

Lake Mesangat in East Kalimantan Province (Borneo) harbors the only known extant population of C. siamensis in Indonesia, and the only population outside of mainland Southeast Asia. Siamese crocodiles in Kalimantan are considered a distinct Evolutionary Significant Unit that differs genetically from mainland conspecifics. In addition to C.siamensis, Lake Mesangat also hosts a breeding population of Tomistoma (Tomistoma schlegelii), which is listed as Vulnerable by the IUCN. Crocodiles in Lake Mesangat are threatened by egg collection for local sale and domestic consumption, incidental take in fishing nets, illegal electro-fishing, run-off of agrochemicals from nearby oil palm plantations, and most importantly, habitat loss. Much of Lake Mesangat was logged in the past, about 70% of the wetland has been converted to oil palm production and water diversion by agricultural interests continues to negatively alter hydrological conditions.

The current population status of C. siamensis (and T. schlegelii) in Lake Mesangat remains uncertain. Stuebing et al. (2015) stated that "reasonable numbers" of C. siamensis and T. schlegelii are present, but mark-recapture studies (2010-2011) estimated fewer than 30 C. siamensis inhabited the lake (N. Behler, unpubl. data). Despite the small number of C. siamensis in Lake Mesangat, this population is large relative to wild populations in other range states. Indeed, Lake Mesangat likely harbors the single largest population of C. siamensis anywhere. Brien et al. (2015) consider Lake Mesangat to be a "global stronghold" for the continued survival of C. siamensis. Given the urgent need to better understand and protect this population, surveys and other conservation actions at Lake Mesangat were accorded high priority by the Crocodile Specialist Group.

METHODOLOGY

Using various surveying techniques, Lake Mesangat's crocodile population was evaluated. Viable populations of crocodiles were found to inhabit this disturbed habitat. In October 2016 the local Government of East Kutai Timur, with support from the private sector, area communities and NGOs, proposed to the Indonesian Ministry of Environment and Forestry (MoEF) that Lake Mesangat and nearby Kenohan Suwi be designated Essential Ecosystem Areas. The EEA classification is a relatively new legal category intended to confer protection on species of conservation concern occurring outside of the national protected area system.

Anticipated date of completion: 2020/12/31

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is USD $1000

FUNDING

Endangered Species Reserve Fund	$1,000 USD

PROJECT CONTACT: Rick Vos
Toronto Zoo
361A Old Finch Ave
Toronto, ON M1B 5K7

Cheque payable to:

Wildlife Conservation Society
CIMB NIAGA Padjajaran Bogor Branch
Bank Address: Jl. Padjajaran no. 33, Babakan, Kota Bogor, Jawa Barat 16128
Swift Code: BNIAIDJA
Account Number: 054-02-13238-00-2

Schedule "A"
Project #E4

PROJECT SUMMARY

PROJECT TITLE: Snow Leopard – Combatting Poaching

GOALS OF THE PROJECT:

To increase support and training to curb poaching of snow leopards.

PROJECT OUTLINE:

The Snow Leopard Trust is partnering with the Kyrgyz government to better train and recognize law enforcement officials, protected area rangers and local community members in snow leopard habitat for their fight against poachers.

BACKGROUND:

Illegal hunting continues to be a threat to snow leopards and their prey species in large parts of Central Asia. Through conservation agreements with communities the Trust has managed to minimize hunting by locals in many important snow leopard habitats.

However, many of the poachers in countries like Kyrgyzstan are resourceful businessmen, political figures or other influential outsiders, who aren't part of these conservation agreements and are difficult for local people, and even park rangers, to deal with.

Despite their limited resources, park rangers in protected areas as well as our partner communities work hard to stop these outside poachers – but their efforts too often go unrecognized, and they often lack the equipment and social standing to close cases and bring culprits to justice.

METHODOLOGY:

In a move to empower and better appreciate the work of official rangers, and to encourage local people to collaborate with rangers to reduce illegal hunting, the Snow Leopard Trust and the Kyrgyz government have launched the Citizen Ranger Wildlife Protection Program. Under this program, park rangers in all of Kyrgyzstan's Protected Areas receive customized law enforcement training designed and led by INTERPOL wildlife crime experts, and crucial equipment such as crime scene investigation kits or binoculars.

In an annual award ceremony, rangers and local community members who stop and apprehend poachers are publicly honored and financially rewarded for their service to wildlife.

The program empowers rangers and citizens to step up against poachers and raises their profile as defenders of the natural heritage. It also creates a public forum where such cases are discussed. That in turn makes it much harder for poachers to wield their influence and cover up their crimes.

The Citizen Ranger Wildlife Protection Program was made possible by a grant from the UK government's Illegal Wildlife Trade Challenge Fund.

- Program is active in all 22 State Nature Reserves and National Parks of Kyrgyzstan
- More than a dozen rangers and citizens have already received awards for bringing poachers to justice

Anticipated date of completion: January 1, 2021 – Although a long term project

BUDGET:

The total budget from the Endangered Species Reserve Fund is $2,000 USD

FUNDING

Endangered Species Reserve Fund	$2,000 USD

PROJECT CONTACT: Snow Leopard Trust
4649 Sunnyside Avenue North
Suite 325
Seattle, WA 98103
USA
206-632-2421
marissa@snowleopard.org

Schedule "A"
Project #E5

PROJECT SUMMARY

PROJECT TITLE: The Gola Rainforest National Park (GRNP) Pygmy Hippo Conservation Project

GOALS OF THE PROJECT:

A mix of community based conservation and protected forests for the survival of the endangered pygmy hippopotamus *Choeropsis liberiensis*.

PROJECT OUTLINE:

To engage youth and volunteers to study and implement camera trapping and tracking methods that may inform pygmy hippo land use, behaviour and activity patterns of which little is known about. They would like to increase their camera trap grid to get an even better understanding of not only individual pygmy hippos but populations living along rivers in the region. This will also be combined with a regional wide project with colleagues in Liberia and Ivory Coast to build a genetic database across their range.

BACKGROUND

The Pygmy hippopotamus is classified as endangered in the IUCN SCC Red List 2015. The Pygmy hippo is listed in Appendix II of CITES. In 1996, the Nigerian subspecies *Hexaprotodon liberiensis heslopi* was classified as critically endangered (CR D; meaning that it faces an extremely high risk of extinction in the wild in the immediate future with a population estimated to number less than 50 mature individuals). Deforestation, hunting for meat, persecution by people and oil pollution are the main threats to the Pygmy hippopotamus.

Research on pygmy hippos in GRNP has been ongoing since 2008, much of it with support from Zoo Basel. To date it has shown that, while the Gola region is likely to harbour the most important population of pygmy hippos in the whole of Sierra Leone, most pygmy hippo signs are found in community land outside of the protected area.

METHODOLOGY

They identified an urgent need for community-based conservation activities to guarantee the survival of pygmy hippos in the national park and the whole Gola region as well as securing sustainable community support for the work of the GRNP. Many of the rural communities are poor with a high unemployment rate especially among the youth, and a growing human population in the area is placing increasing pressure on the land around the forest raising concerns about potential human wildlife conflict.

A community youth conservation volunteer program started in 2018 with the aim

of adding camera trapping in key pygmy hippo sites as one of the main activities. The program also focuses on developing a pygmy hippo theatre show that could tour across the communities in the region to increase awareness for the conservation of pygmy hippos living outside of the protected area. Training was held in September of 2018 and camera trapping activities started in November of 2018 with 20 camera traps deployed in key pygmy hippo habitats and in areas of conflict between humans and hippos such as rice farms and cocoa gardens. This data is proving to be of great interest and will be invaluable to better understand behaviours of pygmy hippos and to understand the nature of the conflict between humans and hippos and work on developing solutions with the volunteers from across the Gola communities.

The first 20 camera traps (Browning SpecOps Advanced) were set up along the Moa river and in some of the farms surrounding the Segbema community, home to two conservation volunteers. All cameras were retrieved and pygmy hippos were found at 10 locations including farmlands. This initial data has provided evidence of pygmy hippos foraging in rice farms and using the community land to move between locations on the river. This valuable information about their activity patterns and group composition with one mother and juvenile identified as well as a second adult. It is hoped that more cameras will be deployed in various community areas to better understand the interaction between humans and endangered pygmy hippos.

Anticipated date of completion: January 1, 2021 (however, the program is ongoing).

BUDGET:

The total budget from the Endangered Species Reserve Fund for this larger project is $1950 CDN.

FUNDING:

Endangered Species Reserve Fund	$1950 CDN

PROJECT CONTACT: Benjamin Barca
Technical Advisor Research
RSPB/Gola Rainforest National Park
+23279478277

Schedule "A"
Project #E6

PROJECT SUMMARY

PROJECT TITLE: Human-Giraffe Conflict Management & Outreach in the Mara Ecosystem

GOALS OF THE PROJECT:

An emergency response to rapid habitat losses and deaths and maiming of giraffe on the Siria Plateau.

PROJECT OUTLINE:

This project is an emergency response to rapid habitat losses and unexplained deaths and maiming of giraffe on the Siria Plateau. MMCWS is trying to determine why some local people perceive giraffe as competition and is working with them to avoid human-giraffe conflict in the area. The project focuses on the preservation and conservation of Masai giraffe that move from the Masai Mara National Reserve to the Siria Plateau on a regular basis, possibly daily. The extent to which giraffe in the Mara ecosystem rely on the Siria Plateau for survival, security for their young, and for escape from predation in the Mara is currently unknown, but will be investigated as part of this project.

BACKGROUND:

Life Net Nature (LNN), a US charity, empowers local communities to conserve wildlife and habitat. In 2012, LNN facilitated establishment of Masai Morans Conservation and Walking Safaris (MMCWS), a community-based organization or CBO, on the Siria Plateau in western Kenya. MMCWS aims to protect native grasslands and forests for wildlife and traditional uses, such as livestock grazing, honey production, firewood collection, and water collection, to sustain the Masai way of life. Conversion of native habitats to maize fields has increased human-wildlife conflicts on the Siria Plateau and threatens the wildlife and integrity of the Masai Mara ecosystem, which includes the prominent Masai Mara National Reserve.

METHODOLOGY

The project aims to:

- Establish community-based giraffe population monitoring on the Siria Plateau.
- Determine patterns of movement, resource use, and human-giraffe conflict.
- Determine the reasons for human-giraffe conflict and develop mechanisms to avoid these.
- Develop and implement outreach to the local community for giraffe conservation and raise awareness for its importance.

With the giraffe as a focal species, the project will promote capacity building and make management recommendations for the long-term compatibility of wildlife, livestock and pastoralists on the Siria Plateau. Results will provide information on giraffe movements, group composition, and productivity, and will form the basis of conservation and monitoring within an area proposed for a wildlife conservancy on Masai properties owned by members of the Oloirien Group Ranch.

Anticipated date of completion: January 1, 2021 (although a long term running project).

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is $2,000 CDN.

FUNDING

Endangered Species Reserve Fund Grant	$2,000 CDN

PROJECT CONTACT:

Giraffe Conservation Foundation UK
26 Grasmere Road
Purley
Surrey CR8 1DU
England
info@giraffeconservation.org

Schedule "A"
Project #E7

PROJECT SUMMARY

PROJECT TITLE: Tiger Conservation in the Greater Leuser Landscape and the Greater Bukit Baresan Selatan Landscape of Sumatra

GOALS OF THE PROJECT:

To protect the small remaining population of Sumatran tigers in the wild.

PROJECT OUTLINE:

To address the threats to tigers in both Leuser and BBS, WCS-Indonesia works closely with the provincial and federal governments of Indonesia and local NGOs to undertake the following interventions: a robust, continuous, on-the-ground anti-poaching effort across the whole BBS landscape and the southern half of the Leuser landscape; teaching and installing human-tiger conflict mitigation techniques in local communities living in and adjacent to both Leuser and BBS; outreach and education in local communities living in and adjacent to Leuser and BBS in support of the anti-poaching and human-tiger conflict mitigation efforts, and regular monitoring of tiger and tiger prey population numbers to determine if the conservation efforts are successful. In both landscapes WCSIndonesia has not yet determined the set of conservation interventions that will fully stop the threat of habitat loss. However in the Leuser landscape the collaborative efforts of WCSIndonesia and the Government of Indonesia on the anti-poaching patrols are beginning to have some success stopping new illegal encroachments, and in the BBS landscape WCSIndonesia is several years into a program to build a carbon-financed forest conservation program. All of these interventions are ongoing and will require steady funding over the long-term to ensure the recovery and then maintenance of the tiger populations of both Leuser and BBS.

BACKGROUND

There are currently approximately 300 wild tigers in Indonesia that persist in four main landscapes on the island of Sumatra; the Leuser landscape in the north, the Kerinci-Seblat landscape in the center-west, the Bukit Tigah Puluh landscape in the center-east, and the Bukit Barisan Selatan landscape in the south. The greater Leuser landscape currently has about 70 tigers and can potentially hold about 250, Kerinci-Seblat currently has about 140 tigers and can potentially hold about 240, Bukit Tigah Puluh has approximately 40 and can potentially hold about 65, and greater Bukit Barisan Selatan currently has about 50 tigers and can potentially hold about 75 tigers.

METHODOLOGY

The human-tiger conflict mitigation efforts of WCS-Indonesia, called Wildlife

Response Units, consist of several main activities. The first is a systematic gathering of information on the geographic distribution of the locations and frequencies of human-tiger conflict. Due to the dynamic nature of both tiger behavior and land-use change in Sumatra, WCS-Indonesia employs dozens of community wardens across both landscapes who regularly and systematically check for human-tiger conflict incidents in all the villages in and adjacent to Leuser and BBS.

The second main activity of the Wildlife Response Unit is the construction of affordable and easy-to-maintain tiger-proof livestock pens in all villages affected by human-tiger conflict. The construction of such tiger-proof pens is an immediate benefit to local communities and builds trust for tiger conservation activities.

The third main activity is regular outreach and education activities regarding tigers, human-tiger conflict mitigation and tiger conservation in villages in and adjacent to Leuser and BBS. This outreach also builds trust.

The fourth main activity of the Wildlife Response Unit is the employment of an individual trained in veterinary techniques who lives in the area of Leuser most prone to human-tiger conflict. This individual himself and also in collaboration with other trained veterinarians living in the region rush to situations where tigers have been snared but are alive and when it is possible then tigers are removed from the snares, treated and released.

The final main activity is the checking for and regular dismantling of illegal snares. When unchecked, the severity of the threat of human-tiger conflict in both Leuser and BBS can be extremely high, with at least dozens of tigers killed or removed per year. But the Wildlife Response Unit has reduced the number of tigers killed or removed from BBS and the southern half of Leuser by 90%.

Anticipated date of completion: January 1, 2021 (however, the program is ongoing).

BUDGET:

The total budget from the Endangered Species Reserve Fund for this larger project is $2,000 USD.

FUNDING:

Endangered Species Reserve Fund	$2,000 USD

PROJECT CONTACT:

Minnesota Zoo Foundation
13000 Zoo Boulevard
Apple Valley, MN 55124
donations@mnzoo.org
952.431.9237

Please include a note indicating that your gift is for the Tiger Conservation Campaign. If you would like your gift designated to a certain project, please specify that in your note.

We would like the money to go towards Sumatran tiger conservation projects.

Schedule "A"
Project #E8

PROJECT SUMMARY

PROJECT TITLE: Forest Restoration - Besitang, North Sumatra

GOALS OF THE PROJECT:

To replant and restore critical habitat in Sumatra for orangutans and other wildlife

PROJECT OUTLINE:

The forest restoration program in Sumatra is operated by the Orangutan Information Centre which works with a team of local staff and farmers. They have set up 8 organic tree nurseries and forestry centres near degraded orangutan habitat areas in Aceh and North Sumatra.

SOS and OIC are working with local government and local communities to restore vital orangutan habitat that has been destroyed by illegal oil palm plantations within the Gunung Leuser National Park.

BACKGROUND:

The project is managed in close collaboration with forest-dependent communities and the local government, which helps ensure that the replanting sites will be safe from future encroachment.

These projects offer local people a way of supporting their families whilst preserving and restoring the rainforest. They work in deforested regions in and around the Leuser Ecosystem, the most important remaining habitat for the Sumatran orangutan.

METHODOLOGY:

Hundreds of thousands of tree seedlings have now been planted on over 200 hectares of damaged orangutan habitat in Besitang and more tree seedlings will continue to be planted. They are also training local people to manage organic tree nurseries.

They are seeing some really exciting results – their team has reported evidence of lots of wildlife starting to return to the restored areas of forest - not just orangutans but also siamangs, white-handed gibbons, leopard cats and many endangered and critically endangered bird species.

Anticipated date of completion: January 1, 2021 (although a long term project).

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is $3,300 CDN

FUNDING

Endangered Species Reserve Fund Grant	$3,300 CDN

PROJECT CONTACT:

Sumatran Orangutan Society
The Old Music Hall,
106-108 Cowley Road
Oxford OX4 1JE,
UK
Tel No: (+44) (0) 1865 403341

Registered office: SOS UK, The Old Music Hall, 106-108 Cowley Road, Oxford OX4 1JE, UK

Registered UK Charity No: 1085600

Schedule "A"
Project #E9

PROJECT SUMMARY

PROJECT TITLE: Plant A Red Panda Home

PURPOSE: **To support important *in situ* conservation work for the endangered red panda.**

GOALS OF THE PROJECT:

1. Increase participation of local community in management and protection of red panda habitat outside protected areas.

2. Reforest and restore degraded habitat through plantation of red panda food and shelter species, along with other high-value Non-Timber Forest Products (NTFPs) suitable for respective areas.

Short-term Goals:

- Purchase private and degraded forest located within core red panda habitat.
- Trees planted and land fenced off.
- Nurseries will produce saplings of local species to plant in the restoration areas.

Long-term Goals:

- Reduce forest fragmentation and create habitat connectivity in important red panda habitat areas in Nepal.

PROJECT OUTLINE:

BACKGROUND:

The red panda is listed as 'Endangered' in the IUCN Red List of Threatened Species and an Appendix I species in the CITES. The global red panda population has declined by 50% over the last 20 years; estimates have them at less than 10,000 and as few as 2,500 remaining in the wild.

Habitat loss is the primary threat to red pandas. As a tree dwelling species, red pandas struggle to survive when forests are fragmented and populations become susceptible to genetic bottleneck. In Nepal, forests are disappearing. A total of 33,800 hectares of the nation's forest cover was lost between 2001 and 201 6 (Shrestha S, Shrestha UB, Bawa K. 201 8). Among some of the causes of deforestation and forest degradation are unsustainable harvest of forest resources, overgrazing, conversion to agriculture and settlement, unplanned

development activities (expansion of roads and infrastructure, etc.), and forest fires.

Red pandas live in remote, high altitude, montane forests of Nepal. Here, there is a high rate of dependence on forest products to sustain daily life. Field studies conducted by Red Panda Network (RPN) reveals deforestation rates at 3.2 percent along Eastern Nepal's Panchthar-Ilam-Taplejung (PIT) corridor—an important network of forests that contains approximately 25% of Nepal's red panda population.

With forest loss at such alarming rates in Nepal, restoration and reforestation activities are critical to the survival of this endangered species. The proposed project will restore more than 32 hectares of core red panda habitat. Over 30,000 native trees will be planted, that have been identified as red panda food and shelter species—as well as high value NTFPs—and help create habitat connectivity that can support viable red panda populations.

METHODOLOGY:

Activities will include the plantation of native trees (red panda food/shelter species, and NTFPs); installation of fencing to protect tree saplings; and purchase of land for restoration (Eastern Nepal only).

Saplings will be obtained from nurseries in the region and Forest Guardians will be employed to carry out plantation and fencing, as well as habitat monitoring and protection after restoration activities are completed.

Long-term monitoring of the area will take place. RPN Forest Guardians conduct ongoing monitoring of red panda populations and habitat. Camera traps will be used to record mammalian species (including red panda) in the PIT corridor. Data from pre-restoration will be compared to post-restoration to measure the impact of the project.

Short-term goals will be tracked by photos of planting and fencing, as well as field reports. Proof of purchase of the land will be obtained through the Division Forest Office. RPN will then work with Community Forest Users Groups in taking over the management, protection and utilization of the land.

Anticipated date of completion: 2020-12-21 (although an ongoing long term project)

BUDGET:

The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 US

FUNDING:

Endangered Species Reserve Fund Grant	$1,000 US

PROJECT CONTACT: Terrance Fleming
Development Manager
Red Panda Network
1859 Powell St., Suite 100
San Francisco, CA 94133
Tel: (877) 854-2391 Ext. 101
Email: terrance@redpandanetwork.org

Funds for the Plant A Red Panda Home project to the Red Panda Network can directed to their matching challenge program, called *First Panda Challenge

Schedule "A"
Project #E10

PROJECT SUMMARY

PROJECT TITLE: Grevy's Zebra Conservation in Community Rangelands of Ethiopia and Kenya

GOALS OF THE PROJECT:

In partnership with communities, protect the small remaining population of Grevy's zebras in the wild.

PROJECT OUTLINE:

The Grevy's Zebra Trust (GZT) is the only organization in the world with a mission focused solely on conserving the Grevy's zebra. Recognizing that the survival of the Grevy's zebra depends on its ability to coexist with people living in northern Kenya, GZT believes these communities must be at the centre of designing and driving conservation efforts. GZT therefore works in partnership with communities from monitoring Grevy's zebra through citizen science, to co-designing site-specific and tailored solutions to threats facing the species. In all of its work, GZT seeks ways to use data and information to inform decisions and solution for positive conservation outcomes.

BACKGROUND:

The Grevy's zebra is one of Africa's most endangered large mammals and is listed as Endangered A1a, 2c by the IUCN/SSC Equid Specialist Group. Grevy's zebra is also listed on Appendix I of the Convention on International Trade of Endangered Species of Flora and Fauna (CITES) which offers them the highest protection against illegal trading. They are legally protected in Ethiopia and since 1977 have been protected by a hunting ban in Kenya.

The Grevy's Zebra Trust was established in January 2007 to address the urgent need to conserve Grevy's zebra *(Equus grevyi)* in the community rangelands of Kenya and Ethiopia. They are an independent wildlife conservation Trust registered in Kenya and the only organization that is 100% dedicated towards saving the endangered Grevy's zebra.

METHODOLOGY:

The Grevy's Zebra Trust addresses critical conservation issues facing Grevy's zebra and is focused on the following key activities:

- Addressing the on-going poaching of Grevy's zebra in remote areas where there is little or no conservation investment through the employment of scouts and by providing alternatives for the medicinal use of Grevy's zebra

products;

- Securing grazing and water resources for Grevy's zebra with established community conservancies through holistic management of community rangeland, development of local conservation strategies for the species and applied research and monitoring;
- Supporting the development of national Grevy's zebra conservation programs in Kenya and Ethiopia;
- Developing and supporting a disease outbreak response strategy with the Kenya Wildlife Service Veterinary Unit and the Kenya Grevy's Zebra Task Force;
- Raising awareness of Grevy's zebra conservation issues through facilitation of community workshops and promoting education, training and employment opportunities.

Anticipated date of completion: January 1, 2021 (however, the program is ongoing).

BUDGET:

The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 USD.

FUNDING:

Endangered Species Reserve Fund	$1,000 USD

PROJECT CONTACT: Martha Fischer
Grevy's Zebra Trust Board of Trustees
St Louis Zoo, MO
(314) 647-7959 Ext. 210
fischer@stlzoo,org

Schedule "A"
Project #E11

PROJECT SUMMARY

PROJECT TITLE: Cheetah Conservation Fund SAFE Project

GOALS OF THE PROJECT:

The goal of the project is to work with communities to build capacity and save cheetahs in the wild.

PROJECT OUTLINE:

Cheetah Conservation Fund's holistic conservation strategy is the key to success in saving the cheetah and its ecosystem. CCF works to develop best practices that benefit the entire ecosystem upon which the cheetah depends. CCF's programs address the concerns for wildlife populations and the human communities that share the landscape.

BACKGROUND:

Currently, cheetahs are listed as Vulnerable on the IUCN Red List. In Namibia, they are a protected species. Under the Endangered Species Act in the United States, they are considered Endangered. The Convention on International Trade in Endangered Species (CITES) lists them as an Appendix 1 species. Most wild cheetahs exist in fragmented populations in pockets of Africa, occupying a mere 9 percent of their historic range.

As with all other species fighting extinction, the problem facing the cheetah is complex and multifaceted. However, most of the reasons for the cheetah's endangerment can be grouped into three overarching categories:

- human-wildlife conflict,
- loss of habitat and loss of prey,
- poaching and illegal wildlife trafficking, with cubs being taken from the Horn of Africa and smuggled into the exotic pet trade, primarily in the Gulf States.

Cheetah Conservation Fund's holistic conservation strategy is the key to success in saving the cheetah and its ecosystem. CCF works to develop best practices that benefit the entire ecosystem upon which the cheetah depends. CCF's programs address the concerns for wildlife populations and the human communities that share the landscape.

METHODOLOGY:

Cheetah Conservation Fund has multiple strategies to work towards their goals including:

- Research - CCF's scientific research on cheetahs focuses on a number of aspects of the cheetah's life cycle, biology and genetics. Research projects also include ecology, human-wildlife conflict, agriculture, and biomass energy.
- Education - The development of national pride and international concern for the cheetah are critical to the species survival. In order to reach the widest audience possible, CCF educates farmers, teachers, and the public about methods to conserve biodiversity. Special emphasis is placed on the role of the cheetah and other predators in healthy ecosystems.

Anticipated date of completion: January 1, 2021 (however, the program is ongoing).

BUDGET:

The total budget from the Endangered Species Reserve Fund is $1,000 USD.

FUNDING:

Endangered Species Reserve Fund	$1,000 USD

PROJECT CONTACT: Cheetah Conservation Fund
P.O. Box 2496
Alexandria, VA 22301
1-866-909-3399.

Schedule "A"
Project #12

PROJECT SUMMARY

PROJECT TITLE: Blanding's Turtle AND Wood Turtle Head-Starting – Matching Funds

GOALS OF THE PROJECT:

1) To head-start two species of endangered Canadian turtles for release in Ontario
2) To provide matching funds from the Toronto Zoo in order to secure external funding for this project.

PROJECT OUTLINE:

Project Supported by: Parks Canada, OMNRF, OMECP, Huron Stewardship Council, Magnetawan First Nation, the Toronto Wildlife Centre, the Ontario Turtle Conservation Centre, Scales Nature Park, and the Ontario Multi Species Turtles at Risk Recovery Team. Results from this project will compliment ongoing recovery efforts for these species across Ontario and will provide valuable long-term data on the use of head starting as a population augmentation tool for reptiles. This project is designed to address threats and provide long-term solutions for population sustainability of turtle SAR. Rouge National Urban Park provides one of the largest remaining expanses of habitat for Blanding's turtles and other Species at Risk (SAR) turtles in an otherwise fragmented, urbanized landscape, connecting a large portion of historic turtle habitat from the Oak Ridges Moraine to Lake Ontario. Rouge National Urban Park provides a unique opportunity not only to sustain its existing Blanding's turtle population, but also to provide source-protected populations that could colonize other coastal marshes and watersheds in the GTA. Wood turtles are head started for release into SW Ontario river systems. Toronto Zoo maintains two head-start facilities and uses both mark recapture and radio telemetry to establish survival rates of released turtles.

BACKGROUND

Matching grant funding applications are submitted to support the Toronto Zoo's head-starting projects. Toronto Zoo's Adopt-A-Pond has studied movement and habitat use of SAR turtle populations in Rouge National Urban Park since 1999 and provided head-start expertise for wood turtles since 2009. This program has resulted in the release of 288 hatchling Blanding's turtles to RNUP since the first head-started Blanding's turtles were reintroduced to this critical area in 2014. RNUP is Canada's first national urban park, spanning more than 79 km^2 in the Greater Toronto Area, making it one of the world's largest protected areas in an urban setting. The Blanding's Turtle Head-Start conservation program is part of a significant partnership between Toronto Zoo, Parks Canada, the TRCA, the MECP, and the MNRF to help recover this globally endangered species.

The Wood Turtle Head-Start conservation program is part of a significant partnership to help recover this important species, which is currently identified as Endangered on the International Union for Conservation of Nature's Red List, and with the Committee on the Status of Endangered Wildlife in Canada. Since becoming a partner on this project, the Toronto Zoo has raised 514 wood turtle hatchlings for release into historic habitat in SW Ontario.

METHODOLOGY

This is the sixth year Blanding's turtles – listed as endangered by the International Union for Conservation of Nature (IUCN) and a provincially and nationally threatened species – have been released in the park. In 2019, Toronto Zoo, Parks Canada, the Toronto and Region Conservation Authority (TRCA), Magnetawan First Nation, the Ontario Ministry of Environment, Conservation and Parks (MECP) and the Ontario Ministry of Natural Resources and Forestry (MNRF) reintroduced 48 baby Blanding's turtles to a wetland in Rouge National Urban Park. The Blanding's turtle is a long-lived species, with a life span over 80 years, and has inhabited the Rouge Valley for thousands of years, though prior to 2014 its future was uncertain, with as few as six adult Blanding's turtles remaining.

The Toronto Zoo has been assisting with the conservation of the Wood turtle for several years. These turtles hatched from eggs rescued from at risk nests and have been raised in a controlled environment at the Toronto Zoo for two years. As with all species of turtles, the young have an extremely high mortality rate due to environmental pressures. In 2019 the Toronto Zoo and its conservation partners introduced 50 head-started Wood turtles to protected habitat in Ontario. Giving these turtles a 'head-start' in life, the Zoo has raised them past their most vulnerable stages where they would otherwise have faced an increased chance of predation from animals like raccoons. Toronto Zoo and its project partners believe that this type of head-starting and reintroduction of the turtles, along with long term monitoring and ongoing habitat restoration, are keys to the species' survival in their natural habitat. In 2019, the Toronto Zoo raised 50 wood turtle hatchlings, which were released in July by project partners. Once released, the turtles are monitored through the use of radio telemetry equipment to learn more about their behaviour and the overall success of the program.

Anticipated date of completion: 2020-12-31

BUDGET

Item	ESRF	Total Cost
Turtle Care Project Lead/Community Outreach Program Lead	$ -	$ 61,000.00
Turtle Care Assistant	$ 8960.00	$ 8960.00
Project Supervision/ Oversight/ Expertise	$ -	$ 20,800.00
Veterinary Expertise (5 days)	$ -	$ 1,800.00
Office space overhead and communication costs for SAR turtle staff	$ -	$ 47,500.00
Travel to collect turtle eggs from at-risk sites	$ 2,000	$ 2,000.00
Turtle Nursery: Overhead Operating Costs	$ 4,000	$ 10,000.00
Turtle Monitoring Equipment	$ 1,000.00	$ 11,000.00
Indigenous Engagement	$ 2,000.00	$ 11,000.00
Turtle models and turtle artifacts for outreach displays and community events	$ -	$ 1,000.00
Resource printing and distribution costs for outreach with Park visitors and local community	$ 1,000.00	$ 3,000.00
Food and refreshments for community volunteer events (e.g. wetland shoreline plantings, Turtle Tally Appreciation Day, etc.)	$ 1,000.00	$ 2,391.00
Graphics Expertise (5 days)	$ -	$ 2,000.00
TOTAL	$ 19960.00	$ 182,451.00

The total budget from the Endangered Species Reserve Fund for this larger project is $17,710.

FUNDING

Endangered Species Reserve Fund $25,000 CDN

PROJECT CONTACT: Rick Vos
Toronto Zoo
361A Old Finch Ave
Toronto, ON M1B 5K7

Schedule "A"
Project #13

PROJECT SUMMARY

PROJECT TITLE: The Influence of Seasonality on Assisted Reproductive Technologies in Wood Bison

GOALS OF THE PROJECT:

To improve our understanding of the seasonal factors regulating ovarian activity and oviductal receptivity in wood bison.

PROJECT OUTLINE:

Assisted reproductive technologies (ARTs) provide a valuable alternative for the propagation of genetically valuable animals, specifically in cases where donor animals are not readily available due to herd location or disease risk. Despite the routine application of ARTs in domesticated species, various factors inherent to wildlife species, including seasonality, handling stress, and other evolutionary adaptations, can impact the success of these techniques. In recent years, ARTs have been used with repeatable success in wood bison, but distinct differences have been observed in embryo production rates in and out of the breeding season. Further research into the mechanism of seasonal control over ovarian activity and oviductal receptivity are necessary to understand the regulatory factors involved in successful embryo development. This will be instrumental in developing ARTs that can be applied throughout the year without any detrimental effects related to changes in environmental stimuli.

BACKGROUND

Wood bison (*Bison bison athabascae*) are currently listed as threatened and the conservation of the remaining free-ranging populations is at risk due to the ongoing presence of disease (tuberculosis, brucellosis; Gates et al., 1998). Various attempts to eradicate these pathogens and create disease-free herds have not been overly successful. The Wood Bison Recovery Strategy identifies the need for ARTs to preserve the germplasm of the remaining individuals and develop methods to produce non-infected offspring. As collaborators in the Wood Bison Reproduction Research Group, Toronto Zoo and University of Saskatchewan teams have successfully produced live calves following artificial insemination and embryo transfer using gametes from wild-caught donor animals housed at the University of Saskatchewan. Although significant progress has been made, pregnancy rates are not yet optimal and numerous challenges remain to be resolve.

Bison are closely related to domestic cattle in evolutionary terms, and thus, their reproductive biology is very similar. Estrous cycle lengths average 20-21 days (Matsuda et al., 1996) and gestation lengths range from 265 – 288 days (Goodrowe et al., 2007).

Despite these similarities in reproductive parameters, inherent differences between the two species have played a role in the limited success of bison ARTs that have been based on domestic cattle protocols. Lack of domestication (fight or flight response) and strict reproductive seasonality (short-day breeding) are two critical factors that influence the hormone pathways regulating reproduction, including: follicle development, ovulation, fertilization, embryo development and implantation. Results obtained from our studies to date indicate that the ovaries can respond adequately to exogenous hormones both with and without seasonal priming to produce developmentally competent oocytes. However, good quality oocytes out of the breeding season have reduced fertilization and embryo development (which occurs in the oviduct) compared to those in the breeding season. This indicates that the hormone cascade can “turn on” the ovarian cellular machinery, but is not sufficient to stimulate the oviduct to support fertilization and embryo cleavage. This is an important impediment to the application of ARTs year-round in seasonal animals.

The overall goal of this study is to gain a better understanding of the seasonal factors regulating ovarian activity and oviductal receptivity in wood bison. This goal will be undertaken will the following objectives: i) characterization of secretory products in oviductal fluid in and out of the breeding season, and ii) characterization of gene expression profiles of oviductal epithelial cells in and out of the breeding season.

METHODOLOGY

Sample Collection:

Oviducts will be collected post-mortem from farmed wood bison at an abattoir in Alberta at two time points: breeding season (October) and non-breeding season (April). The dissected oviducts will be processed as follows: i) aspiration of the lumen to collect the oviductal fluid and ii) sectioning of the tissue to collect epithelial cells. Both samples will be frozen and kept at -80C until analysis. A total of 10 oviducts from 10 individuals will be collected in each season.

Objective 1:

Oviductal fluid will be separated into the exosome/microvesicle fraction and fluid fraction. The two fractions will be analyzed by mass spectrometry to identify proteins and metabolites present. Specific techniques will depend on the group of molecules that are of interest based on a search of the current literature.

Objective 2:

Oviductal epithelial cells will be collected by scraping the inside of the oviduct with a scalpel blade. The cells will be processed for DNA extraction and quantification by realtime PCR. The genes of interest will be determined based on a search of the current literature.

Anticipated date of completion: 2021-12-31

BUDGET

Gene expression: PCR kits and supplies	$3,500
Mass spectrometry:	$3,000
Sample collection (1 x trip to Calgary for 3 days)	$1,200
Post-Doctoral salary	$50,000

FUNDING

Repro Operating Budget	$6,500
Repro Deferred Revenue	$1,200
Repro Deferred Revenue	$12,500*
Mitacs Post-Doc Fellowship Grant	$25,000
Endangered Species Reserve Fund	$12,500*

** ESRF and Repro Deferred Revenue are matching funds (1:1) for Mitacs Grant to fund a 1-year post-doctoral fellow*

PROJECT CONTACT: Gaby Mastromonaco, Toronto Zoo

Schedule "A"
Project #14

PROJECT SUMMARY

PROJECT TITLE: Native Bat Conservation Program

GOALS OF THE PROJECT:

The overall project goal is to conserve Ontario's Species at Risk bats through targeted monitoring to address knowledge gaps target further habitat improvement in coordination with partners. Specifically the project addresses the threat of habitat loss and urbanization to the federal and provincial Species at Risk Act listed little brown myotis (Endangered), northern myotis (Endangered) and tri-colored bat (Endangered), and the provincial Species at Risk Act listed eastern small-footed bat (Endangered). It will also contribute to understanding the impact of the acute threat to these species from White Nose Syndrome (WNS), and potential recovery. It includes work conducted within the Greater Toronto Area (GTA) on Toronto Zoo property, Toronto Region Conservation Authority (TRCA) properties, in Rouge National Urban Park, and with First Nation communities.

PROJECT OUTLINE:

The project addresses high-priority threats outlined in the recovery strategy for the three target bat species.

Surveying and monitoring activities will address knowledge gaps in the distribution, migratory and stop-over sites, response to WNS and potential development of resistance, and the importance of anthropogenic habitats to the target species. Specific monitoring activities are: acoustic monitoring throughout peak bat months (collection: May-Sep, analysis: winter) to look for presence and seasonal activity patterns of target species; trapping (July-Sep) to confirm acoustic identifications, assess health and identify the presence of breeding individuals; radio-telemetry (Jul-Aug) to locate summer roosts and fall swarming sites; and surveys of roosts identified through radio-telemetry (Jun-Sep), to assess the structures used by target species in an urbanizing environment (GTA), such whether natural or anthropogenic roosts are used.

Further activities will address specific priorities identified in the education, awareness and partnership focus of the recovery strategy for these species. Public outreach through bat walks and awareness events will communicate the importance of bats. Bat box building activities at outreach events, and bat detector training workshops and volunteering opportunities will promote volunteer participation in surveys and monitoring, in the short and long-terms, while also contributing useful data. Biannual partnership meetings, with our partners as well as other relevant organizations and projects, will promote the importance of bats to these groups and encourage their involvement in threat mitigation. These meetings will also promote future cooperation and collaboration, and provide an important forum to translate surveying and monitoring results into meaningful incorporation of bats into future habitat management and

improvement activities by our land-owning partners, the TRCA and Georgina Island and at Toronto Zoo.

BACKGROUND

These are worrying times for bats in Ontario, and four of our species are considered endangered. The most worrying threat is White Nose Syndrome (WNS), a fungal disease from Europe that affects bats during hibernation. Counts of bats at Ontario hibernaculum recorded devastating declines of more than 90% of little brown myotis, one of our most affected species. WNS is all the more scary because, unlike other threats, there is little we can do to stop it. Other threats include collisions with wind turbines and habitat loss, especially associated with urbanisation.

The Toronto Zoo Native Bat Conservation Program was established to help conserve Ontario's bat species. We will be working with partners to conduct important monitoring and research on bat populations in Ontario.

METHODOLOGY

Objectives:
- Acoustic monitoring to identify important habitat
- Bat capture surveys to confirm species, assess health and assess reproductive status
- Radio-telemetry to find roosts.
- Identify and undertake habitat creation, e.g. bat houses

Activities:
- Bat house building workshops with the public (outreach value)
- Acoustic monitoring in target areas to identify bat use
- Capture surveys to confirm species and identify breeding
- Radio-telemetry to identify roosts, allowing specific roosts to be protected and to contribute to our understanding of roost characteristics, long-term monitoring
- Work with partners to expand the area investigated and increase impact

Anticipated date of completion: 2020-12-31 (Ongoing program with hopes to expand and extend our bat conservation efforts).

BUDGET

ESRF funding will be used as matching funds for the 2020 Habitat Stewardship Fund Native Bat Conservation application.

The total budget from the Endangered Species Reserve Fund for this larger project is $17,203.

FUNDING

Endangered Species Reserve Fund	$17,203

PROJECT CONTACT: Kevin Kerr/MK Whibbs
Toronto Zoo
361A Old Finch Ave.
Toronto, ON M1B 5K7
Tel – (416) 392-5972

Schedule "A"
Project #15

PROJECT SUMMARY

PROJECT TITLE: Aqua-Links and Great Lakes Outreach Program

GOALS OF THE PROJECT:

Great Lakes Outreach Program

Grades K - 12 are targeted with curriculum based, in class outreach and accompanying lesson plans for each educator. The broader message stresses clean water and urban conservation water practices to "help" the fishes in local waters. This program is fully endorsed by the Redside Dace Recovery Team, MNRF, American Eel Recovery Team and Atlantic salmon working groups.

Aqua-Links

To complement the Great Lakes Outreach Program and continue with the Atlantic salmon-rearing partnership with TDSB secondary schools, MNRF and OFAH by adding new schools from the Aqua-links Program wait list for salmon rear-and-release component. To develop a strong partnership with Uganda and Kenya for successful rear-release of Lake Victoria cichlids into Lake Victoria.

PROJECT OUTLINE:

The Great Lakes Outreach Program continues to extend messaging into the Great Lakes region from Chatham-Kent to Ottawa. Increased knowledge of the Great Lakes watershed is a primary goal of the program and demand for the program continues to increase annually. With new resources, activities and equipment, the program can reach more students each year.

The Toronto Zoo's Great Lakes Outreach Program takes a bilingual zoo biologist into local schools or to community events with an interactive presentation on the North American Great Lakes – the largest fresh water resource on the planet, right here in our back yard. Messages centre on City of Toronto smart water use practices and avoiding pollution to help save locally endangered species.

As a branch of the Great Lakes Outreach Program, Aqua-Links continues to expand in partnership with TDSB and University of Toronto. Increased knowledge of the Great Lakes watershed and hands-on experience with native species is a primary goal of the program. Demand for this program remains consistently high with a growing waitlist. With additional supplies and equipment, the program can reach more students each year.

BACKGROUND

The Toronto Zoo is a member of the National Redside Dace Recovery Team. The Zoo's role has focused on public awareness tying species at risk, the Redside dace, American eel, eastern sand darter and Atlantic salmon with water conservation practices and smart water use – essentially using messages from the City of Toronto's program efforts to reduce water use. The outreach program for the recovery team has been running since 2002 and has been funded by grants and donations.

The Great Lakes Program annual costs approach $160,000 to support matching grant funding applications which have been submitted to support biologists/educators' salary, education materials costs and mileage charges.

The L. Victoria SSP conservation has been on-going at Toronto Zoo since 1988. Our efforts have developed from captive breeding of the endangered African fishes, to support graduate student programs, exhibit development and staff training in Africa, and since 1997, working with our AZA and African colleagues on education related programs in East Africa. Zoo staff worked overseas in 1997, 1999, 2010 and 2016. This Zoo has focused on the in situ components and has been working on a specific project called Aqua-Links to connect African and Ontario students on Great Lakes issues from each continent.

The 2018/19 academic year is the fourth year in an on-going partnership with Toronto District School Board (TDSB). Arising from the Zoo's Great Lakes Program success, the TDSB has provided funding to support the addition of 10 secondary schools to the Aqua-Links Program.

METHODOLOGY

This application is to support the expansion of the Aqua-Links and Great Lakes Outreach programs into more schools and to attend more targeted community outreach events. Employee resources, support materials and equipment are required to do so.

Anticipated date of completion: 2020-12-31

BUDGET

Total Expenses	
Human resources	$150,000
Equipment (laptop, projectors)	$ 3,000
Hatchery Equipment	$ 10,000
Educational Mterials & Printing	$ 6,000
Metrage	$ 8,000
Total	**$177,000**

The total budget from the Endangered Species Reserve Fund for this larger project is $17,202.

FUNDING

Endangered Species Reserve Fund	$17,202 CDN

ESRF funding is used as matching funds towards $75,000 from the Habitat Stewardship Program, $25,000 from Royal Bank of Canada and $1,000 from the North Atlantic Salmon Conservation Organization.

PROJECT CONTACT: Kevin Kerr, Manager of Species Recovery & Program Assessment & Mary-Kate Whibbs, Coordinator, Aqua-Links Toronto Zoo

Schedule "A"
Project #16

PROJECT SUMMARY

PROJECT TITLE: Recovery of the Mottled Duskywing in Ontario

GOALS OF THE PROJECT:

- Support activities that protect extant populations of Mottled Duskywing and their habitats.
- Complete and support activities which result in the re-establishment of Mottled Duskywing at formally occupied sites.
- Conduct and support research that fills in knowledge gaps identified in guiding recovery documents for Mottled Duskywing
- Conduct and support public outreach and stewardship activities to promote the recovery of the Mottled Duskywing in Ontario.

PROJECT OUTLINE:

BACKGROUND

The Mottled Duskywing is a medium-sized butterfly found in dry habitats such as alvars and sandy patches with sparse vegetation. Scattered populations occur in southern Ontario and east of Peterborough. Habitat loss caused by human activity, flooding and activities to control the invasive gypsy moth are the main threats to Mottled Duskywing populations. As the only endangered butterfly species in Ontario, the Mottled Duskywing is in need of coordinated recovery action.

Toronto Zoo is a member of the Ontario Butterfly Recovery team – to date the Zoo's main focus and role on the Recovery Team has been outreach and education. This project is an opportunity for the Zoo to expand involvement in local butterfly recovery with potential for Master's student crossover between the Zoo and partner academic institutions. Associated projects include Mottled Duskywing monitoring, genetics research and captive rearing.

METHODOLOGY

NRSI is seeking a 5-year collaborative NSERC Alliance grant to achieve four main goals in Mottled Duskywing recovery including reintroducing live animals by 2021, filling knowledge gaps in species distribution, predictive and long-term modelling and public outreach & education. This is a multi-partner initiative with University of Guelph as the Principal Applicant. Partners include, Wildlife Preservation Canada, Lambton Wildlife Incorporated, Cambridge Butterfly Conservatory, Natural Resource Solutions Inc. and Western University. Toronto Zoo is a natural fit to contribute to the outreach and education goal as the Zoo already has a presence and delivers outreach in the identified regions of Cambridge and Alderville First Nation. Permanent educational

displays located at key sites including Pinery Provincial Park and on Nature Conservancy of Canada lands will promote partner involvement in recovery actions.

As the first Ontario butterfly re-introduction, this high-profile project may also be captured by a documentary film crew.

Anticipated date of completion: 2020-12-31

BUDGET

The total budget for this multi-year project, including all partners and the NSERC Alliance grant is $250,000. The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 CDN as matching funds.

FUNDING

Endangered Species Reserve Fund	$1,000 CDN

PROJECT CONTACT:

Ryan Norris- University of Guelph/NCC Senior Scientist
Associate Professor
Email:
rnorris@uoguelph.ca

Phone number:
519-824-4120 x56300

Office:
SSC 2451
Lab:
SSC 2403/2404
Website links:
http://norrislab.ca/

***Funds to be directed to Natural Resource Solutions Inc.**

Schedule "A"
Project #17

PROJECT SUMMARY

PROJECT TITLE: **Radiated Tortoise AZA SAFE Program**

GOALS OF THE PROJECT:

The primary goal of the Radiated Tortoise SAFE Program is to re-establish tortoise populations through rehabilitation, release and subsequent protection of confiscated individuals.

Conservation objectives include:

- Continue to construct and operate the Tortoise Conservation Center (TCC) that serves as the in-country base of operations for the Madagascar Tortoise Conservation Program by providing 1) a rehabilitation facility for confiscated tortoises that are included in the reintroduction program, 2) a breeding center for critical endangered tortoise species, 3) a platform for community outreach programming that aims to create local stewards of natural and re-established tortoise populations, 4) a central location within the Androy region for community groups, government agencies, non-governmental organizations, etc. to meet and plan conservation actions for tortoises and other native threatened species, 5) resources and infrastructure for graduate students conducting applied research that furthers wildlife conservation in the region, and 6) an opportunity to establish eco-tourism in the region that garners support for local communities and wildlife.
- Continue to support the law enforcement program that aims to provide support for the anti-poaching efforts of local police, gendarmes and government agencies by providing 1) triage centers for confiscated tortoises throughout the Androy region, 2) equipment to apprehend poachers and make arrests, 3) expertise to assist in the development of antipoaching and conservation programs for native wildlife, and 4) opportunities to convene planning groups responsible for the protection of wild tortoises.
- Develop and implementing a reintroduction strategy that aims to repatriate confiscated tortoises to locations where populations (1) no longer exist, or require supplementation for continued existence, and (2) will receive protection by the community.
- Leverage the collective expertise and resources of the AZA community, particularly those members that participate in the Species Survival Plan (SSP) program for this species, to support our field-based partners in implementing existing recovery plans through collaborative and strategic conservation and public engagement activities.

PROJECT OUTLINE:

BACKGROUND

The Radiated Tortoise is facing a very high risk of extinction in the wild. As a result, it is listed as Critically Endangered by the IUCN (International Union for the Conservation of Nature) and is included on Appendix I of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), which limits its trade internationally. In addition, Malagasy law (Decree 60126) prohibits the collection of this species from the wild.

Historically the Radiated Tortoise has been abundant throughout its range and remains the iconic symbol of the south. Today, however, this species is in drastic decline; population models suggest that the Radiated Tortoise could be extinct in the wild within the next 45 years.

The primary threats to the survival of the Radiated Tortoise are: 1) collection for food and the international wildlife trade, and 2) habitat loss. Scientists estimate that between 22,000 and 241,000 tortoises are illegally collected each year. Although local tribes consider touching, or harming the tortoises to be taboo, people from other tribes collect large numbers of tortoises.

Habitat loss is caused mainly by the practice of slash-and-burn agriculture and the production of charcoal, but the land is further degraded due to grazing livestock. A consistent annual forest loss rate of 1.2% was documented for the spiny forest (primary Radiated Tortoise habitat) throughout the 30-year period from 1970-2000, despite the high level of endemism of the flora (95%) and its status as a Critically Endangered bioregion.

METHODOLOGY

Funds will be used to support the development of a reintroduction strategy for confiscated tortoises by 2021 and a reintroduction document will be completed. Suitable reintroduction site within the species range will be selected and surveyed for appropriate conditions by 2020. Social surveys at potential reintroduction sites will be conducted to determine obstacles and opportunities for communities to participate in the stewardship program and recommendations will be prepared. Vegetation surveys will be conducted to determine forest protection and revegetation efforts and recommendation will be made. Relationships will be established, and community needs will be met for successful stewardship of reintroduced populations. To increase the number of tortoise holding enclosures to accommodate additional confiscated tortoises pens will be built and made available for up to 2000 additional tortoises. Fences around tortoise enclosures will be hardened by replacing fences with stronger, weather resistant material and secured with metal posts. Staff housing within and outside the core area of the TCC and LCC will be built to have rooms to accommodate 10 staff members. Transportation will be provided for staff to travel within the centers by purchasing and

delivering three bicycles with carts to TCC. A breeding facility for confiscated Spider Tortoises (adults and offspring to be included in reintroduction program) will be created at TCC by constructing a small building that includes incubators and indoor/outdoor rearing enclosures. The construction and set-up of tortoise hospital at TCC will take place by expanding enclosures, installing screens for windows and shelves, and placing partitions in the quarantine area and purchasing equipment (i.e. thermometers, microscopes, surgery lamp, refrigerator, etc.). Two security guard towers will be built at the TCC to increase security. The Ala Mahavelo CEOC will be secured to prevent damage and misuse by constructing a gatehouse, offices, parking stalls, storage shed, and perimeter fence. A fresh water source for facility will be created by building a central and remote rainwater catchment system. Electricity will be generated for the site by installing solar panel arrays.

Anticipated date of completion: 2020-12-31

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is $2,000 USD

FUNDING

Endangered Species Reserve Fund	$2,000 USD

PROJECT CONTACT:

Michael Ogle
Curator
Department of Archelosaurs and Lepidosaurs
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Knoxville TN 37914
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(865)-250-0234 cell
mogle@zooknoxville.org

*Make cheque payable to: Radiated Tortoise AZA SAFE Program

Schedule "A"
Project #18

PROJECT SUMMARY

PROJECT TITLE: Support of the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) – AZA SAFE/Keeper Day

GOALS OF THE PROJECT:

To save African penguins and other threatened coastal seabirds from negative anthropogenic events in the coastal waters of South Africa.

PROJECT OUTLINE:

BACKGROUND

SANCCOB is a non-profit organization specializing in the conservation of seabirds in South Africa. Since 1968, it has treated and released over 85,000 seabirds. Thousands of these birds have been the African penguins.

By supporting SANCCOB, we enable them to involve themselves in conserving African penguins and other coastal seabirds in southern Africa. The area has long been a major shipping route and oil spills have plagued the resident birds. Recently global climate change has caused major shifts in food supplies east of the Cape. The large shoals of "sardines" and krill have disappeared and colonies have begun to collapse. SANCCOB is doing what they can to save those remaining animals.

Rehabilitated birds have been followed after treatment and release. Records are now showing that the survival rates of the specimens are the same as wild birds that have not needed treatment.

As the African penguin has been listed as an Appendix One endangered species, in-situ support for conservation of the species is required to ensure movement of the species into Canada. This has become a requirement by the US government and other countries around the world.

METHODOLOGY

The money being requested is to support the ongoing work done by the staff and volunteers of SANCCOB. People must be ready on a moment's notice to drop what they're doing and head to a site where disaster has struck. Birds must then be caught, transported to the facilities, cleansed of oil and then put through a long process of rehabilitation. Often the site is not re-usable for months and new sites must be found where the birds can be released. When released, the birds are tagged for identification and SANCCOB monitors their progress to help measure the success of everyone's efforts.

Funding is required for equipment, transportation, facilities, labour and fundraising. The AZA, African penguin SSP has recommended this foundation as an in-situ program to support.

By supporting SANCCOB we are providing funding that will keep this important work going. With climate change affecting the area so much, bird colonies will adapt or perish. SANCCOB is helping these birds by modifying the outcomes created by man-made disasters.

The post release monitoring helps SANCCOB understand their success rate. Birds covered with oil, either die quickly or slowly starve on the beaches unable to swim anymore. SANCCOB has a very high rate of success rehabilitating these oiled birds. So far they have treated 85,000 birds. This number alone is a sign of success.

SANCCOB will be contacted in the New Year to make arrangements to receive the grant. They will be expected to report on the results of the funding within a couple months of the year end at the latest.

Anticipated date of completion: 2020-12-31

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is $8,100 CDN

FUNDING

Endangered Species Reserve Fund	$8,100 CDN

PROJECT CONTACT:

Southern African Foundation for the Conservation of Coastal Birds
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+ 27 21 557 6155
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Non-Profit Number: 003-134 NPO
Section 21 Registration number: 2001/026273/08
American Fund for charities: AFC 183

Schedule "A"
Project #19

PROJECT SUMMARY

PROJECT TITLE: African Vulture Conservation – AZA SAFE

GOALS OF THE PROJECT:

To prevent to loss of African vultures affected by poison-laced carcasses.

PROJECT OUTLINE:

BACKGROUND

Old World Vultures have emerged as the most threatened group of birds on the planet. The population decline of vulture species is not due to direct persecution, but rather is a by-product of animal poaching. Elephant poachers poison elephants to access their ivory, leaving behind large poison-laced carcasses. Vultures being carrion feeders end up being poisoned in turn by consuming meat from these animals. A number of African vulture species were upgraded in 2012 to Endangered by the IUCN. Sadly, their rate of decline continued, resulting in many of these being upgraded again in 2015 to Critically Endangered.

Recent research demonstrated that poison response activities would slow the decrease of vulture populations significantly. Vultures are long-lived species, and thus saving individuals is an effective method for aiding their populations. The assembly of poison response kits helps wildlife managers save affected vultures in the field. Accordingly, the Hawk Conservancy Trust launched a campaign to purchase poison response kits to address the vulture crisis.

The Toronto Zoo is one of only two institutions in North America that exhibits White-headed Vulture (*Trigonoceps occipitalis*). Thus, this species is not managed as an SSP and there is no recommendation to breed them. This species is managed within EAZA, but a shortage of females limits the genetic value of the male that resides at our Zoo. Consequently, the greatest conservation role for this vulture is to generate awareness for its species' plight in Africa.

METHODOLOGY

The Hawk Conservancy Trust is targeting poison response action as the primary opportunity to aid the conservation of African vultures. They are coordinating the purchase of Poison Response Kits, which are used in the field to treat poisoned vultures. The kits cost approximately $500.00 CDN and may be replenished at a cost of $300.00 CDN.

Anticipated date of completion: 2020-12-31

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 CDN

FUNDING

Endangered Species Reserve Fund	$1,000 CDN

PROJECT CONTACT:

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Schedule "A"
Project #20

PROJECT SUMMARY

PROJECT TITLE: Understanding Fertility and Developing IVF Techniques in Oregon Spotted Frogs

GOALS OF THE PROJECT:

To improve our understanding of low fertility in female and male Oregon spotted frogs following in vitro fertilization.

PROJECT OUTLINE:

Many amphibian populations are in critical need of supplementation of animals from conservation breeding programs. However, animals in captive settings may be impacted by various environmental factors and reproduce at lower rates than in the wild. Assisted reproductive technologies (ARTs) provide a valuable alternative for the propagation of genetically valuable animals. To date, we have been successful in producing Oregon spotted frog tadpoles from in vitro fertilization (IVF), however, tadpole development rates were low and only several females and males were successful. Further research is necessary to better understand fertility dynamics in this species and their response to exogenous hormone protocols.

BACKGROUND

Breeding success in our colony of captive Oregon spotted frogs is typically poor with only a small percentage of individuals producing tadpoles. Several factors including incompatibility, inappropriate environmental cues and conditions, or lack of natural breeding strategies may contribute to the poor outcome. Age structure has also been problematic in recent years with only geriatric animals in our colony. In order to create a successful conservation breeding program for this species, we need to improve the reproductive efficiency.

This past year we added a cohort of younger animals (<5 yo) to our colony to address the issue of age. We also adjusted the hibernation conditions to include an extended period of 24 hour darkness to more closely mimic natural winter conditions underwater. Finally, we also implemented an assisted fertilization study in an attempt to establish a protocol for this species and help to overcome the other possible issues confounding breeding success. Based on methods developed by Kouba *et. al.* (2012), we have successfully produced hundreds of Dusky Gopher frog tadpoles, another challenging species to manage in captivity. Application of these protocols in the Oregon spotted frogs, however, resulted in limited success (~130 tadpoles) and the effects were highly inconsistent.

The overall goal of this study is to gain a better understanding of the fertility in male and female Oregon spotted frogs and optimize IVF techniques for tadpole production. This

goal will be undertaken will the following objectives: i) evaluation of semen viability and quality under different hormone regimens, and ii) evaluation of oocyte viability and developmental potential under different hormone regimens.

METHODOLOGY

Animals:
Frogs aged 3-6 (n=8 females, n=8 males) and 9-10 years (n=5 females, n=4 males) were housed indoors in (gal) tanks at a density of 6-7 animals (same-sex) per tank in a temperature controlled room without windows. The hibernation protocols were adjusted this year to include a 42 day period of 24 hour darkness. Water/air temperature and photoperiod were changed slowly over several weeks to achieve hibernation and post-hibernation breeding conditions (3.9 °C, 24 h dark and 9.4 °C, 12:12h light:dark, respectively). Following hibernation, males and females were randomly mixed in tanks at a similar density (6-7 animals per tank). These conditions were maintained throughout the breeding experiments. Food was withheld during hibernation and breeding. Animals were weighed before hibernation and again before breeding.

Sperm Collection:
Males were transferred to either empty plastic deli cups or with enough water to cover the ventral surface of their abdomen and administered the following treatments: 1) no treatment, 2) 500 IU hCG + 15 ug LHRH (s.q.) or 2) 15 ug of LHRH (s.q.) alone (Fig 1). Urine was collected several times starting 1 h post hormone injection for up to 3 hours from the cloaca by capillary action using a 14 cm open end Argyle catheter and stored in a 1.5 ml tube at 4 °C for up to 2 days. Any urine found in the cup or holding water was also collected and evaluated for the presence of sperm (Fig 2-3). After each collection frogs were submerged in water for 10-15 min to rehydrate. When possible, motility (%) was noted and concentration was categorized, 1 (low) to 3 (high), relative to the other individuals. All spermic urine collected on the same day was pooled to fertilize eggs (n=2-4 males).

Ovulation Induction and Egg Collection:
Females from both ages groups were divided into 2 treatment groups (Fig 4): 1) no treatment (n=6), 2) 100 IU hCG s.q. hormone injections given 48 h apart prior to hibernation. In March, after hibernation and the start of the natural breeding season, the following ovulation-induction hormone regiment was administered (s.q.) to both groups 1 & 2: 100 IU hCG on Days 0 and 3, and 500 IU hCG + 15 µg LHRH on Day 4. Day 5 onwards, egg collection was attempted twice daily by gently massaging and compressing the lateral walls of the abdomen in a cranial to caudal motion. To ease the passage of eggs through the cloaca, a disposable inoculation loop was used to gently expand the cloacal opening. Eggs were collected into 100 mm petri dishes at a density of approximately 100-200 eggs per dish. Egg development was assessed by ultrasound prior to hibernation, mid-hibernation, end of hibernation and 2 days following the last hormone injection before egg collection (Day 6).

Fertilization:

Approximately 200 µl of pooled sperm was added drop-wise per 100 eggs using a 200 µl pipette until all eggs were in contact with spermic urine (Fig 5). If required, water was added to increase the volume of spermic urine immediately before use. Eggs and sperm were incubated for 5 min at room temperature. Water was slowly added to cover the eggs (Fig 6) and the dishes were left on the counter for 4 h after which they were submerged into a 50 L aerated tank. Eggs were visually assessed daily for signs of elongation to estimate % fertilization.

Sample Analysis:
Spermic urine will be assessed for motility, viability and morphology after hormone injection for each male, as well as before and after storage at 4ºC for 24 and 48 hr. Eggs will be assessed for time of expulsion, quantity and quality for different hormone regimens. Data will be correlated with embryo development.

Anticipated date of completion: 2021-12-31

BUDGET

Hormones and solutions	$2,000
Viability, quality stains	$2,500
Lab disposables (test tubes, slides, etc)	$3,000
MSc student salary	$17,500*

FUNDING

Repro Operating Budget	$2,500
Endangered Species Reserve Fund	$5,000
NSERC CREATE (ReNewZoo)	$17,500*

PROJECT CONTACT: Gaby Mastromonaco, Toronto Zoo

Schedule "A"
Project #21

PROJECT SUMMARY

PROJECT TITLE: Ojibway Prairie Reptile Recovery Program – Funding For Improvements to EMR SSP Conservation Breeding Centres

GOALS OF THE PROJECT: The ultimate goal of this program is to recover the Ojibway Prairie population of Eastern Massasaugas, while providing recovery benefits to a suite of other Species at Risk (SAR) reptiles and plants within the Ojibway Prairie Complex and Grater Park Ecosystem (OPCGPE), in Windsor and LaSalle Ontario. Our approach toward this goal hinges upon addressing major threats to this population via strategic implementation of recovery actions recommended in the Massasauga Recovery Strategy, monitoring the effectiveness of these actions on Massasaugas and other SAR, and preparing for population augmentation using conservations translocations. At any given time, a number of distinct projects are being conducted as part of the Ojibway Prairie Reptile Recovery Program (OPRREC), each with a unique set of objectives.

PROJECT OUTLINE:

Ganawenim Meshkiki ("GMI") is the Trustee of the Eastern Georgian Bay Initiative ("EGBI"), a program of funding to support conservation projects and environmental knowledge to benefit species at risk ("SAR") and biodiversity in the Eastern Georgian Bay Region. Priorities for EGBI were established to address potential and residual impacts of the Henvey Inlet Wind Energy Centre. The EGBI has released their 2020 Request for Proposals (RFP) for projects that contribute to the survival and recovery of target snake, turtle and avian SAR species**.**

The Toronto Zoo has been approached to put in a joint RFP application for Eastern Massasaugas. Other partners would include Scales Nature Park and Wildlife Preservation Canada. More potential partners are pending. The Toronto Zoo is also applying to collect Eastern Massasaugas from wild populations to boost the Eastern Massasauga SSP population in the proposed Conservation Breeding Facilities (Toronto Zoo and Scales Nature Park) to facilitate captive breeding on a level that would support a repatriation/augmentation/head starting effort in the nearly extirpated Windsor population.

The scope of this project is as follows.

1) Captive breeding and release program and associated research to augment Ojibway massasauga population and inform strategies for other populations (expenses related to captive breeding, Jon Choquette's PhD research including releases, and potentially other priority actions at Ojibway site)

2) Build on previous massasauga translocation research to address priority knowledge gaps – can use existing set-up in Point au Baril Hwy 69 site with exclusion fence and funnel traps that was previously used for WPC research

(which has also been impacted by Henvy Inlet hydro corridor development). Used to inform best practices for mitigation translocations for massy (large snakes?). Could prioritize hiring indigenous youth.

3) Overarching goal of above could be to develop "best practices"/guidelines for massasauga translocations for mitigation and conservation purposes. One deliverable could be a guidelines on mitigation translocations of massasauga in Ontario, similar to this existing resource out of Calgary (https://www.calgaryzoo.com/sites/default/files/2018-06/amphibian_translocation_guidelines.pdf) – would include additional info gathering through literature search, communication with consultants, assessing similar existing resources in other regions, etc. Additional deliverables would be journal publications expected to arise from Jonathan Choquette's research (focus on conservation aspect)

4) Expand Toronto Zoo Turtle Island Conservation Programme to snakes/massasauga - resources in indigenous languages, snake crossing signs, collection and integration of traditional knowledge….

5) Above could include adapting TZ massassauga workshop to better incorporate traditional knowledge and delivery in targeted communities. Training component?

BACKGROUND:

The Ojibway Prairie Complex and Greater Park Ecosystem (OPCGPE) is an urban park system in Southwestern Ontario that supports a remnant population of endangered Eastern Massasauga rattlesnakes (*Sistrurus catenatus*). The Ojibway Prairie population of this species has experienced a drastic (>75%) decline in distribution over the last 40 years, and with less than 20 individuals remaining, is in imminent threat of extirpation. The loss of this population would mean a significant decline in distribution, as well as ecological and genetic diversity, of Eastern Massasaugas in Canada, and is highly likely without immediate conservation interventions.

Wildlife Preservation Canada has been coordinating the OPRREC program since 2013 in order to begin implementation of the National Recovery Strategy for the Massasauga in Canada, released that same year. Significant progress has been made in the areas of population inventory and monitoring, threat identification and mitigation, release site selection, and public outreach. One major challenge remaining is the establishment of a Captive Breeding Centre to supply animals for a long term population augmentation program, combining *ex-situ* techniques with a well-established *in-situ* recovery program.

METHODOLOGY:

Funds would be used to upgrade facilities and purchase equipment necessary for the creation/maintenance of the EMR SSP Conservation Breeding Facilities at Toronto Zoo and Scales Nature Park.

Anticipated date of completion: 2020/12/31

BUDGET: A detailed budget has not been prepared at this time. It will be dependent on the approval of pending applications.

FUNDING

Endangered Species Reserve Fund	$5,000 CDN

PROJECT CONTACT:

Rick Vos
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Toronto, ON M1B 5K7

Schedule "A"
Project #22

PROJECT SUMMARY

PROJECT TITLE: CHARACTERIZING THE DENNING HABITAT AND MOVEMENTS OF POLAR BEARS AT THE INTERFACE OF THE WESTERN AND SOUTHERN HUDSON BAY SUBPOPULATIONS

GOALS OF THE PROJECT:

The goal of this project is to better understand the influence of climate change on the ecology and biology of polar bears in Southern Hudson Bay:

i. Characterize fine-scale polar bear denning habitat in Southern Hudson Bay and model the spatial distribution of denning habitat
ii. Examine the phenology of polar bear denning in Southern Hudson Bay and assess the extrinsic (e.g., snow and ice conditions) and intrinsic factors (e.g., maternal age, body condition) influencing variation in den phenology
iii. Assess the degree of overlap between the SH and Western Hudson Bay subpopulations and how movements between these subpopulations is related to sea-ice characteristics; e.g., testing the hypothesis that sea ice conditions may force pregnant females to walk farther on shore to reach denning areas.
iv. Evaluate the effects of sea ice habitat conditions on polar bear foraging success (i.e., body condition), reproduction, movements, space-use, and diet.

PROJECT OUTLINE:

The project will directly inform the identification and mapping of critical habitat for polar bears by first mapping spatial patterns of polar bear denning adding to the growing dataset on polar bear on-ice movements and distribution to better understand how climate change is impacting sea-ice habitat. The maps of predicted polar bear denning habitat will be made available to the communities and potential future developers so that they can be used in decision making on the location of any development and will focus on providing improved resolution to the boundary between the Western Hudson Bay and Southern Hudson Bay subpopulations and informing on the sustainability of harvest.

BACKGROUND

Among Arctic species, polar bears (*Ursus maritimus*) are projected to face some of the greatest challenges from a warming climate. The Southern Hudson Bay (SH) subpopulation is the southernmost subpopulation of polar bears in the world. Bears in this area face a unique set of ecological challenges. Hudson Bay is entirely ice-free for up to 5 months every year between the summer and late fall, which forces bears to fast onshore. Climate change has resulted in the ice-free season increasing by over 3 weeks since 1996 in this area. In addition, this area also presents unique challenges to denning females. Because the area is generally snow free until late in the season, bears excavate earthen dens that later become snow covered. It is thought that polar bears in this area depend heavily on permafrost features for maternity denning and that

reductions in permafrost with ongoing climate change may reduce the availability or quality of denning habitat. As a result, polar bears in the SH subpopulation have declined in body size and condition over the last 3 decades. Until recently, it was thought that these condition declines had not yet manifested as population declines, but a 2016 aerial survey documented a nearly 17% decline in point estimates of abundance from 2011/2012 surveys and substantial reductions in recruitment of bears to the yearling age class. Thus, further research into the limiting factors for this population are needed. Specifically, improved understanding of the characteristics and distribution of denning habitat, in conjunction with ongoing information on bear movements, condition and reproduction are vital pieces of information that will aid in conservation and adaptation planning for this subpopulation.

METHODOLOGY

This long-term study is focused throughout the SH subpopulation. The study began in 2018 and will be completed in 2023. The study will leverage existing data on polar bear maternity denning collected throughout the subpopulation, and focus on collection of new data from the area near the intersection of the SH and WH polar bear subpopulations near the Ontario/Manitoba Border. Past work has led to the identification of the location and timing (entry and exit) of approximately 40 maternity dens, with additional data collection ongoing. New data collected will be compared to the existing data and provide an important baseline, including microhabitat measurements.

Earlier work targeted female polar bears with dependent animals (either cubs or yearlings) in 2018 and solitary females in 2019. Bears were initially captured were fitted with an Iridium global positioning system (GPS) radio collar (Telonics, USA) to obtain regular locations of the bears. Collars were equipped with a timed release mechanism that will be programmed to activate in December 2019, two years following collar deployment, to provide the locations of maternity dens for females that reproduce in subsequent years.

For bears initially captured with yearlings, the movements of the bears will be used and resulting GPS locations to assess denning behavior and location. Throughout the summer of 2020, the project work will investigate the dens identified through collars deployed on females with yearlings in 2018 and solitary females in 2019. The location of all dens will be visited and attempt to locate the den itself to measure microhabitat characteristics, including slope, aspect, broad habitat type (e.g., forest, tundra).

Anticipated date of completion: 2020-12-31

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is $1,500 CDN

FUNDING

Endangered Species Reserve Fund	$1,500 CDN

PROJECT CONTACT:

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Schedule "A"
Project #23

PROJECT SUMMARY

PROJECT TITLE: Tree Kangaroo & Biodiversity Conservation Program in Papua New Guinea

GOALS OF THE PROJECT:

To support tree kangaroo and broader species conservation efforts in Papua New Guinea.

PROJECT OUTLINE:

The TKCP is working in one of the first Wildlife Management Areas (WMA) on the Huon Peninsula in Papua New Guinea (PNG). This area is home to the endemic and endangered Matschie's tree kangaroo, as well as many other endemic flora and fauna species. In the past few years, biodiversity studies have been a large part of the TKCP's mandate. The TKCP's work is done in a way that maximizes local involvement and training with in situ research being supervised and conducted by local conservationists. The programs conservation education component is multifaceted and includes; providing books and supplies, works with local teachers to incorporate conservation education materials into local school curricula, and training to local teachers in conservation.

BACKGROUND:

PNG forests contain many unique species, such as tree kangaroos, whose continued existence depends upon the conservation decisions made by governments and landowners. Although much forest remains in PNG, threats to the forests and native wildlife are increasing. Tree kangaroos are at high risk because of their low reproductive rate, and in some parts of the country they are already extinct. Overhunting, and habitat destruction from agricultural expansion threaten them by rapidly expanding human population's, as well, from commercial mining and logging.

METHODOLOGY:

The TKCP has a goal of tripling the pledge acreage, so that the protected area includes a continuous conservation corridor from coral reefs to 13,000-foot mountain peaks and will include a full variety and biodiversity of habitats and wildlife. They have worked with landowners and politicians at the local and national levels to make the clan-pledged lands into a formal, legally recognized, and protected "Wildlife Management Area" (WMA). With a WMA the government recognizes and gazettes the area, but clans maintain ownership over their lands and are responsible for their management.

Anticipated date of completion: January 1, 2021; however, the program is ongoing

BUDGET:
The total budget from the Endangered Species Reserve Fund is $1,000 USD

FUNDING
Endangered Species Reserve Fund $1,000 USD

PROJECT CONTACT: Lisa Dabek, Ph.D.
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Schedule "A"
Project #24

PROJECT SUMMARY

PROJECT TITLE: Action Indonesia: Conserving Anoa, Banteng and Babirusa

GOALS OF THE PROJECT:

To join an innovative partnership to conserve three of Indonesia's most threatened large mammals through *in situ* and *ex situ* activities.

PROJECT OUTLINE:

The aim of this partnership is to contribute to the long-term survival of Anoa, Babirusa and Banteng as described in 3 National Action Plans* through establishing durable global *ex situ* activities and populations that effectively contribute to the conservation of these taxa; and supporting a range of *in situ* activities including research, education, capacity building and conservation actions.

BACKGROUND:

The Conservation Challenge: Indonesia is one of the world's biodiversity hotspots, and the Ministry of Forestry has identified 14 national top priority taxa that are threatened with extinction. Three of these are Anoa (*Bubalus* spp. - dwarf buffalos), Babirusa (*Babyrousa* spp. - wild pigs); and the Banteng (*Bos javanicus*), a wild cattle species. These taxa are not only important as flagship species for their respective island habitats, but they also play a vital role in their environments by helping to maintain habitat diversity through browsing and grazing. The partners have already contributed to the publication of the 3 National Action Plans for these species.

METHODOLOGY:

To develop a plan for linking the existing captive programs with *in situ* activities for these taxa WAZA's Global Species Management Plan (GSMP)* framework has been selected as the best approach. This has been agreed at meetings of representatives of the Indonesian, European and American partners in 2014. A GSMP is intended to provide a "Master Plan" that captures the intent of all partners in the GSMP for a defined time frame or until agreed milestones are reached. To date only 7 species have GSMPs developed. We intend to develop three additional GSMPs, one for Anoa, Banteng and Babirusa respectively.

They are looking for organizations to come forward to offer their support to help implement the next steps. The implementation of the *ex situ* and *in situ* activities began to gather momentum in 2016. There is also the opportunity for institutions to be involved with global meta-population management, including possible translocation of important animals from Europe and America back to Indonesia. So, there is the need for many organizations to offer practical and financial support.

PARTNERSHIPS:

Six partner organizations have formalized this collaboration by signing a Memorandum of Understanding in 2014 for the long-term conservation of these taxa. This includes Indonesian and international organisations, who are leaders in both the ex situ and in situ conservation of these species. The organisations are: Indonesia Zoo & Aquarium Association (PKBSI), European Association of Zoos and Aquaria (EAZA), The Association of Zoos & Aquariums (AZA), IUCN Species Survival Commission (SSC), IUCN-SSC Asian Wild Cattle Specialist Group (AWCSG), IUCN-SSC Wild Pig Specialist Group (WPSG). The agreement has also been witnessed by the Indonesian Ministry of Forestry; this is the authority for species conservation in Indonesia.

Anticipated date of completion: January 1, 2021 (ongoing project)

BUDGET:

The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 USD

FUNDING:

Endangered Species Reserve Fund Grant $1,000 USD

PROJECT CONTACT: Stuart Young
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Other Contacts:
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Schedule "A"
Project #25

PROJECT SUMMARY

PROJECT TITLE: Hutan Reforestation Efforts in Kinabatangan

GOALS OF THE PROJECT:

To recreate forest linkages with the general aim of reconnecting isolated patches of natural habitat.

PROJECT OUTLINE:

In January 2008, Hutan established the "KOCP Forest Restoration Unit". This Unit works to recreate forest linkages with the general aim of reconnecting isolated patches of natural habitat. In turn, these corridors will provide shelter, food and dispersal paths for orangutans and many other animal species.

BACKGROUND:

Forest degradation and fragmentation is a major threat to the long-term maintenance of biodiversity in the Kinabatangan floodplain. More than 80% of the original forests have been converted to oil palm plantations over the past three decades. Today, less than 50,000 ha of non-contiguous patches of natural and degraded habitat is left along the Kinabatangan River. In addition, forest regeneration processes are hampered by past events of forest fires (man-made as well as natural) and logging activities; these aggressions have resulted in soil compaction, destruction of the original seed bank and shortage of mother trees.

METHODOLOGY:

The overarching goal of the Reforestation Project is to recreate a functional forest ecosystem along the Kinabatangan River. With this goal, we are pursuing several objectives:

- Establish physical linkages between patches of forest key to wildlife
- Increase fruit productivity in the Kinabatangan forests for orang-utans and other species belonging to the fruit-eater guilds
- Determine tree species that are suitable for future reforestation program in Kinabatangan
- Provide recommendations that will be useful to undertake similar reforestation projects in other areas throughout Sabah
- Provide employment and financial incentives to members of the local communities for protecting and managing their natural resources
- Improve local capacity in project development and management, reforestation techniques, and seedling production
- Raise local awareness about the importance and value of the forest

Anticipated date of completion: January 1, 2021 however, this is a long term project.

BUDGET:
The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 USD

FUNDING

Endangered Species Reserve Fund	$1,000 USD

PROJECT CONTACT: **Marc Ancrenaz - marc.ancrenaz@yahoo.com**
Account holder: Hutan
Account number in RM (ringgit): 392-304606-101
Bank swift code: HBMBMYKL
Bank: HSBC Bank Malaysia Berhad
Branch: Kota Kinabalu, Sabah
Bank Address: 56, Jalan Gaya 88000 Kota Kinabalu, Sabah. Tel: 088 212622
Account holder's address: House 1B, Lorong Pintop Villa, Off lorong Oriental 8, Oriental Park, 88300 Kota Kinabalu, Sabah

Schedule "A"
Project #26

PROJECT SUMMARY

PROJECT TITLE: Support of the Mabula Ground Hornbill Project

GOALS OF THE PROJECT:

To stop the decline of the Southern Ground Hornbill in South Africa.

PROJECT OUTLINE:

BACKGROUND

The Southern Ground Hornbill (*Bucorvus leadbeateri*) is a large and charismatic bird of the southern African savannas. They are the largest and one of the most primitive of all extant hornbills. They form large family groups, which makes for interesting behavioural ecology. Unfortunately, their global population is in decline and they are listed as Vulnerable in the wild. Within South Africa they are classified as Endangered.

The Toronto Zoo has recently had good success breeding this species, which helps sustain the captive North American population, but there are a number of threats still facing the wild population. The factors affecting their success in the wild are varied, but include habitat loss, poisoning, trapping, direct persecution, and collection for live trade. Furthermore, like many top predators, their life history strategies (i.e. delayed sexual maturity, small clutch size, etc.) do not support rapid population growth.

The Mabula Ground Hornbill Research and Conservation Project was launched in 1999 to take action against the decline of this species.

METHODOLOGY

The Mabula Project has taken a multifaceted approach to slowing the decline of the Southern Ground Hornbill. They have been involved in a hand-rearing and reintroduction program, which takes advantage of second-hatched chicks that typically die in the wild. They have reintroduced birds back to areas from which they have been previously extirpated. They have supported wild populations through the production of artificial nests, which counteracts the impact of habitat destruction. And they have launched an awareness campaign for the general public to better inform them about the threats facing this species and what they can do to help.

Additionally, this group has also supported research in to the general biology (genetics, breeding, behaviour, etc.) of the Southern Ground Hornbill. This research has yielded new insights into this species breeding biology, which in turn has aided the recovery project.

Anticipated date of completion: 2020-12-31

BUDGET

The total budget from the Endangered Species Reserve Fund for this larger project is $1,000 CDN

FUNDING

Endangered Species Reserve Fund	$1,000 CDN

PROJECT CONTACT:

Lucy Kemp
Mabula Private Game Reserve
Private Bag X1644
Bela-Bela 0480
Limpopo Province
South Africa

Non-Profit Organization (NPO) registration number: 016-183
Public Benefit Organisation (PBO): 13/00/00/723.

Schedule "A"
Project #27

PROJECT SUMMARY

PROJECT TITLE: Conservation of Great Green Macaw, Costa Rica

GOALS OF THE PROJECT:

To provide support for increased conservation effort in critical feeding and nesting habitat for the Great Green Macaw, Tortuguero Region, Costa Rica

PROJECT OUTLINE:

BACKGROUND

The Great Green Macaw (*Ara ambiguus*) is a large and impressive parrot species. They are brilliantly green with bright blue flight feathers and a crimson red crown. These large birds were once abundant, ranging from Colombia through to Honduras. Due to habitat loss and capture for the cage bird trade, their numbers dwindled down to an estimated 2,500 mature individuals and they are now absent from 4 of their 6 main areas of habitat. They are listed as Endangered by the IUCN. In Costa Rica, they are now mainly found on the Atlantic coast, limited to the Northern zone where they are found in humid lowland and foothill forest habitat situated below 600 m. They feed mainly on the Almendro tree (or yellow almond), which itself has decreased in Costa Rica by an estimated 90% in the past 100 years. Nesting occurs in large natural cavities, especially in the mature Almendro trees. It is only recently that the extremely hard wood could be logged due to the introduction of chainsaws with higher carbon steel or diamond-tips, which has led to a dramatic decline in the macaw's habitat in Costa Rica.

Caño Palma Biological Station (CPBS) is located in the southern tip of Barra Colorado Wildlife Refuge (BCWR). Since 1991, CPBS has been working on gathering baseline data on various taxa to inform local and national Ministry of Environment offices about the biodiversity in this known hotspot. The Great Green Macaw was noted common in the area by staff and locals in 1991, but sightings were on the decrease. Since 2007, there has been an increase in the number of Great Green Macaws seen in the area, from sporadic sightings of 7-9, to now a year-round presence, with sightings of flocks of up to 56. It is estimated that this area contains the second, if not the largest, sub-population of Great Green Macaws worldwide. Sightings of these birds in 2016 both flying and feeding suggest that the San Francisco and Caño Palma region are important post-breeding feedings sights for this species. There has been repeated sightings of pairs and family groups of macaws, which leads to the assumption of local breeding as well (see Appendix I). Thus, this region is an important region to carry out conservation efforts, specifically in filling in baseline gaps of population size and habitat use in the region; bringing alternative income for those who may be reliant upon this local wood resource; and assisting in building population size through development of nesting sites and habitat protection.

METHODOLOGY

The goal of this project is to develop a greater appreciation for both the Great Green Macaw and the true almond tree, which will lead to long-term conservation of both species. We argue that this can be done by creating greater awareness of the economic opportunities they present for the area. To this end, CPBS has worked with the newly legalized village of San Francisco to work towards the use of the Great Green Macaw as a local mascot. Efforts to date include a new public dock and the new recycling centre decorated with a macaw mural (see Appendix II). In 2015, local students using binoculars donated from Centennial College, Ontario, tracked the time, dates, and flock numbers of local macaw activity, to determine the best time to hold a local festival, and adopted the macaw as their mascot. The first macaw festival took place in August 2017 with CPBS covered the majority of the costs associated with this endeavor. The 2017 inaugural macaw festival results were solid. Some of local hotels brought international tourists who were impressed with the local customs presented and the scientific information they received. This scientific information came from visiting biologists and from our CPBS own project. While landslides on the day held back larger number of tourists, there was positive feedback from guides who came with tourist groups and expressed in interest in participating in future events. The 2018 macaw festival has been delayed due to flooding and with the wish to coordinate with the large number of visiting tourists for the widest distribution of the conversation message of the Great Green Macaw.

Changing economics has presented a new opportunity for increased tourism to the village of San Francisco as part of increased education to the locals and tourists alike and as such, there is the development of signs in the area displaying information on the Great Green Macaw and potentially lead tourists to feeding sites which are located in the village. This would increase the potential for generating local income via increased exposure for local art and food. Funding provided by ESRF is currently being utilized to produce appropriate and sanctioned signs with directions and facts in English and Spanish to educate both locals and visiting tourists.

Currently, binoculars are utilized for various on-going monitoring projects at CPBS. Previous donations from Centennial College, Global Student Initiative of binoculars still continue to be utilized by locals and researchers. Funding from ESRF in 2017 aided in the purchase of a quality set of binoculars which is utilized by locals (including both adult and youth) and by researchers in establishing baseline information on the Great Green Macaw (see Appendix III). The information would be collected through weekly or bi-weekly observations in locations with wide and open views. Multiple observers are present at both times of the census, alternating between dawn and dusk as these have shown to be peak times for the macaws. The information gathered by recording the time of sighting, number of individuals, activities, and behaviours of these birds not only to understand the populations of Great Green Macaws, but their monthly activities and utilization of the local environment as well. We have also included plot surveys, to

determine the availability of Almendro trees suitable for nesting.

With the recognition of the importance of this local population, efforts to couple with other agencies, including The ARA project (http://thearaproject.org/) who since early 1990s have been captive raising and releasing both Great Green Macaws (GGM) and Scarlet Macaws in Costa Rica. The initial meeting with ARA included Jake Haines, the biologist in charge of the GGM project, manager of ARA, and discussion revolved around collaboration in data sharing and potential coordination of data collection to develop a 'snapshot' of GGM over a two day period in various sites across Costa Rica utilizing the same data collection and potentially involving citizen scientists to further increase exposure of this species issues. Further discussion with this group involves sending long term station staff to learn how to make nest boxes through workshop training with highly qualified staff at ARA. The station would provide travel and accommodation along with the purchase of necessary tools and is requested funding by ESRF for the materials to build the nest boxes.

The use of nest boxes placed in appropriate locations in natural settings along with further protection of local nesting trees and a potential setting up of a nursery would aid in furthering growth in the population. If the population remains stable, or continues to increase, there is interest in setting up a Green Macaw information center in the village of San Francisco, which can serve as a year-round attraction and education opportunity.

Anticipated date of completion: December 31, 2020

BUDGET

Expense breakdown:

Organizational sponsorship (Toronto Zoo)	$1,500
In-kind Support CPBS	$6,500
The ARA Project (http://thearaproject.org/)	$4,000
Total	$12,000 CDN

The total budget from the Endangered Species Reserve Fund for this larger project is $5,000 CDN.

The funds will be applied towards already secured in-kind funding and requested funding in place or with expectation to be supplied for this project.

FUNDING

Endangered Species Reserve Fund	$5,000 CDN

PROJECT CONTACT: **Dr. Kymberley Snarr**
Canadian Organization for Tropical Education and Rainforest Conservation
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Pickering, ON L1V 2R6
Canada

E-mail: chair@coterc.org

Appendices

Appendix I – Image of two Great Green macaws in forest adjacent to San Francisco Village, feeding in Wild Almendro tree, July 2016.

Appendix II - The new public dock in San Francisco village decorated with a macaw mural, Dr. K Snarr, July 2016.

Appendix III – Observation work with binoculars during Great Green Macaw Abundance Survey, transect *Cerro*, June 2018

Schedule "A"
Project #28

PROJECT SUMMARY

PROJECT TITLE: Rhino Awareness #1 (Sumatran Rhino Rescue Project - International Rhino Foundation – IRF)

GOALS OF THE PROJECT:

The International Rhino Foundation is a part of a groundbreaking strategic partnership to **save the Sumatran rhino from extinction**. The effort was established to support the Indonesian government's national Sumatran rhino breeding program. With fewer than 80 Sumatran rhinos left in the world, the species is in a race against time. Rhino experts from around the world and Indonesian government officials agree that the only way to bring the Sumatran rhino back from the brink is to relocate them to managed breeding facilities designed specifically for their care and propagation. In anticipation of captures of rhinos from small, isolated populations, IRF is expanding our captive breeding facilities and program at the Sumatran Rhino Sanctuary, which now holds seven animals. Our goal is to quickly and safely increase rhino numbers, creating a source population from which animals can someday be reintroduced into the wild.

PROJECT OUTLINE:

The following is the work that has been accomplished in the past year:

In its first year, Sumatran Rhino Rescue has made important progress toward saving the Sumatran rhino from the brink of extinction:

- We successfully rescued and relocated a critically endangered but healthy female rhino from an isolated region in Indonesian Borneo to a secure facility in Kalimantan.
- Our partners the International Rhino Foundation and Yayasan Badak Indonesia completed an expansion of the Way Kambas Sumatran Rhino Sanctuary (SRS), which will provide space for an additional 5 rhinos
- Our team secured approvals to build a new SRS in northern Sumatra, which will provide additional homes for rhinos rescued from the wild.
- We created the first ever 3D scan of resident rhino Harapan at the Sumatran Rhino Sanctuary in Way Kambas National Park, Indonesia. The scan is being used as an education and outreach tool to raise public awareness of the species.
- We created the Sumatran Rhino Husbandry and Propagation Expert Advisory Board to guide the implementation of the Emergency Action Plan, ultimately helping the Government of Indonesia maximize population growth and oversee the care of Sumatran rhino in the sanctuaries.

  Over the next year, we aim to carry out a number of major activities to locate rhinos and incorporate them into the national breeding program.

- There are three rhinos we've identified that are in need of rescue in the next year.

- We urgently need to find more rhinos before it's too late. Our systematic approach requires surveys of around 250 individual areas of Indonesia's forests.

We need to build and expand the facilities designated for caring for and breeding Sumatran rhinos.

BACKGROUND

Sumatran Rhino Rescue is a groundbreaking, collaborative approach to save the Sumatran rhino by supporting the Government of Indonesia's national Sumatran rhino conservation breeding program. The effort is led by the International Union for Conservation of Nature's Species Survival Commission, in coordination with Global Wildlife Conservation, International Rhino Foundation, the National Geographic Society, and WWF and supported by partners on the ground in Indonesia. Beginning in 2018, this alliance of organizations aims to relocate the widely dispersed rhino populations from the wild to managed breeding facilities designed specifically for their care. In addition to securing the remaining rhino population, the effort will develop the infrastructure to care for the rhinos and grow the population of their numbers. The Sumatran Rhino Rescue effort seeks to multiply the successes already seen at the Sumatran Rhino Sanctuary, where two calves were born in the past six years. Not only does this emergency effort aim to halt the decline of the Sumatran rhino, but it will help put systems in place to ensure that the species is protected and can grow and thrive for many future generations.

METHODOLOGY

The first step is to conduct surveys so we can determine the locations of isolated rhinos and develop plans for captures.

RPUs and researchers must use their years of experience to determine the best place to put camera traps which are set to start recording video when motion is detected. The videos are then reviewed to confirm if there are Sumatran rhinos in the area, how many there may be, and whether any of the adults have calves with them. Once the location of the rhinos are confirmed, specialists assess the terrain of the area to determine the most effective and safest places to build one or several pit traps, while also considering exactly how the rhino will eventually be extracted from the location. The hilly, jungle terrain in Sumatra can make it very difficult to access the rhino habitat with vehicles, which are necessary to move the crated rhinos, so this needs to be considered as well. All of the logistics — from the people who will be involved, to preparing the necessary equipment, to developing transport routes and contingency plans — have to be decided before any digging even occurs.

The most effective way to capture a Sumatran rhino is by building a pit trap. After a location has been carefully selected, a small team will begin digging with only manual tools. This team is specially trained and has very specific dimensions for the final product, reinforcing the sides as they dig. The end result is essentially a solid box in the ground that won't cave in and has a muddy bottom to cushion the fall of the rhino. A solid top must be kept on the trap until all the teams are ready to go – once a trap is

opened there must be veterinary teams, rangers, and transport staff constantly on-call, ready to respond as quickly as possible.

Translocations are vital to the plan to save the Sumatran rhino, so that they can be managed in a conservation breeding program to ensure they can rebuild their population as quickly as possible. For now, rhinos captured in this program will be translocated the Sumatran rhino facility nearest to them- with the possibility of moving between the facilities in the future. There are currently two Sumatran rhino facilities in Indonesia– one on Indonesian Borneo and the Sumatran Rhino Sanctuary (SRS) in Way Kambas National Park. There are also plans to construct a third Sumatran rhino facility in northern Sumatra, in the Gunung Leuser ecosystem.

The breeding successes at the Cincinnati Zoo and the SRS have become a model for the Sumatran Rhino Rescue and the Government of Indonesia's Sumatran Rhino Emergency Action Plan. The SRS facilities and management practices will be replicated in two other locations in Indonesia to accommodate the rhinos that will be rescued from surrounding areas and the offspring they produce (one in Indonesian Borneo, and one in the Gunung Leuser ecosystem in northern Sumatra). In addition to the new facilities, the SRS is undergoing an expansion that will include new quarantine facilities for incoming reproductively viable rhinos from the wild, large, natural pens, and new maternity areas for any future cows and calves.

Between these three facilities, the Sumatran rhinos will be managed as a meta-population, meaning that they will be treated as one large breeding group to increase the chances of successful rhino births and strengthen the genetic diversity of the population over time.

By consolidating the widely dispersed, fragmented wild populations into managed breeding facilities like the Sumatran Rhino Sanctuary, the end goal of our project is to increase the total population enough to be able to return rhinos to protected areas in the wild. However, this process will not happen quickly. With a gestation of around 16 months, a female Sumatran rhino gives birth only every 3 to 4 years – meaning that even in perfect conditions, it will take a long time – maybe even decades – to rebuild this population to a sustainable level.

That doesn't necessarily mean it will be decades before we can start returning Sumatran rhinos to the wild, but this species will be dependent on human intervention (like captive management and anti-poaching patrols) for a very long time. The specifics of exactly when and how many rhinos will be returned to the wild will be dependent on the success of the breeding program, continued protection programs, and habitat restoration projects. Therelease of rhinos will mostly likely happen slowly over a period of years, and the captive breeding program will continue at least until we have sufficient evidence that the wild populations are growing and thriving.

Anticipated date of completion: 2020-12-31

The total budget from the Endangered Species Reserve Fund for this larger project is $3,100 CDN

FUNDING

Endangered Species Reserve Fund	3,100 CDN

PROJECT CONTACT:

Emily Reynolds
International Rhino Foundation
Attn: Laura Hess
201 Main Street, Suite 2600
Fort Worth, TX 76102
USA

Schedule "A"
Project #29

PROJECT SUMMARY

PROJECT TITLE: Rhino Awareness Event #2 (American Association of Zoo Keepers – Bowling for Rhinos (AAZK – BFR) – Lewa Wildlife Conservancy (LWC))

GOALS OF THE PROJECT:

The AAZK's Bowling for Rhinos Program provides animal keepers of the world with an avenue to raise funds and awareness for rhino and habitat conservation. Each year the American Association of Zoo keepers (AAZK) sponsors fund raising bowling events around the globe called "Bowling For Rhinos" (BFR) which also encompass other fun events such as Winos for Rhinos, Curling for Rhinos, Rummage for Rhinos, et. al. Over 85 AAZK chapters participate throughout the US and Canada raising over $600,000 annually. BFR funds support Lewa Wildlife Conservancy (LWC) in Kenya, Ujung Kulon National Park in Java, Indonesia and Bukit Barisan Selatan National Park (BBSNP) and Way Kambas in Sumatra via the International Rhino Foundation (IRF), as wells as Action for Cheetahs in Kenya (ACK), which shares a portion of the land mass with LWC. These sanctuaries not only save rhinos (and cheetahs) but also entire ecosystems – orchids to elephants!

PROJECT OUTLINE:

Lewa Wildlife Conservancy engages in a very broad-based community development programs. They believe that the key to successful wildlife conservation lies in gaining the support of the local people that live around the Conservancy. With Lewa's success the communities surrounding Lewa directly benefit. LWC gives back to the communities through their community development programs. They operate three health clinics, support numerous schools, assist with neighboring community conservation schemes, help to develop sustainable water projects, adult literacy programs, and a women's micro-credit program to name a few.

BACKGROUND

Lewa Wildlife Conservancy was once a cattle ranch. It now encompasses over 62,000 acres (250 sq. km.). The Craig/Douglas family first came to Lewa in 1922 and managed it as a cattle ranch for over 50 years. Unlike other ranchers in the area, they always valued the wildlife that shared the land and developed wildlife tourism as an additional activity. It was clear by the 1980's that the black rhino was unlikely to survive in northern Kenya. Poaching had reduced the black rhino's numbers from an estimated 20,000 animals in the mid-1970's to a few hundred by 1986. In 1983 the Craigs and Anna Merz – who funded the program – decided to establish the fenced and guarded Ngare Sergoi Rhino Sanctuary at the western end of Lewa. White rhinos were then added to the program after the black rhinos had settled down and established themselves. After ten years, it was clear that the rhinos needed more space, and the sanctuary was expanded to cover the rest of the ranch, and the adjoining Ngare Ndare Forest Reserve.

METHODOLOGY

The Lewa Wildlife Conservancy works as a catalyst for the conservation of wildlife and its habitat. It does this through the protection and management of species, the initiation and support of community conservation and development programs, and the education of neighboring areas in the value of wildlife.

Anticipated date of completion: 2020-12-31

The total budget from the Endangered Species Reserve Fund for this larger project is $6,650 CDN

FUNDING

Endangered Species Reserve Fund	$6,650 CDN

PROJECT CONTACT:

Kym Janke, AAZK Bowling For Rhinos (BFR) Program Manager
AAZK
8476 E Speedway Blvd, Suite 204
Tucson, AZ 85710-1728

Schedule "A"
Project #30

PROJECT SUMMARY

PROJECT TITLE: Lion Awareness (The Lion Recovery Fund (LRF))

GOALS OF THE PROJECT:

1. The lion population is estimated to have almost halved during the last quarter century. There are only about 20,000 lions remaining in Africa.
2. The ultimate goal of LRF is to double the number of lions in Africa by the year 2050 to regain the lions that have been lost over the past 25 years.
3. Their goal is lion recovery and landscape restoration through the collaborative efforts of donors and conservationists to address the biggest threats that lions face including but not limited to: human-lion conflict, bush meat poaching, and habitat loss.

PROJECT OUTLINE:

The Lion Recovery Fund invests in the most innovative and effective projects across Africa that can recover lions and restore their landscapes. These projects fall into three broad categories:

- Conservation actions on the ground that protect core areas for lions, promote human-lion co-existence, and tackle the illegal lion trade.
- Campaigns that foster pride for lions — in Africa and beyond.
- Collaborations for more effective impact.

Examples of supported projects:

- Protecting and growing Malawi's lion population
- Investigating lion distribution and conservation threats in Tanzania's Selous landscape
- Preventing Human-Lion Conflict in Desert Lions, Damaraland, Namibia
- No Longer Extinct: Returning Lions to Gabon

For full list see link: http://www.lionrecoveryfund.org/projects/

BACKGROUND

The Lion Recovery Fund was established in 2017 by the Wildlife Conservation Network in partnership with the Leonardo DiCaprio Foundation. 100 % of every dollar raised goes directly to partners in the field with zero administrative fees or overhead. The AZA's Lion SAFE Program has adopted the Lion Recovery Fund's conservation strategy. The Lion Recovery Fund will operate until lions are on a clear path toward doubling their numbers, indicating healthier protected landscapes across Africa.

METHODOLOGY

The Lion Recovery Fund targets protected landscapes — core protected areas and the communal areas within, around and connecting them — so that they are resourced and

managed to help lions, their habitats and prey, and people thrive. It calls for coordinated action and the best efforts from the smallest grassroots organizations to the largest multinational conservation non-profits. It calls for collaboration amongst the donor community to invest more in lion conservation. It calls for the public and political will within African lion range countries as well as in western countries whose investments can help restore the King of the Beasts. See the following link for a full list of the organizations that are collaborators in lion recovery —
http://www.lionrecoveryfund.org/partners/

They are the implementers of projects, scientific advisors to the LRF, and are leaders that drive the direction of the investments.

Anticipated date of completion: 2020-12-31

The total budget from the Endangered Species Reserve Fund for this larger project is $2,100 CDN.

FUNDING

Endangered Species Reserve Fund	$2,100 CDN

PROJECT CONTACT:

Kelly Wilson, Director of Donor Engagement
Wildlife Conservation Network
209 Mississippi Street
San Francisco, CA 94107

Schedule “A”
Project #31

PROJECT SUMMARY

PROJECT TITLE: Lemur Awareness (Planet Madagascar)

GOALS OF THE PROJECT:

Planet Madagascar's aim is to create sustainable forest communities for people and wildlife in Madagascar, focusing on lemur conservation and community development.

PROJECT OUTLINE:

1. Environmental education of local people in Madagascar about the importance of lemurs to forests.
2. Forest protection consisting of fire management and lemur monitoring through hiring of local residents.
3. Forest restoration by aiding habitat fragmentation through planting seedlings. Inclusive forest conservation by forming a women's cooperative program that engages in sustainable tree planting and thus provides employment opportunities for women in Madagascar.

BACKGROUND

Planet Madagascar began in 2015 and is a conservation, education, and community development non-profit organization working towards the conservation of Madagascar's fragile biodiversity. They do this through the above projects and work with local communities to accomplish their goals.

METHODOLOGY

1. Educate local communities about the importance of lemurs to forests through directly speaking with people as well as showing a film about fire management to locals.
2. Employ fire management and lemur monitoring teams consisting of hired local residents. The data collected will help with conservation efforts.
3. Restore forests by creating forest corridors where habitat fragmentation has occurred. Nurseries have been built and are managed by local community members using indigenous species.
4. Providing employment opportunities for women through the women's cooperative which engages in sustainable tree planting and thus provides more income to families as most people in Madagascar live on less than $2 a day.

Anticipated date of completion: 2020-12-31

The total budget from the Endangered Species Reserve Fund for this larger project is $2,000 CDN

FUNDING

Endangered Species Reserve Fund	$2,000 CDN

PROJECT CONTACT:

Travis Steffens
Planet Madagascar
2-982A Kingston Road
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M4E 1S9

Schedule "A"
Project #32

PROJECT SUMMARY

PROJECT TITLE: Gorilla Ape Action - Africa Forest Education Office

GOALS OF THE PROJECT:

To build a structure for education staff to operate from complete with a library in the forest compound.

PROJECT OUTLINE:

It is recommended that Toronto Zoo provide CAD $1,162.00 from the Endangered Species Fund for facility infrastructure and education for 10 schools near the Mvog Betsi Zoo regarding the conservation crisis upon Cameroon and Africa. The funds are used to help renovate a forest compound for transitioning rehabilitated gorillas prior to release and base educational programs from.

BACKGROUND

Presently the AAA project provides animal care and education to the Mvog Betsi Zoo in Yaounde. Effective January 1, 2019, the education team and remaining primates have been moved from the zoo into the forest compound. The project is now in need of a new education center with library space for their growing education program. Currently 10 schools surrounding the forest compound receive wildlife conservation education from the AAA project. This aspect is also part of the PASA accreditation process. A viable education program must exist in each of their member facilities.

One of the purposes of the ESRF is to assist in funding educational projects that directly help in the conservation of endangered species. Their education team works tirelessly with local children, teaching them about bushmeat, logging, conservation and other environmental issues. They are committed to reaching as many nationals, both adult and children, in efforts to save wildlife and wild spaces. The support the Zoo has provided to date has been so greatly appreciated and vital to AAA. This project would be a great place for Toronto Zoo to become even more involved with, especially considering the zoo has western lowland gorillas in its collection.

METHODOLOGY

With the move from the city zoo, the education team will need the facility to conduct in field classroom courses as well as the library to house their program materials. Providing education regarding the conservation crisis upon Cameroon and Africa as a whole, including the deforestation and bush meat issues, is part of the AAA project mandate.

Anticipated date of completion: 2020-12-31

BUDGET

Estimated cost: $6,162.00 CDN
Secured Outside Funding: $5,000.00 CDN
Balance needed: $1,162.00 CDN

FUNDING
Endangered Species Reserve Fund $6,165 CDN

PROJECT CONTACT: Rachel Hogan - Ape Action Africa Director
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Rachel@apeactionafrica.org

Send check to:
Rachel Hogan - Ape Action Africa Director
Ape Action Africa
B.P 20072 Yaounde
Cameroon

Schedule "A"
Project #33

PROJECT SUMMARY

PROJECT TITLE: River Hippo Awareness (Wechiau Community Hippo Sanctuary (WCHS))

GOALS OF THE PROJECT:

The Wechiau Community Hippo Sanctuary (WCHS) is a unique community-based project, protecting and preserving the wildlife and the environment of a 40km stretch of the Black Volta River in Ghana's Upper West Region.

PROJECT OUTLINE:

The Black Volta River is home to one of the two remaining hippopotamus populations in Ghana, and was created into a Sanctuary by local chiefs in 1999. Since then, the project has had marked success in providing Ghanian and International tourists with a unique and unusual eco-travel experience.

BACKGROUND

The Wechiau Community Hippo Sanctuary (WCHS) is a unique, community-based initiative, owned and managed by the traditional chiefs and people of the Wechiau Traditional Area. The sanctuary was established to preserve a 40 km stretch of the Black Volta River in the Upper West Region of Ghana, on the border with Birkina Faso. The project is bringing benefits to the project communities through the sustainable use of natural resources, including the development of community-based eco-tourism.

The Sanctuary is governed by a Management Plan, created for the 5 year period 2003-2007. The plan has the following goals: to ensure the sustainable development and management of the WCHS, to improve the livelihoods of the Sanctuary communities, and to secure the continued high biodiversity, productive agriculture, natural beauty, and cultural significance of the area.

METHODOLOGY

The Management Plan outlines 4 management objectives to ensure the goals are achieved:

1. Encourage improved agricultural practices targeted at improving food security and minimizing the negative impacts of farming practices on the environment.
2. Conserve the sanctuary habitat to enhance wildlife and plant populations.
3. Develop necessary institutional structured and infrastructure for successful management and financial self-sufficiency.

4. Develop alternative economic livelihoods for community members through tourism.

Anticipated date of completion: 2020-12-31

The total budget from the Endangered Species Reserve Fund for this larger project is $1950 CDN

FUNDING

Endangered Species Reserve Fund	$1950 CDN

PROJECT CONTACT:

R. Y. Abudulai Issahaku
Wechiau Community Hippo Sanctuary
WCHS Visitor Centre, Kontolaa Hippo Road
Kobare-Kanga St. Junction
Wechiau Town, GH