



Yellow-banded bumble bee
Bombus terricola



Wildlife Preservation Canada

RECOVERY ■ CONSERVATION ■ KNOWLEDGE

2017 ANNUAL REPORT

Providing hands-on intervention to save
Canadian species from extinction.



Wildlife Preservation Canada exists to save species from extinction through hands-on action.

Since 1985, we've been saving critically endangered species – species whose numbers in the wild are so low that a great deal more than habitat protection is required to recover them.

Many other organizations preserve habitat, lobby for better laws and policies, raise awareness and educate the public. While we often partner with these organizations, Wildlife Preservation Canada plays a unique role: taking direct action to prevent species on the brink of extinction from being lost forever.

The rusty-patched bumble bee (*Bombus affinis*), pictured left, is a reminder of what can happen if we sit idle while pollinator habitat is threatened. At one time the rusty-patched bumble bee was one of the most common species buzzing around our meadows, but sadly it has not been seen in Canada since 2009. Other bumble bee species are headed for a similar fate due to habitat loss, climate change, pesticides, and other factors.

MESSAGE FROM THE PRESIDENT



What does it take to save a species from extinction? Creativity, optimism, and persistence.

Once a species becomes rare enough to warrant the label 'endangered' it is a long road to recovery for the biologists who race against time to boost its numbers in captivity and in the wild. Celebration is well earned when a species recovers enough to move it to the safer 'threatened' status, or even better 'vulnerable'.

Giant pandas are no longer endangered, but it took 30 years for biologists to discover how to get this species to breed in captivity, and just as long to restore the bamboo forests in China that now support a healthy wild population. In 2017, the iconic and endangered Northern brown kiwi of New Zealand was reclassified as vulnerable after decades of invasive predator eradication, translocations to island sanctuaries and artificial incubation of eggs to boost nest survival.

Wildlife Preservation Canada developed a highly effective captive breeding program for the critically endangered eastern loggerhead

shrike, which in 2017 produced a record 128 juveniles who were released. We are learning how to captive breed yellow-banded bumble bees, so that in the coming years we can breed its close relative the rusty-patched bumble bee and reintroduce this endangered pollinator back into Ontario. In 2017, we reared and released hundreds of frogs, turtles, and butterflies that are species at risk.

For many endangered and threatened species habitat protection alone is not enough for the species to recover. Long-term commitments, cutting-edge conservation techniques and a passionate team is the key to preventing extinctions and giving these species a second chance.

A handwritten signature in black ink, reading "B/M Stutchbury".

Dr. Bridget Stutchbury
Professor of Biology, York University
President, Wildlife Preservation Canada



Cutting-edge conservation science

Simulated pond environments are an important tool in our Oregon spotted frog recovery program. The naturalized enclosures ensure a complex environment and micro biomes on the frog's skin. These micro biomes form a crucial part of their immune system, providing competitive bacteria and fungi to out compete harmful pathogens. A collaborative study with the University of British Columbia is testing the effectiveness of the simulated ponds on the diversity and resilience of these micro biomes.

Our Pillars of Success

Our operating model is based on our thirty-plus years of experience and a lifetime of learning by our founder, Gerald Durrell. We are unique; the only organization in Canada which is addressing the critical survival needs of multiple wild animal populations at risk in multiple locations around the country. But we are realistic enough to know that we can't do it alone.



Hands-on Intervention

For many species at risk, habitat protection alone is not enough. Recovery requires science-based techniques such as conservation breeding, headstarting, reintroduction, and translocation.



Building Capacity

We provide young scientists across Canada with opportunities to develop skills and hands-on experience for future careers in endangered species recovery.



Collaboration

Species recovery is a team effort between government, educational institutions, NGOs, industry partners, landowners, and concerned individuals. Only when we work together will we see sustainable results.



Measurable Results

Solid science is at the center of our recovery strategies. As our scientists develop and refine new species recovery techniques, we share our data and best practices with the public, for the benefit of all.

A photograph of an Eastern loggerhead shrike sitting in a nest made of dry sticks and twigs. The bird has a dark head and back with a white underbelly. It is surrounded by green leaves and branches. The background is slightly blurred.

EASTERN LOGGERHEAD SHRIKE RECOVERY

Eastern loggerhead shrike

2017 PROGRAM HIGHLIGHTS

144

shrike chicks raised
in the breeding
program

17%

of wild shrikes
originated from our
release program

16

shrikes were released
with Motus radio
network tags

26

confirmed wild
shrike breeding pairs



Grassland bird populations are crashing. Canadians often associate birds with trees, and thus forests. But our forests are in much better shape than our grasslands - most of which have been lost to agriculture and development. The steepest declines in our bird populations are now being seen among the grassland and insectivorous species which used to be so common in rural Canada.

Wildlife Preservation Canada takes a lead role in the recovery strategy for the eastern loggerhead shrike (*Lanius ludovicianus alvarensis*), a critically endangered songbird. The recovery program centers on a conservation breeding operation designed to augment the wild population.

2017 was a record setting year for the conservation breeding program. We raised an all-time high of 144 young, of which 128 were banded and released at the two sites in Ontario where the eastern loggerhead shrike still breeds in the wild. The rest were kept to replenish the breeding stock in the conservation breeding operations. This is important to maintain a healthy genetic pool for ongoing breeding.

The wild population was also on the rise in 2017. Our field biologists confirmed that there were 25 breeding pairs between the two sites, plus an additional pair reported online in an outlying area that hasn't hosted a breeding pair since 2011. This is a significant increase from just 18 pairs in 2016, and only 11 in 2015. With 17% of this year's wild population originating from the breeding program, it's clear that our effort is making a difference.

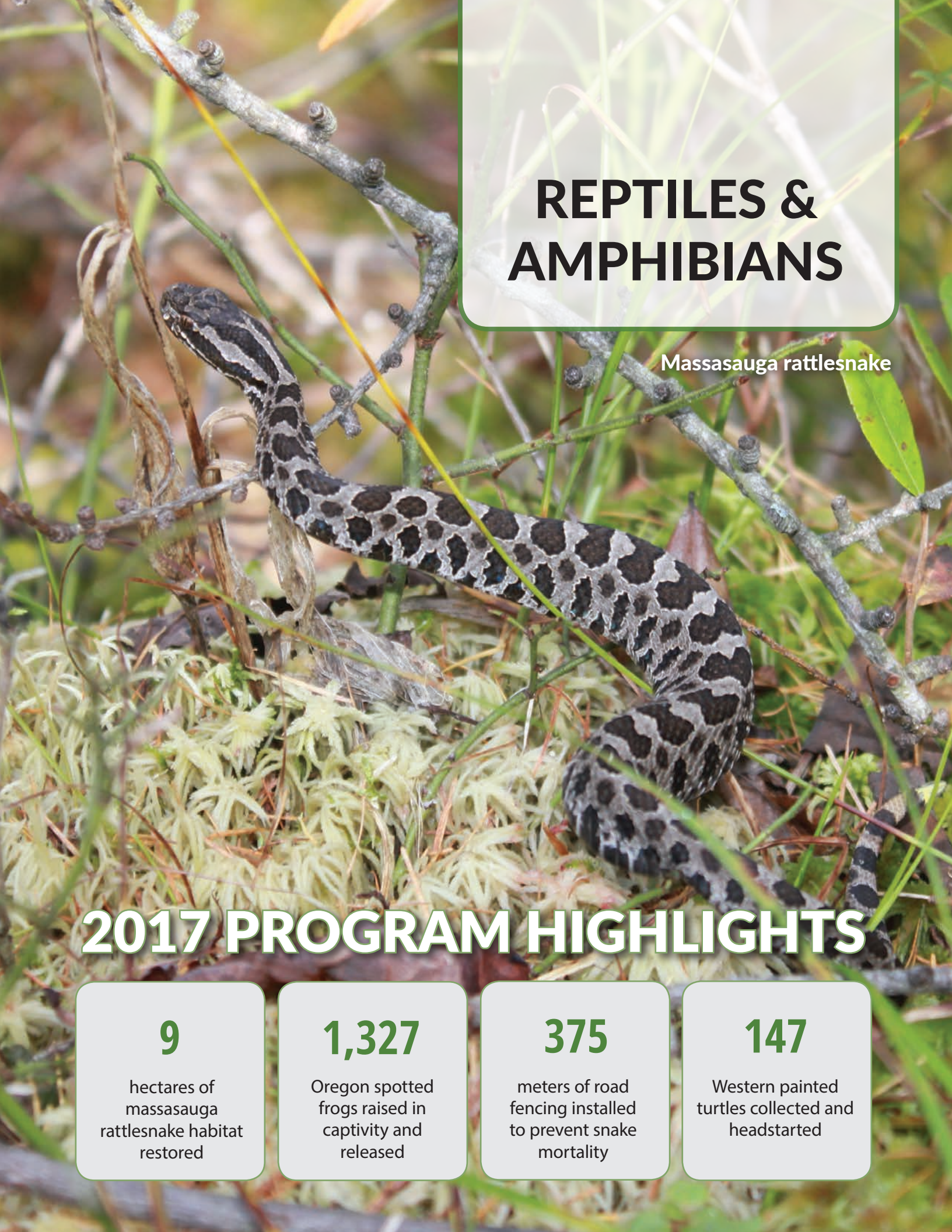
Of the 128 birds released, sixteen were equipped with Motus radio network tags. These tags, which are about the weight of a dime, are important to help us fill knowledge gaps about shrike migration patterns. Results from previous years of tracking show that our birds take two different migration routes, with some heading southwest along the Great Lakes to enter the United States near Windsor whereas other birds head south across Lake Ontario.

This program has succeeded in preventing the wild population from dying out and disappearing from Canada's landscape. Going forward, we are planning to double the size of the conservation breeding operation by encouraging partnerships in the U.S., so we can begin rebuilding the wild population to a sustainable size.



This was a great year for the shrike program! With a record number of releases, wild numbers continuing to climb, and growing interest from potential new partners in the United States, things really are feeling hopeful. If we can maintain this momentum, recovery of the species truly feels achievable.

- Hazel Wheeler, Lead Biologist



REPTILES & AMPHIBIANS

Massasauga rattlesnake

2017 PROGRAM HIGHLIGHTS

9

hectares of
massasauga
rattlesnake habitat
restored

1,327

Oregon spotted
frogs raised in
captivity and
released

375

meters of road
fencing installed
to prevent snake
mortality

147

Western painted
turtles collected and
headstarted



No group of animals is at greater risk than reptiles and amphibians. Forty-six of Canada's reptile and amphibian species are listed as threatened or endangered. Of our ten native freshwater turtle species, two have already been lost and all of the remaining eight are at risk. The statistics for our frogs, snakes, salamanders, and other herpetofauna are similarly depressing.



Oregon spotted frog



Western painted turtle

Wildlife Preservation Canada coordinates conservation breeding programs for the Oregon spotted frog (*Rana pretiosa*) and the endangered coastal population of the western painted turtle (*Chrysemys picta bellii*). We are also involved in recovery work for several at-risk snakes, including the massasauga rattlesnake (*Sistrurus catenatus*).

Our western painted turtle program salvages eggs from nests that would have otherwise been destroyed or disturbed, and 'headstarts' the hatchlings until they are large enough to have a good chance of survival in the wild. In 2017, we released 147 healthy young turtles back into the wild.

The Oregon spotted frog is one of our most endangered amphibians. Only a few hundred individuals are left in Canada, and the species is seriously at risk throughout its U.S. range as well. In 2017, the wild population received a significant boost with the release of 1,327 froglets raised in the conservation breeding program. In the wild, eggs and tadpoles suffer a naturally high rate of predation. By achieving a much higher survival rate under our controlled conditions, we are helping the wild population recover at a faster rate than would otherwise be possible.

We are working with massasauga rattlesnakes at multiple sites in Ontario. At one location, nine hectares of rare prairie habitat were enhanced by creating 50 woody debris structures that offer shelter for pregnant females. We also removed a significant quantity of invasive plants from the habitat, providing a chance for the native species to return. At another location where a large population is threatened by potential future development, we are gradually shifting the population by translocating neonates (baby snakes) into safer territory. This approach is necessary because the adults have such a strong bond with their winter hibernating site that they rarely survive being translocated.



The conservation of iconic wetland species including Oregon spotted frog and western painted turtle help to conserve at all levels; individuals, populations, and habitats. By closely monitoring these species we are able to assess not only their success but also the general health of their habitats and other species using those habitats.

- Andrea Giелens, Lead Biologist

Road mortality is a major threat to reptiles and amphibians. In 2017, we surveyed over 1000 km of roads to collect data about road-killed animals, resulting in 900 new records for our database. At one site, we installed 375 meters of barrier fencing to reduce road mortality and divert animals to an existing under-road culvert.

Future plans include a program to scientifically document and disseminate best practices for reptile and amphibian recovery, and to launch new projects to save important surviving breeding populations before it is too late.

A close-up photograph of a Taylor's checkerspot butterfly perched on a green plant stem. The butterfly's wings are white with a complex pattern of orange and black markings, including a large orange patch on the forewing. The background is a soft-focus green.

NATIVE POLLINATORS

Taylor's checkerspot butterfly

2017 PROGRAM HIGHLIGHTS

299

artificial bumble bee
nest boxes installed
in pilot study

2,030

bumble bee records
from Ontario
monitoring program

5

new pollinator
habitats planted
through seed grants

255

Taylor's checkerspot
caterpillars reared
and released in B.C.



Canada's pollinators are in trouble. Twenty-seven butterflies and moths are classified as Endangered here in Canada. Some have already been lost. Our bees are also imperiled and in 2012, the rusty-patched bumble bee (*Bombus affinis*) was listed as Endangered and is now clinging to life in only a few small patches of its former range.

In response, Wildlife Preservation Canada created a national pollinator recovery initiative to address these declines through hands-on species recovery work.

A key element of our program is the development of conservation breeding techniques that can be used to help rebuild wild populations of bees such as the yellow-banded bumble bee (*Bombus terricola*) and its close cousin, the endangered rusty-patched (*Bombus affinis*). In 2017 our experimental yellow-banded bumble bee breeding operation produced seven next generation queens, up from four in 2016, even though fewer wild-caught queens were available in 2017. This result raises hope that breeding and release will be a useful tool for the future of bumble bee conservation

Conservation breeding for butterflies is more well-established. Our recovery program for the endangered Taylor's checkerspot butterfly (*Euphydryas editha taylori*) reared and released 255 caterpillars in 2017 to boost Canada's last surviving population of this species.

Our citizen science program was busy in 2017, hosting training workshops and field trips to teach citizen scientists how to survey for bumble bees and collect data for a database



which we maintain in partnership with several other like-minded organizations.

We initiated an ambitious bumble bee nest box monitoring program in 2017, installing 196 artificial nest boxes across southern and central Ontario, and 103 in Alberta. This research will continue in 2018 and we anticipate that this will become a valuable tool for future bumble bee monitoring and conservation.

Lastly, we expanded our involvement in habitat restoration and creation by launching a Wildflower Seed Grant program, sponsored by Burt's Bees, through which we supported five worthy pollinator habitat projects across the country.

The next hurdle for our bumble bee breeding experiment is to develop artificial hibernation techniques so our captive-bred queens can successfully overwinter and start new colonies in the spring. Meanwhile, we are looking to scale up our Taylor's checkerspot breeding operation to support the establishment of new wild populations, and we are exploring the potential to launch conservation breeding and release operations for other endangered butterfly species across Canada.



Conservation efforts for most bee communities are hindered by a lack of understanding of natural populations, their dynamics, and their individual requirements. We are exploring these elements, and, aided by the power of our volunteer citizen scientists, we are developing a solid framework upon which effective, evidence-based recovery strategies can be built.

- Genevieve Rowe,
Ontario Coordinator

CANADA'S NEW NOAH



Since 1990, the Canada's New Noah program has given young biologists the opportunity of a lifetime. Each year, Wildlife Preservation Canada selects one graduate student from applicants across Canada for the coveted position at the Durrell Conservation Academy in Mauritius. Our 2017 New Noah was Rachael Derbyshire.

Rachael grew up on the outskirts of Brantford, Ontario in a home directly across from the Grand River. Her parents were self-described “nature nuts”, so Rachael spent much of her childhood outdoors. Lacking household distractions such as cable TV, she found creative ways to explore nature, rain or shine. It was through these experiences that Rachael developed a deep appreciation and respect for the environment, one that she would carry with her all the way to Mauritius in the Indian Ocean as Canada's New Noah.

Rachael took her passion for animals from the forests of her childhood to her university classroom, completing an undergraduate degree in Wildlife Biology and a Master of Science degree in Ecology at the University of Guelph in Ontario.

Following her schooling, Rachael worked at the Biodiversity Institute of Ontario, where she conducted field surveys for insect

collecting and processed insect samples from around the world for DNA barcoding. Rachael also returned to the University of Guelph's Norris Lab as a research manager, working with several applied conservation projects surrounding the monarch butterfly (*Danaus plexippus*).

During her time as Canada's New Noah, Rachael was immersed in both 'in situ' (in the field) and 'ex situ' (in captivity) conservation work, with a variety of plants and animals. Her experience taught her the important link between theoretical models of conservation and practical ways of implementing them.

Back in Canada, Rachael is applying her new learning in her Ph.D. studies at Trent University, studying the foraging ecology and population biology of the Canada lynx (*Lynx canadensis*) in the Yukon.

Good luck Rachael!

THE DURRELL CONSERVATION ACADEMY

With educational facilities on Jersey in the Channel Islands, U.K., and Mauritius in the Indian Ocean, the Durrell Conservation Academy is a world leader in conservation capacity development, operating at the interface between in-situ and ex-situ conservation.

To date the Academy has trained more than 3,500 students, who have learned from some of the world's leading conservation practitioners in the art and science of species conservation.



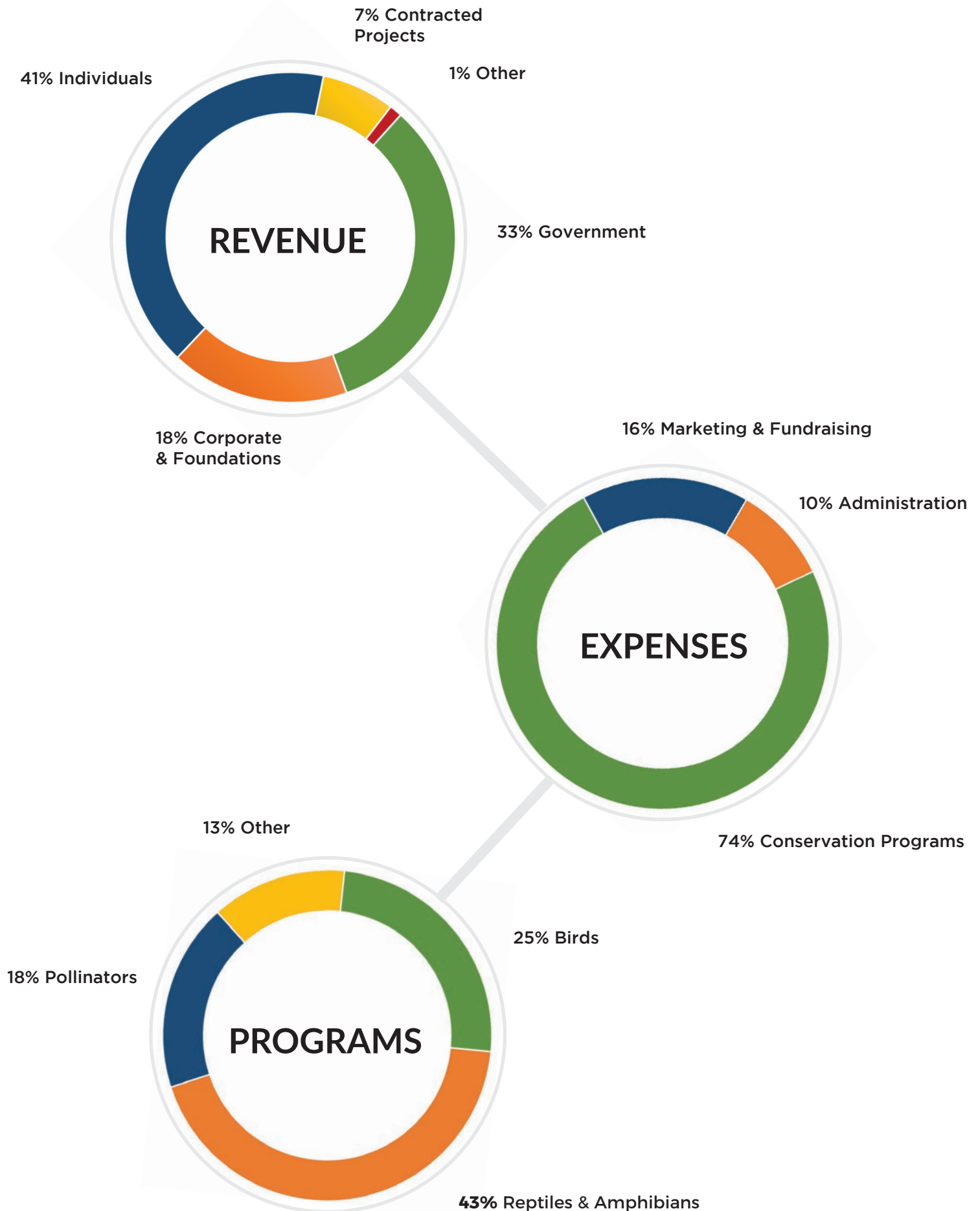
“My time as Canada's New Noah has fostered in me a renewed sense of optimism and enthusiasm for conservation biology and research. I am grateful for the time I spent in this special place on the planet, but I look forward to returning home to start the next phase of my journey in becoming a conservation professional.

- Rachael Derbyshire
2017 New Noah

A close-up photograph of several Western painted turtle eggs resting on a bed of white perlite substrate. The eggs are oval-shaped with a mottled pattern of brown and tan spots on a lighter background. They are arranged in a cluster, with some showing more prominent staining than others. The substrate consists of small, irregular white granules. In the top right corner, there is a semi-transparent white box with a green border containing the text 'FINANCIAL HIGHLIGHTS'.

FINANCIAL HIGHLIGHTS

Western painted turtle eggs being
incubated in our British Columbia lab.



THANK YOU



Saving Canada's species at risk is a monumental task. Wildlife Preservation Canada believes that our success cannot be achieved without strong partnerships and generous funding. We want to thank all our corporate, foundation, and individual donors who believe in our work and are willing to invest in the future survival of Canada's wildlife.

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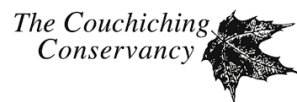
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