

# ON THE EDGE



Loggerhead shrike  
*Lanius ludovicianus ssp.*  
Endangered in Canada  
Photo: Alisa Samuelson

## In This Issue:

### Updates from the field

|                                   |    |
|-----------------------------------|----|
| Reflections from Noah's Ark       | 2  |
| New sights from the shrike team   | 4  |
| Mother's Day in the Fraser Valley | 6  |
| Bumbles: model students           | 8  |
| Out with the old, in with the new | 10 |
| Good fences, GREAT neighbours!    | 11 |



#### Letter from Lance

## Hope “Springs” Eternal

Spring has sprung and this is one of the most exciting times of the year for the team here at Wildlife Preservation Canada.

Oregon spotted frogs and Taylor’s checkerspot butterflies have begun their annual cycle with this year’s tadpoles and caterpillars already out and feeding voraciously as they grow into adults. Loggerhead shrikes have been arriving back from more southerly climes after their winter migration and yellow-banded bumble bee queens will soon be looking for nesting sites. A few more warm, sunny days and massasauga rattlesnakes will be coming out of hibernation and western painted turtles will be increasing their activity levels as they feed and build up their resources in preparation for producing the next generation of young snakes and turtles.

While springtime in nature is all about getting ready for the next generation, there is a personal parallel for me. I am a father with two amazing sons that love nature. My concerns for Canada’s wildlife, and the reason I have chosen a life as a conservation biologist, stem from a motivation that I want future generations, including my own children, to thrive and inherit a legacy that allows them to experience Canada’s natural beauty as I have.

As the animals we work with are getting ready for a new season, so are we. A lot of planning has already been carried out earlier in the year in deciding how best to allocate the resources we have; money, time, people, to ensure we have a focused and productive year.

Our program biologists have been bringing on a contingent of seasonal staff to bolster our team for the upcoming year. I find this to be an exciting and rejuvenating part of the year.

The influx of energy from young people in the early stages of their career as wildlife biologists and conservationists, that care so deeply about the environment, provides me with hope that we will be able to tackle the major environmental hurdles in front of us. The challenges are there, and they are very real. We will only be successful in preserving Canada’s rich wildlife if we all work together and pool our efforts. Each of us has a role to play.

While each of us may have slightly different motivations for joining Wildlife Preservation Canada’s mission to save our country’s species from extinction, I suspect that we all share some basic things in common. We have a connection with animals, wildlife and nature, and we don’t want to lose what we have. We have a vision of a Canada where its citizens place a value on wildlife and a healthy environment for us and for our children.

Although there is a lot of hope and anticipation inherent to the beginning of each field season, there is also a determination that we will continue to do everything we possibly can to ensure that wildlife is preserved for all of us, now and for the future, and that species don’t disappear before that vision is realized. Thank you for being part of this effort and helping Wildlife Preservation Canada in this mission.

*Lance Woolaver Jr.*

**Dr. Lance Woolaver Jr.**  
Executive Director

#### Canada’s New Noah

## Reflections from Noah’s Ark



By Amélie Roberto-Charron

As I move onto the next phase of my journey as Canada’s New Noah, I am leaving Mauritius and heading to the island of Jersey, United Kingdom, where I will be taking part in the Durrell Endangered Species Management course (DESMAN).

During my time in Mauritius, I have learned countless things: how to cook rotis, how to whistle through my fingers, and how to drive on the left side of the road. But most importantly, I have learned about the importance of hands-on conservation techniques for some of the most endangered species in the world, such as conservation breeding, reintroduction, supplemental feeding, and habitat restoration. All of which I learned from my peers, many dedicated conservation biologists.

In conservation, so much of what is accomplished is due to the truly motivated and hardworking people. Working with wildlife can be challenging, requiring a lot of sacrifice; however, the results are inspiring and the people involved even more so. I feel fortunate to have learned about world-renowned animal recovery programs first-hand from incredibly motivated and impassioned individuals. I’d like to thank a few of them for the unique, and sometimes unconventional, things they taught me.

I was taught about the reptiles of Round Island by a Swiss man. I learned how to climb trees to check endangered Mauritius



A fellow conservation biologist checking a Mauritius kestrel nestbox on the island of Mauritius. **Photo:** A. Roberto-Charron

kestrel nest boxes from a strong and wonderful Englishwoman. A boyish and playful Australian taught me to collect morphometric data and how to feed Aldabra giant tortoises. Navigation of Île aux Aigrettes was taught by a kind and soft-spoken Englishman, while I learned most of what I know about the flora of Mauritius from a joking and foul-mouthed Englishman. An always smiling Mauritian man taught me how to prepare food for the supplemental feeding of Mauritius olive white-eyes and was incredibly talented at finding nesting birds. I banded my first red-tail tropicbird under the tutelage of a German and French man, with a passion for his work, and who also made incredible crêpes for us every Sunday.

From an Irishwoman, I learned to spot gecko nesting sites. Together with a lovely Mauritian woman, we spent many evenings going for swims and watching the sunset. I learned from an incredible and always energetic Italian woman to push myself and to take more risks. With her I was able to make the most of my time in Mauritius, and I made incredible memories. Together we banded my last Mauritius olive white-eye on my final morning on Île aux Aigrettes. It was the perfect way to end six months working on a tropical paradise island with some of the world’s most threatened wildlife.

I’ve made several lifelong friends and the people I worked with enriched my time more than I could’ve imagined. I am so grateful for the opportunity to have learned all of these invaluable skills, to have met all of these wonderful conservationists, and most importantly to the Canada’s New Noah Program that made it possible. 🌿

*Since 1990, the Canada’s New Noah program has given young biologists in Canada the opportunity of a lifetime. Each year, Wildlife Preservation Canada selects a graduate student from dozens of applicants across Canada for the single, coveted position on the tropical island of Mauritius in the western Indian Ocean. The program provides practical training and field experience in managing wildlife conservation programs and conserving endangered species. Amélie Roberto-Charron was selected to be the 29th Canada’s New Noah and travelled to Mauritius in August 2018.*



Amélie holding a Mauritius olive white-eye that she banded on Île aux Aigrettes in the Indian Ocean.

## Eastern Loggerhead Shrike

# New sights from the shrike team



By Hazel Wheeler

In my six years working with loggerhead shrike in Ontario, I've never seen a wild bird impale a food item. I talk about it all the time, describing how this unique behaviour not only helps with food handling, allowing birds to tear large prey items into bite-sized pieces, but also how male birds will collect impaled food items in larder trees that will hopefully entice a female to mate. It's an impressive adaptation and a hallmark of the species, but can be very challenging to witness. At this year's Loggerhead Shrike Working Group meeting, however, that finally changed.

This was the fifth year that the Working Group met, and this time in Birmingham, Alabama. Comprised of biologists and researchers from throughout the eastern United States, plus a strong contingent from Ontario, this group is working to understand what's happening with loggerhead shrike populations across their North American range. Following two days packed with information sharing and discussion, we capped the meeting off with a field day to try to trap and



Lead Biologist Hazel Wheeler and a loggerhead shrike that she is weighing and banding before release into the wild. **Photo:** Vincent Luk/Evermaven, courtesy of the NCC

colour band some of these southern shrikes. A local volunteer had done the hard work of scouting a few nesting territories in the area, so on a beautiful spring morning a convoy of a dozen shrike-minded folks set off to find their quarry.

Our trapping site was on a rural road surrounded by gently rolling pastures, which didn't look all that different from what you might find in Ontario. This site was a nice one for the shrikes, with a long stretch of barbed wire fence all along the roadside: a perfect place to store your food. It didn't take long to spot the pair of shrikes that appeared to be nesting in a cedar tree along the fence line. Equipment was prepared, traps were set, and we waited. The traps we use have a small cage with a live mouse inside, which acts as bait for the shrike, and can be a very enticing meal when there isn't a lot of food around. However, rural Alabama seems to be a smorgasbord for shrikes, so while the birds did show interest in the bait mouse, it was never enough for them to be drawn in and trapped. Instead, they were hunting all sorts of prey along the roadside.

Many of the prey items were small and went unseen, but at one point a bird was spotted with a beak full of bumble bee, and another managed to catch a small snake, then quickly impale it on the barbed wire. A piece was torn off, and offered to the other bird: a clear sign that these two are bonded for the season. Clearly these birds had no need of our mouse, so we packed it in, but not before taking a closer look at the fence line where we found that snake (a baby watersnake), as well as a frog leg from some earlier meal. These birds are certainly ready to provide for a nest full of young.

We never did catch any birds that day but, for witnessing this unique behaviour, I still came away feeling very lucky. 🐸



The remains of a loggerhead shrike meal, an impaled snake. Shrikes will use trees and also man-made objects like barbed wire to impale their food items.



## A lot goes into raising each baby shrike

Donate today to support this year's chicks: [wildlifepreservation.ca/donate](http://wildlifepreservation.ca/donate)

## Have you ever seen an impaled food item on a tree or fence?

You can contribute your data to the Loggerhead Shrike Working Group by submitting pictures to the Larder Locker, on iNaturalist:

[inaturalist.org/projects/larder-locker-north-american-shrike-caches](http://inaturalist.org/projects/larder-locker-north-american-shrike-caches)

Always be sure you keep a respectful distance from birds and their nests.



Shrikes will hunt for a variety of food items including insects, small rodents, reptiles, and amphibians. They can carry food that is almost double their own weight. **Photos:** Larry Kirtley



# Thank you.

**Wildlife Guardians** are a special group of dedicated individuals who make it possible for our conservation teams to help endangered animals throughout the year by providing recurring monthly donations.

Wildlife Guardians help us feed and care for hundreds of animals through the winter months. Winter is also when we do much of our scientific work: studying data collected in the summer, planning for improvements next season, and writing reports to share our new knowledge with other caretakers of endangered species around the world. We would like to extend a warm thank you to all of our Wildlife Guardians who supported us last winter, and give special mention to those who joined the program in 2018.

Debbie Allen

Helen Argiro

Jordyn Beaupre

Jassent Harris

Bethany Kort

Andrea Kuntz

Scot MacLean

Leah McNish

Philip Price

Mitchell Rowe

Rebecca Smith-Mandin

Suzanne Truchan

If you would like to become a Wildlife Guardian, please return the enclosed card with your payment details, or donate safely online at: [wildlifepreservation.ca/guardians](http://wildlifepreservation.ca/guardians)





The Oregon spotted frog is Canada's most endangered frog, with fewer than 1,000 breeding individuals in the wild. **Photo:** Greater Vancouver Zoo

It might be an easier way to parent, but I feel that painted turtles and frogs miss out on a lot. Every so often, I bring my daughter with me to work. Watching her connect to the animals I work with is a joy. She will often relate stories that I tell her about my job to others (getting only about half the details right). She's helping to spread the word about endangered species, in a way that only curious children can.

As with many wetland species, painted turtles and spotted frogs are threatened by habitat loss, invasive species and pollution. Raising awareness and sharing our passion for these creatures is part of saving them. I hope that I can instill an appreciation for wildlife in my daughter and maybe she will help inspire others to care, invest, and make changes so that future generations will continue to enjoy them. 🌿

We are often asked by children if turtles and frogs would know who their parents are if they were to encounter them again. Or if they would recognize their brothers and sisters in the wild.

Sorry kids! It is more likely that if a frog was hungry and encountered a younger sibling, they would become a tasty snack. Blood may be thicker than water, but it isn't thicker than your stomach if you're a growing frog.

Fraser Valley Wetlands

# No Mother's Day for our turtles and frogs



By Maja Hampson

I joined the Fraser Valley Recovery Team last fall and it didn't take long for me to realize that trying to balance full-time conservation work with being a full-time mother is like river rafting... while log rolling. I put a lot of myself into both jobs and am rewarded and exhilarated - though sometimes exhausted!

Spending most of my working hours breeding and raising animals, you would think that I could find some motherly solidarity from the parents in my care. But alas, the endangered wetland species that I work with provide literally zero parental care for their offspring. Both the western painted turtle and Oregon spotted frog will abandon their freshly laid eggs with barely a second look back.

All this would make it seem like frog and turtle parents are lazy, but we should give them some credit.

Oregon spotted frogs lay their eggs in the spring when the shallow wetlands they call home are starting to warm. Good frog moms will choose reeds to secure their eggs to. This keeps the eggs sheltered from the elements and predators. It also keeps the eggs anchored so they don't float to a less desirable location or flip over, which can upset their development. Once eggs begin to split they must stay facing the same direction or their development will be terminated.

Western painted turtle females are quite choosy when looking for the perfect spot to nest. They search for sunny locations, free of big rocks and debris. They try to lay their eggs in areas that won't flood or in places where predators will have a harder time finding them. They spend over an hour digging and then burying their eggs. Painted turtle females have a chamber in their bodies that stores water. They use the water to moisten the nest chamber and provide a humid environment for their developing eggs.

Both frogs and turtles invest most of their parental time securing their eggs to make for a better future for their offspring. And then they leave. Now it's up to the offspring to survive and thrive on their own.



Lead Biologist Maja Hampson 's daughter accompanies her to check on the Oregon spotted frog breeding tanks at the Greater Vancouver Zoo.

A Matter of Fact

## From vegetarian to meat-lover!

It's common for metamorphic animals to undergo a diet change from one phase to the next. Herbivores become carnivores, munchers become gentle feeders.

Oregon spotted frog tadpoles use their serrated teeth to tear up plants, while adult frogs use their muscled tongues to catch insects – first a herbivore, then a carnivore. In order to accomplish this change, spotted frogs undergo major internal restructuring. Almost every organ has to change so that tadpoles can switch from living completely underwater and feeding on plants to living on land and eating insects as adults.



Oregon spotted froglets that are transitioning to frogs in the lab.

Tadpoles begin their transition to frogs at a few weeks of age when a hormone in their thyroid initiates metamorphosis. Tadpoles have a skull made of cartilage, (the same material as our noses), and during metamorphosis, cartilage is replaced with bone. Gills disappear and their once underdeveloped lungs enlarge. And then their tails start disappearing. But, their tails don't fall off. The metamorphs (fancy word for the not-a-tadpole-but-not-quite-a-frog phase) reabsorb their tail and gain energy from breaking it down. Recycling energy makes this whole process possible.

Metamorphs can't eat while they are changing since their insides are under renovation. Apical mucosa are regressing, gastric lumens are shedding, secondary lining epithelium and glands are differentiating. Still with us? Tadpoles digest plants which requires a bigger large intestine, but frogs are meat-eating so the large intestine shrinks. All of these changes are held together by new connective and muscular tissues.

Ta-da! Done. One plant eater converted to a meat eater. It's one of the greatest changes in nature that most of us will never see. 🌿



When your job is as serious as saving animals from extinction, sometimes it's good to have a laugh. **Illustration:** Maja Hampson

## Native Pollinator Initiative

# Model students



By Genevieve Rowe

It is no secret that species at risk are hard to find and work with in the wild, but you would think things would get easier once we are back in a controlled laboratory setting. Think again! Developing a conservation breeding program for bumble bee species at risk is proving to be a challenge both in the field and in the lab.

Our Native Pollinator Initiative team is developing a conservation breeding program focused on the yellow-banded bumble bee, *Bombus terricola*. Once common across its range, particularly throughout the northeastern United States and most of Canada, it is now listed under the Species at Risk Act as of Special Concern (SARA 2018). We have been learning more about the unique requirements of the yellow-banded bumble bee and other sensitive bumble bee species so that we can develop specialized husbandry protocols with these needs in mind.

While in theory the yellow-banded bumble bee is an ideal model of a sensitive species, years of trial and error in the breeding program has taught us that this species is not actually so easy to work with. It has led us to pioneer some creative adaptations to overcome its unique breeding challenges, some of which we will be trying this spring.

To safeguard against too much testing on a rare species like the yellow-banded bumble bee, we have started working with two additional species to refine our protocols and techniques—models for our model!

Here's how we're using the two common species as models to help develop our conservation breeding protocols for species at risk.



A thriving colony of the common eastern bumble bee. We are testing overwintering techniques before using them on more sensitive bee species. **Photo:** L. Graham.



**Above:** Our target species the yellow-banded bumble bee, *Bombus terricola*. We'd like to perfect our breeding techniques with more common bumble bees before trying them on such a rare and declining species.



### Common eastern bumble bee

*Bombus impatiens*

- Abundant species across its Ontario range
- Canada's only managed bumble bee species used in commercial pollination services
- Our lab hives provide a unique opportunity to perform experiments on bumble bees during the winter months when bumble bees are otherwise inactive

This winter, we used four common eastern bumble bee colonies to investigate whether there are ways we can increase the survival rates of bumble bee queens during diapause (hibernation) by examining the relationship between queen body weight and survival.

Thanks to the hearty productivity of the common eastern bumble bee, we placed a total of 158 queens, known as gynes, into diapause this winter. The last queen will finish her hibernation in September—just in time for us to understand how to better prepare the second generation yellow-banded queens that are born into our program before the long, cold winter.

# You can make a difference!

Wildlife Preservation Canada saves species from extinction by providing direct, hands-on care.

You can join us and thousands of people who care about Canada's most endangered animals.

Download free resources:  
[wildlifepreservation.ca/stewardship](http://wildlifepreservation.ca/stewardship)



G. Hughes

### Brown-belted bumble bee

*Bombus griseocollis*

- Abundant species across its Ontario range
- Hearty species like the common eastern bumble bee
- Biologically similar to the yellow-banded bumble bee in many ways:
  - Medium size; short dense hair;
  - shorter than average tongues;
  - prefers to nest underground

Spring bumble bee surveys are underway across Ontario and this year, the southern field crews will be collecting the brown-belted bumble bee, a species that is common across its range. These queens will become test subjects for our breeding facilities alongside the yellow-banded bumble bee queens that our field crew collects from more abundant populations in Thunder Bay.

Having an opportunity to compare the breeding and overwintering requirements of different species, and their responses to a number of husbandry techniques will help us decipher which parts of our husbandry need to be tweaked specifically to accommodate rare and at risk species like the yellow-banded bumble bee. ➤



## HELP OUR BUMBLERS

Every spring we send out field teams to survey and collect bumble bee queens.

We need your help to buy field supplies to equip our dedicated "bumblers".

Donate just a few dollars today, and invest in the recovery of endangered bumble bees.

Every little bit helps.

[wildlifepreservation.ca/donate](http://wildlifepreservation.ca/donate)



**Left:** A Taylor's checkerspot butterfly resting on a daisy flower.

**Above:** Denman Island, off the coast of Vancouver Island, where the existing checkerspot population is located.

**Below:** The Taylor's checkerspot butterfly requires a specific type of habitat that can support its larval host plants.



## Native Pollinator Initiative

# Out with the old, in with the new



By Maja Hampson

Last year's breeding season for the Taylor's checkerspot butterfly was a bit of a disappointment. If the definition of insanity is trying the same thing over and over again and expecting a different result, then we were feeling a little insane last year while trying to convince the butterflies to breed. They just refused to do so! Despite successfully breeding in previous years and using the same procedures, not a single female produced eggs. The redeeming part of the season came when we made the significant discovery of a new population of checkerspots on Vancouver Island.

Since its discovery in 2005, the Taylor's checkerspot population on Denman Island was thought to be the last remaining Canadian population of this butterfly species. In 2018, a second population was discovered on a private farm property on Vancouver Island. Last year it was too late in the season to gather adult butterflies for our conservation breeding program, but this year we have started to investigate the population and collect new caterpillars for breeding.

The new population is already proving to be interesting. We've noticed that there is more size variation in the new caterpillars compared to the ones from last year. In 2018, we wondered if choosiness among butterflies affected their breeding. Our conservation breeding program only had six distinct genetic lines to work with, and all caterpillars were similar in size. There wasn't much choice to be had for mates. This new population offers us a second chance and the opportunity to try and learn even more from the challenges of last year. Will smaller or larger butterflies be favoured for breeding? Will having more genetic lines increase our chance of success?

All these unknowns are cause for excitement this spring. We're always nervous when a new field season begins but, as eternal optimists, we keep pushing forward. The checkerspot is counting on us! 🐛

## Ojibway Prairie Reptile Recovery

# Good fences make GREAT neighbours!

By Jennifer Barden and Jonathan Choquette

Conflicts between rattlesnakes and people can occur when these animals slither across trails or into the residential backyards adjacent to their habitats. At the Ojibway Prairie Complex and Greater Park Ecosystem in southern Ontario we tackle the issue of human-snake conflict in a few ways. We inform park users with pamphlets and signage that they are sharing the park with an endangered species, we provide a short-distance translocation service to nearby residents in case they find a rattlesnake in their yard, and in some residential areas we are trying to prevent interactions altogether by installing permanent snake barrier fencing.

This past winter, while our lovely massasaugas were deep in their underground slumber, the Ojibway Prairie Reptile Recovery (OPRREC) Team was hard at work upgrading an existing chain-link fence between the park and a residential area with a snake barrier mesh. Maintained properly, this snake mesh will act as an effective barrier keeping people and their pets safe while protecting an endangered species.



A section of the chain link fence upgraded with barrier mesh. The fence is designed to keep massasauga rattlesnakes (inset) away from neighbouring houses.

Our team managed to install 220m of fencing this winter, with written support from each adjacent resident. This successful project did not materialize overnight, however, and was the result of years of careful planning.

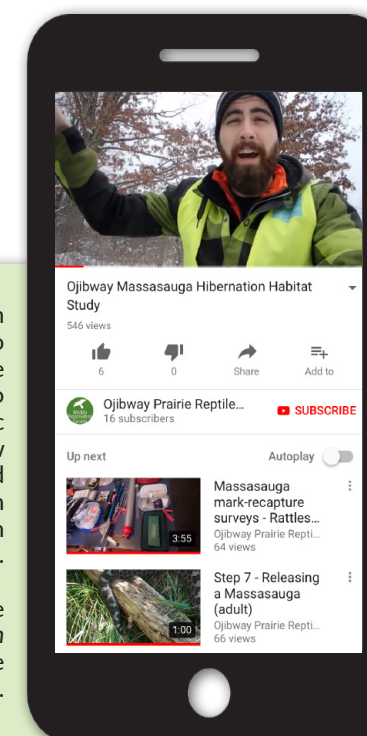
The planning process started back in early 2016 with surveys of property owners adjacent to the park to understand levels of support for various massasauga recovery techniques. Once we decided upon the type of snake barrier mesh, we secured provincial and federal funding and permits, were granted municipal permission, and went back to the residents one final time for written permission. We are grateful to have received an overwhelmingly positive response to our request. After completing this important background work, we were finally able to implement our plan!

And then the really hard work began. It took weeks to remove all the vines, shrubs, roots and small - and large! - trees growing against, on, and through the fence. One white mulberry in particular was so large that we needed the professional help of a tree removal service - thank you PDQ4U Urban Tree Removal Services! We used the surplus wood to create woody debris piles elsewhere in the park, enhancing the park's habitat for massasaugas.

By reducing the likelihood of negative human-snake interactions, and keeping rattlers in the parks, our snake barrier fence will ensure that rattlesnakes and residents in West Windsor and LaSalle remain great neighbours! 🐍

The Ojibway team hosts regular video blogs from the field. In the video shown here, Eric demonstrates how data is collected for the Hibernation Habitat Study in southern Ontario.

Visit the Wildlife Preservation Canada YouTube channel.





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*Some of nature's most exquisite  
handiwork is on a miniature scale,  
as anyone knows who has applied a  
magnifying glass to a snowflake.*

*~Rachel Carson*

”

**Established in 1985,  
Wildlife Preservation Canada  
is a non-profit charitable  
organization dedicated to saving  
critically endangered wildlife  
species from extinction.**

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