



Northern Spotted Owl Breeding Program

www.nsobreedingprogram.com

2019 Newsletter



Northern Spotted Owl

BREEDING PROGRAM

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Northern
Spotted
Owl
Breeding
Program

“THE NORTHERN SPOTTED OWL IS ONE OF CANADA’S MOST ENDANGERED SPECIES.”



BEST BREEDING SEASON



The highly anticipated 12th breeding season at the Northern Spotted Owl Breeding Program (NSOBP) was one full of many highs and lows, but resulted in the best breeding season the Program has ever seen.

The NSOBP was established in 2007 in an effort to restore the population of Northern Spotted Owls (*Strix occidentalis caurina*) in British Columbia through captive breeding and release into protected habitat. Recent estimates put the wild population of Spotted Owls in BC at approximately five individuals, but the NSOBP aims to increase that number to 250 over the next ten to twenty years.

“THE BEST BREEDING SEASON THE PROGRAM HAS EVER SEEN”

In 2019, the NSOBP added five Spotted Owl chicks to the population and spent a record ten weeks operating the centre for 24 hours a day, providing top notch care to our eggs and chicks. This was a massive team effort that was fueled with passion.

Part of our success was due to the husbandry technique of double clutching. This is a strategy that is done in an effort to double the number of fertile eggs laid per female in a single year. In order to encourage the female to lay an additional two eggs, first clutch eggs are removed to mimic a predation event about a week after they

“THE NSOBP WELCOMED FIVE SPOTTED OWL CHICKS... [TWO] AS A RESULT OF DOUBLE CLUTCHING”

are laid. If all goes well, the female will lay a second clutch within a few weeks. After being unable to produce any second clutch chicks despite many years of double clutching, the NSOBP welcomed two chicks in May as a result of this technique. One of the chicks was a first born to veteran pair Sedin and Amore, while the other was the



2019 BREEDING SEASON MILESTONES

- Highest number of successful breeders in a year (4)
- Most fertile eggs and highest fertility rate, with 10 fertile eggs produced of 11 eggs total from successful breeding pairs. We averaged 4 fertile eggs annually the previous five breeding seasons.
- Most number of chicks produced (5). We averaged 1 chick per year the previous five breeding seasons.



second chick in 2019 for Zalea and Einstein (read on to learn more about Zalea’s incredible story! pg.8). Zalea and Einstein are the only pair to ever have multiple chicks born in a single season at the NSOBP.

The 2019 breeding season concluded with six actively breeding pairs, which is over halfway to the Program’s goal of ten. Two of these pairs were newly established this year and there is a high likelihood of at least two new pairs bonding and breeding in 2020. With another breeding season come and gone, the milestones and records broken at the NSOBP are something everyone can be proud of.

THESE TIRELESS EFFORTS MEAN THAT ONE DAY, THE SPOTTED OWL POPULATION HAS A FIGHTING CHANCE AT RECOVERY WITHIN BRITISH COLUMBIA’S OLD GROWTH FORESTS.

EXPERIENCING THE NSO BREEDING PROGRAM

The NSO Breeding Program’s internship program started in 2013 and has continued to grow ever since. This internship provides a rewarding experience for recent university graduates, and we have been fortunate to receive funding from the Fish and Wildlife Compensation Program for this unique internship since 2015. Read below for Alyssa de Wit’s 2019 Breeding Season experience as an intern.

“My first experience working with the NSO Breeding Program began in December 2016 when I started volunteering with the Program. My work mostly consisted of feeding and cleaning the rodents, some general outdoor maintenance tasks around the facility, and going to outreach events in the community. Early on I was impressed by the care that went into the Program, such as the staff’s dedication to minimizing human interaction with the owls so that the owls will not be habituated to people when they are released, to their multi-step cleaning processes and switching their disinfectants frequently. These steps, though seemingly minor to an outside observer, showed me that the small team of staff was serious and invested in saving this endangered species. I just knew that I wanted to be part of it.

When I graduated from the University of the Fraser Valley with a Bachelor’s of Science and became eligible for the 2019 Breeding Season Internship, I knew immediately I wanted to apply. The internship began in January 2019 and I was hired along with two other interns. I was excited and nervous about the responsibilities I knew would be involved when the eggs and chicks began to arrive (not to mention caring for the adults as well!). I continued to participate in cleaning and feeding the rodents, but now I was quickly trained on so many more aspects of the Program. I was soon a part of the team and took part in daily checks of the owls, camera monitoring, handling eggs, hand-raising chicks, and many more tasks. This year I was able to share in the best breeding season yet at the NSOBP and experience all the ups and downs that come with the territory. It has been such a wonderful learning experience, and I feel blessed to have been able to participate in trying to save such an endangered and iconic species of British Columbia.”





IN MEMORY OF SHAKKAI

Next breeding season there will be one less owl calling at the center, as we lost our matriarch Northern Spotted Owl, Shakkai, in April 2019 to old age. She was 25 years old.

treated but was deemed unreleasable. She was housed in captivity at Monica’s Wildlife Shelter until she was transferred to Grouse Mountain Resort in

“SHAKKAI WAS PAIRED WITH HER MATE, EINSTEIN... THE PAIR BONDED QUICKLY AND NATURALLY PRODUCED THE FIRST CHICK OF THE PROGRAM THAT SAME YEAR, SHANIA.”

December of 2004. Shakkai lived at Grouse Mountain until she was transferred again to the Northern Spotted Owl Breeding Program late in 2007 to become one of the founding owls of the NSOBP.

Shakkai was paired with her mate Einstein in 2008, the first breeding season of the Program. Einstein was just a year old at the time, but the pair bonded quickly and immediately produced the NSOBP’s first chick, Shania. This moment brought a lot of hope to the Program and the future of the Northern Spotted Owl in the province. In 2014, Shakkai and Einstein welcomed their second chick, Jay, into the Program through artificial incubation. In 2016, Shania had a chick of her own named Elliott making Shakkai a ‘grandmother’. Shakkai fostered Elliott because her parenting skills were unmatched at the time and the chick had a better chance of survival under her care. Shania has since produced two more chicks, and Jay has recently bonded with his mate Bella. Shakkai’s legacy will live on with Shania and Jay and their



Shakkai is believed to have hatched in 1994 and was raised by one of the last remaining pairs of Northern Spotted Owls in the wild of British Columbia. Shakkai successfully fledged from the nest, but as a dispersing juvenile was hit by a truck when she flew across a well-

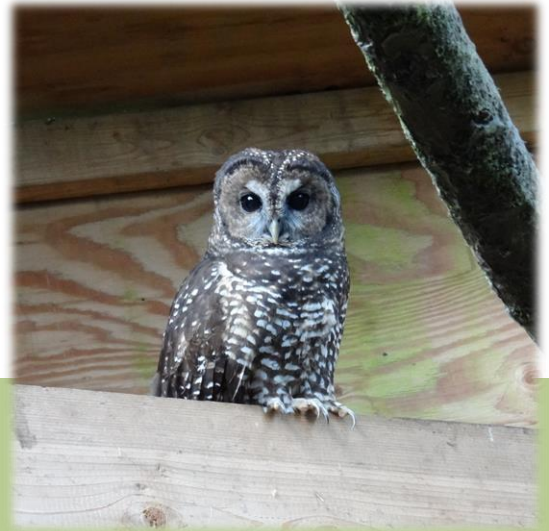
“...AS A DISPERSING JUVENILE, [SHAKKAI] WAS HIT BY A TRUCK WHEN SHE FLEW ACROSS A WELL-TRAVELED ROAD.”

traveled road. She was found and submitted to Monica’s Wildlife Shelter in Surrey, BC in September of 1994. Shakkai suffered a concussion and a fracture to her right wing, rendering her flightless. Shakkai was successfully



offspring. Shakkai lived happily with her mate Einstein from 2008 to 2018 and he was a fierce protector and a provider for Shakkai, despite their 13-year age difference!

Shakkai lived an amazingly long life under the protection of the NSOBP and the other organizations that cared for her over the years. She was a strong and beautiful bird that had a loving personality and always impressed us. Although she couldn't fly, her instincts and drive allowed her to live a fulfilled life in captivity. All it took was the addition of a few ladders and specialized branch ramps throughout her enclosures to allow her to navigate flawlessly everywhere she went. We'll miss seeing her every day during our morning checks and evening feeds, and on our nest cameras. All of Shakkai's descendants and her old mate Einstein still live on here at the NSOBP in Langley. Shakkai passed away quietly and naturally while sitting close to her nest in April this year. The 2019 breeding season would have marked her 12th breeding season at the Northern Spotted Owl Breeding Program.



The Northern Spotted Owl Breeding Program would like to thank everyone who was involved with caring for Shakkai throughout her life.

SHAKKAI WILL BE MISSED AND HER CONTRIBUTION TO THE FUTURE OF NORTHERN SPOTTED OWLS IN BRITISH COLUMBIA WILL NEVER BE FORGOTTEN.

SHAKKAI'S CHILDREN

Shania & her mate Scud (Left)

Jay & his mate Bella (Below)



LAYING EGGS, RAISING CHICKS, & BREAKING RECORDS

In the spring of 2017, the Northern Spotted Owl field team, led by a provincial biologist, came across a common but unfortunate situation: a fledgling owl had fallen to the ground from its nest, located 80 feet up an old growth tree. This is something that can happen to any species of bird as they begin to grow and practice flying in

preparation to leave the nesting site. This situation does not always end badly, as the parents will often continue to care for the grounded offspring until they manage to fly away or climb to a safe perch. In this instance, the fallen Northern Spotted Owl fledgling had prematurely departed from its nest and was extremely vulnerable to predators. It was through quick action as the sun was setting that the decision was made to remove the fledgling from the forest floor and admit it to the captive breeding centre.

The fledgling was monitored all night at the centre then placed with foster parents Sedin and Amore the next morning. Sedin and Amore gladly accepted the chick and

raised it for four months until it was independent enough to be moved into its own aviary. Later that fall it was determined the juvenile was female and she was named Zalea after the plant false azalea (*Menziesia ferruginea*), which grows naturally in Spotted Owl habitat in BC.

Zalea spent the winter in her own enclosure perfecting her owl skills such as flying and hunting before she was paired with a potential mate, Elliott, in preparation

for the breeding season of 2018. Zalea did not appreciate Elliott's company and would often

disregard him. The pair did not bond for the 2018 season. Although Zalea was not bonded with a male, she ended up shocking staff at the NSOBP by being the youngest Spotted Owl in the history of the program to lay eggs. She wasn't even a year old at the time! Prior to this, the youngest female to lay eggs on site was four years old. As she had not bonded with Elliott, the eggs were infertile, but staff were delighted by her unyielding determination to choose a nesting site and lay eggs. In an effort to encourage her maternal instincts, Zalea was given a Barred Owl chick

“THE FALLEN NORTHERN SPOTTED OWL FLEDGLING HAD PREMATURELY DEPARTED FROM THE NEST...IT WAS THROUGH QUICK ACTION AS THE SUN WAS SETTING THAT THE DECISION WAS MADE TO REMOVE THE FLEDGLING FROM THE FOREST FLOOR.”





to foster for the next few months. She raised it independently, gathering prey that was provided to her, and feeding and protecting the chick with amazing confidence. Once the Barred Owl chick was old enough, it was removed from its loving foster mother using the same practices we use for our Spotted Owls.

Zalea was then paired with a new potential mate, Einstein. Einstein was one half of the NSOBP's original breeding pair and had the pleasure of being the mate of the Program's matriarch, Shakkai. Zalea and Einstein's relationship began on the rocks as Einstein would attempt to chase her out of his territory nightly, but staff were encouraged by Zalea's feistiness and stubborn insistence to nest close to him. Einstein's attitude changed once Zalea began laying

“ZALEA [IS THE] YOUNGEST NORTHERN SPOTTED OWL IN THE PROGRAM TO BOTH LAY EGGS AND HAVE A CHICK OF HER OWN!”

eggs, and the pair bonded and immediately produced a fertile egg in their first clutch. After 36 days, that egg hatched into Chick G, making Zalea the youngest Northern Spotted Owl in the program not only to lay eggs but to produce a chick as well. Zalea went on to lay two more eggs in her second clutch, one of which resulted in Chick S. This was yet another record, as the NSOBP has had limited success with the viability of second clutch eggs. Zalea and Einstein raised Chick S themselves, while Chick G was given to foster parents Sally and Watson. Zalea's life was full of potential from the moment she hatched in the wild, already a remarkable success. It has been amazing to see firsthand Zalea's life unfold from her rescue to her broken records, and we look forward to seeing how she will continue to help her species in future breeding seasons.





FWCP LIVESTREAM

This year marked the third year that live images of a Northern Spotted Owl nest were publicly accessible thanks to our partnership with the Fish and Wildlife Compensation Program (FWCP).

Chick F hatched April 26, 2019, after 32 days of artificial incubation and 87 hours of hatching. Chick F was placed in the nest of foster parents Oregon and Skalula on May 7. Oregon and Skalula have been showing signs of bonding for the past three breeding seasons and engage in all of the proper early courtship behaviours, but have not yet been observed copulating. It is the hope that raising a chick together will strengthen their pair bond so they can begin producing their own chicks next breeding season. Both adults accepted Chick F as soon as it was placed in their nest, and their teamwork has resulted in a healthy, robust, and curious juvenile.

We were so happy to be able to share some incredible images of Chick F on our live stream this year. Over 3000 people tuned in throughout the month of May and were able to watch Chick F grow from a small chick that required constant care to a large fluffball that was able to fledge from the nest on June 1.

We'd like to thank the FWCP for hosting the stream and the Kenneth M Molson Foundation for providing funds to upgrade our camera system. And of course, a big thank you to everyone that watched the webcam for your support. We're looking forward to sharing some great live stream images next breeding season too!



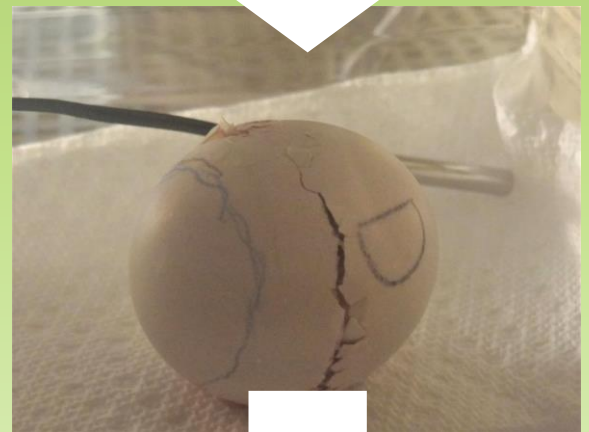
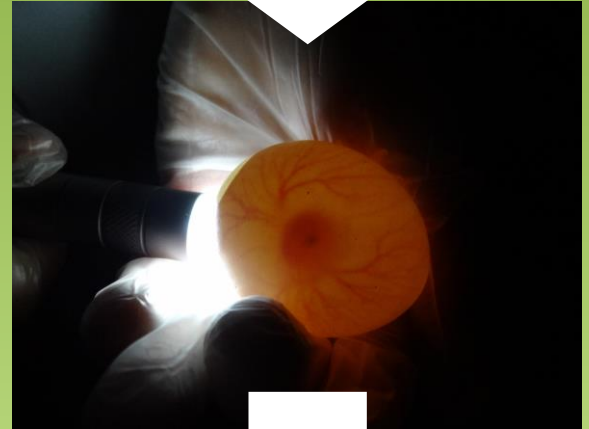
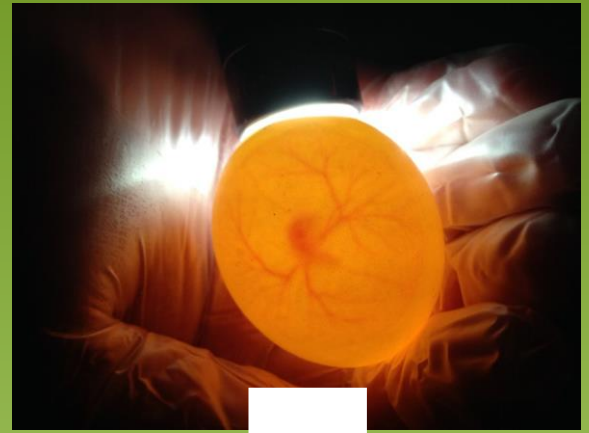


ADOPT-AN-EGG

The fourth annual Adopt-An-Egg Fundraiser has come and gone with this year's breeding season. Adopt-an-Egg gave donors an exclusive look into the artificial incubation of the Spotted Owl eggs. Every adoption included a personalized certificate and weekly email updates that explained each step of the egg's development through to hatch.

The 2019 breeding season was the longest one yet, with the first Spotted Owl egg laid on March 6 and the last chick returned to the nest on June 5th. Throughout this time, the Adopt-an-Egg campaign raised over \$1,700 with all proceeds going towards purchasing various supplies required to care for the eggs and chicks. Each breeding season requires many trips to the store to purchase paper towel, gloves, hand sanitizer, distilled water, cleaning and disinfecting supplies, and so much more. Funds also go toward purchasing bigger ticket items such as an egg heart rate monitor, infrared temperature gun, and replacement pieces for the incubators.

We are grateful for all the support we have received from the community during this year's Adopt-an-Egg campaign and to our volunteers that helped to promote the fundraiser. We hope next year we will have another successful breeding season with plenty of eggs and updates to share with our donors! Keep an eye on our website and Facebook for the launch of Adopt-an-Egg in March 2020.



WANT TO HELP SAVE CANADA'S MOST ENDANGERED BIRD?

The Northern Spotted Owl Breeding Program is always looking for **VOLUNTEERS** to lend a hand at the Breeding Centre near Fort Langley, as well as at outreach events across the Lower Mainland.

Rodent Care & Cleaning



Admin Assistant



Outreach & Education



Errand Driver

Site Maintenance

OUR AMAZING VOLUNTEERS!

In the summer of 2018, the NSOBP was awarded a generous donation from the Gosling Foundation to receive specific fundraising and outreach training from a local organization. We were able to use these funds to secure a customized workshop from Organize BC, focused on enhancing our fundraising techniques and engaging volunteers. This multi-day workshop provided senior staff a rare opportunity to spend valuable time together as a team, developing a vision for the upcoming year and determining the goals we wanted to achieve. We are so grateful to both the Gosling Foundation and Organize BC for partnering with us on this project.

Over the following months, staff worked hard in re-vamping the NSOBP volunteer positions and providing new incentives to retain long term support from these hard-working individuals. In addition to the annual Christmas party, we now also provide exclusive tours of the facility and special event invitations to volunteers able to meet our minimum commitment requirements. Since August 2018, we are pleased to have welcomed over 25 new volunteers to the team. Altogether, our volunteers have donated an amazing 1300+ hours of their time over the past year! Our volunteers are critical to the success of the Breeding Program, and we truly believe we would not have had such a successful breeding season without them. To all the NSOBP volunteers, both past and present, THANK YOU!

"As a student at Emily Carr University of Art and Design who will be focusing my future art practice on nature and endangered Canadian wildlife, the opportunity to volunteer with NSOBP and directly apply this experience to my school assignments and future goals is priceless."

- Lisa Nolan

"ALTOGETHER, OUR VOLUNTEERS HAVE DONATED AN AMAZING 1300+ HOURS OF THEIR TIME OVER THE PAST YEAR!"

"I think my favourite part of volunteering for the NSO Breeding Program is when I'm at an outreach session and people say they recognize us from a previous session somewhere else. That means that we are making a difference and people are interested in helping. My second favourite is watching the dedicated permanent staff display such passion and determination for their work that you can't help but be proud to be part of it."

- Cathy Smith

IF YOU ARE INTERESTED IN JOINING THIS INCREDIBLE TEAM OF INDIVIDUALS, DON'T HESITATE TO SEND US AN EMAIL AT NSOBREEDINGPROGRAM@GMAIL.COM. THE VOLUNTEER POSITIONS WE HAVE AVAILABLE CAN BE VIEWED ON OUR WEBSITE AT WWW.NSOBREEDINGPROGRAM.COM/VOLUNTEER-WITH-US.

Feeding a Northern Spotted Owl



The Northern Spotted Owl is a highly specialized species that largely feeds on the Northern Flying Squirrel, in addition to other rodents found in the depths of an old-growth forest. Northern Flying Squirrels do not breed at a rate conducive to a captive setting, so here at the NSOBP, we breed mice and rats to feed the owls at the Breeding Centre. An adult Spotted Owl typically eats one juvenile rat or two mice per day, which means our 20 adults can consume up to 600 rats or 1200 mice in one month alone, in addition to the copious amount of food our juveniles demand!

“THE ADULT NSO’S AT THE BREEDING CENTER CONSUME OVER \$1250 OF FOOD PER OWL ANNUALLY!”

Maintaining our own prey populations allows us to provide the owls with fresh food daily, and to control the nutritional value and exact amount of prey each individual owl consumes. We keep detailed feeding records, and the diet of each of our owls is closely monitored to maximize their reproductive success. Because we are the only facility breeding the Spotted Owl, it is always a work in progress to determine our optimal nutrition targets. It is a common misconception that it is cheaper for us to breed our own rodents versus ordering frozen food in bulk. In fact, we estimate it costs us double to maintain our on-site mice and rat populations! Because the nutrients the owls receive are critical to the Program’s success, we believe the added cost is extremely worthwhile. A recent cost analysis shows a single adult Northern Spotted Owl at the Breeding Centre consume over \$1250 of food annually. A juvenile owl requires substantially more food in its first year because they have a very high growth rate, developing from a 30g chick to a 650g adult with full flight feathers in only six months! Due to their increased energy demands, a juvenile Northern Spotted Owl consumes approximately \$1700 of food in its first year. Given the current population of Northern Spotted Owls at the Breeding Centre, we estimate we will spend over \$32,000 on food costs alone in 2019.

“A JUVENILE OWL REQUIRES SUBSTANTIALLY MORE FOOD IN ITS FIRST YEAR... \$1700!”

FOOD TYPE

ADULT OWL

[Consumes Annually]

MICE

288

RAT

96



“GIVEN THE CURRENT POPULATION OF NORTHERN SPOTTED OWLS AT THE BREEDING CENTRE, WE ESTIMATE WE WILL SPEND **\$32,000** ON FOOD COSTS ALONE IN 2019!”



THANK YOU!



GORDON & PATRICIA GRAY
Animal Welfare Foundation



keta legacy
foundation
Formerly: Mountaineers Foundation



BC PLANT HEALTH CARE



KEEPING IT GREEN
ONE TREE AT A TIME.





The Gosling Foundation

**KENNETH M
MOLSON
FOUNDATION**

Thank you also to:

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Edward Young Reid II and
Lester John Bartson III
Canadian Charitable
Foundation

Fitzhenry Family Foundation

Heronbrook Foundation

HOP Foundation

Norman and Margaret
Jewson

Charitable Foundation

T/Gear Trust

Takla Foundation

Lohn Foundation

Choices Markets South
Surrey

Land Based Investment Fund

Bremner Trio Hydro
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The NSO Breeding Program gratefully acknowledges groups, corporations, and private business for their ongoing financial support.



ROYAL PRINTERS

“For over 80 years, Royal has nurtured long-term relationships and we know the importance of happy customers. It’s fantastic hearing from customers year after year, and from their colleagues who were told about their great experiences with Royal. That’s why, if for any reason, you aren’t completely satisfied with the printing we deliver, rest assured there is no risk. We aren’t happy until you’re happy and we’ll do whatever it takes to see you happy again. Guaranteed.”

PRINTED ON
SUGAR SHEET™
100% Forest Free Paper

14.07 TREES
550.37 kg CO₂

CERTIFIED SAVINGS

The NSOBP has been using Royal Printers for the past two years printing our calendars which feature beautiful images of the owls that live at the breeding centre. One of the reasons that we have used their services is that we appreciate the strides they are taking to create a sustainable printing process with the use of forest-free Sugar Sheet paper, low-emission delivery, and waste reduction. These aspects are important to our program because the Northern Spotted Owl inhabits old growth forests. These 200-300-year-old trees are a perfect home for the Northern Spotted Owl. However, due to logging they are cut down for a variety of consumer purposes one including the use of paper. The initiatives at Royal Printers are aiding in our goal to save this endangered and iconic species of British Columbia.

THE NORTHERN SPOTTED OWL BREEDING PROGRAM GRACIOUSLY THANKS ROYAL PRINTERS FOR AIDING US IN PRINTING OFF OUR 2019 NEWSLETTER.

Sugar Sheet™ paper is made from 100% sugar cane residue fibre and is available in a wide range of weights, sizes, and coatings to suit any printing need. Most importantly, it looks, performs, recycles, and costs the same as traditional tree-fibre papers.

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“Proud to Serve Our Clients”





The **Northern Spotted Owl Breeding Program** (NSOBP) is part of the registered non-profit **British Columbia Conservation Foundation** (BCCF).

BCCF's mission is *"To promote and assist in the conservation of the fish and wildlife resources of the Province of British Columbia through the protection, acquisition or enhancement of fish and wildlife habitat."*



Donations can be made at at our website: www.nsobreedingprogram.com

Thank you for your support to help save one of Canada's most endangered species.