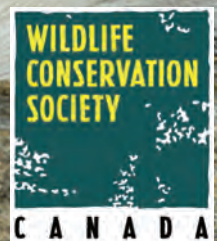


KEEPING IT *Wild*

ANNUAL REPORT 2014

WCS CANADA
SAVING WILDLIFE AND WILD PLACES



MESSAGE FROM THE EXECUTIVE DIRECTOR, DR JUSTINA RAY

In Canada, we are blessed with some of the largest boreal forests and wetlands remaining in the world. These critical wild areas — some of the last few places on the planet that have not been carved up by roads and development — represent our best hope for conservation, if we act now.

As scientists, we think development decisions such as where and whether to build a road or a pipeline should be based on a careful assessment of what is at stake ecologically, economically and socially. But to really understand what such developments might mean for wild ecosystems, you have to know what is there to begin with. That's why we are racing to build our scientific knowledge of places like the Southern Yukon, Northern Ontario and the Western Arctic — ecologically critical regions where development decisions are being made now with only the most limited information.

It's also why we are pointing to the need for decision makers to embrace something called Regional Strategic Environmental Assessment as a way to bring big-picture, long-term thinking to landscape-altering decisions. Our recent report *Getting it Right in Ontario's Far North* isn't light reading, but it has encouraged decision makers to begin discussing the shortfalls in current planning processes.

In Yukon, our work is helping First Nations and the government to identify the territory's most important large natural areas, while our on-the-ground fieldwork is painting a richer picture of ecologically diverse places such as river valleys and shoreline forests. This is critical information to have in hand as the government pushes hard for more resource development.

In new programs in the Western Arctic and British Columbia, we are working hard to keep up with rapidly changing environments. In the



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Arctic, a changing climate and resulting loss of sea ice means increased shipping is around the corner. We are trying to understand what this will mean for marine mammals faced with an increased risk of ship strikes, pollution and added noise. Any parent who has called out to a child across a busy street can understand the challenges that may now face a bowhead whale mother trying to communicate with a wandering calf.

In B.C. and Alberta, we are literally working day and night to collect information about hard-to-find bats so we can understand their habits and habitat needs before the arrival of a devastating disease. White-nose syndrome has killed millions of bats in Eastern North America, but has not yet reached our western provinces. We can only help bats deal with this crisis if we know where they are and what key areas they need to survive.

It's hard to make good decisions when you lack basic information. And it's easy to get caught up in short-term bonanzas while ignoring long-term threats, like climate change and an ongoing collapse in species diversity. At WCS Canada we strive every day to provide credible scientific information — often collected through painstaking field work — to help all Canadians make better decisions about our natural world.

Where we work

WESTERN ARCTIC: Climate change is happening quickly in the Arctic, and we are racing to understand how to help wildlife survive in the face of fast-moving change.

NORTHERN BOREAL MOUNTAINS: This intact cross-boundary area is vital for wildlife but under heavy resource development pressure.

CROWN OF THE CONTINENT: A critical natural corridor between Canada and the U.S. that is being squeezed on all sides.



HELPING
WILDLIFE FROM
COAST TO COAST
TO COAST

ONTARIO'S NORTHERN BOREAL: The world's largest intact boreal forest region is also attracting attention for its valuable mineral resources.

NORTHERN APPALACHIAN - ACADIAN ECOREGION: A key area for restoring natural connections and habitats.

MISSION WCS saves wildlife and wild places worldwide through science, conservation action, education, and inspiring people to value nature.

VISION WCS envisions a world where wildlife thrives in healthy lands and seas, valued by societies that embrace and benefit from the diversity and integrity of life on Earth.

WCS CANADA'S ARCTIC WORK IS PART OF WCS'S REGIONAL ARCTIC BERINGIA INITIATIVE, WHICH INCLUDES THE BERING STRAIT, HOME TO PACIFIC WALRUS.



Maxim Chaklev © WCS

What's that sound?

For many of us who are inundated with unwanted sounds (a.k.a, noise), we tend to tune it all out. But in quieter times, like on that annual camping trip, sounds suddenly become much more meaningful and we become hyper aware of the sounds around us.

Imagine straining your ears to hear twigs snapping near your campsite — “Is it a bear or just a raccoon?” — but you can’t tell because the sound is masked by the noise of a far-off jet. What if missing that sound meant your life? Now you can begin to understand the plight of animals when it comes to noise.

Noise introduced by human development is an invisible impact that often gets overlooked. We can see the impact of new roads, pipelines or mines, but how these developments affect wildlife by altering the natural soundscape is rarely considered.

With generous support from The W. Garfield Weston Foundation, WCS Canada Arctic Research Associate Dr. Stephen Insley has made it a habit to listen closely and admits that he is “happy to work with anything that makes sound.” Dr. Insley has focused heavily on seals and other pinnipeds (e.g., seals, sea lions) and is now engaging Arctic communities in his acoustic studies of wildlife in a new WCS Canada Western Arctic research project, a region he notes “is changing fast.”

Dr. Insley is focusing on two major changes facing the Arctic. The first is a decrease in the extent and persistence of ice. “There are so many implications to that, from loss of habitat needed to birth and raise young to changes in water movement,” he notes. The second is a surge in human activity, everything from mineral exploration to tourism. And there are, of

DR. STEPHEN INSLEY WORKING IN THE FIELD

Dr. Insley uses sophisticated equipment to research sounds in the Arctic.

course, many points where these two impacts intersect. A loss of ice, for example, will open the way for increased ship movement through Arctic waters, which brings us back to noise.

The issue, Dr. Insley explains, isn't just an increase in ship noise. It is also a question of the kind of noise and when or where it occurs.

"The most obvious impacts of noise" Dr. Insley notes, "are direct impacts such as when a source is powerful enough to cause physical damage. More difficult to address, but potentially just as deadly to animals, are behavioural impacts, such as when a noise causes animals to flee or avoid an area, or masks important signals like the presence of dangerous predators, prey, or even a mate," he continues. "The result can be a quick death because a predator hasn't been detected in time, a slow one caused by missed feeding opportunities or population decline due to unrealized mating opportunities. And it gets still more complex with indirect impacts, such as when an animal's food source is affected by noise, which in turn causes the animal to go hungry."



Differences in reactions to noise are also important, but not well understood, Dr. Insley adds. Responses can often vary widely among different species, and even among individuals of the same species. Further complicating things is how animals sometimes get used to — or habituate — to sounds, while other times they don't, or even worse grow more sensitive ("sensitized") to certain sounds. "These sorts of reactions go beyond what we would expect based on noise level alone and are why we often need to figure out what types of sounds are important to each kind of marine mammal."

© WCS Canada

LISTEN TO THE ARCTIC

Click the icons to listen to the sounds of the Arctic — both natural and man-made.



and other sea mammals if ship traffic increases.

Loss of ice will increase noise in other ways as well. With less ice, “the sea state gets higher” and with more open water, background noise from waves will also increase, Dr. Insley explains. More background noise can mask sounds, which can affect the frequencies used in vocal communications and the distance that contact can be maintained — a particularly important factor for mothers communicating with their young.

It's factors like these that have drawn WCS Canada to undertake the research needed to better understand the potential impacts of ice loss and development on the Western Arctic. In WCS's view, we can't simply rush ahead with oil-and-gas exploration, mineral development and road building without more in-depth knowledge of the fragile natural environment of the region. And we certainly don't want to introduce new uses or increased ship traffic with no monitoring of impacts on wild systems.

That's why WCS Canada is also tapping into more sets of eyes — *and ears* — for wildlife monitoring. Dr. Insley points out that the communities of the Inuvialuit Settlement Region have a well-established community-based ecological monitoring program. He is working to strengthen and fill gaps in this program by calling on his extensive experience with community monitoring in Alaska.

Working in the vast and fast-changing Arctic region is difficult and expensive, he notes, so combining efforts and tapping into local community knowledge is essential. Already, he is working on a project with Paulatuk community members to monitor ice seals — ringed and bearded — in Darnley Bay. This area of the eastern Beaufort Sea is of particular interest as Dr. Insley suspects that there will be an increase in one of the seals' main predators — killer whales — in the area as ice coverage decreases.

Getting out on the land and collecting critical data is how WCS Canada helps to inform and



THE FRAGILE ARCTIC IS CHANGING RAPIDLY

shape development decisions in one of the wildest places on Earth. “We are on the cusp — on the tip of the iceberg” when it comes to changes in everything from the landscape to the soundscape in this region, Dr. Insley notes, so now is the time to bolster our understanding of what is at stake so we can improve our approaches to planning, mitigation and protection.

Top: Steve Zack © WCS; Bottom: © Susan Morse

LONG-EARED MYOTIS



© Jared Hobbs

Going deep for bats

As creatures of the night, bats have long had a somewhat mysterious existence. One of the biggest mysteries has been where they go in winter, especially in Western Canada.

WCS Canada Associate Conservation Scientist Dr. Cori Lausen says most scientists have focused on bat activity in the warmer months. “The bats disappear in late summer and we put our gear away,” she notes. However, with the spread of white-nose syndrome, a fungal disease that kills bats while they hibernate in winter, Dr. Lausen decided it was time to find out where bats in B.C. were spending the colder months of the year.

The first problem was figuring out where to even begin looking. “It was like looking for a needle in a haystack” given that next to nothing was known about where B.C. bats might be hibernating, she explains. Dr. Lausen had a hunch, however, based on observations of bats active in winter. She knew they weren’t looking for food — there aren’t many insects around when the temperature is below zero — but they

might be looking for water. So Dr. Lausen followed her hunch and put out bat detectors in areas with a high density of rock crevices near open fresh water.

She wasn’t looking for bats emerging from caves — most caves have at least some water in them, she explains — but from research she had done in Alberta, she knew many western bats wintered in dry rock crevices. Her hunch paid off. “We started to discover a lot of bats flying around in winter.” In fact, Dr. Lausen has now found eight of 15 bat species thought to overwinter in B.C. in her winter tracking and monitoring.

As for the remaining seven species, Dr. Lausen says “we are either searching in the wrong places or they are not overwintering in B.C., but I suspect it is that we are searching in the wrong places.” She believes she will find most of these bats by shifting her focus to more northerly parts of the province and to sites that are deep underground. And by underground, she means “really deep caves” and extensive karst systems that are impossible to access in winter.

DR CORI LAUSEN
IN QUEEN VICTORIA
MINE



DO YOU LOVE BATS?

FOR MANY PEOPLE, bats have shared a space with spiders and snakes at the bottom of the cute and cuddly list. But attitudes are changing rapidly, Dr. Lausen believes. “People are becoming more and more comfortable with bats,” especially as they learn to appreciate the valuable natural services – like insect control – performed by bats. In her public presentations, Dr. Lausen has found that people are amazed to learn that bats can live 30-40 years and generally have only one pup a year. “Bats are very intelligent,” she notes, adding that when people see a live bat up close, “their view really changes. It’s ‘wow, they’re cute!’” To learn more about western bats and how you can help, visit BCbats.ca



And that’s where the caving community comes in. There are people who love to descend into these deep, dark holes, crawl through tiny gaps and even swim through underground rivers. And they are the people Dr. Lausen is hoping will help her find more bats. “They might find our missing species and discover big populations” of bats, she says optimistically.

That last part — big populations — is important, because, to date, the largest known bat hibernaculum (overwintering site) in B.C. holds a grand total of 50 bats. That’s a far cry from the tens of thousands of bats that have been found in caves in eastern North America. “I don’t know if western North America is just different, but the largest western site we know of is in the NWT and has about 3,000 bats,” Dr. Lausen says of a site she helped to discover.

All of this bat detective work is a race against time as white-nose syndrome continues its cross-continent march. The disease, which was

first detected in North America less than 10 years ago, has devastated bat populations in eastern North America by causing bats to wake during hibernation and burn up precious energy reserves. “If we can find out what bats are here and where they are before the disease arrives, we might be able to do something,” Dr. Lausen explains, adding “We won’t be able to prevent the disease from getting here, but we might be able to minimize its impact” if we know more about the habits — and habitats — of B.C. bats.

Dr. Lausen is already working with local communities to both find and protect bats. Along with public presentations, WCS Canada has been providing training and financial assistance for B.C.’s Community Bat Program. “These programs can provide really valuable information. If we know we have a colony in a previously identified location, we can monitor it. Or if we know that a colony has not returned to a previous site, then that might be an important warning sign,” she explains.

Top: © Nelson Star; Bottom: Cori Lausen © WCS Canada

At a B.C. mine site, a gate was installed to protect bats from disturbance during winter hibernation and to reduce the chances of WNS spores being carried in on visitors' clothing and shoes. Visitors can request a key to gain access in summer when bats are not using the mine.

As sites are discovered, appropriate measures can be taken to protect overwintering bats. "It really has to be done on a case-by-case basis," Dr. Lausen cautions. At one old mine site, there was no need to do anything once cavers exploring the site reported they ran out of rope trying to touch bottom. The bats at the site are a kilometre underground, so there's not much concern about human disturbance. But at another popular mine site, it was decided that gating would be necessary. However, to keep the community from feeling excluded, arrangements were made to allow visitors to request a key to open the gate in summer. In winter, the gate remains firmly closed — except to bats.

It's the kind of balancing act that is important in keeping communities engaged and supportive of bat conservation work, Dr. Lausen notes. The caving community is a prime example. Cavers can spread white-nose syndrome by taking gear carrying spores from an infected



cave to a new site. But cavers are also ultra-valuable underground eyes and ears. So Dr. Lausen works hard to engage the caving community, stressing the need to take great care with equipment and clothing while reporting any bat findings.

The value of the research that Dr. Lausen is leading in B.C. is demonstrated by the case of the silver-haired bat. These bats, she points out, are considered tree bats and it was believed that they migrated south for the winter. So it was somewhat surprising when Dr. Lausen netted the bats in the middle of winter in B.C. "That was a real red flag that something was different here," she says. At first, Dr. Lausen considered the possibility that the bats had migrated from areas further north, like Yukon or Alaska. But re-capture work this summer proved that the

A helping hand

THE CAVING COMMUNITY IS simultaneously a great bat ally and a potential threat. Careless cavers who spread white-nose syndrome by carrying spores from an infected cave on equipment, clothing or shoes to a new site can accelerate the spread of this devastating disease (which is thought to mostly spread through bat-to-bat contact). But cavers can also help scientists better understand where bats are roosting and what species are where. WCS Canada is reaching out to cavers in Western Canada to work together to explore deep caves where there may be undiscovered bat hibernacula. "The caving community is very excited about helping with this work, but we need funding," notes Dr. Lausen. You can help by making a donation to WCS Canada through our website at WCSCanada.org.

If you are interested in exploring caves or old mines, read the caving protocol developed specifically for Western Canada, available at www.ccwhc.ca/publications/WNS_Western_Transmission_Prevention.pdf.

© WCS Canada

bats are indeed year-round residents of B.C., with some individuals roosting in the same mine in both winter and summer.

“Based on what we knew, we would not have classified this bat as at-risk for white-nose. It is supposed to be a tree bat!” Dr. Lausen points out. “If we hadn’t discovered it was actually wintering in old mines, it wouldn’t have been considered at risk.”

That makes silver-haired bats a bit of a symbol for the whole issue of the need to quickly improve our knowledge of bats in B.C. If we don’t know where and what bats are in the province, we will have little chance of understanding — and mitigating — the impacts when white-nose syndrome does arrive.

“If we can’t predict which species are most vulnerable and if we don’t understand their habitat requirements, how can we help them recover?” she adds. “If a vital cave is flooded or development is inappropriately located because we don’t know enough, that could be fatal for bats,” which are slow to reproduce and could



Watch this great video about Dr. Lausen’s bat sleuthing during a recent “BioBlitz” in B.C.’s Flathead valley. [CLICK TO WATCH.](#)

take a hundred years or more to recover.

With white-nose syndrome moving a bit further west each year, Dr. Lausen is racing to improve our scientific understanding of western bats, knowing that we may simply be underestimating the syndrome’s true spread. For our planet’s only flying mammal, it’s “now or never,” she says, if we want to improve the odds of survival in the face of a deadly disease and other threats.

WHEN WILL WHITE-NOSE SYNDROME HIT WESTERN CANADA?

The answer to that question is unknown, but the syndrome continues to spread and it is probably only a matter of time before it reaches the western provinces. At one point, the fungus was estimated to be spreading at a rate of 800 kilometres per season, but this past season it made only a small move westward. Part of the problem is that across the Prairie provinces, bats are using rock crevices rather than caves, making it extremely difficult to monitor their wintering population. Dr. Lausen’s fear is that the syndrome could cross the prairies without really being noticed and then “pop up” in B.C. and Western Alberta. “And at that point, if we don’t have any information on baseline populations, we won’t really know what is happening or what has been lost.”



Big places need big thinking

Northern Canada has something that has become all too rare on much of the rest of our planet — big wild places.

Why do we have magnificent wild areas like the Yukon's boreal mountains or Ontario's vast northern boreal forests? Well, unfortunately, it is not because we have had great foresight or proactive planning. Instead, it is more a case of being blessed with vast natural areas, the difficulty and cost of accessing remote places, and a harsh northern climate that has kept most Canadians living further south.

But we can no longer rely on remoteness alone to protect these critical reservoirs of biodiversity and fully functioning ecosystems. With the region's valuable minerals, oil and gas and other resources in increasing demand,

WCS Canada is working to get ahead of the development curve with research to better understand these wild ecosystems and to develop new and improved approaches to land-use and conservation planning for wild lands conservation.

As WCS conservation scientist Dr. Hilary Cooke points out, "when we stick with our usual approach to making land-use decisions — issuing permits for drilling, mining or logging without any co-ordination or consideration of the larger landscape — we end up with fragmented landscapes and a scramble to try to 'save' what is left of the wild."

"In these situations, conservation becomes very reactive," she explains. "We end up trying to protect the last few hectares of an endan-



Tracking the wolverine

Finding out more about wolverine habitat use means heading out in -30°C weather, building traps and carefully radio collaring captured animals (while carefully releasing unintended visitors like fishers and martens). This six-part video series features the work of one of WCS Canada's W. Garfield Weston Foundation Fellows in Northern Alberta. [CLICK TO WATCH.](#)

gered ecosystem or the last few individuals of an endangered species. That often means trying to restore and reconnect habitat fragments across a larger landscape — trying to put the pieces back together again. A far better approach is to use proactive planning to keep large landscapes intact in the first place.”

Fortunately, in Yukon there is an opportunity to take such a different approach thanks to the Umbrella Final Agreement signed by First Nations and the federal and territorial governments in 1993. This agreement calls for regional land-use planning to achieve social, environmental, cultural, and economic goals while managing land and resource use. This includes determining which areas should be zoned for industrial development and which should be conserved for their ecological and cultural values.

Dr. Cooke and WCS Canada's Northern Boreal Mountains Landscape Leader Dr. Donald Reid have been actively providing input into this process, including highlighting the need to conserve large, wild landscapes. As Dr. Cooke notes, “In the boreal, things happen at big scales.” Forces like forest fires and insect outbreaks can transform vast areas in a matter

of days or weeks, meaning that planning must incorporate big thinking, particularly when it comes to protected areas. If we want to maintain the kind of habitat needed by wide-ranging species like caribou, we can't turn these regions into a patchwork quilt with poorly planned development.

This thinking also applies to Ontario's northern boreal forests, an area almost the size of France that is the most intact boreal forest in the world, and which includes North America's largest wetlands. Currently, there are only two all-weather roads and two operating mines, along with 34 remote First Nation communities, in the region.



Hilary Cooke © WCS Canada



But things are poised to change thanks to the discovery of world-class mineral deposits in the Ring of Fire, an area northeast of Thunder Bay. Some see the Ring as Ontario's "tar sands" — a resource bonanza that will pour revenues into government coffers and create jobs and opportunities for remote First Nations communities, along with others. The recent provincial election campaign saw all three major parties promising to build a billion-dollar transportation corridor in an effort to jumpstart the development process. But other than a budget to build a road, there has been no plan for the region.

WCS Canada is working to demonstrate the need for comprehensive regional planning that would complement comprehensive agreements with individual First Nations. "Only a robust planning approach can consider the combined effects of climate change, resource development and community needs to create a plan that leads to long-term health — for both wild and human communities. We simply can't rely on a 'business as usual' approach that ignores cumulative impacts and fails to embrace a long-term goal of sustainability," says Dr. Cheryl

Chetkiewicz, Landscape Leader for WCS Canada in Northern Ontario.

In fact, WCS Canada, after examining the inadequate planning toolbox currently being used in Ontario, has been working to steer the Ontario government, First Nations, and other stakeholders toward a regional planning process called a Regional Strategic Environmental Assessment (R-SEA). In a report released in June 2014, WCS Canada together with EcoJustice, spelled out the advantages of this approach, including improving our ability to undertake proper consideration of cumulative impacts, sustainability, and integrated regional decision making.

An R-SEA approach brings the key players together to ask "What future do we want for both human and wildlife communities in this region and how do we get there?" Answering these questions will require an honest discussion about just how much industrial development this sensitive region can absorb and how to build economies that go beyond the conventional boom-and-bust resource economy, Dr. Chetkiewicz notes.



"We simply can't rely on
a 'business as usual'
approach that ignores
cumulative impacts and
fails to embrace a long-term
goal of sustainability."
-Dr. Cheryl Chetkiewicz

Dr. Cheryl Chetkiewicz



Top: © WCS Canada; Bottom: © WCS Canada



Riverside forests lined with mature spruce trees form an important habitat in Southern Yukon. WCS is studying how songbirds and other wildlife use these forests.

In Yukon, to advance new ways of thinking about big landscapes, Dr. Cooke is combining large-scale planning to identify priority areas for conservation with detailed on-the-ground studies of specific ecosystems, such as the forest and shrub habitats that border wetlands, rivers and streams. “These riparian areas are transition zones between land and water. They’re different from upland forests, with different plant species and structure. And the juxtaposition of the aquatic, riparian and upland habitats makes them really productive areas for wildlife, including boreal birds,” she notes.

While the importance of managing these areas to protect fish and wildlife habitat has been recognized for several decades, the difficulty is that what works in one place may not work in another. “Compared to Southern Canada and the U.S., there has been relatively limited scientific study of riparian areas in Yukon’s boreal mountains,” Dr. Cooke explains, which is another reason why both careful research and a precautionary approach to land-use decision making are both needed.

Similarly, while the idea of punching roads through a vast wilderness to access valuable mineral resources can seem economically attractive, there are a whole slew of factors that

need to be considered in much greater detail before starting up the bulldozers, Dr. Chetkiewicz notes. For starters, Ontario’s Far North is one of the world’s most important storehouses for carbon and provides immensely important climate regulation services for the entire globe. Yet Ontario has no plan for how to protect this invaluable — and irreplaceable — service.

Meanwhile, in Yukon, Dr. Cooke’s experience working in remote areas has convinced her of the importance of adopting a big vision for the landscape. “Flying over large, wild areas, you can see the way that fire, water, and ice have shaped the landscape over thousands of years,” she says. “Only large wild landscapes can truly accommodate those processes, and the ecosystems and wildlife that evolved alongside them.”

Dr. Cooke also points to the issue of climate change as a key driver for bigger picture thinking. “Its effects are very visible here in the North and people are very aware of the impact it is having. We need to conserve large landscapes to allow systems to adapt to a changing climate.”

The work of WCS Canada is all the more critical in a rapidly changing world. That’s why our researchers are hard at work trying to get decision makers to look beyond minerals to see the true riches of these fabulous natural regions.

Boreal for the birds

Dr. Hilary Cooke says her mother insists her first word was “bird.” One of the greatest things about focusing on birds, Dr. Cooke notes, is their visibility — “you can go into the woods and see them.” With large mammals, hours and hours of field research could easily result in no actual sightings.

But the really important part of studying birds is what they can tell us about the health of ecosystems, Dr. Cooke says. “It’s a cliché, but they really are the canary in the coal mine. When you put a bunch of bird observations together over a large landscape, that can tell us a lot about what the landscape looks like, both its natural habitats and the amount of land that’s been transformed by human activity and development.”

Birds are also hugely inspiring, Dr. Cooke adds. “When I was recently visiting Colombia, I saw a Northern Waterthrush, a small warbler that breeds in Canada’s boreal forest. It had taken a lot of effort for me to get to Colombia and it was amazing to see that this little bird had done it too in its own way. It was also somewhat scary to contemplate all the obstacles it had faced on its long continent-crossing journey.”

Sadly, Dr. Cooke notes, “despite the intactness of much of the boreal region, we’ve seen declines in many boreal species.” Canada’s boreal is North America’s bird nursery, supporting over 300 breeding bird species and producing millions of birds every year. This makes Dr. Cooke’s research on conserving large, wild landscapes and important bird habitats all the more vital. To learn more about WCS Canada’s work to help boreal birds and how you can help too, visit our website.



BOHEMIAN WAXWING



TOWNSEND'S WARBLER



NORTHERN WATERTHRUSH

In the Field Our scientists



©WCS Canada

Dr. Justina Ray President and Senior Scientist

Justina takes a hands-on role in both research and conservation policy development. She has studied the impacts of landscape changes on caribou and wolverine and used her findings to help inform her work with official bodies ranging from the Ontario Wolverine Recovery Team to the Committee on the Status of Endangered Wildlife in Canada. Justina has also provided key insights into caribou ecology for the federal caribou recovery effort. She has pioneered new non-invasive wildlife monitoring techniques, and has co-authored a popular book on the fate of Canada's caribou, *Caribou and the North: A Shared Future* (Dundurn Press, 2008).



©Casey Brennan

Dr. John Weaver Senior Conservation Scientist

Recently, John has been mapping out wildlife habitat in the Crown of the Continent area in the Southern Canadian Rockies and Northern Montana. With a focus on six key species, his report on the region lays out how this relatively intact area can be managed to mitigate the impacts of climate change and development. John has focused extensively on large carnivores in his 40+ years of conservation research in the Western U.S. and Canada. John's research on wildlife movement in the Nahanni region led to a seven-fold expansion of this protected area, making it much more suited to meeting the needs of wildlife such as caribou and grizzly bears.



©Fritz Mueller

Dr. Donald Reid Northern Boreal Mountains Landscape Leader

Don leads WCS Canada's conservation research in the Northern Boreal Mountain region of B.C. and Yukon and led the development of a Strategic Conservation Assessment of the region that is guiding WCS's work in this important area. He was also a special advisor to the Peel Watershed Planning Commission in Yukon, which recommended extensive protection for this largely pristine area. In his 30-year career as a wildlife biologist, Don has studied everything from the effects of forest harvesting on snowshoe hares and their lynx predators to pandas in Sichuan, China. Don has also closely studied the interrelationship between lemmings and their predators, including Arctic and red foxes, and the impact of climate change on this vital Arctic food web.

For stories from the field, insights into what drives our scientists and the challenges facing those working to save wildlife in Canada, subscribe to our Muddy Boots blog. Visit muddybootswcs.blogspot.ca



©Julie Boan

Dr. Cheryl Chetkiewicz

Ontario Northern Boreal Landscape Leader

Cheryl is leading WCS Canada's efforts to better understand the ability of wildlife to withstand development activity in Ontario's northern boreal region. Understanding the degree to which populations of caribou or wolverine can remain resilient in the face of mining, logging, or other resource extraction activity is critical at a time when such activity is quickly pushing north into one of the world's most intact boreal regions. Cheryl has focused extensively on carnivore conservation in her career, which has involved everything from tracking jaguars in Amazonia to improving grizzly bear management in Alaska.



©WCS Canada

Dr. Hilary Cooke Associate Conservation Scientist

Hilary works in the Northern Boreal Mountains of B.C. and Yukon, focusing on wildlife use — including by migrating birds — of important valley bottom habitats, such as wetlands and old spruce forests. Using innovative new tools, Hilary is also mapping out key areas for conservation to better inform ongoing resource and land-use planning processes in this spectacular wild place. Hilary has a long-standing interest conserving bird habitats and managed landscapes. She uses field science to develop recommendations for forestry and grazing management to protect key habitats for songbirds and woodpeckers.



©R. Paredes

Dr. Stephen Insley Arctic Research Associate

Along with leading WCS Canada's Western Arctic marine program, Steve is part of the WCS Arctic Beringia program, which includes Alaska and Northeastern Russia. Drawing on his experience working with marine mammals and community-based monitoring, Steve is building a marine conservation program focusing on various aspects of changing Arctic ecosystems and northern communities (especially those in the Inuvialuit Settlement Region) in the Beaufort Sea region.

WCS CANADA'S SCIENCE TEAM IS WORKING TO IMPROVE PROTECTION FOR SPECIES SUCH AS THIS NORTH AMERICAN RIVER OTTER



Julie Larsen Maher © WCS

A BRIGHT FUTURE FOR CONSERVATION SCIENCE

WCS Canada's W. Garfield Weston Foundation Fellowship Program

is helping to support a new generation of field scientists and putting more boots on the ground to study important conservation science issues.

In 2014, we were pleased to provide seven Fellowships for graduate students conducting critical conservation research in two key areas: Ontario's Far North and the Southern Yukon (see page 12 for more on WCS Canada's work in these areas).

Brandon Laforest (York University) is focusing his research on the feeding ecology of polar bears along the south Hudson Bay and the James Bay coasts to better understand the impacts of loss of sea ice on their behaviour. This is his second year of support.

Lorna Harris (McGill University) is exploring how peatlands work to regulate the climate and the impacts of mining on the movement of gases, such as methane and carbon dioxide. This is her second year of support.

Gretchen Lescord (Laurentian University) will determine how mercury accumulates in water, fish and wildlife in the Attawapiskat watershed where mining is now underway.

Matt Scrafford (University of Alberta) is continuing his study of the impacts of oil-and-gas exploration and development on wolverine movements and habitat use by radio-collaring and tracking these elusive creatures in North-western Alberta.



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Jeffrey Werner (University of British Columbia) is investigating the dramatic declines in Arctic ground squirrel populations in Southern Yukon to better understand what is affecting this species, which form an important part of boreal food chains.

Kristin Denryter (University of Northern British Columbia) is investigating the species and nutritional value of plants female caribou choose during summer when they are raising calves through detailed observations of tamed caribou feeding in the wild — an exciting new study approach.

Meagan Grabowski (University of British Columbia) is investigating the extent to which shrub growth is influenced by soil nutrients and herbivore browsing. Shrubs are key foods for many boreal species and have an expanding presence due to a warming climate.

In addition to the Weston Fellows, WCS research activities in Ontario provided opportunities for research, mentoring, and support for graduate students from McGill University, Trent University, University of Calgary, and Royal Roads University.

You can learn more about our Fellows work on our [website](http://wscanada.org).

Our staff

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Lila Tauzer, M.Sc.

*Northern Boreal Mountains
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Stephen J. Insley, Ph.D.

Arctic Research Associate

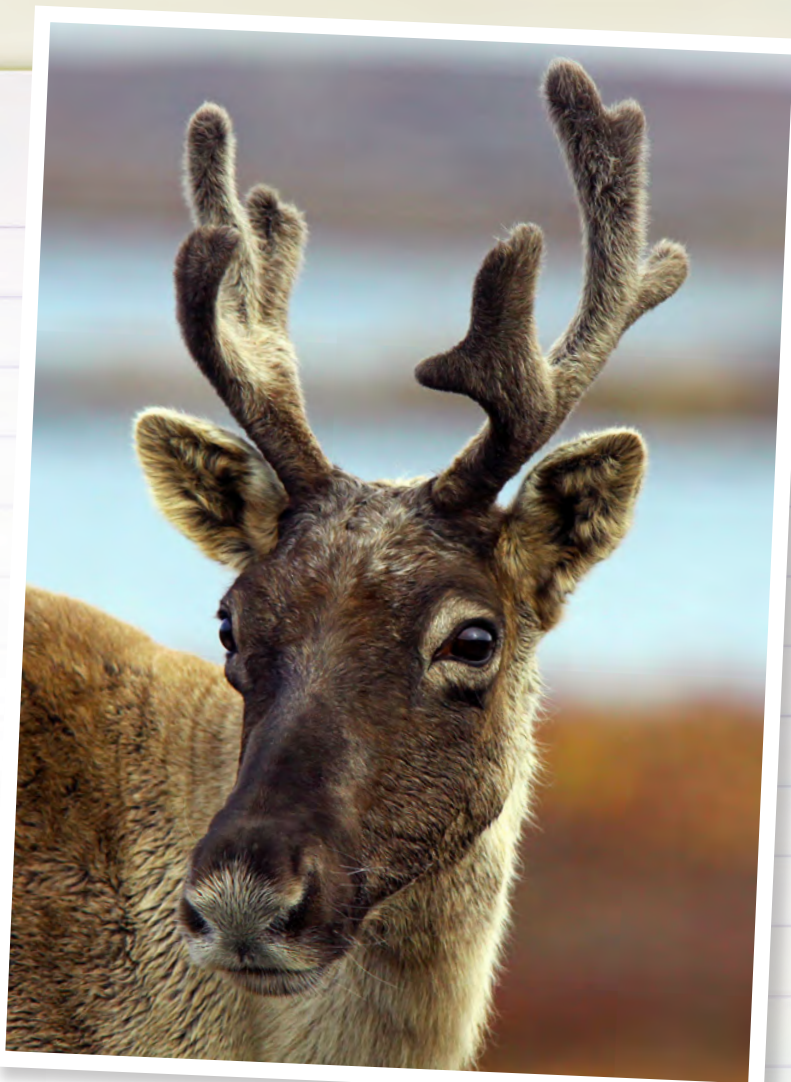
WESTERN CANADA

Cori L. Lausen, Ph.D.

Associate Conservation Scientist

John Weaver, Ph.D.

Senior Conservation Scientist



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2014 Financial Results

ASSETS	2014	2013
Cash and Cash Equivalents	1,752,243	1,518,681
Accounts Receivable	72,258	212,343
Prepaid Expenses	71,369	17,625
TOTAL ASSETS	1,895,871	1,748,649

LIABILITIES & NET ASSETS

Liabilities

Accounts Payable and Accrued Expenses	117,727	177,927
Total Liabilities	117,727	177,927

Net Assets

Fund Balance		
Unrestricted	128,084	206,491
Restricted	1,650,060	1,364,231
Total Equity	1,778,144	1,570,722

TOTAL LIABILITIES & EQUITY	1,895,871	1,748,649
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REVENUE & EXPENSES

REVENUE

Wildlife Conservation Society*	185,955	198,299
Donations and Grants	2,265,623	2,589,030
Other	133,227	166,560
TOTAL REVENUE	2,584,805	2,953,889

EXPENSES

Program and Operating Expenses	2,377,383	2,565,844
TOTAL EXPENSES	2,377,383	2,565,844

EXCESS OF REVENUE OVER EXPENSES	207,422	388,045
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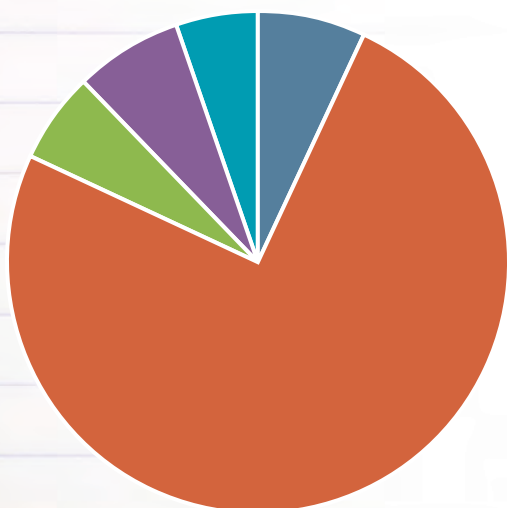
*Support from the Wildlife Conservation Society (WCS) Global Conservation Program.



Top: John Weaver © WCS Canada; Middle: Cheryl Chetkiewicz © WCS Canada; Bottom: Gillian Woolmer © WCS Canada

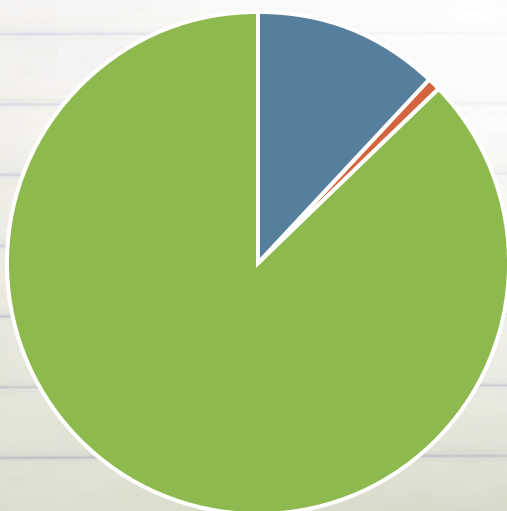


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WHERE OUR FUNDING COMES FROM

- Wildlife Conservation Society*
- Foundations
- Individuals
- Government
- Other



HOW WE USE YOUR DONATION

- Administration
- Fundraising
- Programs to save wildlife and wild places

*Support from the Wildlife Conservation Society (WCS) Global Conservation Program.

Thank you!

WCS Canada thanks the many generous individuals and organizations that have supported our groundbreaking wildlife research across Canada. To find out more about how you can be part of keeping the wild in Canada, please visit wcscanada.org.

Foundations and Organizations

The W. Garfield Weston Foundation

Alan and Patricia Koval Foundation
Alberta Conservation Association
Beatrice and Arthur Minden Foundation
Calgary Foundation
Canadian Wildlife Federation
Dunemere Foundation
Echo Foundation
Eden Conservation Trust
Helen McCrea Peacock Foundation
K.M. Hunter Charitable Foundation
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Tides Canada Foundation
T-Gear Charitable Trust
Wildlands League
Wilburforce Foundation

Corporate

BC Hydro and Power Authority
DSA Media
Mid-Town Plaza Association
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Saamis Memorial Funeral Chapel
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Heather Reppen
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Sophie Bella Strauss
Susan Ulmer
Anonymous

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Richard Kobelka
Edward Allan Patey
Mitchell James Morgan Pogue
Mara Scott
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