

Vanishing: The Biodiversity Crisis in Canada

Created by the
Canadian Conservation Photographers Collective



CONTENT

Purpose

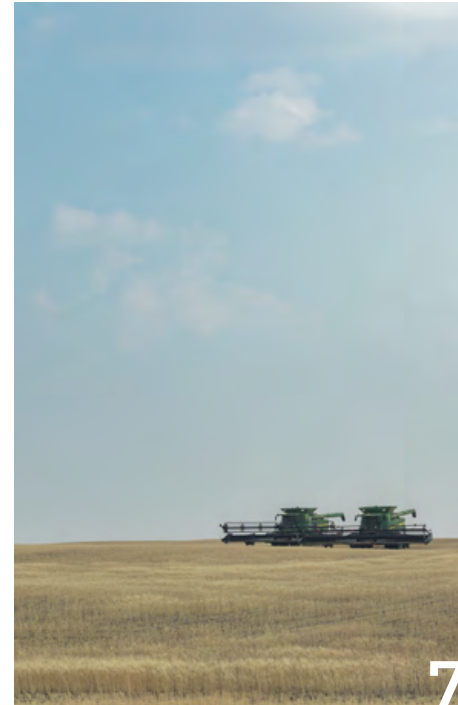
The goal of this publication is to examine impacts of biodiversity loss across Canada by exploring five key themes:

- Habitat loss
- Climate change
- Invasive species
- Overexploitation
- Pollution

Each theme is examined within its own section and accompanied by relevant images, information, and quotes from authorities in the field.

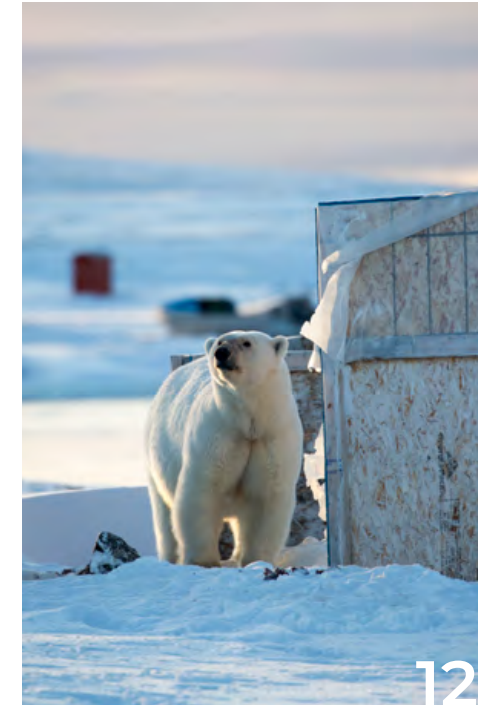
We encourage readers to learn about the topics covered and follow the links throughout this document if they want to dive deeper and learn more.

This publication can be shared with friends, family, colleagues, and anyone in your community who could benefit from learning more about biodiversity in Canada.



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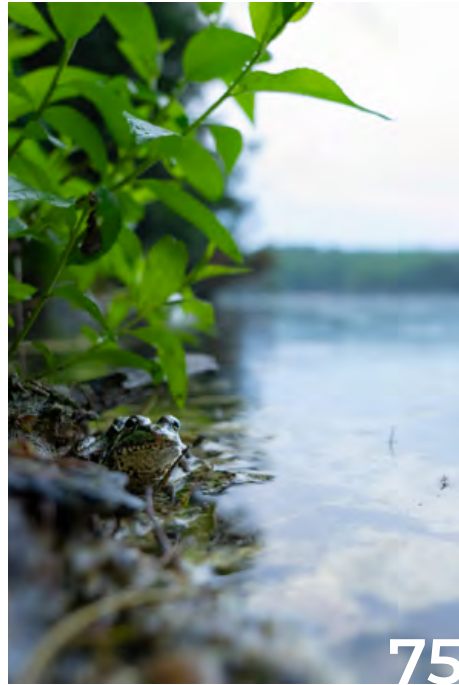
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We are incredibly grateful for the collective effort that has made this document a valuable resource for learning about biodiversity loss in Canada. Thank you to everyone involved for your exceptional contributions!



Canadian Conservation Photographers Collective

About Us

The Canadian Conservation Photography Collective (CCPC) was founded in 2021 with the objective of promoting conservation and science education through the production of strong, thought-provoking visual content.

The Collective is composed of freelance photographers from across the country and from a variety of occupational training backgrounds, including biology, education, journalism, social work, and business. We firmly believe that networking as a team and combining our strengths and experience dramatically furthers our ability to shed light on pressing conservation issues and to reach, inform, and engage a much wider audience.

In addition to regularly publishing content on our social media platforms and through established media channels, the CCPC also hosts educational webinars, partners with like-minded conservation organizations, and releases focussed campaigns designed to illuminate pressing conservation issues in Canada.

To effectively and accurately document and relate complex and urgent conservation issues throughout the entirety of the country, we work in concert with other collectives, non-governmental organizations, non-profits, research organizations, governments, and communities.

The CCPC strongly believes in photography as a tool to educate, inspire, and engage. Our goal is to produce content that will open dialogues, stimulate conversations, and ultimately bring about change.



The Canadian Conservation Photographers Collective acknowledges that our work takes place on the traditional territories of diverse Indigenous peoples across Canada.

We honour the First Nations, Métis, and Inuit communities on whose traditional territory we live and photograph.

We recognize the deep, traditional knowledge and stewardship that these communities have for the land and its ecosystems. As we advance our mission to protect wildlife and natural habitats through our visual content, we are committed to collaborating with Indigenous communities and respecting their vital role in conservation and environmental stewardship.

1.0 INTRODUCTION





CCPC/Kevin Xu

Our Definition

Biodiversity is often defined as the number and distribution of species within a particular location.¹ This definition fails to account for the complex interrelations between wild species, their habitats, and human society.

Throughout this campaign we are advocating for a more holistic measure of biodiversity that considers the interconnected nature of life. From fungi that create underground networks along tree roots to animals that walk under the canopy and the bacteria they consume, each organism works with their neighbours to form unique and balanced ecosystems. Each organism has a purpose. Our goal is to promote a public understanding of biodiversity and conservation that encompasses all components of the natural world, and that highlights the role humanity plays within it.

As the second largest country in the world, Canada encompasses a diverse range of ecosystems.² It is home to a unique set of 80,000 species, each perfectly suited to thrive

Polar bears frequently visit Arctic landfills during the fall and winter. **Resolute, Nunavut, 2015.**

in their respective environments. Yet nearly half of monitored Canadian species have experienced declines in abundance, and 20% are at risk of extinction. Beyond Canada's borders, we have seen similar widespread declines in biodiversity as biologists continue to raise the alarm of a sixth mass extinction underway.³

There are five main drivers of biodiversity loss: habitat loss (including land-use and sea-use change), climate change, invasive species, overexploitation of resources, and pollution.⁴ We understand that risks to biodiversity are complex and interconnected. While our campaign can only address a fraction of the issues that biodiversity faces in Canada, we hope to illuminate the scale of the crisis.⁵

1 Maier, 2012

2 Ray et al., 2021

3 Barnosky et al., 2011; Hooper et al., 2012; Rosenberg et al., 2019

4 IPBES, 2019

5 Fagan & Holmes, 2006; Hooper et al., 2012; Ray et al., 2021



CCPC/Cari Siebrits



CCPC/Jillian Brown



CCPC/Giulia Ciampini



Why Biodiversity Loss Matters

Humans are deeply reliant upon the healthy function of countless natural systems. Ecosystem services refer to the direct and indirect ways in which a healthy environment can support vibrant and healthy human communities.

Since the last ice age, stable environmental conditions have played a critical role in the evolution of human societies. With biodiversity loss, we threaten to dramatically disrupt the Earth systems and services upon which we rely. Research has shown that biodiversity has a comparable impact on ecosystem services to other major threats like climate change.

Biodiversity can be seen as a puzzle. The more pieces (or species) in a puzzle, the more difficult it will be to disrupt the image. Ecosystems with a variety of species are more productive and stable than those with less biodiversity.⁶ As climate warms and human impacts accelerate, the ability of ecosystems to be resilient will be critical to their continued persistence.⁷ By conserving biodiversity we are also helping secure a future for humanity for years to come.⁸

A polar bear rests on the rocky shores near Churchill, Manitoba, during the summer months. With the sea ice melted, the bear conserves its energy, waiting for the Hudson Bay to freeze again.
Churchill, Manitoba, 2023

6 Johnson et al., 1996; Oliver et al., 2015; Wagg et al., 2022

7 Oliver et al., 2015

8 Pizzutto et al., 2021



CCPC/Justin Taus



CCPC/Liam Brennan



CCPC/Jacque Matechuk



2.0 HABITAT LOSS



94%
of land species are negatively affected by urbanization and agriculture⁹

CCPC/Liam Brennan



14.7%
of Canada's marine area protected¹⁰

CCPC/Agathe Bernards



13.6%
of Canada's terrestrial (land and freshwater) area protected¹¹

CCPC/Guilia Ciampini



CCPC/Josh DeLeenheer

The Issue

Habitat loss is the number one contributor to biodiversity decline in Canada.

When an ecosystem has been dramatically changed by human activities (including development, agriculture, oil and gas exploration, and water diversion) the native species once living there are either forced to move elsewhere or are eradicated entirely. This leads to a decrease in species numbers and biodiversity overall.

Science shows that how we choose to use land is an “excellent predictor of endangered species density in Canada.”¹² With less than 15% of both water and land habitat in Canada currently protected, the remaining wild areas have either been destroyed, degraded or earmarked for

In recent years development on **Bear Mountain in Langford, British Columbia** has exploded. Areas once home to deer, bears, owls, and cougars have been cleared for rapidly expanding housing.

future projects.

There are five categories of habitat loss:

- Urbanization
- Agriculture
- Human Disturbance
- Extraction
- Infrastructure

9 Venter et al., 2006

10 Statistics Canada, n.d.

11 Statistics Canada, n.d.

12 Venter et al., 2006



CCPC/Donna Feledichuk



CCPC/Ryan Wilkes



CCPC/Cari Siebrits



The Cause

Habitats continue to be lost or at risk of degradation across Canada due to the lack of consistent and proactive government regulations.

For example, British Columbia has yet to create an independent law to protect species that are at risk.¹³ Despite habitat protection efforts, habitat loss continues to present the greatest threat to the persistence of many endangered species. Without clear guidelines and intentional oversight from the government to protect ecosystems, we will continue to lose them to developers, resource extraction companies, and corporations looking to profit from remaining wild spaces.

While southern areas of Canada are the most biodiverse, they are also where humans develop homes and agriculture.¹⁴

Clearcut logging is one of the largest causes of habitat loss. We use the cut land to grow food, and we use the trees to urbanize even further. Trees are torn down to develop roads for mining activities or oil extraction, and the practice is accelerating. Logging in British Columbia has doubled in rate since the 1970's.¹⁵

Clearcut logging (3.2M ha) represented 57% of all anthropogenic disturbances, reducing potential primary forest by 2.7 million ha (28%) for the The Interior Wetbelt and 524,003 ha (39%) for the Inland Temperate Rainforest. Worldwide, only 1/3 of primary forests exist.¹⁶

Forest landscape after a clear cut logging operation between Port Alberni and the Carmanah Walbran area.

¹³ Cox, 2022

¹⁴ Coristine & Kerr, 2011

¹⁵ DellaSala, 2021

¹⁶ DellaSala, 2021



“Worldwide, only **1/3** of primary forests exist.”

Guest Contributor/Ana Olteanu

The Impact

Although British Columbia is the Canadian province with the most biodiversity, the species that call it home are declining at a rapid speed, with “1,900 species, sub-species and ecosystems officially at risk of extinction.”¹⁷ Rare lichens in B.C.’s inland rainforest,¹⁸ coastal Douglas firs,¹⁹ southern mountain caribou,²⁰ and the spotted owl are just a few examples. There is only one member of the spotted owl left in the wild in Canada.²¹

17 EcoJustice, 2024

18 The Narwhal, 2022

19 Science World, 2024

20 Conservation Northwest, 2019

21 Ecojustice, 2024

The burrowing owl requires grassland with few plants and existing burrows, is currently endangered due to habitat loss



CCPC/Donna Feledechuk

Grasslands National Park, Saskatchewan preserves one of Canada’s last untouched expanses of prairie, supporting vital habitats for diverse and unique wildlife.



CCPC/Donna Feledechuk

All of these species are linked. The old growth environment that caribou depend on is critically endangered. The hundred year-old tree lichens that they rely on for nourishment are becoming more difficult to find as we continue to log faster than ever before. The loss of certain species of lichen means no food for ungulates (like the caribou), no shelter for birds and insects, and further decline of fish species already at risk.

It is not just old growth rainforests and boreal forests that are suffering. Across Canada, only a quarter of original grassland habitats remain.²² In Ontario, you can find 3% of what used to be grasslands, including tallgrass prairie and black oak

Big horn sheep ewe and lamb overlook the town of Jasper, Alberta.

savannas.²³ Over 97% have been lost in the past 200 years.²⁴ A similar impact is seen with seagrass meadows, normally harbouring ecosystems as diverse as coral reefs. Once abundant on all three of Canada's coasts, they are declining quickly. This is largely due to coastal development and logging, on top of the climate change related impacts faced by all habitats.²⁵

As the habitat is destroyed, it releases large amounts of carbon dioxide stored within,²⁶ further exacerbating climate change.

²² Nature Canada, n.d.

²³ Coristine & Kerr, 2011

²⁴ Tallgrass Ontario, n.d.

²⁵ Grace et al., 2021

²⁶ Coristine & Kerr, 2011

“Over 97% of original grasslands have been lost in the past 200 years



CCPC/Geoffrey Reynaud



CCPC/Geoffrey Reynaud

Solutions

Tackling habitat loss across Canada requires a multi-pronged approach.

A majority of endangered habitat in Canada is on private land.²⁷ It's possible to incentivize landowners into preserving their biodiversity.²⁸

We can also continue to send letters to our local governments and support the organizations that are showing how dire this situation is. Educating the public can push governments in the right direction. This can lead to protecting the 30% of land that we have agreed to under the Kunming-Montreal Global Biodiversity Framework.

There are nine crisis ecoregions across Canada that need to be prioritized. They “represent less than 5% of Canadian lands and inland waters, but provide habitat for over 60% of Canada’s species at risk”. Five out of the nine have only a few percent of the region protected.²⁹

Lastly, some species have adapted and are attempting to live alongside humans. We see coyotes in cities as large as Toronto, cougars in municipalities of Vancouver Island, and bears finding their way into community parks across the country. It is critical that we implement policies, practices, and behaviours to coexist, rather than to simply write them off as a nuisance. Their homes and food sources have been destroyed. They are trying to make do with the little they have, and putting away our garbage, not feeding wildlife, and teaching others about the importance of coexistence is the least we can do to help them navigate their new environment.

27 Barla et al., 2000

28 Venter et al., 2006

29 Kraus and Hebb, 2020



CCPC/Cari Siebrits

The epitome of adaptability, an eastern coyote crossed through a small park in **Toronto, Ontario.**



CCPC/Mark Bernards



CCPC/Donna Feledichuk



CCPC/Cari Siebrits



3.0 CLIMATE CHANGE



CCPC/Mark Bernards

The Issue

Climate change is characterized by rising global temperatures and increasing severity and variability of climatic events.³⁰ Across Canada, we are experiencing the impacts of the climate catastrophe more frequently and more severely. Global mean temperatures have risen 0.74 degrees celsius in the past century and are projected to rise by 4.3 degrees celsius by 2100.³¹

30 IPCC, 2013

31 IPCC, 2013

Closeup of an iceberg in the **Atlantic Ocean**.

Inuk hunter on the frozen Barrow Strait in June. **Resolute, Nunavut, 2015.**



CCPC/Kevin Xu



Localized warming and cooling, shifts in seasonality, and sea level rise all pose emerging threats to biodiversity in Canada and across the globe — and climate change impacts may be among the leading causes of biodiversity loss in the near future.³²

Climate change can manifest as abnormally intense weather events,³³ like the B.C. summer heat wave that killed billions of marine invertebrates. These changes can also take place over longer periods of time, like in the Canadian Arctic — which is warming four times faster than the global mean.³⁴

A mother polar bear and her cub traverse the icy landscape of Svalbard, Norway, with the cub staying close to its mother. In this remote Arctic wilderness, the duo navigates the snow-covered terrain, as mom teaches essential survival skills that are vital for the young cub's future. **Svalbard, 2024.**

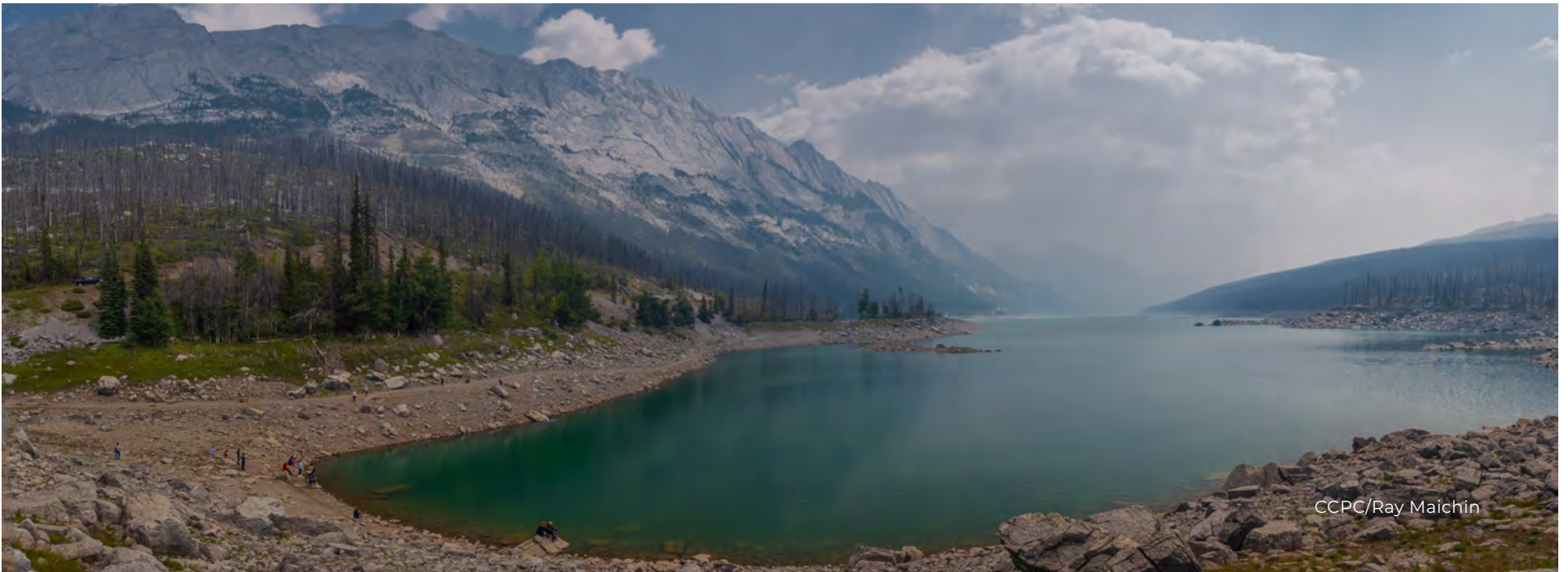
32 Woo-Durand et al., 2020

33 Maxwell et al., 2018

34 Rantanen et al., 2022



CCPC/Geoffrey Reynaud



CCPC/Ray Maichin



CCPC/Giulia Ciampini

A polar bear emerges from the waters of Hudson Bay in the summer. With the seasonal ice melted away, the bear comes ashore to explore the rocky coastlines and rest, waiting for the bay to freeze once more so it can resume hunting on the ice. **Churchill, Manitoba, 2023.**

The Cause

For decades, science has shown that recent climatic changes are caused by humans.

The rise of colonialism and the subsequent Industrial Revolution created new technologies and demand that facilitated the rapid release of greenhouse gases like carbon dioxide, which are most commonly created and released through the combustion of fossil fuels. Fossil fuels are ancient reserves of carbon-based compounds originally extracted from the atmosphere. Through the burning of fossil fuels, including thermal coal, oil and gas, over the past century we have collectively “undone” millions of years of photosynthesis performed by prehistoric plants.

Once released into the atmosphere, greenhouse gases like carbon dioxide, methane, nitrous oxides and chlorofluorocarbons act like an insulating blanket, trapping excess heat within our earth-atmosphere system.³⁵ Broadly, the insulation effect of human released gases are responsible for modern climate change. Human-induced climate change



CCPC/Jillian Brown

A helicopter patrols what remains burning after a forest fire roars through and heads towards town.

³⁵ Crowley, 2000

is already here. The extra heat and energy in our earth-atmosphere system is manifesting in a variety of ways across the globe.

As a general rule, climate change will directly increase the global average temperature, increase sea level and increase both the severity and irregularity of weather events, including drought, wildfires and hurricanes.



In 2023 the Cameron Lake fire shut down Highway 4 to the west coast of Vancouver Island, isolating coastal communities struggling to recover from the impacts of the COVID pandemic.



CCPC/Jaquie Matechuk



CCPC/Donna Feledichuk



CCPC/Donna Feledichuk

The Impact

In the face of climate threats, organisms may need to adjust their distribution, behaviour and timing of activities to better meet their survival needs. Canadian species are experiencing especially intense changes, with studies showing they must adapt to a changing climate more quickly than the global average.³⁶

For example, many bird communities have shifted upslope in search of cooler temperatures.³⁷ For birds, some insects and certain marine species,³⁸ the task of moving towards a more suitable temperature may be easier when compared to other organisms — such as mammals, plants, amphibians and reptiles — that may be unable to move quickly enough to seek suitable temperatures.

36 Cristine and Kerr, 2011

37 Freeman et al., 2018

38 Lenoir et al., 2020



Right: A pacific tree frog rests on the forest floor. Amphibians are exceptional indicators of overall ecosystem health. **Vancouver Island, 2022.**





In a remote area of the north Atlantic, hundreds of thousands of Dovkies (Little Auks), a small monogamous seabird that is a vital component of the Arctic ecosystem, will gather on steep, rocky cliffs and talus slopes to produce one precious egg. Together, both parents will work shifts, diving up to 98 ft. in pursuit of food. These next 30 days they work tirelessly to feed their chick and prepare it to fledge and live life on the sea.

In the Canadian Arctic, female caribou are giving birth earlier to better align with an earlier spring. Golden eagles mirror this trend by arriving to their northern breeding grounds slightly earlier each year. Both of these iconic northern species are changing the timing of certain life events to coincide with times when food is plentiful.³⁹ In other climates, unusual and intense weather events are increasing and associated with decreased nesting success of North American bird species.⁴⁰

Finally, in the face of rapid ocean change, the critically endangered North Atlantic right whale has adjusted both as its primary source of summer prey and foraging habitat. Many whales once spent the summer months in the Bay of Fundy, feeding on temperate zooplankton species. Ever since 2015, however, most whales now feed on a different species of zooplankton in the Gulf of St. Lawrence.⁴¹ Despite the many ways species can adapt to climatic change, the greatest threat is that flora and fauna are unable to adapt or move quickly enough. At the poles and in alpine regions, species may not have cooler temperatures to migrate to — leading to local extirpations and even species extinctions.⁴²

39 Davidson et al., 2020

40 Taff and Shipley, 2023

41 Meyer-Gutbrod et al., 2023

42 Freeman et al., 2018



CCPC/Jaquié Matechuk

Illulisiat—a dramatic battle between land and ice—serves as a powerful metaphor for the impacts of climate change. At the foot of these cliffs, the icy waters are dotted with frozen fragments of time. Though some stand formidable, their jagged edges and fractured surfaces hint at the gradual and inevitable process of melting. This precious Arctic environment is held hostage by profound changes and warming temperatures.



CCPC/Liam Brennan

Solutions

Climate action is urgently needed across all levels of society. Generally, climate-related actions can be categorized as solutions or mitigation and adaptation. Ultimately the dramatic reduction of greenhouse gas emissions and an international transition to a net-zero emission society is required.⁴³

In Canada, the journey towards a net-zero country will require participation from all levels of society, government, and

While low-intensity wildfires are a crucial part of many healthy ecosystems, the current extreme occurrence of high intensity fires threaten ecosystems across Canada. **Keremeos, BC.**

industry alongside an expressed recognition of Indigenous rights and the leading role of First Nations, Métis, and Inuit people in facing and addressing the climate crisis.⁴⁴

Beyond climate solutions, we must also rapidly implement climate mitigation and adaptation measures to improve the

⁴³ IPCC, 2013

⁴⁴ Reed et al., 2024

resiliency of human and ecological communities in the face of inevitable climate impacts. The best climate mitigation measures are those that minimize the risk of climate change impacts, promote biodiversity, and address other ecological and social issues. In other words, we need nature-based solutions.

For example, rather than using carbon-intensive concrete to build a sea wall, some North American communities have launched living shoreline initiatives to plant and restore native wetland and shoreline species whose roots help to stabilize the slope and prevent further erosion. As an added

benefit, these plants and algae help to sequester carbon, provide habitat for a diverse array of coastal organisms, remove pollutants, and restore coastal food sources for local communities.⁴⁵ In the same way that biodiversity threats intersect, climate solutions often have intersectional positive impacts as well.

⁴⁵ Beck et al., 2017; Joseph & Turner, 2020; Drever et al., 2021; Isdell et al., 2021





CCPC/Liam Brennan



CCPC/Liam Brennan



4.0 INVASIVE SPECIES



The Issue

The vast majority of ecosystems on Earth are currently occupied by foreign, human-introduced species. Invasive species are those that are introduced to a new environment (most often from human activity), establish themselves, and have negative impacts to local ecosystems, economies, and societies.

Invasive alien species can have a negative impact on biodiversity by:

- Displacing native species
- Competing with native species for resources
- Altering and degrading habitats
- Introducing new diseases
- Impacting reproduction by breeding with native species⁴⁶

Invasive animal, insect, plant, and pathogen species negatively impact native species through competition, predation, and habitat alteration.⁴⁷ Their impact on native ecosystems, habitats, and species is often costly and can be irreversible.

A painted turtle stands proud upon an old boom log, now sunk in a wetland marsh in **Lake of the Woods, Ontario**.

⁴⁶ Government of Canada, 2017

⁴⁷ Mack et al., 2020

The Cause

As the world grew more connected through global travel and commerce, humans began introducing countless non-native species to new ecosystems.

The Canadian government cites numerous factors responsible for the introduction and spread of alien species, including:

Climate Change:

In many cases climate change may create new environmental conditions that are favourable for the invasion and establishment of new species into the ecosystem. For example, in the boreal forest of Alberta and Saskatchewan, recent research has shown that the northern movement of white-tailed deer is driven primarily by the warming climate and a decrease in winter severity. Historically, white-tailed deer didn't occupy the boreal forest, and their recent arrival has been linked to declines in populations of endangered boreal caribou populations.⁴⁸

Intentional Introductions:

Many invasive species were historically introduced to North America for their ornamental or aesthetic value. European buckthorn is a vastly widespread shrub that outcompetes native plants across Eastern Canada. It was originally introduced as a shrub used in gardens and along fence rows.

Increased susceptibility of altered or degraded ecosystems:

As ecological generalists, invasive species are often tolerant, and even thrive in challenging environment conditions. As superior competitors, they often push out native species that are specifically adapted to healthy local ecosystems. For example, the eastern barred owl has thrived in urban areas across western Canada, while the native spotted owl (old-growth specialist) is critically endangered in Canada.

⁴⁸ Dickie et al., 2024



CCPC/Cari Siebrits

The Impact

The feral wild boar is an invasive species whose population is growing exponentially in Canada, especially in the Prairie provinces. Considered to be the most damaging invasive species in the United States, wild boar spread harmful disease and destroy valuable grassland, wetland and forest habitat. They also prey upon sensitive birds, small mammals, and invertebrates. Like most invasive species, wild boar reproduce quickly, are highly adaptable, and are extremely difficult to remove from a landscape once they have established populations.⁴⁹ Researchers predict that eradication in Canada is no longer possible, and that wild boar may soon outnumber people in the province of Saskatchewan.

Invasive plant species may also outcompete local species and can dramatically change the way in which nutrients are

Despite being among the most common bird species in the city of Toronto, neither pigeons nor house sparrows are native to the province.

cycled throughout ecological systems. For example, Japanese knotweed is an extremely aggressive invasive, bamboo-like shrub that is found throughout Canada. Research has found that knotweed is capable of displacing the majority of native plant species, especially in wetland areas.⁵⁰ These plants are able to adjust the local soil chemistry to favour their long-term success and their strong roots even threaten to damage human infrastructure such as foundations.

Similar to the Japanese knotweed is English holly. This evergreen changes the soil by concentrating it with sulfur,

49 Aschim and Brook, 2019

50 Lavoie, 2017

51 Stokes et al., 2014

growing beyond the height of native species, and invading below with deep and thick root systems.⁵¹ Once the canopy has been burned or taken down, an environment full of holly outcompetes all native shrubs, and prevents new tree seedlings, like those of Douglas fir, from growing. In this way, the structure of a forest can be dramatically altered and has far-reaching impacts. Moreover, these invasions are much more likely given the hundreds of wildfires experienced on a yearly basis in the Pacific Northwest.

Scotch broom is another example of a shrub that has had significant impact on the Pacific Northwest coastal ecosystems, particularly that of Garry oak savannas.⁵² It renders its occupied soil more acidic⁵³ and can decrease the amount of phosphorus content. Consequently, excess nutrients can invite additional foreign species to thrive, decreasing the opportunity for native vegetation and reducing the habitats of local pollinators.⁵⁴ This plant also creates stems that can act as kindling, helping a fire spread rapidly. As thousands of seeds can spread each year from one single plant, it is critical to remove this species as soon as it's found. Studies show that if communities do not act quickly, removal becomes less and less effective over time.⁵⁵

Top: The Sea to Sky Invasive Species Council works to control holly plants in protected areas, as eliminating this invasive species is a losing battle.

Bottom: Invasive *Phragmites* (known as common reed) are native to Eurasia. In Canada, they outcompete native plants, creating dense monoculture stands in wetlands and obstructing the movements of wildlife, which in turn result in a decrease in biodiversity.
Invasive *Phragmites* grow in a marsh in Carignan, Quebec.

52 Shaben and Myers, 2009

53 Caldwell, 2006

54 Garry Oak Ecosystems Recovery Team, n.d.

55 Slesak et al., 2022



CCPC/Jillian Brown



CCPC/Justin Taus

European wall lizards are found to be high risk in British Columbia, competing with the northern alligator lizard, the Pacific chorus frog and the endangered sharp-tailed snake⁵⁶ for space and sustenance. Like many other invasives, they also decrease native pollinator numbers. In eastern Canada, invasive *Phragmites* are an aggressive aquatic plant that have taken over shorelines across the

Great Lakes. The perennial grass forms dense monocultures with vast root systems that threaten 25% of Ontario's at-risk species including native turtles, toads, and birds. The Great Lakes are threatened by dozens of aquatic invasive species including plants, fish, and invertebrates as they are used for international commerce and recreation.

56 Williams et al., 2020



The western painted turtle

One of these aquatic invasives is the red-eared slider turtle, which is wreaking havoc on native environments. They are able to displace species like the western painted turtle using multiple methods,⁵⁷ including:

- Spreading diseases that native species cannot fight against
- Laying larger hatchlings, which means predators will attack the smaller natives
- Seizing critical habitats like basking logs and beaches known for nesting

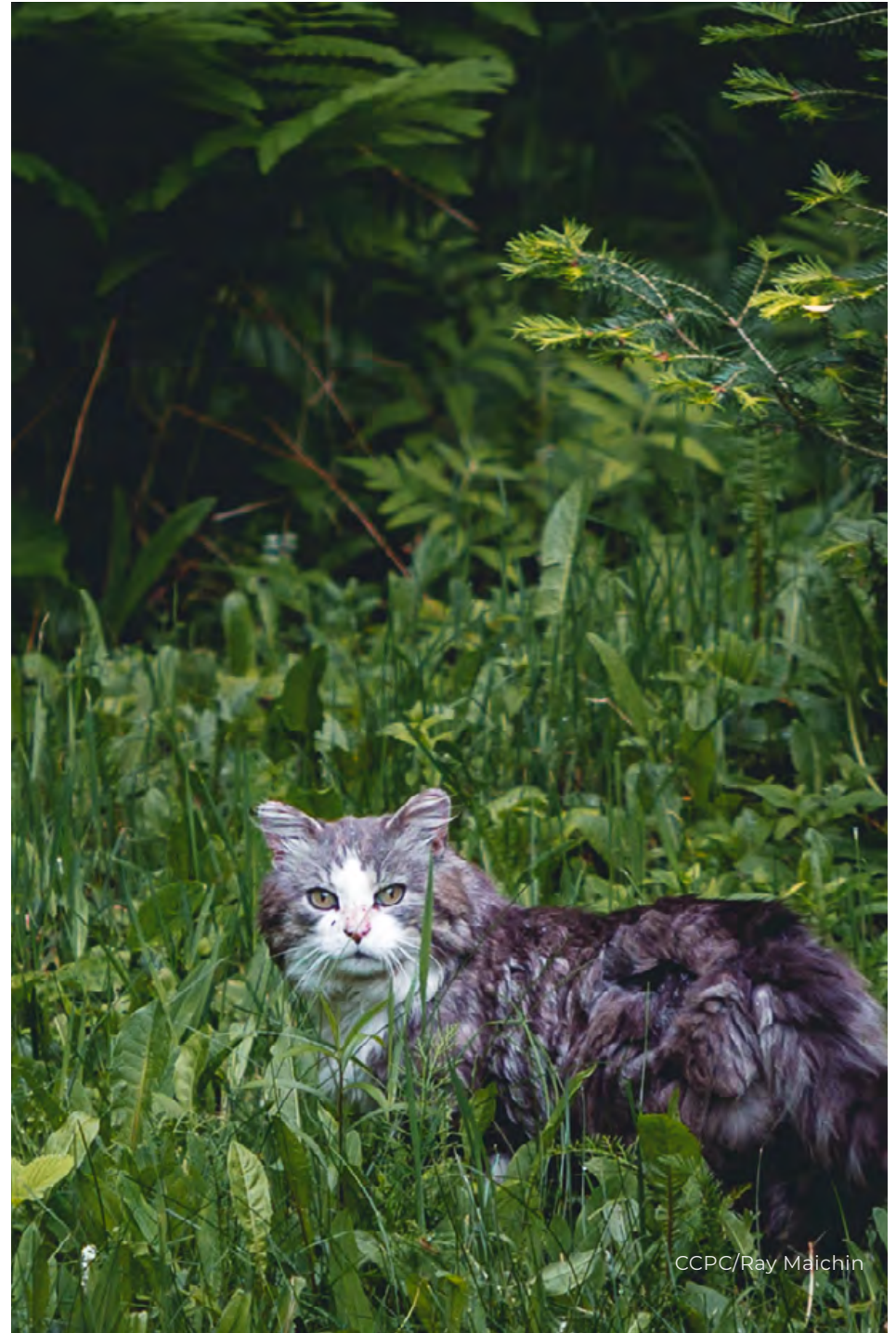
While we may not think of them as invasive, domestic and feral cats have a tremendous impact on local bird populations. A bird mortality study found that over 95% of cases were due to collisions with human-made objects and attacks by cats.⁵⁸ The numbers are staggering, with over 100 million birds being killed by cats each year in Canada alone.⁵⁹ Felines have been found to also be a threat for other native species like butterflies and moths.⁶⁰

57 Mitchell, 2022

58 Calvert et al., 2013

59 Birds Canada, 2024

60 University of Guelph, 2022





CCPC/Josh DeLeenheer

Scotch broom was introduced to Vancouver Island from Europe in the 1850s. Originally selected for its ornamental qualities, it was also planted on adjacent banks during road construction to provide stabilization. It can now be found across Vancouver Island, Haida Gwaii, the Kootenays, the Okanagan, and the southwest of the province.



CCPC/Ray Maichin

Solutions

Although the impacts of invasive species are numerous, there are steps we can take to help prevent the introduction and spread of invasive species. The prevention of alien species introduction remains a critical step in maintaining local biodiversity. Countless local Canadian invasive species societies advocate for invasive species introduction prevention through principles such as “clean, drain, dry” that attempts to educate local communities to help stop the spread of invasive aquatic species by personal watercraft.⁶¹ Promising research has also shown that community science platforms like EDDMapS and iNaturalist can also be used in the early detection of invasive species to target early management actions.⁶²

Once invasive species are established in a particular location, complete removal of the invader is often very difficult, may cause pollution (such as in the case of herbicides), or may even create difficult or undesirable ethical outcomes where one species may be killed to save another.⁶³ In the case of invasive plants, however, mechanical removal, biocontrol and herbicides can be used to manage invasive species and promote the growth of native vegetation. A range of management solutions are available to local stewardship organizations that wish to create tangible environmental action for local ecosystems.

61 Mohit et al., 2021

62 Larson et al., 2020

63 Messing 2006; Odenbaugh, 2022

While barred owls are native to eastern North America, their range has expanded west, likely because of human disturbance and development. In their new western habitat, barred owls are prolific hunters which outcompete local northern spotted owls. In response, thousands of barred owls have been killed throughout North America in an effort to restore populations of northern spotted owls. Over the next thirty years, the U.S. plans to kill nearly half a million barred owls in efforts to save spotted owls.⁶⁴ Ultimately, adequate

habitat protection over the past century may have prevented the spread of barred owls in the first place. Protected areas are less likely to contain invasive species.⁶⁵ Taking together prevention, early detection, targeted management, and habitat protection present the best solutions to invasive species management.

⁶⁴ Hostadter, 2022; U.S. Fish and Wildlife Service, 2023
⁶⁵ Gallardo et al., 2017





CCPC/Josh DeLeenheer



CCPC/Ryan Wilkes



CCPC/Ray Maichin



5.0 OVEREXPLOITATION



CCPC/Jérémy Mathieu

The Issue

Overexploitation continues to be a significant contributor to biodiversity loss in Canada, and it is not slowing down. Logging, overfishing, mining, and hunting each contribute to the steep decline of species numbers.

The 1992 collapse of the cod fisheries in Newfoundland is a stark reminder of the interconnectedness of ecosystems and of our dependence on them.⁶⁶ This collapse affected thousands of people culturally and economically. Yet, on June 26, 2024, Fisheries and Oceans Canada re-opened the practice,⁶⁷ despite the warnings of conservation groups.⁶⁸

A sea lion got stuck inside the net of a seiner boat during the herring fisheries close to Hornby Island.

Overall, 56% of freshwater fish species are at risk in Canada. Some are not around at all anymore, like the Brook Trout that used to be plentiful in Ontario.⁶⁹

In the forestry industry, over a million acres are clear cut annually.⁷⁰ The federal government insists this is a carbon-neutral affair, though that remains contested.⁷¹

66 Sustainable Orillia, 2020

67 Government of Canada, 2024

68 Oceana Canada, 2024

69 Royal Society of Canada, 2021

70 Mackey et al., 2024

71 Bysouth et al., 2024

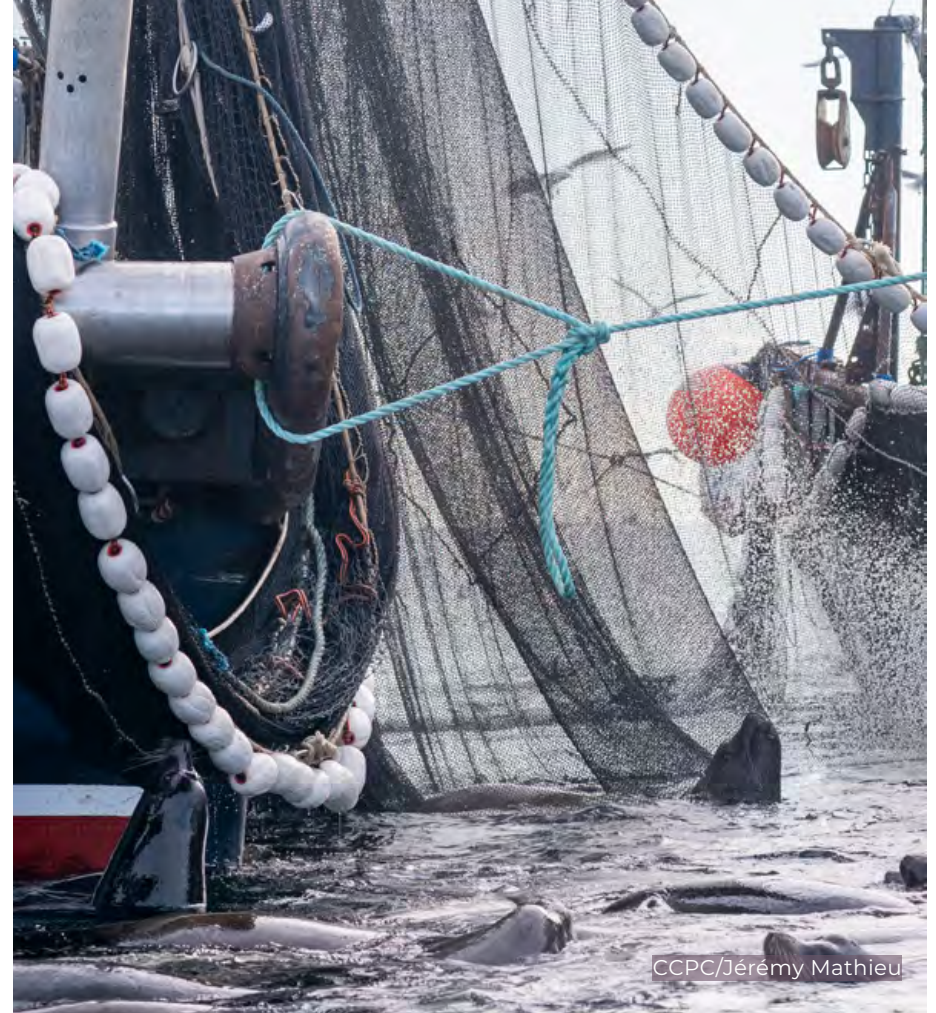
Mining includes extracting oil, gas, metals, and minerals across thousands of active projects in Canada. Most recently, a mine for lithium and copper was approved in the Province of Yukon in the middle of caribou habitat . Despite scientific and Indigenous opposition, the Canadian government approved the Environmental Assessment process . This is consistent with decisions from the past, with the majority of mining projects within caribou habitat approved since the end of the 20th century.⁷²

An additional example of overexploitation is unregulated hunting of large carnivores, which can lead to ecosystem decline. Wolves, a keystone species, were once eradicated in Yellowstone National Park due to hunting. As a result, sounds of certain birds were no longer heard, coyotes rose tremendously in numbers, and beaver populations rapidly declined.⁷³ When these predators were reintroduced, the

72 Parlee et al., 2018
73 Defenders of Wildlife, 2020

Right: A sea lion got stuck inside the net of a seiner boat during the herring fisheries close to Hornby Island.

Bottom: Commercial gillnetters during the herring fishery around Qualicum beach



CCPC/Jérémy Mathieu



CCPC/Jérémy Mathieu

positive effects extended to species of aspen and willow that were previously overconsumed by unchecked ungulates.⁷⁴ Recent research suggests that wolves play a role in maintaining healthy ungulate populations that can better withstand climate-related changes.⁷⁵

Without strict regulations in place, Canada's wolves can be at risk of reaching alarming numbers, similar to the grizzly bear. Prairie grizzly bears in particular are now locally extinct in three of the Canadian provinces, largely due to hunting and other human-caused activities

⁷⁴ Beschta et al., 2018
⁷⁵ Wilmers et al., 2020



CCPC/Cari Siebrits

The Cause

It is not a single kind of overexploitation that affects biodiversity. We are taking from every nook and cranny, in oceans and on land. We are not giving nature a chance to rebound.

This is possible due to a lack of regulation. Certain Canadian fisheries are under regulated , and research has shown policies that are in place are often not followed.⁷⁶ Reports from 2022 show that the Department of Fisheries and Oceans is “falling short when it comes to protecting endangered species.”⁷⁷ Government policies have consistently favoured extractive industries over long-term sustainable management.



CCPC/Jérémy Mathieu



CCPC/Jérémy Mathieu

Top: A Seiner fishing vessel loading herring during the herring fishery around Hornby Island.

Bottom: Forest landscape after a clear cut logging operation between Port Alberni and the Carmanah Walbran area.

⁷⁶ Baum and Fuller, 2016
⁷⁷ CBC News, 2022



CCPC/Jérémy Mathieu

Locals manifesting to stop the herring fishery along the road

The Impact

Biodiversity has drastically been reduced due to overexploitation. Let's look at the cod example again. When there isn't a lot of cod, sprat flourishes. If there's a lot of sprat, you see a decline in zooplankton. Less zooplankton means more phytoplankton. More phytoplankton results in higher nutrient concentrations in oceans and consequently less oxygen. Chain reactions like this occur throughout the natural world, and can result in the loss of species after species.⁷⁸

Lands and water are connected. What happens to one has an impact on the other. British Columbia's rare "inland temperate rainforest supports at-risk fish species like chinook salmon, bull trout and sturgeon,"⁷⁹ yet is in dire risk of disappearing within the next couple of decades. The rivers that create habitat for these diverse fish species are negatively impacted by the overharvesting of forests in multiple ways, including increases in river water temperatures and loss of sediment.⁸⁰ Overexploitation via logging causes biodiversity declines in both terrestrial and aquatic ecosystems.

78 Sustainable Orillia, 2020

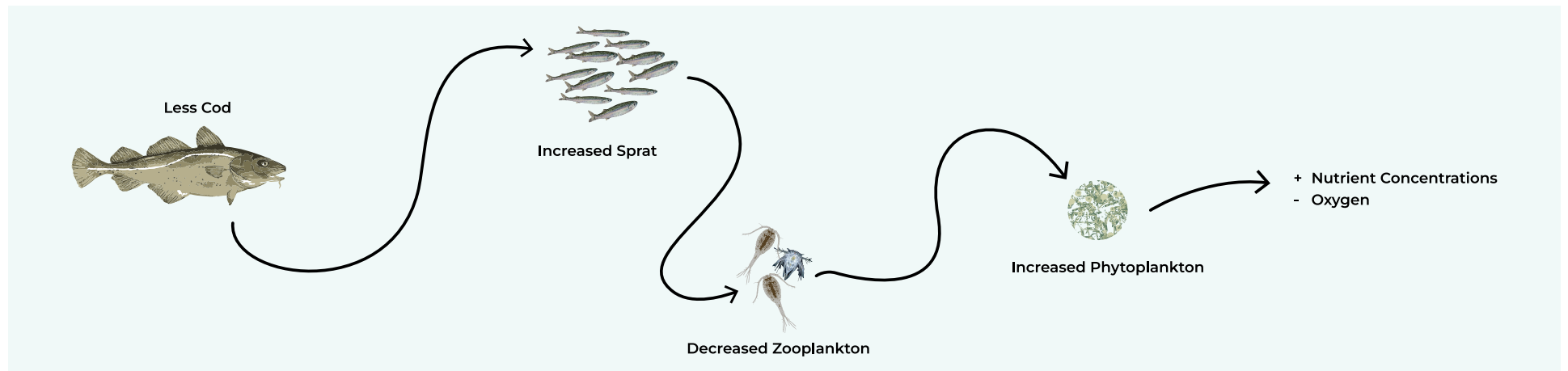
79 Cox, 2022

80 Cunningham et al., 2023



CCPC/Shane Gross

Atlantic cod (*Gadus morhua*) juvenile, hiding in eelgrass (*Zostera marina*) off Newfoundland, Canada





CCPC/Josh DeLeenheer

Solutions

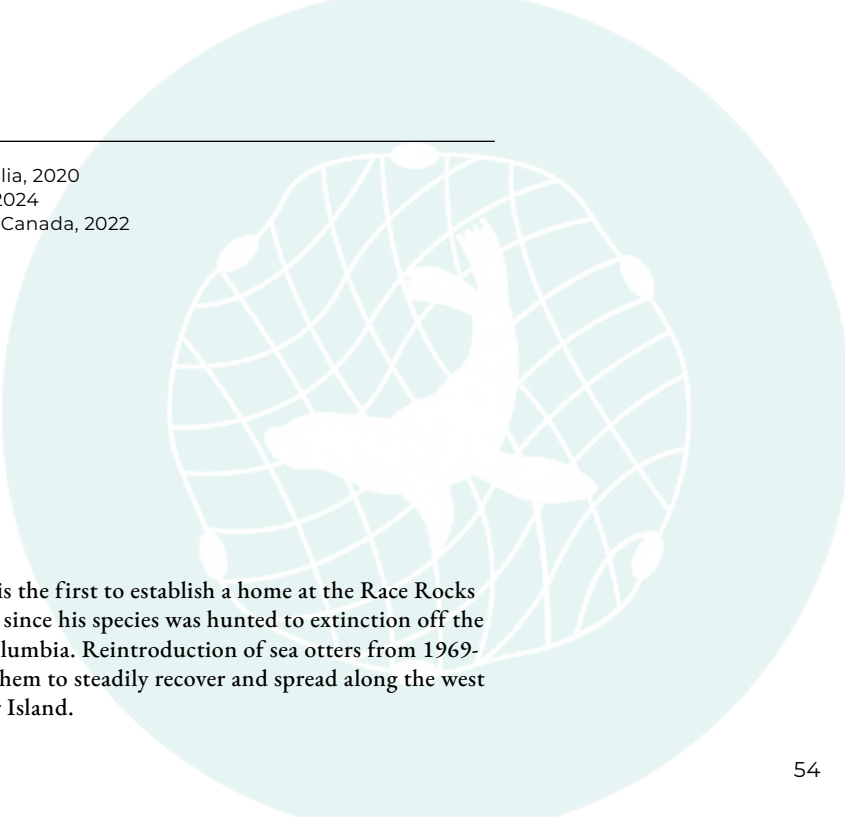
The management of extractive industries should not be done in a silo. By making plans public, there is greater accountability. We can demand yearly updates depending on current status,⁸¹ increase fines for illegal and unregulated exploitation, and set limits that take research into consideration.

Even nearly lost keystone species would have a chance of coming back. They can increase their numbers if the conditions are right and if humans take a step back. For a long time, sea otters were ubiquitous in the coastal waters of British Columbia. By the end of the 1800s they went extinct on the west coast of Canada due to overharvesting for their furs.⁸² To reverse this, 89 otters were reintroduced to British Columbia in the 1960's.⁸³ Through both federal and provincial protection, their numbers continue to increase.

81 Sustainable Orillia, 2020

82 ScienceWorld, 2024

83 Government of Canada, 2022



Ollie the sea otter is the first to establish a home at the Race Rocks Ecological Reserve since his species was hunted to extinction off the coast of British Columbia. Reintroduction of sea otters from 1969-1972 has enabled them to steadily recover and spread along the west coast of Vancouver Island.

As a keystone species, sea otters have a tremendous effect on the environment around them. Sea otters eat sea urchins, which means the kelp forests can flourish. If given the chance, an ecosystem can keep itself in check.

Humpback whales have seen a similar comeback after whaling would have led them to extinction in the 19th century. A decade ago, their numbers continued to increase thanks to enhanced regulation through both the Fisheries Act and the Species at Risk Act.⁸⁴ While these protections

have been helpful, North Pacific humpback numbers may be hindered by recent heat waves,⁸⁵ collisions with vessels, and other anthropogenic activities. It is critical to continue monitoring the status of at-risk species to ensure their conservation.

⁸⁴ Fisheries & Oceans Canada, 2013
⁸⁵ Cheeseman et al., 2024



The Pacific herring spawn is a vital annual event for the health of the entire coastal ecosystem on the coast of British Columbia. **Vancouver Island, 2024.**



CCPC/Jérémy Mathieu



CCPC/Liam Brennan



CCPC/Jérémy Mathieu



6.0 POLLUTION



CCPC/Agathe Bernard

The Issue

Microplastics, fishing gear, agricultural chemicals, noise and light pollution, and oil spills are just some of the pollutants Canadian wildlife must contend with. No industry or individual is exempt, with many forms of pollution increasing.⁸⁶

Some ecosystems suffer more from certain pollutants. For example, freshwater is significantly impacted by microplastics.⁸⁷

It is clear Canada needs to strengthen environmental protection regulations. For example, the cruise ship industry

Another giant cruise ship making its way through in a tiny narrow in prime marine habitat. Minutes later we saw a family of sea otters in the wake of the boat. **Blackfish Sound, North Vancouver Island.**

is reluctant to make changes to the waste they create. Transport Canada updated pollution-related rules in their “**Discharge requirements for cruise ships**” bulletin in 2024. Dumping over 30 billion litres of sewage along Canadian coastlines continues to be legal, and even marine protected areas (MPAs) are not immune.⁸⁸

⁸⁶ Fuller et al., 2022

⁸⁷ Sustainable Orillia, 2020

⁸⁸ Stand Earth & CPAWS-BC, 2024

The Cause

The primary cause for pollution in Canada is that there is virtually no large-scale control for the compounding effects of pollution.

There are numerous examples of the lack of strong accountability and enforcement measures, including the fact that:

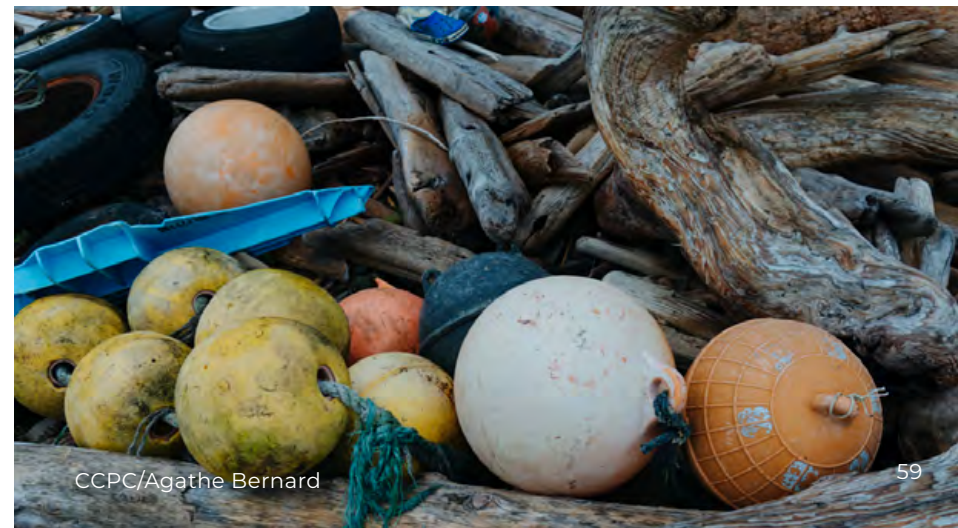
- There are no regulations for how much plastic is used by industry
- There are no regulations on how loud sound emission can be or how long it goes on
- There is no scientifically sound volume of waste dumped into waters, or how many pesticides we throw on the vegetables we then eat.
- Legal accountability and penalties for oil spill disasters is weak⁸⁹

Top: A plastic bottle from Asia observed on the B.C. coast. Typically, bottles break down into microplastic particles, which can pose significant threats to ecosystems.

Middle: Evidence of the B.C. fishing industry.

Bottom: Fisheries and aquaculture are significant sources of plastic pollution on the B.C. coast.

⁸⁹ ClearSeas, unknown date



The Impact

NOISE:

Land and ocean dwellers feel the negative impacts of unnatural sounds from resource extraction and transportation industries. Explosions from oil and gas extraction, and noise from large vessels can particularly affect underwater life as they rely on sounds for many daily functions.⁹⁰ Noise pollution results in:

- Hearing damage or loss
- Separation from family members
- Higher chance of ship strikes
- Increase of cortisol levels

TOXIC CHEMICALS:

The persistent organic pollutants (POPs) mercury and cadmium are a few of the many toxins found in orcas off the coasts of Canada.⁹¹ The sources are abundant, “from military

equipment, submarines, flame retardants, insecticides, dioxins and furans (byproducts of burning plastics, wood, fossil fuels).⁹² This results in changes to their endocrine and immune systems, weakening entire populations. In combination with noise pollution and overexploitation of salmon (a staple diet of the southern resident orcas), their numbers continue to plummet.

In agriculture, pesticides are used regularly throughout the farming regions of the country. What is being realized recently, is that “long range transport of organic pollutants is an emerging issue in the north as well.”⁹³ In other words,

90 Williams et al., 2015

91 Defenders of Wildlife, 2022

92 Defenders of Wildlife, 2022

93 Coristine & Kerr, 2011





Aerial view of a salmon farm near **Port Hardy, Vancouver Island.**

CCPC/Shane Gross

communities not applying the chemicals will have their environments affected as well. Nutrient runoff is also a result of poor agriculture practices, contributing to harmful algal blooms in large bodies of water like Ontario's Lake Erie.⁹⁴ These blooms will eventually result in dead zones: areas of the lake that can no longer sustain life due to low oxygen content.⁹⁵

AIR POLLUTANTS:

Pollinator numbers are declining due to the vast number of air pollutants from transportation, waste disposal, agricultural activities, and home cooking emissions. Biodiversity patterns are also altered, with air pollution changing temperature and moisture levels.

Over 80% of humans live in areas with sub-par air quality,⁹⁶ which means pollinators do too.

Aquatic species are affected, including Atlantic salmon that rely on acid rain-free habitat. Birds like the common loon need pollution-free waters to reproduce successfully, and

larger mammals like moose found in eastern Canada cannot get the nutrition they need from soil that is over-acidified.

LIGHT POLLUTION:

Our lifestyles have lights on twenty-four hours of the day, except in the most remote of places. This is a problem for species like bats and owls, who rely on the darkness for both eating and reproduction. It is similar to our circadian rhythm being turned upside down, which we now know has detrimental effects on both our physical and mental health. Migrating birds are negatively affected by bright lights that disorient their natural compass. It is also well known that artificial light at night disrupts breeding patterns in both amphibians and insects.⁹⁷ When insects are confused, their pollinator capabilities change, and the diversity of plants is consequently affected.⁹⁸

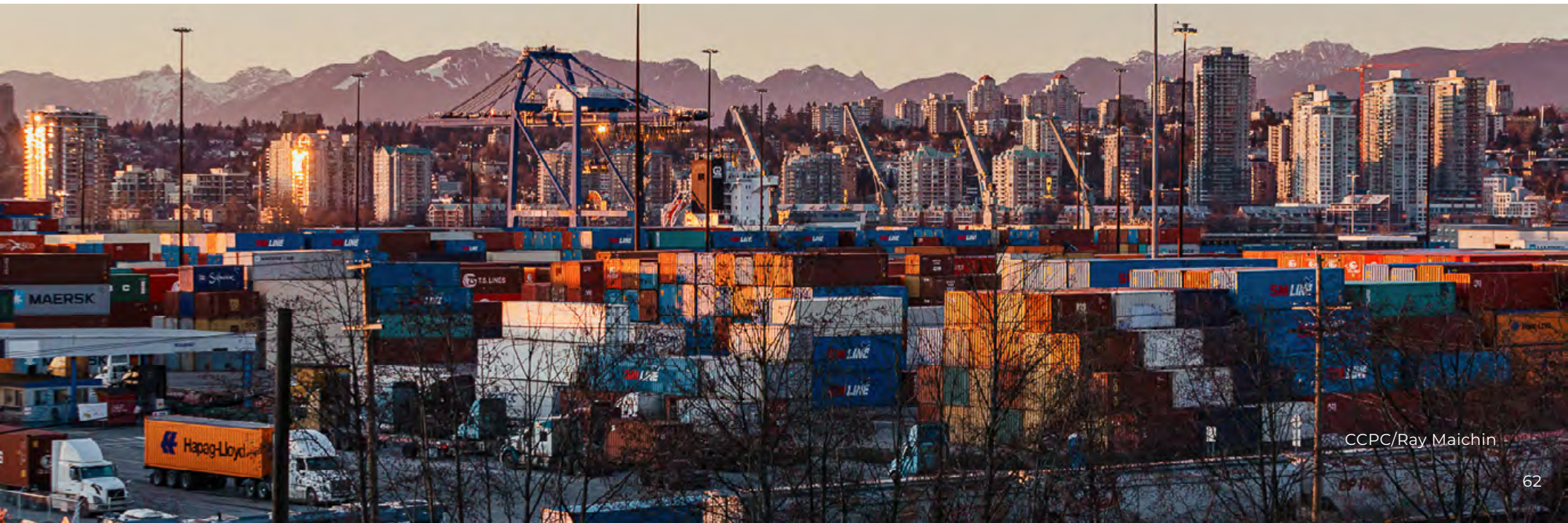
94 Ho & Michalak, 2017

95 Dai et al., 2023

96 Rentschler & Leonova, 2023

97 Touzot et al., 2019

98 Gerard et al., 2020





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CCPC/Josh DeLeenheer



CCPC/Kevin Xu

PLASTICS:

Plastics are mistaken for food every day by a vast number of species. Birds are frequently found with bellies full of small bits of plastics.⁹⁹ As a result they don't have adequate nutrition which leads to a decrease in their numbers, both due to death and due to reproductive issues.¹⁰⁰ Microplastics also begin to bioaccumulate within smaller species. Microplastics are unfortunately great at absorbing heavy metals and POPs, which compounds effects once ingested.

Did you know? Microplastics can even act as carriers for invasive species.¹⁰¹



Small pieces are not the only problem. Plastics not yet decomposed appear in waterways and on land around the world. In Canada, 3.3 million tonnes of plastic were discarded in 2016.¹⁰² A mere 9% is recycled, and the "rest ends up in our landfills, waste-to-energy facilities or the environment".¹⁰³

99 Defenders of Wildlife, 2022
100 Walkinshaw et al., 2020
101 Garcia-Gomez et al., 2021
102 Yakobowski, 2019
103 Government of Canada, n.d



Solutions

Limits need to be placed on anything from waste discharge, plastic use, use of chemicals, and even sound and light levels. Currently, we either do not have limits or they are inadequate. This needs to be implemented at government levels, and third-party monitoring needs to take place to ensure industries are following through.

For pollutants that are sure to cause significant impact even at low doses, they must be phased out. DDT was eventually banned once negative impacts on wildlife and human health became evident.¹⁰⁴

On an individual level, we can do so much to curb the use of pollutants:

- Reduce our plastic waste
- Reduce use of toiletries that harm ecosystems
- Opt out of supporting cruise ships
- Participate in community initiatives that implement light curfews during critical wildlife periods
- Educate our friends and family about biodiversity loss in Canada
- Drive and fly less, and opt for biking and walking to contribute to cleaner air
- Use solutions like washing synthetic textiles using a microplastics filter, or a GUPPYFRIEND® Washing Bag, to prevent microplastics from entering rivers and oceans. Slowly phase out synthetic clothing.
- Support local, organic farmers in order to reduce transport emissions and eliminate pesticides
- Practice regenerative gardening techniques
- Share your voice by participating in Government of Canada consultations



CCPC/Mark Bernards



Liard River Hot Springs in Northern B.C. has a rare snail, the **hotwater physa**, only found in that particular ecosystem. The hot springs are available to the public, but guests are encouraged to follow certain rules like not using sunscreen, lotions, or deodorants in the water as it can greatly harm this rare species. If we all did the same when visiting lakes or oceans, we could have a big impact.



CONCLUSION



CCPC/Jillian Brown

While the challenges to biodiversity are significant, there's good reason for hope. Solutions are at hand, it's simply a matter of deploying them.

If there is a single common thread to solutions to biodiversity loss in Canada, it's stronger legislation and oversight. Governments, communities, and industry need to clearly set out standards that protect vitally important ecosystems from human activity. Ideally, these protections are mobilised at a national level to provide consistency.

The enforcement of these standards requires resources. Indigenous communities at the forefront of biodiversity loss need to be empowered and involved in enacting solutions. The machinery of government moves slowly, but there are actions individuals can take today. Citizen science programs allow anyone to monitor the health of local wildlife populations. Tending to your own property can secure a healthy ecosystem with native flora protected from invasive

species. That work can extend to other properties by way of local conservation groups.

With over 80,000 species calling Canada's ecosystems home, biodiversity is critical to a healthy environment and to ensuring healthy human communities.

We hope we have shed light on the biodiversity crisis unfolding across Canada, and on the complex interdependencies among species, habitats, and ourselves.

By exploring the five main drivers of biodiversity loss and their solutions, we encourage Canadians to think about biodiversity in their own communities. We hope they get involved in local conservation movements to ensure our ecosystems are thriving for generations to come.



CANADA'S BIODIVERSITY COMMITMENTS

#1

Canada has made several international and national biodiversity commitments, including:

Species at Risk Act (SARA) (COSEWIC, 2024)

- Provides legal protection so that species do not go extinct
- Brought about the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), who provides proposals for which species are at risk
- SARA then has the authority to legally protect proposed species, after government review
- Reassessment of species is carried out every 10 years



CCPC/Justin Taus

#2

2030 Nature Strategy (Government of Canada, 2024)

- Created due to requirement of the Kunming-Montreal Global Biodiversity Framework (KMGBF)
- KMGBF is an international biodiversity plan with targets & milestones, put in place at COP15's Convention on Biological Diversity (CBD) meetings
- CBD is an international treaty that sets more general agreements on conservation, agreed upon by member countries.

Targets include:

- 30% conservation of land, sea & inland waters
- 30% restoration of degraded ecosystems
- Halving intro of invasive species
- \$500 billions/year reduction in harmful subsidies
- Strategy outlines how Canada will carry out commitments locally



CCPC/Donna Feledichuk

#3

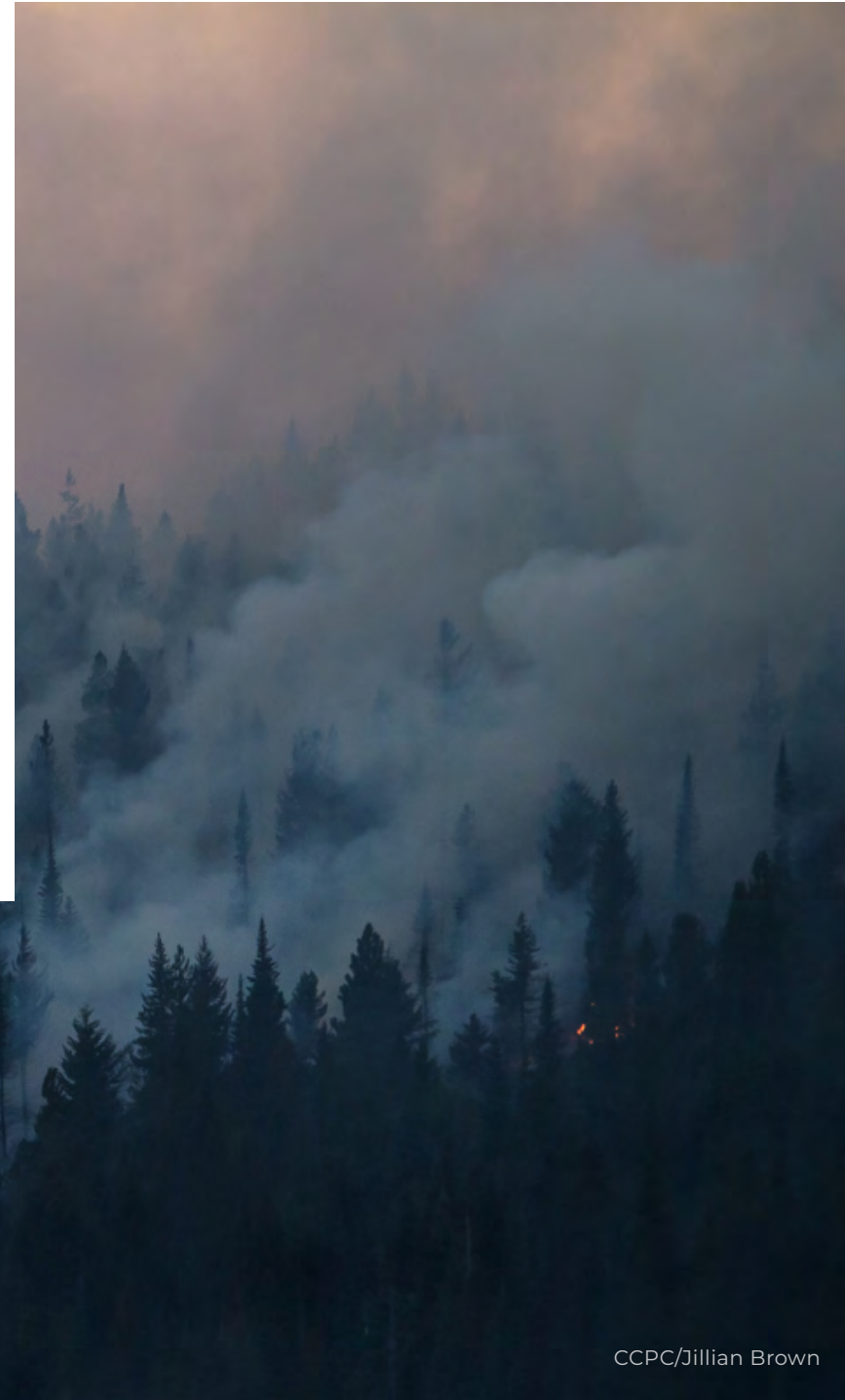
United Nations Framework Convention on Climate Change (UNFCCC) member (Government of Canada, 2015)

Requires that Canada reports on:

- Greenhouse gas emissions
- Adaptation measures
- Financial contributions
- Climate action plans

In order to have an impact, each of these commitments need to:

- Set specific biodiversity targets for which the government is held accountable
- Integrate current federal, provincial & municipal laws
- Increase funding and implement regular amendments, as needed
- Have greater incentives for provinces & territory participation
- Include protections specific species and habitats





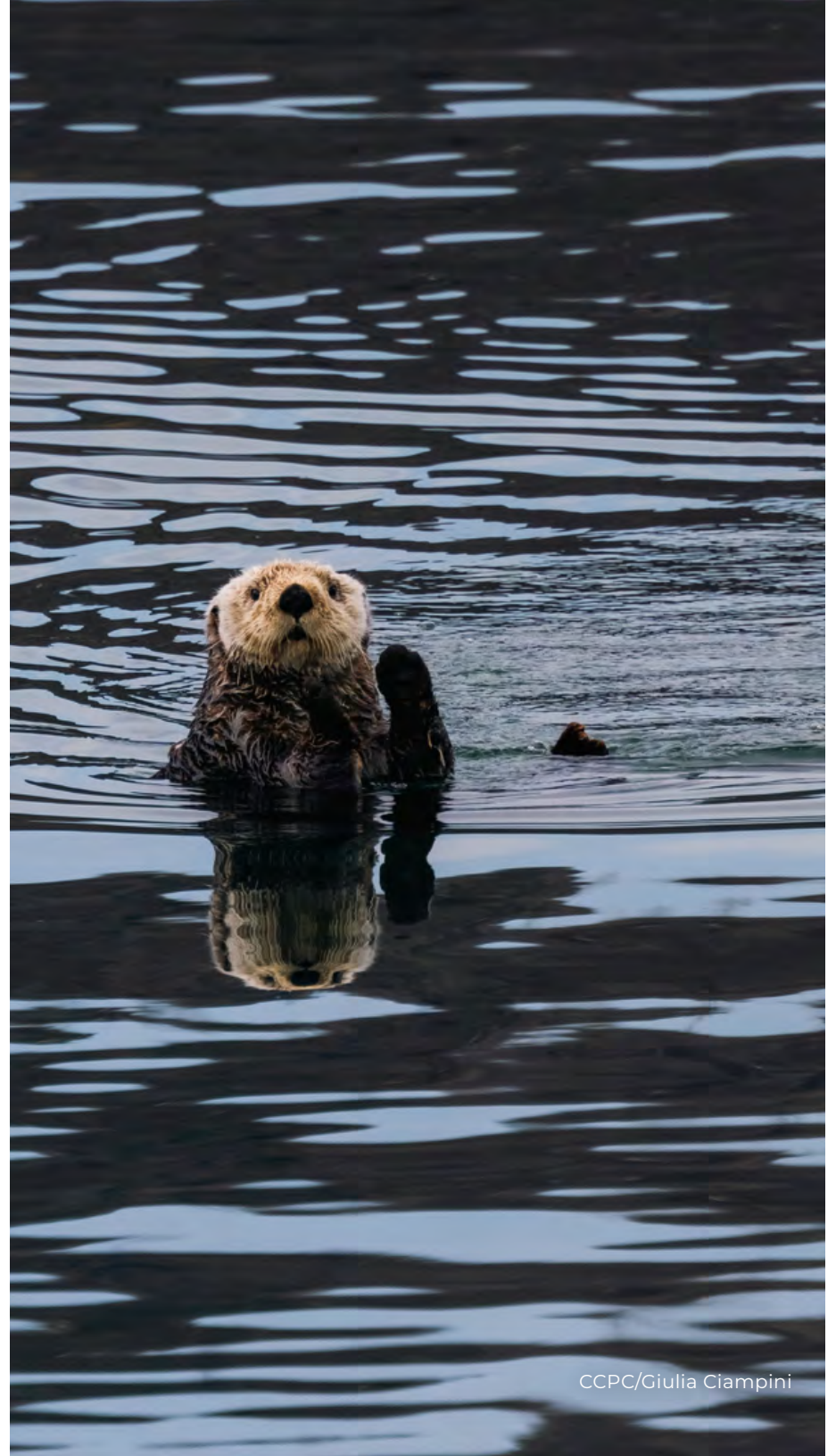
CAMPAIGN PARTNERS



About

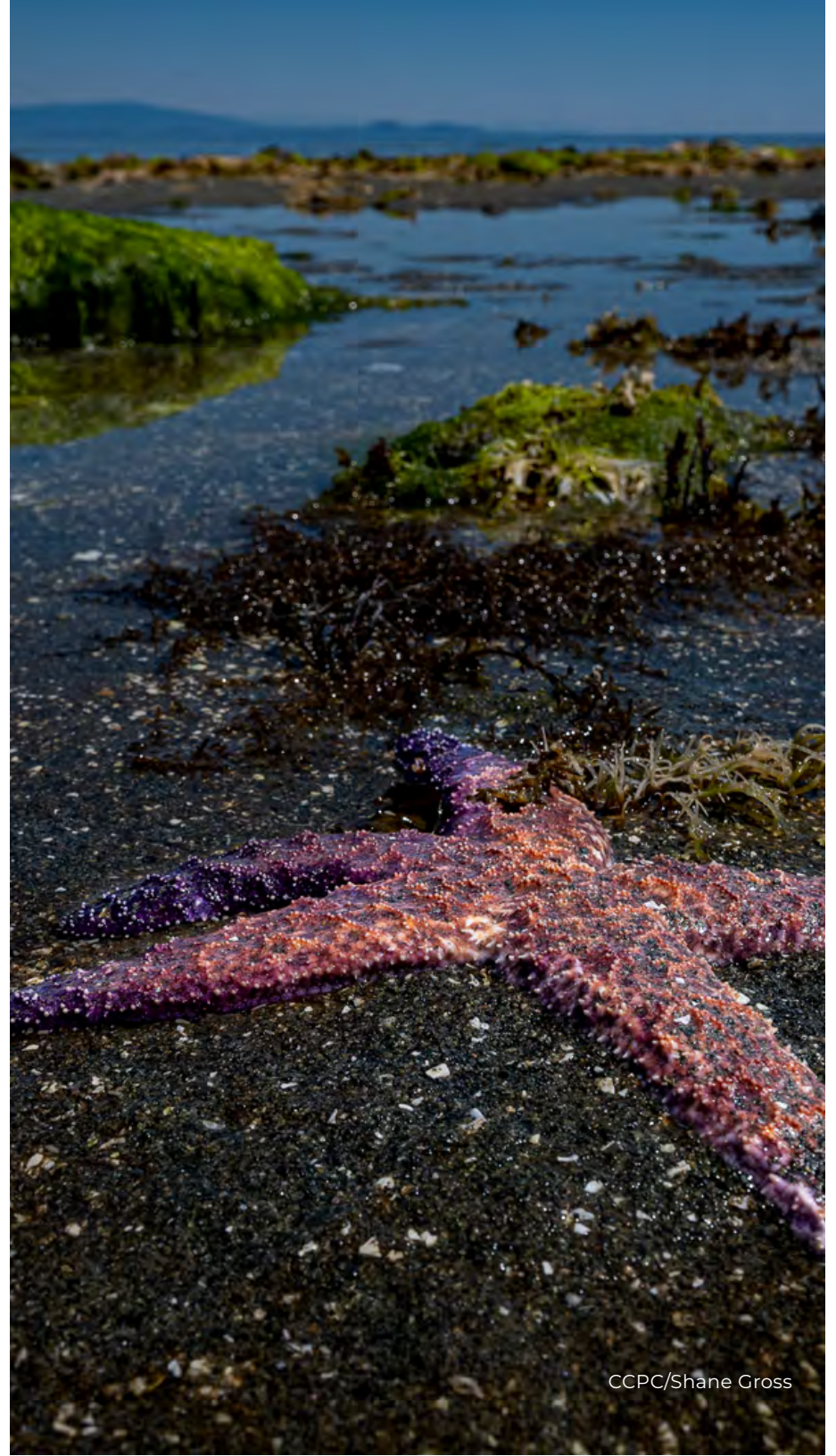
Originally formed in the small community of Sointula on the Central coast of British Columbia in 1998, Living Oceans has expanded nationally in Canada. The organization's goal is to ensure that Canada's oceans are "sustainably managed and thriving with abundant and diverse sea life that supports vibrant and resilient communities."

Living Oceans conducts a variety of research activities in support of informing the public and policy-makers about critical issues impacting the nation's oceans and collaborating to find sustainable solutions. Throughout its existence the organization has prioritized engagement with communities, governments, and industries to gain insight and share information.



Campaigns undertaken by Living Oceans

- Work with ocean planning initiatives to conserve our natural capital and promote the ocean's role in providing food, jobs and security for our communities
- Protect wild salmon and marine ecosystems from the negative impacts of open net-cage salmon farming
- Create spaces for coastal communities to voice their concerns about oil tankers plying the Canadian coastline
- Map and analyze data to raise awareness of ocean issues, engage Canadians, and inform responsible ocean policy
- Ensure fisheries become more sustainable by working with fishermen and Fisheries and Oceans Canada
- Promote sustainable seafood by working with major retailers, restaurants, diners and seafood shoppers
- Tackle climate change by educating the public and decision makers about ocean acidification





Invasive
Species
Centre

About

The Invasive Species Centre (ISC) incorporated as a not-for-profit organization in 2011 with the stated goal of preventing “the introduction and spread of high-risk invasive species in Canada by connecting stakeholders with knowledge and technology.” The NGO emphasizes collaboration with other organizations and provides a wealth of resources to inform best practices and policies. Through its programs the Invasive Species Centre seeks to “prevent and reduce the spread of invasive species that harm Canada’s environment, economy and society.”

The work of the ISC is carried out through research, analysis, information gathering and dissemination, and partnerships with organizations and governments. They host an annual virtual Invasive Species Forum that highlights pressing issues, recent research, and advancements in management of invasive species in Canada and the United States. The ISC also presents awards through the Invasive Species Centre Awards to individuals or organizations that have contributed significantly to the prevention and reduction of invasive species spread. Their website provides invaluable information about introduced species and the specific impacts to communities, the economy, and the environment as well as tools and techniques to address the issues.



CCPC/Jillian Brown



CCPC/Josh DeLeenheer



PACIFICWILD

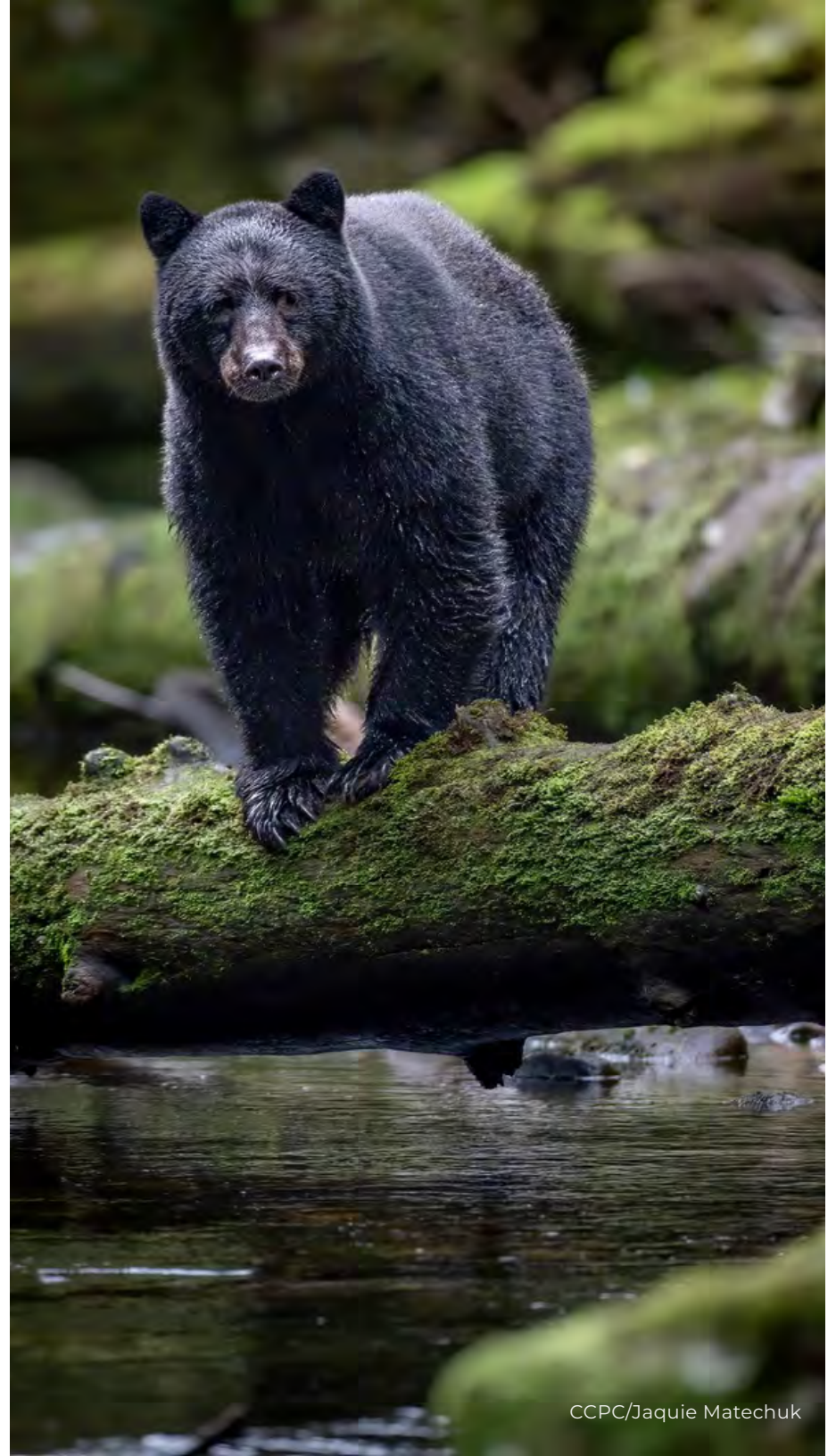
About

Pacific Wild has been a powerful voice for conservation in Canada since its inception in 2008. Founded by Karen and Ian McAllister, the organization's original mandate was to "bring awareness and change to conservation issues in the Great Bear through powerful and accessible visual storytelling." Since then they have expanded their focus and operations to illuminate a range of conservation issues affecting the Pacific Northwest, including the west coast commercial herring fishery, the ongoing wolf cull in British Columbia, and the deforestation of primary forests.

The organization utilizes research and education to inform and engage the public on pressing topics impacting the natural environment, supported by the extraordinary imagery captured by its staff and co-founder, Ian McAllister. Their current campaigns include:

- Save B.C. Wolves
- Save B.C. Bears
- Bottom Trawling
- Protect Pacific Herring
- Marine Protection
- Fish Farms Out

Their efforts have contributed to a legislated ban on grizzly bear hunting in the province, the maintenance of a ban on the expansion of fish farming, in the Great Bear Rainforest, and the expansion of marine protected areas among other achievements.





About

Founded in Vancouver, British Columbia in 1951, Ocean Wise has “grown into a global environmental charity that addresses overfishing, ocean pollution and climate change.” Perhaps most synonymous with the Ocean Wise Seafood label, the organization has become a world leader in identifying and recommending sustainable seafood options for consumers to counter overfishing of vulnerable marine species. Their activities extend well beyond the supermarket though, and they have directly contributed to removing tons of waste from shorelines and preventing thousands of collisions with whales.

In service of their objectives Ocean Wise has engaged in several projects and campaigns. The Seaforestation Initiative seeks to preserve and restore kelp forests that provide essential habitat for aquatic species and absorb carbon dioxide from ocean water. The Ocean Wise Plastics Lab studies the shedding of microplastics and microfibres, providing invaluable insight to manufacturers looking to reduce and eliminate plastic pollution resulting from their products. Coordinating over 1,000,000 volunteers in Canada since 1994, the organization has led shoreline cleanup efforts to remove two million kilograms of waste from Canada’s waterways. Ocean Wise is actively involved in addressing impacts to the Arctic marine environment, seeking to monitor and report on underwater noise levels affecting marine mammals, addressing the introduction of invasive species, and preserving and improving water quality for local residents and wildlife.



CCPC/Shane Gross

Juvenile coho salmon resting in an eddy of the fast-moving Campbell River, Vancouver Island.



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TO BE CONTINUED



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