

The
FUTURE
IS

HERE

An Urgent Call to **Defend** Nature, **Stabilize** the Climate
and **Transition** to Post-Carbon Prosperity

Updated June 2017





THIS DOCUMENT OUTLINES A VISION AND MAKES PROPOSALS FOR CHANGING THE WAY WE MANAGE B.C.'S WATERS, LANDS AND RESOURCES IN THE FACE OF CLIMATE CHANGE AND ITS ACCELERATING IMPACTS.

Ninety-four per cent of the province is designated public Crown land; much of it unceded territory, subject to Aboriginal title and rights. Reconciliation for historical wrongs is necessary and important and any plan for our common future must recognize and address our painful shared history.

Photo credits: Terra Firma



Executive SUMMARY

CLIMATE CHANGE IS THE DEFINING ISSUE OF OUR TIME. A radical transformation of British Columbia's natural landscape and biodiversity is already underway and climate impacts will continue to accelerate if we cling to business as usual. By 2080, modelling suggests British Columbia will be almost unrecognizable, both in terms of its natural environment and its human communities.

Informed by the latest climate science, Sierra Club BC advocates a three-pronged approach to prepare for these changes and defend ourselves against worsening impacts.

We must act to:

1. **Stabilize our climate**, by leaving fossil fuels in the ground, reducing our emissions and increasing the price on carbon.
2. **Defend intact nature** to preserve biodiversity and natural carbon banks, and protect the ecosystem services on which human economies and health depend.
3. **Rapidly transition** to an equitable post-carbon economy that leaves no one behind.

British Columbia is well placed to confront the challenge of climate change and undertake a rapid and necessary transition to a post-carbon world. The future is here and it is time for climate action.

Photo credits: (left to right) Kent Weakley, Jack Dykinga iLCP, Jeff Kubina





INTRODUCTION

BRITISH COLUMBIA'S BIODIVERSITY IS GLOBALLY SIGNIFICANT. WE ARE HOME TO THREE-QUARTERS OF CANADA'S MAMMAL AND BIRD SPECIES, 70 PER CENT OF ITS FRESHWATER FISH, AND THOUSANDS OF OTHER ANIMALS AND PLANTS.

Some species, such as the Vancouver Island marmot, live nowhere else on earth. For others, such as grizzly bears and salmon, B.C. has become a globally important refuge as their numbers decline across their historical range.

Climate change, however, threatens to drastically reduce B.C.'s biodiversity, at the same time as it harms our economy and health. The well-being of species, ecosystems and overall biodiversity is intimately connected to human well-being. Resilient, diverse ecosystems deliver the vital environmental services (such as provision of clean water and pollination of plants) on which people, communities and our economy depend.

Elk browsing for forage
in the Rockies.

Photo credit: H. Feather



Increasing protection of B.C.'s biodiversity provides the best chance for a greater number of plants and animals to survive the impact of a changing climate. It also provides human beings with better prospects for survival.

Although large tracts of B.C. remain ecologically intact, our management of this abundance has often been short-sighted. B.C. has the highest number of species-at-risk of any province or territory as assessed by the *Committee on the Status of Endangered Wildlife in Canada*.

Ecosystems and landscapes continue to be destroyed for short-term economic gain. Fossil fuel projects, destructive logging practices and other carbon-intensive economic activities, primarily for export, contribute to massive greenhouse gas emissions, in many cases uncouned in provincial data reports.

Globally, we are in the midst of what has been described as "the sixth extinction," with between 20 and 50 per cent of species expected to disappear by 2100. Business as usual will saddle us with 3 to 5°C of warming within the lifetime of children being born today, radically altering the world as we know it.

British Columbians are already embracing climate-friendly solutions including building renewable energy systems, supporting local food production and demanding mass transit.

What B.C. needs is government leadership to phase in these solutions on a large scale and move boldly towards a post-carbon future.

In B.C., we still have many opportunities to prepare ourselves and strengthen our resilience in light of climate change. By protecting the biodiversity of this province and shifting to a post-carbon economy in which families, communities and nature can prosper together, B.C. can become a world leader in confronting climate change. All we need is the political will.

Photo credits: (clockwise from below) Volodymyr Kyrylyuk / Shutterstock.com, Darinburt, H. Hakim



Acknowledging TITLE & RIGHTS

MOST OF BRITISH COLUMBIA IS UNCEDED LAND, SUBJECT TO ABORIGINAL TITLE AND RIGHTS.

The recent William decision, granting full title over traditional land to the Tsilhqot'in Nation, recognized Aboriginal title in Canadian law after many years of government policies based in denial. The Tsilhqot'in have set a precedent that is shifting the context for land and water use planning in B.C.

Land use decisions cannot occur on First Nations territory without free, prior and informed consent. B.C. should work with First Nations governments to further develop and expand land use designations that address Aboriginal title and that respect cultural values and uses and conserve biodiversity where appropriate.

Haida regalia.

Photo credit: Michael Ambach



THE TSILHQOT'IN NATIONAL GOVERNMENT IS WORKING TO PROTECT FISH LAKE AND OTHER IMPORTANT HABITAT IN THEIR TERRITORY THROUGH THE ESTABLISHMENT OF THE DASIQOX TRIBAL PARK.



Climate Change IMPACTS

CLIMATE CHANGE IS ALREADY AFFECTING BRITISH COLUMBIA. Over the last 120 years, average temperatures have risen 0.6°C on the coast, 1.1°C in the central and southern interior, and 1.7°C in the north—the latter two increases being twice and three times the global average.

Since the mid-twentieth century, coastal ocean surface temperatures have been increasing. In 2015, temperatures off the west coast are 3°C higher than normal, threatening marine life, seabirds and salmon stocks.

Recently, B.C. has experienced lower winter snowpack, increased early year river flows, and warmer summer stream temperatures. Spring is arriving earlier, as are many species of migratory birds.



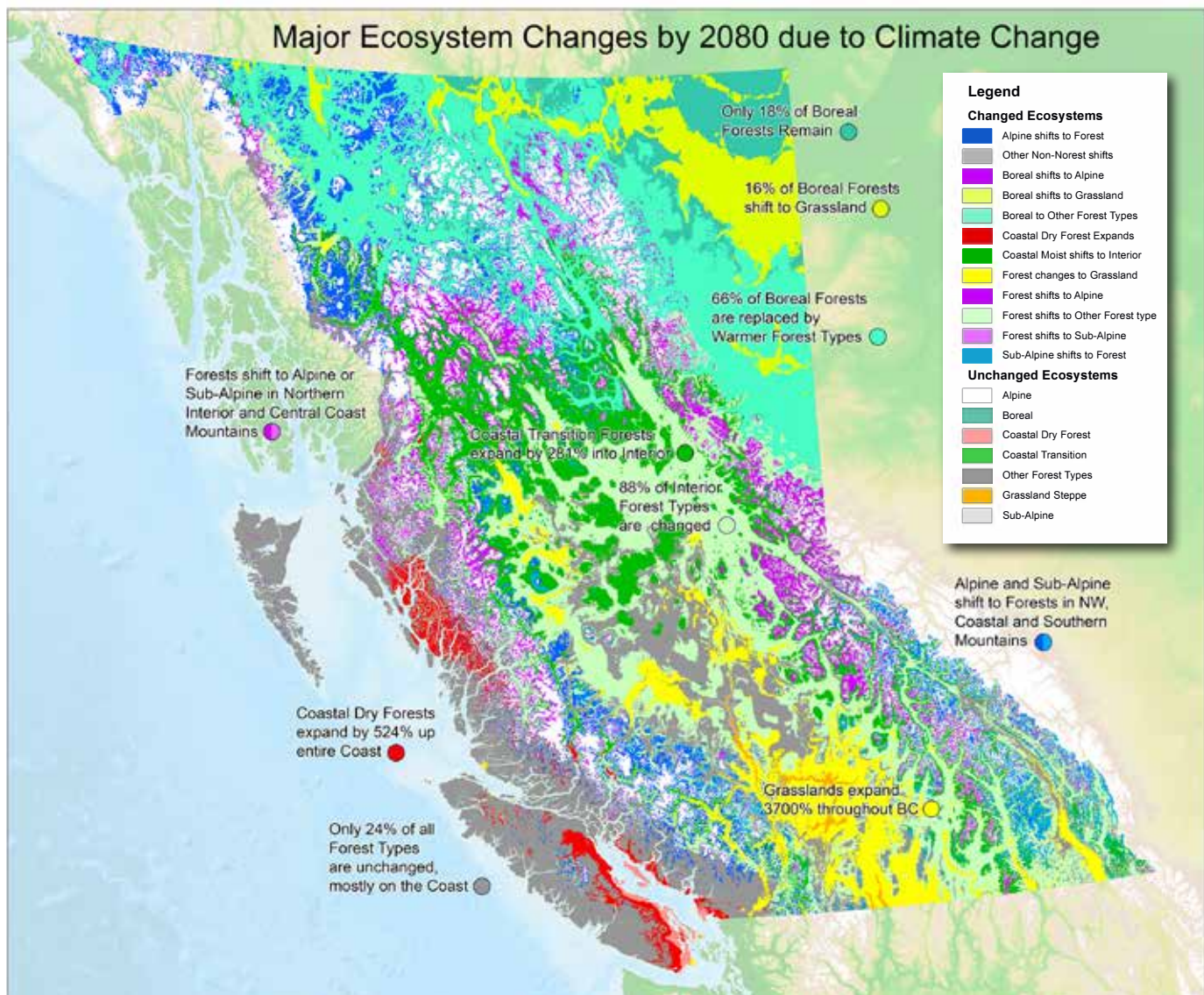
The mountain pine beetle epidemic ravaging B.C. forests has been linked to warmer winter temperatures.

THE FUTURE IS HERE

Looking out to 2080, modelling predicts that ecological zones will shift 900 to 1500 metres up in elevation and 450 to 750 kilometres north. Some species are already expanding their ranges northward or upwards in elevation, adjusting migration, breeding or flowering times in response to warming. For many species, especially plants, climatic changes are happening faster than they can move.

Overall, B.C. will see significant growth in the driest ecosystems. We will see a huge increase in grasslands and steppe at the expense of trees. The western red cedar may disappear in drier, warmer conditions. Our northern forests will be greatly reduced in favour of grasslands. Some tree species will push upslope into alpine habitats.

Wetter ecosystems will be less abundant. Wetlands, essential for purifying our freshwater, will be most impacted, especially in southern forests.



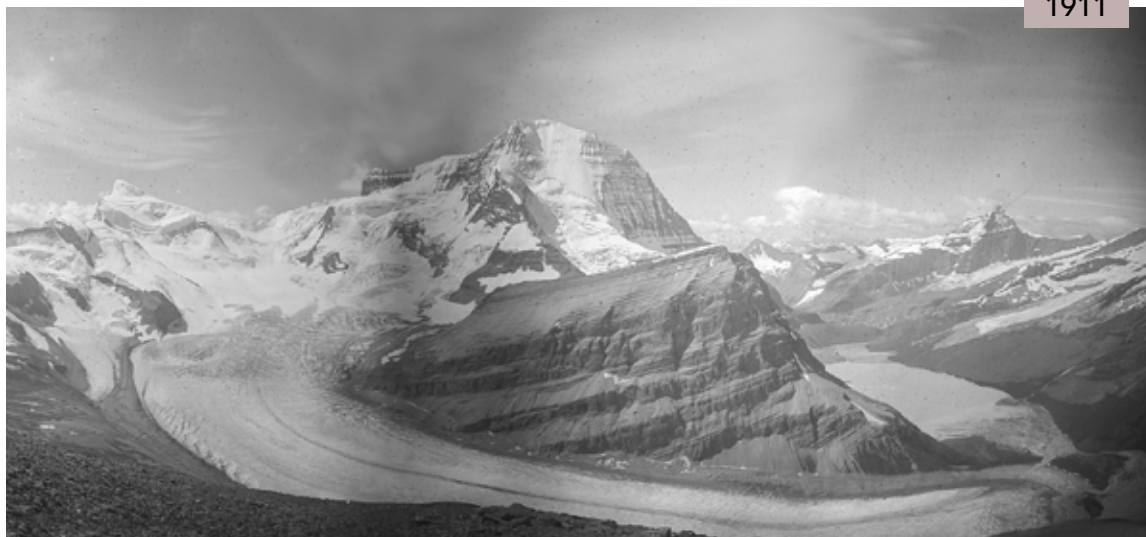
Scientific modelling predicts massive changes in B.C.'s major ecosystems in coming decades. Modelling suggests that some landscapes, such as grasslands, will expand, while others, such

as boreal forests, will shrink. Much of B.C.'s landscape will be radically transformed as species and ecosystems migrate north and upwards in elevation.

Created by Dave Leversee, using material from Rachel F. Holt, Ph.D., R.PBio, Gregory Kehm, MLArch: Conservation and Adaptation in British Columbia: Strategic Opportunities in a Climate Changing World.

Glaciers and snow pack on mountains will continue to shrink and disappear. The melting of permafrost in the north will accelerate.

These changes, anticipated over the course of a single lifetime, will threaten water, food supplies and our health. They will destabilize the social and economic patterns that, for most people, make our lives orderly and predictable.



1911

Mt. Robson, the Robson Glacier and Berg Lake.

Photo credits: The Mountain Legacy Project, School of Environmental Studies, University of Victoria, <http://explore.mountainlegacy.ca>



2011

Climate change challenges the basic assumptions upon which traditional land, freshwater and marine planning have been based. Given climate change, it is scientifically inaccurate to make decisions by forecasting forward from today's landscape. Current management needs to be based on modelling future landscapes and then backcasting to today's conditions. Predictive modelling can help identify ecological hotspots holding critical values for species, ecosystems and carbon reserves, and is a vital tool for developing adaptation plans for B.C.'s most vulnerable species and ecosystems.

Carbon ACCOUNTING

CLIMATE CHANGE IS ALL ABOUT CARBON. The basis of all life on our planet, carbon circulates among living animals and plants, the atmosphere, and the oceans. Carbon is also stored for long periods in various ways: as living forests (green carbon), in estuaries and marshes (blue carbon) and as underground fossil fuel deposits (black carbon).

The problem of climate change, simply put, is that less and less carbon is being stored long term, while more and more is in our atmosphere, as the greenhouse gas carbon dioxide, and dissolved in our oceans, contributing to acidification.

The planet's carbon stores are like financial institutions; banks into which carbon can be deposited and withdrawn. Carbon is deposited in these banks when forests and other plant life remove carbon dioxide from the atmosphere. Carbon is withdrawn when we cut down forests, when we dredge up estuaries and marshes, and when we burn fossil fuels, deposits made hundreds of millions of years ago.

Since the industrial revolution, our withdrawals from carbon banks have increasingly exceeded our deposits, leading to an accumulation of carbon dioxide in the atmosphere, from 280 parts per million (ppm) in pre-industrial times to 400 ppm today.

Our challenge is simple. The balance of payments has to change. We must increase carbon deposits and decrease our carbon withdrawals.

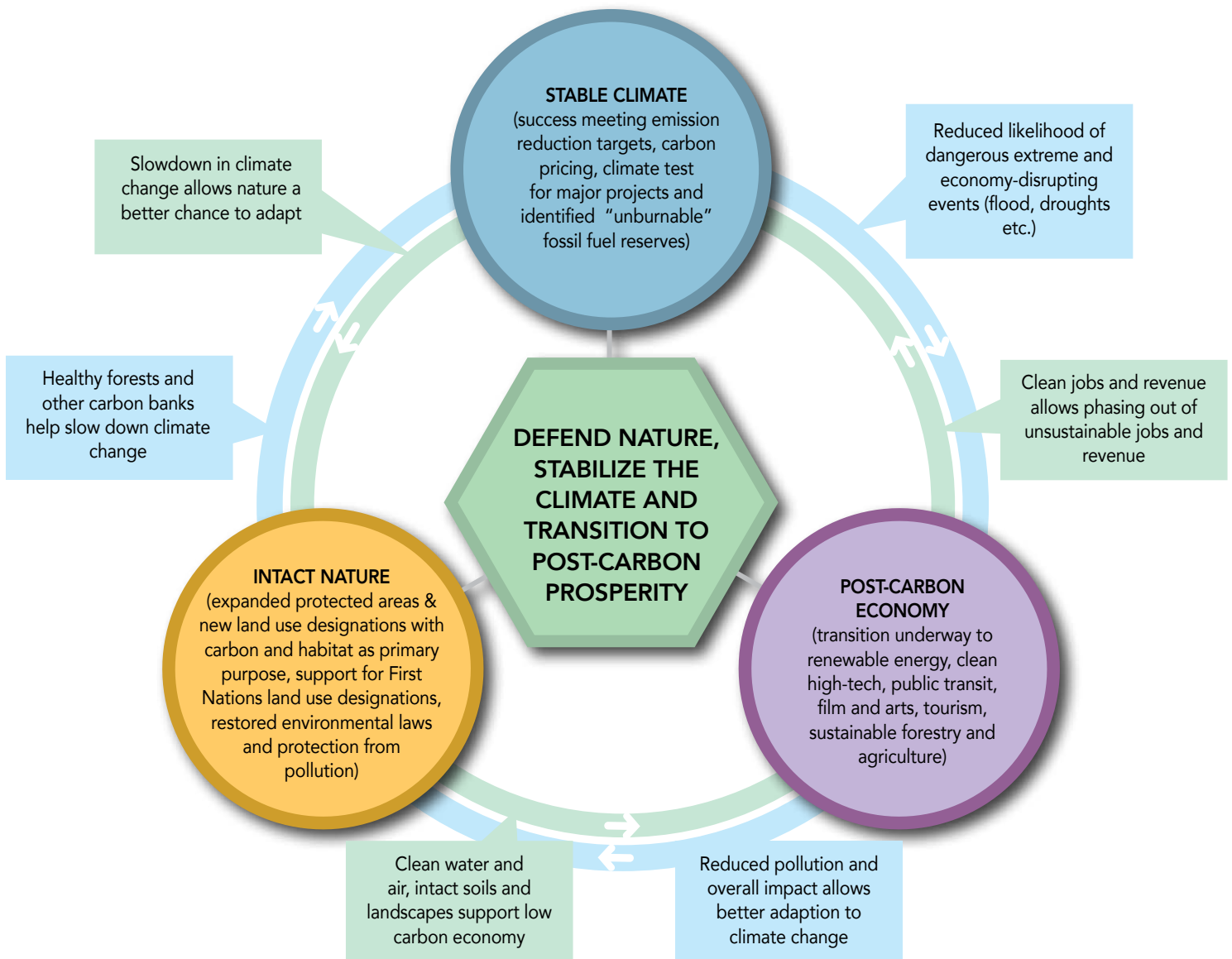
Marshy grasslands in
B.C.'s interior.

Photo credit: Zargon
Design



Effective CLIMATE ACTION

CONFRONTING CLIMATE CHANGE REQUIRES STRONG LEADERSHIP IN THREE MAIN AREAS OF ACTION: STABILIZING THE CLIMATE, PROTECTING NATURE, AND SUPPORTING ECONOMIC TRANSITION AWAY FROM FOSSIL FUELS.



Stabilizing the Climate

To stabilize the climate, we need to manage carbon responsibly, minimizing the amount of carbon we release into the atmosphere and preserving carbon banks.

Scientists have calculated our planet's carbon budget—the total amount of carbon we can pump into the world's atmosphere and stay under two degrees of warming—to be 1,000 gigatonnes. Two degrees of warming is widely considered the threshold beyond which climate change impacts will become increasingly impossible to manage by humanity and ecosystems.

IF BUILT, ENBRIDGE'S NORTHERN GATEWAY PIPELINE AND KINDER MORGAN'S TRANS MOUNTAIN PIPELINE WOULD CARRY DILUTED BITUMEN FROM ALBERTA'S TAR SANDS TO B.C.'S COAST FOR EXPORT. THE TANKER TRAFFIC AND LIKELIHOOD OF AN OIL SPILL WOULD JEOPARDIZE THREATENED AND ENDANGERED SPECIES INCLUDING SOUTHERN RESIDENT ORCA WHALES.



To date, humankind has emitted a little over 500 gigatonnes of carbon. We are currently burning through the remainder at a rate that will exceed our budget in about 30 years. Scientists have calculated that to stay within the remaining budget, 80 per cent of the world's fossil fuel deposits must remain in the ground.

B.C. can show climate leadership by working towards carbon neutrality. To achieve this, measures should include:

- > Legislating new binding emissions reduction targets and strengthening accountability to meet those targets. B.C. should legislate a 40 per cent reduction by 2030 compared to 1990, consistent with leading jurisdictions such as California and the European Union.
- > Commencing annual increases to the carbon tax to at least \$100/tonne by 2023. B.C. should expand the application of the carbon tax to those resource industries that have been excluded to date, for example: aluminium, cement and lime production; venting from the oil and gas sector, in particular fracking; and the export of fossil fuel including coal and fracked gas.
- > Directing carbon tax revenue to support transition to a post-carbon economy.
- > Ensuring fossil fuel projects pass a climate test during environmental assessment to assess whether the project will significantly increase greenhouse gas emissions.
- > Developing a new land use designation for unburnable carbon banks.
- > Developing and implementing an action plan to restore B.C.'s forests as a carbon bank.



There is scientific agreement that the majority of fossil fuel reserves must be left in the ground to stay below 2°C of warming. A 2015 *Nature* article modelled that in the case of Canada about 75 per cent of oil, 24 per cent of gas, and 82 per cent of coal reserves must be left in the ground. More work is necessary to identify the most polluting and most expensive reserves to be left in the ground. B.C. should begin this process with a commitment to declare the majority of our fossil fuel reserves unburnable.

Created by Dave Leversee, using material from EnergyBC.

Photo credit: (below left) Leila Darwish, Fort Nelson



THE PROPOSED EXPANSION OF FRACKING AND THE DEVELOPMENT OF AN LNG EXPORT INDUSTRY IS INCOMPATIBLE WITH ANY SERIOUS APPROACH TO TACKLING CLIMATE CHANGE. BUILDING THREE LNG TERMINALS WOULD RESULT IN AN EXTRA 36 MILLION TONNES PER YEAR OF GREENHOUSE GAS EMISSIONS.

Defending Nature

Without immediate action, B.C.'s globally significant biodiversity is vulnerable to rapid deterioration, especially as a result of climate change.

Conservation biologists have concluded that about half of the land base should be protected or managed primarily to protect ecological values, in order to maintain diverse ecosystems, the species that depend on them, and their environmental services.

By managing 50 per cent of B.C.'s landscape in a manner that maintains ecological integrity and connectivity, species and ecosystems will have a better chance to adapt to a changing climate, while protecting clean water and maintaining the soil base. B.C. has already made significant progress toward this goal. Protected areas comprise nearly 15 per cent of the land base and another approximately 16 per cent has development restrictions in place through designations such as the Agricultural Land Reserve and Wildlife Management Areas.

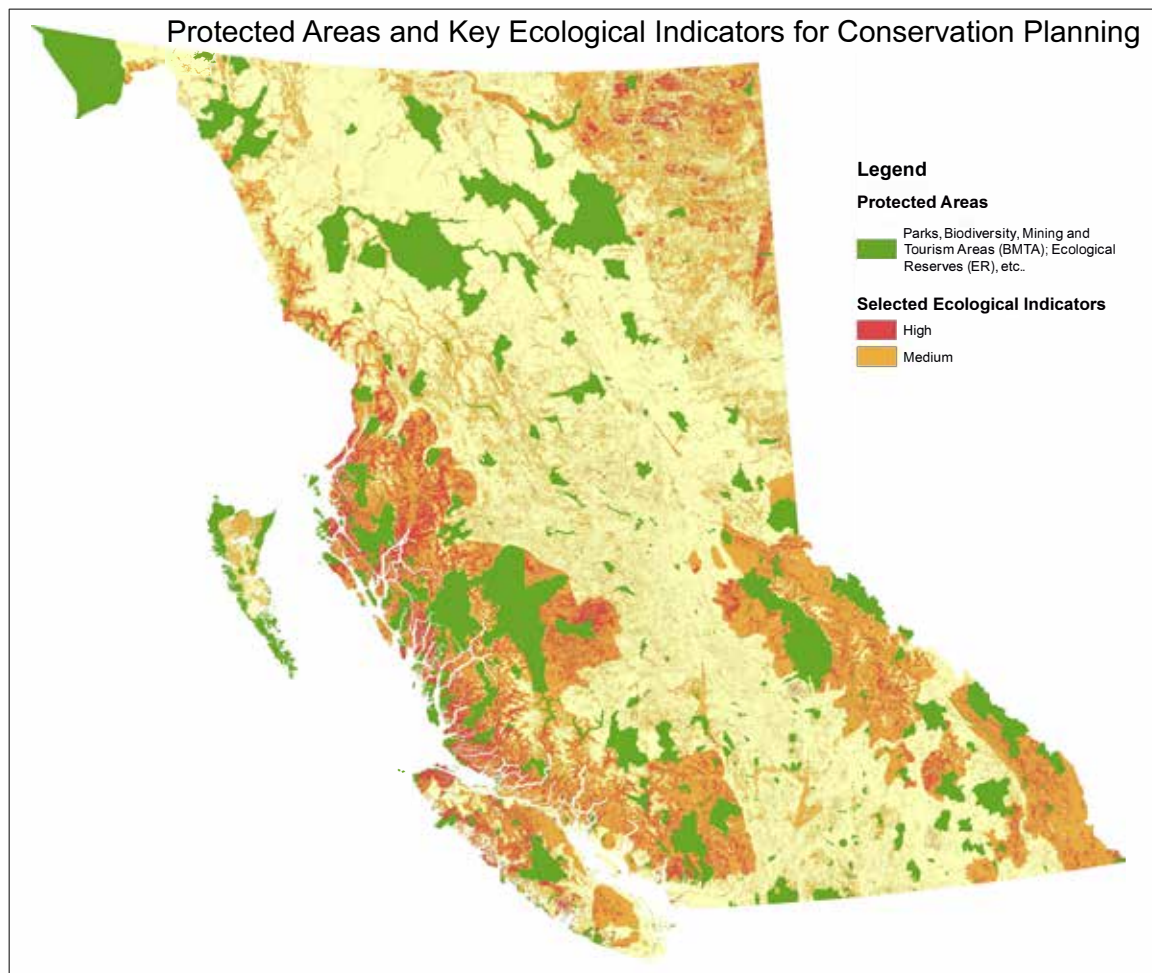
Photo credit: (below right) Garth Lenz iLCP, overlooking Flathead River Valley

A TRUE B.C. BIODIVERSITY HOTSPOT, THE FLATHEAD RIVER VALLEY PROVIDES CRUCIAL CONNECTIVITY FOR SPECIES MIGRATION AND FORMS A SIGNIFICANT COMPONENT OF THE YELLOWSTONE TO YUKON WILDLIFE CORRIDOR.



Large portions of B.C.'s landscape outside of protected areas contain high ecological value. The areas showing high and medium ecological indicators should be of prime consideration in deciding how and where to protect 50 per cent of the land base.

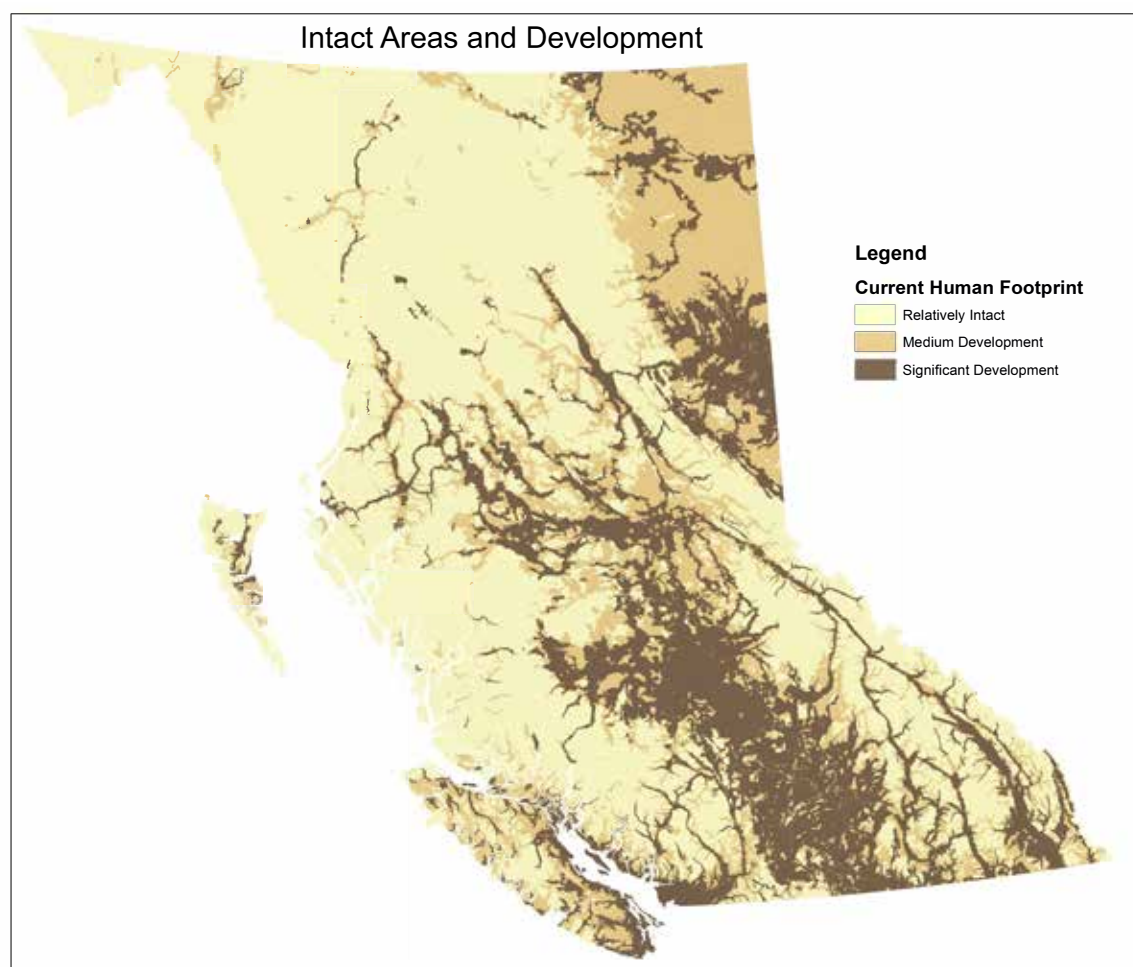
Created by Dave Leverage, using material from Rachel F. Holt, Ph.D., R.PBio, Gregory Kehm, MLArch: Conservation and Adaptation in British Columbia: Strategic Opportunities in a Climate Changing World.





Mountain goats.

Photo credit: Joe Riis iLCP
in Flathead region.



Providing for connectivity across the landscape requires a combination of conserving relatively intact areas and restoring areas heavily impacted by human activity.

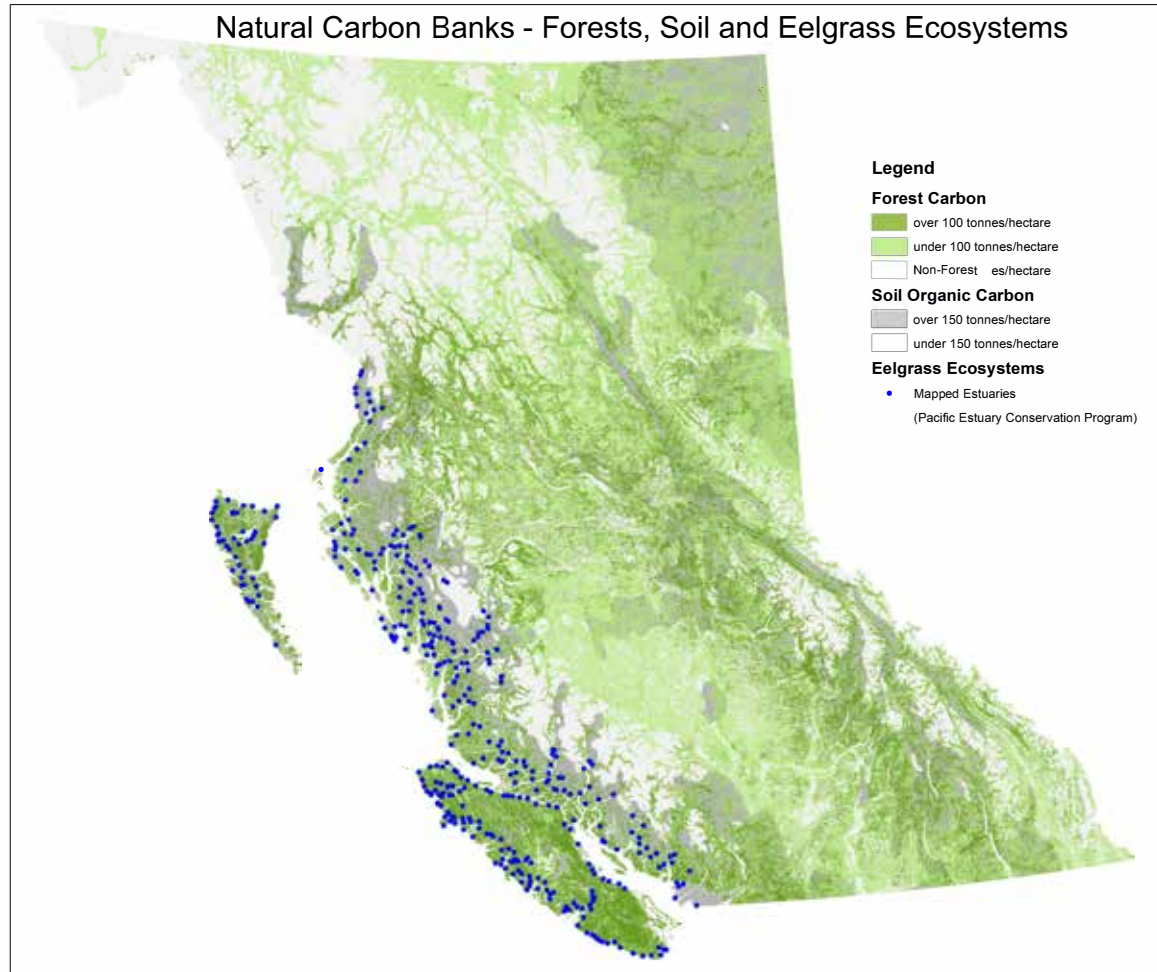
Created by Dave Leversee, using material from Rachel F. Holt, Ph.D., R.PBio, Gregory Kehm, MLArch: Conservation and Adaptation in British Columbia: Strategic Opportunities in a Climate Changing World.

Blue and Green Carbon Banks

We cannot grow our black carbon banks, but our green and blue carbon stores increase when we manage our forests and shorelines sustainably.

B.C.'s green and blue carbon banks actively pull and store carbon from the atmosphere. This map highlights some of the outstanding natural carbon banks of the province (forest carbon over and above 100 tonnes per hectare, carbon stored in soils over and above 150 tonnes per hectare and eelgrass ecosystems).

Created by Dave Leversee, using material from Rachel F. Holt, Ph.D., R.P.Bio, Gregory Kehm, MLArch: Conservation and Adaptation in British Columbia: Strategic Opportunities in a Climate Changing World.



B.C.'s green carbon banks hold an estimated 18 billion tonnes of carbon in trees, roots and soils. Functioning like sponges, our forests can capture 30 million tonnes of carbon dioxide annually.

Photo credit: (below right) Claire L. Evans

ONE YEAR OF OLD-GROWTH LOGGING ON 5,700 HECTARES OF VANCOUVER ISLAND AND THE SOUTH COAST RESULTED IN APPROXIMATELY 3 MILLION TONNES OF CARBON DIOXIDE EMISSIONS, EQUIVALENT TO THE REDUCTION IN EMISSIONS ACHIEVED BY B.C. BETWEEN 2007 AND 2010.



For a full decade, however, B.C. forests have been releasing dramatically more carbon into the atmosphere than they have absorbed out of the atmosphere. While B.C.'s forest carbon loss has been made worse by the mountain pine beetle outbreak and a number of serious wildfire years, the biggest factor remains poor forest management.

Clear-cut logging old-growth forests and replacing them with plantations releases large amounts of carbon into the atmosphere. Protecting green carbon banks will only become more important as the effects of climate change progress worldwide.

*Photo credit: (below left)
Andrew S. Wright, Haida
Gwaii*



THE LAST REMAINING OLD-GROWTH TEMPERATE RAINFOREST ON B.C.'S SOUTH COAST AND VANCOUVER ISLAND NEEDS PROTECTION. THESE ANCIENT FORESTS ABSORB AND STORE ENORMOUS AMOUNTS OF CARBON. ONCE LOGGED, THEY ARE EXTREMELY UNLIKELY TO REGROW IN A CHANGING CLIMATE.

The other value of natural intact forests is their ability to adapt to climate change. Each ecosystem develops complex and unique interrelationships of fungi, plants, and animals. Regions of B.C. unfragmented by industrial and urban use are more productive, stable and resilient to environmental disturbance and change.

Marine eelgrass meadows and estuarine salt marshes store at least 20 million tonnes of carbon and capture 180,000 tonnes annually in B.C. waters. In fact, these blue carbon marine forests capture and store carbon at rates up to 90 times the uptake of equivalent terrestrial forest areas. Scientists point to these nearshore ecosystems as high priorities for conservation, restoration and enhancement.



B.C. has 442 estuaries with a combined area of less than a 750 km². Only 100 km² of these ecologically valuable areas are legally protected.

*Photo credits: (above)
Tavish Campbell, Flora
Bank, (left) Sam Beebe,
Skeena River*

THE FUTURE IS HERE

Currently, marine protected areas, comprising less than two per cent of B.C.'s ocean, have no connectivity and there is no guaranteed protection for eelgrass. A concerted effort is required to develop and implement a plan to identify and protect blue carbon banks along B.C.'s entire coastline. This would involve mapping, education, partnerships with communities, First Nations and other environmental organizations, and advocacy.

Protection of our marine and terrestrial natural carbon banks, especially eelgrass beds and old-growth rainforests, has an immediate benefit because these living systems will continue to sequester and store carbon instead of releasing it.

ECOSYSTEM-BASED MANAGEMENT, AS USED IN THE GREAT BEAR RAINFOREST, MAINTAINS ECOLOGICAL HEALTH WHILE IMPROVING HUMAN WELL-BEING. IT RESPECTS NATURE'S NEEDS BY ENSURING ENOUGH FOREST IS SET ASIDE FOR ECOLOGICAL FUNCTION, CREATING A COMPREHENSIVE NETWORK OF PROTECTED AREAS WITHIN A WELL-MANAGED, WORKING LANDSCAPE THAT CAN BE SUSTAINED FOR THE LONG TERM.



Bringing in the catch, Gitga'a't territory, in the Great Bear Rainforest.

Photo credit: Cristina Mittermeier iLCP

Supporting Economic Transition

Our economy, as currently structured, depends on continued, unsustainable withdrawals from the world's carbon banks. The result is accelerating climate change and all that comes with it. We need to move to a new kind of economy that respects nature's limits and sheds our dependence on fossil fuels.

And we need to do it quickly.

It won't be easy, but with thoughtful planning and bold leadership, it can be done. Critically, we must support workers, communities and businesses in the shift to a post-carbon economy.

"ANYONE WHO BELIEVES IN INDEFINITE GROWTH IN ANYTHING PHYSICAL, ON A PHYSICALLY FINITE PLANET, IS EITHER MAD OR AN ECONOMIST."

—Kenneth Boulding, adviser to President John F. Kennedy

The transition from resource-dependent industries to a diverse, post-carbon economy will be planned around clean technology, sustainable procurement policies, green infrastructure and strong local economies. It will require making fossil fuels a scarce, increasingly expensive resource and encouraging behaviour change in individuals, governments and businesses.

Too often in the past, the decline of individual industries has left workers and communities out in the cold. We cannot, for example, repeat the hollowing out of local economies we experienced with mill closures across the province.

Workers leaving fossil fuel industries need secure and well-paid job opportunities, skills training, and a social safety net that ensures families are cared for along the way.

*Photo credit: (below left)
B. London*



GREENJOBS BC IS AN ALLIANCE OF LABOUR AND ENVIRONMENTAL ORGANIZATIONS, INCLUDING SIERRA CLUB BC, DEDICATED TO ADVANCING INITIATIVES THAT CREATE SOCIALLY EQUITABLE AND ENVIRONMENTALLY RESPONSIBLE JOBS.

Solutions must also lighten rather than perpetuate the historical and ongoing burden on First Nations. No shift to a post-carbon economy can be accomplished without First Nations as full partners in the transition. We have an opportunity to build a new social contract: one that is inclusive, just, and leaves no one behind.

Photo credit: Caitlyn
Vernon, Stafford Inlet



There is already a strong movement building towards localized economies. Economists and decision makers around the province know that building strong local economies creates autonomy for communities, minimizes social inequity and increases economic stability.

Photo credit: (below right)
Kokhanchikov

OUR ECONOMIC DEPENDENCY ON THE FOSSIL FUEL INDUSTRY IS A MYTH. ONLY THREE PER CENT OF OUR NATIONAL GDP COMES FROM OIL, GAS, MINING AND THEIR SUPPORT SERVICES (ONE PER CENT IF YOU TAKE AWAY THE SUPPORT SERVICES).



A post-carbon economy 'green jobs agenda' would:

- > Be grounded in a fundamental respect for ecological limits.
- > Ensure basic human needs for clean water and air.
- > Promote reconciliation and economic certainty for First Nations.
- > Allow individuals, families and communities to prosper and lead fulfilling lives.
- > Provide workers with transition opportunities.
- > Build vibrant local networks of exchange in contrast to current large scale methods of production and distribution.



Photo credits: (clockwise from top right) Cristina Mittermeier iLCP, ChameleonsEye / Shutterstock.com

Funding to support this transition can begin with carbon tax revenue and revenue from the elimination of fossil fuel subsidies. Given the scope and scale of the transition to a post-carbon economy, a thorough review of government spending, revenue and tax structure and incentives will identify further mechanisms to promote this transition.

In a post-carbon economy, ensuring food security and protecting agricultural lands must be a priority.

Warming temperatures will lead to lower crop yields and overall food production, according to the latest report by the Intergovernmental Panel on Climate Change. Climate change calls into question the global system of food supply, dependent as it is on fossil fuel-burning air transport and on monoculture farming.

A transition strategy must preserve all potential agricultural land to maximize our self-sufficiency in the face of food shortages. Food-producing lands must be recognized for what they are: key to human survival and well-being in an era of climate change, and a strategic asset of the highest public interest for the province and the nation.

As many communities in B.C. are discovering, a robust small-scale agriculture sector, with processing and distribution hubs for added value and jobs, diversifies and strengthens regional economies.

Photo credit: (below left) Steve Smith



TO ENSURE BRITISH COLUMBIANS CAN FEED OURSELVES AS TEMPERATURES RISE, WE MUST LOOK TO THE NORTH. THE HIGHLY FERTILE AND PRODUCTIVE PEACE RIVER VALLEY, UNDER THREAT FROM THE PROPOSED SITE C DAM, CAN GROW ENOUGH FOOD TO FEED A MILLION PEOPLE EVERY YEAR.



Kermode bear in the Great Bear Rainforest.

Photo credit: Andrew S. Wright iLCP

Photo credit: (below right) Caitlyn Vernon, Hartley Bay

Forestry will form an important part of a post-carbon economy. We can generate jobs and economic activity from healthy forests, supporting the long-term viability of communities.

But our forests will need to be managed in the context of two central factors: the need to defend and expand the role of forests as carbon banks and to manage 50 per cent for nature. Our current approach lacks measurable results and is impeding innovative approaches to forest management.

B.C.'S GREAT BEAR RAINFOREST IS THE LARGEST MOSTLY INTACT TEMPERATE COASTAL RAINFOREST ON OUR PLANET AND THE AGREEMENTS FOR ITS PROTECTION, AGREED TO BY GOVERNMENT, FIRST NATIONS, INDUSTRY AND ENVIRONMENTAL ORGANISATIONS, ARE CONSIDERED A GLOBALLY OUTSTANDING MODEL OF CONSERVATION.



B.C. requires a coherent forest action plan, with corresponding legislation, policy and financial resources, taking into consideration the impact of climate change on our forests. The key components of this plan are described at the end of this document.

Reconnecting WITH NATURE

CLIMATE CHANGE OFFERS A REVITALIZATION OF OUR UNDERSTANDING AND CONCERN FOR THE NATURAL WORLD AND OUR PLACE IN IT.

One unfortunate side effect of our current economic model is a general loss of connection to nature, especially among children. Eighty per cent of children now grow up in urban settings with 90 per cent of their time spent indoors. Studies show a link between decreasing time spent outdoors and increasing symptoms of what has been dubbed “nature deficit disorder”—including poor academic achievement, health problems, and difficulties in social adjustment.

*Photo credit: (below left)
Terra Firma*



FOSTERING A SENSE OF CONNECTION TO THE NATURAL WORLD BOTH WITHIN CLASSROOMS AND OUTSIDE OF SCHOOL WILL HELP US, AS A SOCIETY, TO BETTER UNDERSTAND AND CONFRONT CLIMATE CHANGE.

Many of today's children are urban and will live their lives in the midst of our efforts to confront the challenge of climate change. Building a healthy post-carbon society means creating opportunities for children and families to get outside and cultivate relationships with the natural world.



Photo credit: C. Lyon

CONCLUSION

CONFRONTING CLIMATE CHANGE SEEMS DAUNTING, BUT HERE IN B.C. WE HAVE THE CAPACITY AND THE NATURAL ASSETS TO DEFEND OURSELVES AGAINST FURTHER WARMING AND PREPARE OURSELVES FOR THE COMING CHANGES.

The rapid progression of climate change demands we take steps now to stabilize the climate, to preserve intact nature and to ease our transition to an equitable post-carbon economy.

Changing the way we manage our lands and resources in B.C. will require not only the joint efforts of many facets of B.C. society: communities, First Nations, business, organized labour, the non-profit sector, faith groups, but also the bold leadership of First Nations governments and provincial government.

The future is here, and science is helping to show us the way forward. Solutions that were once dreams of the future are now achievable and necessary.

If we are successful, future generations will look back at the early- to mid-twenty-first century as the time when B.C. demonstrated true climate leadership by orchestrating a green industrial revolution that respected nature's limits.

Nature is not only our best ally in fighting climate change but may be our lifeline.

*Photo credit: TJ Watt,
Victoria*



Ten Steps to **TRANSITION**

SIERRA CLUB BC WILL LEAD ON PROMOTING THESE STEPS TO TRANSITION, WHILE BRINGING BRITISH COLUMBIANS TOGETHER TO MAKE THEM A REALITY.

STABILIZE THE CLIMATE

1 Legislate a coherent 2030 B.C. emissions reduction target

The B.C. government's Climate Action Plan must address the growing evidence that building new fossil fuel infrastructure will make it impossible to meet climate goals. B.C. should follow leading jurisdictions such as California and the European Union and commit to 40 per cent emissions reduction by 2030 compared to 1990. This should include a commitment to review this target in 2020 and assess the potential for a more ambitious target, based on international commitments, technological progress and new scientific findings about the progress of climate change.

2 Increase and expand B.C.'s carbon tax

B.C.'s carbon tax is supported by British Columbians and played a key role in B.C.'s initial emission reduction progress. Increasing and expanding the carbon tax will further motivate business and consumer choices that benefit the climate while increasing the price polluters pay for damaging our climate. The province should commence annual \$10 increases to at least \$100/tonne by 2022. B.C. should expand the application of the carbon tax to those resource industries that have been excluded to date, and to the export of fossil fuels. Mechanisms should be put in place to ensure that low- and middle-income earners are shielded from carbon tax increases. Carbon tax revenue should be directed to support transition to a post-carbon economy (see recommendation 7).

3 Establish a 'climate test' for major fossil fuel projects and other project proposals

To ensure B.C. can achieve greenhouse gas emission reduction targets, and not contribute to increasing global emissions levels, fossil fuel projects should pass a climate test during the environmental assessment process. This test would include a threshold of greenhouse gas emissions to trigger an environmental assessment, consideration of upstream and downstream impacts, consideration of alternatives, and withholding approval for projects that would significantly increase greenhouse gas emissions.

4

Develop a new land use designation for black carbon, setting aside 'unburnable carbon'

Set aside fossil fuel deposits, based upon B.C.'s contribution to the global carbon budget. The science is clear, the majority of fossil fuel deposits must stay in the ground.

Humpback whales.

Photo credit: Barb Malc



DEFEND NATURE

5

Manage 50 per cent of British Columbia's land and sea with the primary purpose to conserve natural systems

Develop a conservation plan for the province to increase protection of land and freshwater to 50 per cent by 2020. Key goals are to maintain ecological values, habitat and maximize carbon storage in our forests, peatlands, eel grasses and salt marshes. This 50 per cent will comprise a combination of land use designations, including the Agricultural Land Reserve.

Current and potential food producing lands should be set aside under the ALR to help ensure B.C.'s future food security is protected.

In addition, 10 per cent of coastal and marine areas should be protected by 2020, with particular emphasis on key ecological values and natural carbon banks.

6

Ensure existing and new land use designations recognize and respect Aboriginal title and rights.

Amend existing and develop new land use designations with First Nations. For example, expand Tribal Parks and explore re-designation of provincial parks to conservancies to address First Nations cultural values.

TRANSITION TO A POST-CARBON ECONOMY

7

Redirect fossil fuel subsidies and carbon tax revenue to support transition to a post-carbon economy and conservation of biodiversity

The shift to a post-carbon economy, including support for workers transitioning from sunset industries, should be accelerated through the stimulus of these government revenues. As fossil fuel revenues diminish over time, so will the need to support clean energy sources. A portion of these revenues should also be directed to support a forest action plan (see recommendation 8) and the conservation of biodiversity.

8

Implement a forest action plan to restore forest health and create sustainable forestry jobs

The core elements of a forest action plan should be to restore government capacity for forest stewardship, strengthen legislation to protect biodiversity, increase forest conservation, improve forest management and adjust the allowable annual cut to a sustainable level, thus creating more jobs per cubic metre in the forest sector.

Core elements of such a plan would include:

- > Increase conservation of carbon-rich old-growth rainforest, in particular by finalizing the Great Bear Rainforest agreements and increasing protection of Clayoquot Sound, and conserving and restoring rare, endangered rainforest ecosystems on Vancouver Island and the south coast.
- > Improve forest management to reduce carbon loss and enhance carbon sequestration with longer harvesting cycles, selective logging, and avoidance of slash burning and wood waste.
- > Restore government capacity to ensure forest stewardship, monitoring and enforcement, as well as capacity to map forests, update inventories and undertake research.
- > Adjust the allowable annual cut to a sustainable level reflecting past overharvesting and climate impacts like the mountain pine beetle outbreak.
- > Reduce raw log exports and support forestry operations and value added businesses that create a higher number of jobs per cubic metre.
- > Provide transition assistance to forestry dependent communities hit by climate change impacts like the mountain pine beetle to restore healthy forest landscapes and forestry opportunities for the future.



Photo credits: (left to right)
Jason V., Itchin Togo



9

Create opportunities for children and families to reconnect to nature

With increased urbanization and technology people are not as aware of or understand the direct connection between human health and ecological health. There needs to be a renewed focus on rewilding our cities, so that nature is nearby, and on providing environmental education to children and their families.

10

Develop an adaptation plan for B.C. to prepare the province for climate change

Key elements of such a plan, based on scientific modelling (see map on pg. 5), would help us understand potential climate change impacts on sea-level rise, food production, drinking water, transit, erosion, ecosystems and species habitat, and determine how best to increase the protection of critical lands for food production and freshwater.

SIERRA CLUB BC

SIERRA CLUB BC WORKS TO PROTECT, CONSERVE AND EDUCATE THE PUBLIC ABOUT B.C.'S WILDERNESS, SPECIES AND ECOSYSTEMS WITHIN THE URGENT CONTEXT OF CLIMATE CHANGE.

We will continue to build awareness about the impacts of a carbon-based economy, with a focus on keeping fossil fuels in the ground and supporting the transition to the alternatives that are already known and possible. We will continue to focus on place-based large landscape conservation to protect wild places and provide connectivity across the landscape, and work to increase understanding that our health and future is dependent on healthy ecosystems. We will act as allies to First Nations.

Sierra Club BC will adopt a leadership role in advocating for the recommendations in this report and raising awareness of the changing climate that makes them necessary. We will also seek to build effective coalitions that can help make individual steps a reality. We continue to focus our energies on specific initiatives and campaigns, such as the ones highlighted throughout this report, to further the vision contained in this document.



Photo credit: Thomas P. Peschak iLCP



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This report and Colin's work draw upon numerous scientific studies and other works. Most important among them are:

- > *Conservation and Adaptation in British Columbia: Strategic Opportunities in a Climate Changing World.* Rachel Holt and Gregory Kehm, 2014.
- > *A New Climate for Conservation: Nature, Carbon and Climate Change in British Columbia.* Jim Pojar, 2010.
- > *Taking Nature's Pulse: The Status of Biodiversity in British Columbia.* Biodiversity BC, 2008.
- > *Mitigating and Adapting to Climate Change Through the Conservation of Nature.* Sara Wilson and Richard Hebda. The Land Trust Alliance of BC, 2008.
- > *Nature Needs Half: A Necessary and Hopeful New Agenda for Protected Areas.* Harvey Locke. Parks 2013 Vol 19(2).
- > *A Green Industrial Revolution: Climate Justice, Green Jobs and Sustainable Production in Canada.* Marc Lee and Amanda Card, 2012.
- > *Climate Change, Biodiversity and the Benefit of Healthy Ecosystems.* Bob Peart, Sarah Patton and Eva Riccius. CPAWS-BC, 2007.

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Detailed references and citations can be found at Sierra Club BC's website: sierraclub.bc.ca.

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Illustration: Sam Bradd, Drawing Change



Sierra Club BC works to protect, conserve and educate the public about B.C.'s wilderness, species and ecosystems, within the urgent context of climate change.

For more information, to get involved, or to support our work, please visit our website:

www.sierraclub.bc.ca