

**Vol. 80, Number 1 • Spring 2023**



**THE CANADIAN SOCIETY OF  
ENVIRONMENTAL BIOLOGISTS  
Bulletin**

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- **Technical Writing Series - Linking Your Ideas**
- **BC News - Paper Parks and Exhausted “Sustainable Forests Forever”  
- Was COP15 Really about Biodiversity?**
- **Book Reviews**



# CSEB Bulletin SCBE

VOLUME 80, NUMBER 1, SPRING, 2023

CSEB Website <http://www.cseb-scbe.org>

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Date of Issue – February 2023 Printed in Canada ISSN: 0318-5133

Front Cover: Prairie crocus (*Anemone patens*), CFB Shilo, MB, 31 May 2021. Photo Credit: Sherry Punak-Murphy, CSEB Member

Back Cover: Top Photo: Sharp-tailed grouse (*Tympanuchus phasianellus*), CFB Shilo ranges, MB, 27 April 2021. Photo Credit: Sherry Punak-Murphy,

Bottom Left: Coyote (*Canis latrans*) in residential back yard in Edmonton AB. Photo Credit: Gary Ash, CSEB Member.

Bottom Right: Endangered Prairie Skink (*Plestiodon septentrionalis*), CFB Shilo, MB, 7 June 2022. Photo Credit: Sherry Punak-Murphy, CSEB Member.

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## CSEB BULLETIN

Vol. 80, Number 1, Spring 2023

The Canadian Society of Environmental Biologists Bulletin is a quarterly publication. The Bulletin keeps members informed of the Society's activities and updates members on the current affairs and advances in the field of environmental biology. This publication draws together the widely diverse group of Canadian environmental biologists through a national exchange of ideas. Members are invited to contribute papers, photos or announcements that are of a national biological and environmental interest. Letters to the editor are welcome. This is a volunteer non-profit organization, and we rely on your participation to make the Bulletin a productive forum for ideas and discussion.

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## LE BULLETIN de la SCBE

Vol. 80, Numéro 1, Printemps 2023

Le Bulletin de la SCBE est une publication trimestrielle de la Société Canadienne des Biologistes de l'Environnement. Le Bulletin informe les membres des activités de la Société sur événements courant ainsi que les progrès qui font en sciences de l'environnement. Par un échange d'idées au niveau national, cette publication intéresse un groupe très diversifié d'environnementalistes Canadien. Les membres sont invités à contribuer des articles, photos (noir et blanc) ou des messages qui sont d'intérêt nationale en sciences biologiques et environnementales. Les lettres à l'éditeur sont bienvenues.

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The views expressed herein are the writers of the articles and are not necessarily endorsed by CSEB, which welcomes a broad range of viewpoints. To submit a piece for consideration, email [newslettereditor@cseb-scbe.org](mailto:newslettereditor@cseb-scbe.org).

## The Canadian Society of Environmental Biologists



### CSEB OBJECTIVES

The Canadian Society of Environmental Biologists (CSEB) is a national non-profit organization. Its primary objectives are:

- to further the conservation of Canadian natural resources.
- to ensure the prudent management of these resources to minimize environmental effects.
- to maintain high professional standards in education, research and management related to natural resources and the environment.

### OBJECTIFS de la SOCIÉTÉ

La Société Canadienne des Biologistes de l'Environnement (SCBE) est une organisation nationale sans but lucratif. Ses objectifs premiers sont:

- de conserver les ressources naturelles canadiennes.
- d'assurer l'aménagement rationnel de ces ressources tout en minimisant les effets sur l'environnement.
- de maintenir des normes professionnels élevés en enseignement, recherche, et aménagement en relation avec la notion de durabilité des ressources naturelles et de l'environnement, et cela pour le bénéfice de la communauté.

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# NATIONAL News

## PRESIDENT'S Report

By Curt Schroeder, CSEB President

By now I suspect many members will be aware that there has been a major advance in artificial intelligence, with the emergence in November of a new type of chatbot called ChatGPT. While the technology has been around for years, the latest improvements allow a trained model to interact with a user in a conversational way unlike the usual Internet search with a list of results that you need to filter. It's the conversational interface and its ability to process information in creative ways that is new.

In academia, in the last few months, this technology has been the "talk of the town" to say the least. Some institutions have outright banned its use by students while others have embraced it wholeheartedly. Personally, as an academic, this is going to change education in some ways, and I think for the better.

Already, scientific papers have been written by ChatGPT and accepted for publication. It could impact the content of this Bulletin with articles written, in part or entirely, by ChatGPT. In fact, the Saskatchewan report in this issue is written entirely by ChatGPT as a demonstration. I urge members to try the chatbot by navigating to <https://open.ai/>, create an account, and start asking questions, such as "what is one environmental issue of significance in Saskatchewan?". There are limitations to this version of the chatbot; for example, it does not consider data newer than 2021, but these limitations will soon disappear. This topic may be worth exploring in greater detail in a future webinar.

## SCIENCE TIDBITS

Submitted by John Retallack, CSEB Alberta Member

### INVERTEBRATES

#### Web-Casting Spiders Make Their Own Light

One genus of net-casting spiders (*Deinopis*), aka ogre-faced spiders, has two of their eight eyes greatly enlarged and specialized for providing low-light night vision. This allows them a wide field of view and very efficient gathering of available light. Each night the spiders manufacture new light-sensitive membranes in the enlarged eyes that allow them to cast their nets accurately in low light conditions. They can concentrate light better than even cats and owls.

Deinopsids are distributed through tropical regions worldwide. While they may look menacing, their bite is apparently harmless to humans.

#### Descending Control of Nociception in Insects?

This one deals with the concept of insects feeling pain.

This is a rabbit hole that I am choosing not to go down.

And just to be clear, if a female mosquito or a micro Ceratopogonid invades my personal space and chooses to use me as a buffet, I will not care if I violate its feelings or cause it 'pain', and I will not hesitate to deny its genes a place in the environment.

If you are interested in exploring the subject further or want deeper understanding please go to:

*Gibbons M, Sarlak S, Chittka L. 2022 Descending control of nociception in insects? Proceedings of Royal Society B 289: 20220599.*

#### Human Follicular Mites: Let's Have a Little Respect for *D. folliculorum*.

I am going down this rabbit hole mainly because it's a part of me and my personal ecology that I never fully understood. These follicular mites are the only metazoans that spend their entire lives on their human hosts. Now I will be more careful going outside without sunblock knowing that I am helping my facial symbionts overcome their sexual dysfunction and perpetuate their waning cell structure and DNA.

*My Demodex folliculorum* (Acari) have been with me since birth and I have been along for their evolutionary journey from host-injuring obligate parasites to obligate symbionts. As noted by one of the lead authors, "They have also been left unable to produce melatonin – a compound that makes the small invertebrates active at night – however, they are able to fuel their all-night mating sessions using the melatonin secreted by human skin at dusk."

This is the first evolutionary step in an arthropod species adopting a reductive, parasitic, or endosymbiotic lifestyle.

And if that isn't enough to get you to read the research paper, better understand your symbionts, and maybe even bust out your macro lens to see environmental evolution in action, I am not sure what else I can say to change your mind.

This is a 23-page paper from a diverse group of authors covering a good portion of the planet:

*Gilbert Smith, Alejandro Manzano-Marin, M. Reyes Prieto, C. Ribeiro Antunes, V. Ashworth, O. Nanjul Goselle, A. Abdulsamad A Jan, A. Moya, A Latorre, M, Alejandra Perotti, and H. Braig. 2022. Human Follicular Mites: Ectoparasites Becoming Symbionts. Molecular Biology and Evolution, 39(6) Published: 21 June 2022.*

#### Spiders and Insects

On the screen in the elevator TV in our condo:

"Spiders are not Insects; They are Arthropods!" – and then some words describing the differences between insects and spiders.

My first reaction was *of course they are different!* but then I wondered, *How have we failed the general population so badly?*

If you know, you know!

Per the winter 2022/23 bulletin, apologies for the capitalization but that was how it was captured on the screen.

## TECHNICAL WRITING SERIES

Submitted by Sean Mitchell, CSEB BC Director

### Linking Your ideas: The Ladder of Abstraction and Chekhov's Gun

*"Imagine a step-ladder standing on the lawn next to a shed you are constructing in the backyard. As you step onto the lowest rungs it feels stable, secure, and balanced. As you go up the ladder, unwieldy board in one hand, nails clutched between teeth, hammer in free hand, you feel the stability lessening. Halfway up it feels less secure and sure. But the board needs to be hammered onto studs in the upper reaches, requiring ascent to the top. At the top rung, the ladder sways slightly as one leg digs in a bit deeper to the soft earth. You must be up here to place this final course of boards, but will not stay long before returning again to the solid lower rungs."* (Mitchell, 2021)<sup>1</sup>

The metaphor of writing being the act of building a beautiful structure – requiring a strong foundation, attention to framing, and consideration of aesthetic – is well known and apt. While for a shed or a house we are working to strongly link the concrete foundation to the integral roof over our heads, in our writing we are (or we should be) joining our thoughts together in a similar manner to create cohesion that protects our reader and provides them comfort and refuge. And in both cases we use the same tool—a ladder.

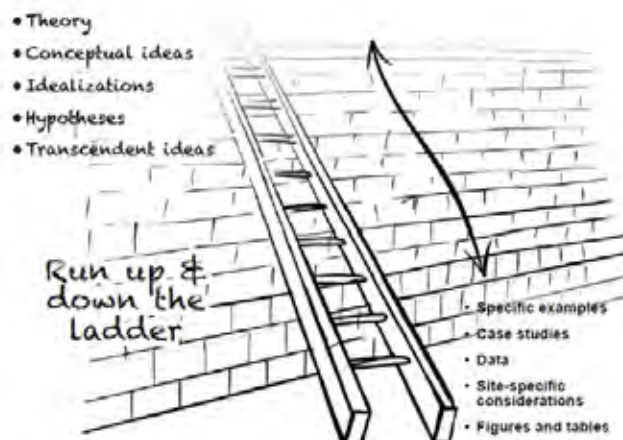
In writing, we have what is known as the "Ladder of Abstraction". This is a concept in which we think about the nature of our information: is it concrete, data, fact driven?; or is it theoretical, conceptual, integrative? The former is what our ladder rests on; these are the numbers, citations, and evidence we give the reader. But at the top of the ladder is the other, and important, form of information – the conceptual, integrative, and abstract. Just as when I am working on my shed I go up and down that ladder to complete my work and create a strong roof, so with our writing we should be continually running up and down the ladder. This means for our writing, connecting the concrete with the abstract. We want to tell our reader why the specifics we just gave them are important – we want to provide their meaning.

To put this into practice, what it means is that when we give the reader information we should then, very soon after, tell them why this information is important and relevant. We link it to the top of the ladder so the specifics we present are understood in the context of larger concepts and meaning. Then we go down and get our next piece of information and bring that to the top, nestle it into its context, and again return to the ground. And do it again. In our writing we run up and down the ladder of abstraction.

Perhaps examples will best illustrate this, or rather how it is not done in technical writing. Consider a scientific journal article. The hardened cement-like inviolable rules over structure are Introduction, Methods, Results, Discussion. Violate these at your peril. But this is the antithesis of effective writing structure according to the ladder model. Allow me to ask you, do you enjoy (I mean enjoy and read easily – kind of the point of any writing) reading journal articles? If not, this is one of the structural causes to your discomfort. You are being asked to retain all of what you

<sup>1</sup> Mitchell, S.C. 2021. Strategic Creativity: technical writing to engage your audience. 140 pp. Available on Amazon.

#### Ladder of Abstraction



(From Mitchell 2021)

have been told in isolation within each section until the Discussion when, finally, the author, hesitantly and with trepidation, goes a few trembling steps up the ladder and reaches into the realm of the abstract. But by now it is too late: I am exhausted from trying to carry all the information they have given me... I am less willing to go up the ladder with them.

Or, what about the opposite. Instead of going up the ladder only once and at the end, some writing lies, immovably, on the middle rung only, refusing to go to the ground and give me hard data or rise to the top to provide meaning. Think, for this case, of government documents. They contain a lot of words but don't say much. This is because the author remains, statue-like, in the middle of the ladder. If you think about it, the work of a ladder, any ladder, is done at the top. Not the middle.

Now, I think that you can see, kind reader, that I urge you to link your worlds of hard data with the conceptual. Not only that but I encourage you to make those connections in a timely manner. Anton Chekhov, nineteenth century Russian playwright, developed a guideline that has since become known as "Chekhov's Gun". He said, "If in the first act you have hung a pistol on the wall, then in the following one it should be fired. Otherwise don't put it there." What he meant, and is a tool for writers, is that if you are going to give the audience something (a gun on the wall), it must serve a purpose AND it must serve that purpose soon after you have given it to them. In Chekhov's sage advice lies my answer to how timely you should be linking the two ends of the ladder... immediately or as soon as you can.

These two metaphorical models – a pistol and a ladder – can help you create more engaging text. This can be a more challenging way of writing because it means that you, as the scribe, must know yourself why something is important to include – why it is relevant and worthy of the reader's attention. This is more challenging but, in the end, is also one of the keys to quality writing: knowing yourself the purpose of every piece of information you are providing to the reader. Together, the ladder and the gun can not only make your prose more readable, but also be used as a tool to cut out extraneous information that doesn't have a proven purpose. Powerful tools indeed.

Next column, for a change of pace: Persuasion: a visual guide

## REGIONAL News

## BRITISH COLUMBIA News

Submitted by Loys Maingon, CSEB BC Director

### Paper Parks and Exhausted “Sustainable Forests Forever”

*–“We now live in each others pockets”*

As winter slips to spring with the herring season due in the first week of March, British Columbia has witnessed several major events and announcements that on the surface can be seen as breakthroughs on an unchanging background of official greenwashing and lies. It is not the events in themselves that should concern the public. One should be concerned with the misleading logic that underlies these apparently positive events, the way they are meant to greenwash and maintain status quo, and the way that “science” is co-opted by government ministries.

The most important event in BC is that the incoming premier, David Eby, has finally openly publicly admitted that the once boundless forests of British Columbia are “exhausted.” As with the ongoing salmon collapse, the exhaustion is attributed in mainstream media to dark economic forces and climate change. Somehow it never has anything to do with decades of ministerial mismanagement, or corrupt legislation deregulating the forest industry. Nor, as renowned BC forester Herb Hammond has pointed out in his letter of resignation, has the state of the BC’s forests anything to do with the systemic corruption at the Association of BC Forest Professionals and the all-pervasive pro-industry logic at Ministry of Forests.<sup>1</sup> Should anyone doubt the systemic depth of this corruption, the responses of foresters Fred Marshall and Herb Hammond to Christine Gelowitz’s (ABC FP CEO) reply to Herb Hammond’s public resignation should make edifying highly recommended reading.<sup>2</sup> Gelowitz’s reply amounts to a mendacious abdication of all responsibility.

Then, in the wake of COP15, at which prime minister Trudeau set out his 30x30 agenda for “indigenous-led conservation projects” after seeing indigenous protesters escorted off premises, the provincial and federal governments have made three major conservation area announcements. At the meeting of IMPAC5 (Fifth International Marine Protected Areas Congress held in Vancouver February 3-9) provincial and federal ministers recognized and further confirmed the Gwaxdlala/Nalaxdlala (Lull Bay/Hoya Sound) Indigenous Protected and Conserved area that was already unilaterally created in 2021 by the Mamalilikulla Nation in Knight Inlet.

It is an interesting announcement because, while both levels of government seized the opportunity to take credit, it was not initiated by either level of government. It was merely a confirmation and accommodation of an already implemented aboriginal initiative. The government’s endorsement was mainly an act of reconciliation acknowledging the reality of a new and varied partnership with First Nations. Although this is

a relatively small, but culturally and ecologically rich area, the announcement is in fact a prelude for the confirmation of a plan for a vast network of indigenous-led marine protected areas (MPA) spanning 163,000 square kilometres covering the Northern Shelf bioregion (NSB), which includes central coast native territories and an area of offshore seamounts between North Vancouver Island, Haida Gwaii, and Alaska. The roll-out of the NSB strategy is confusing because it adds yet undefined new areas that are still under discussion to less publicized marine protected areas already in existence. Some clarification can be had from Figures 1 and 2, which show the general extent and distribution of these marine protected areas. Tang.gwan-ḥačxʷiqak-Tsigis is an extension and reconfiguration of an MPA that was supposed to come into being in 2020 in the Cape Scott area.



Figure 1: Map of current and projected Northern Shelf Bioregion and map of the new Tang.gwan-ḥačxʷiqak-Tsigis (Credit Government of Canada)

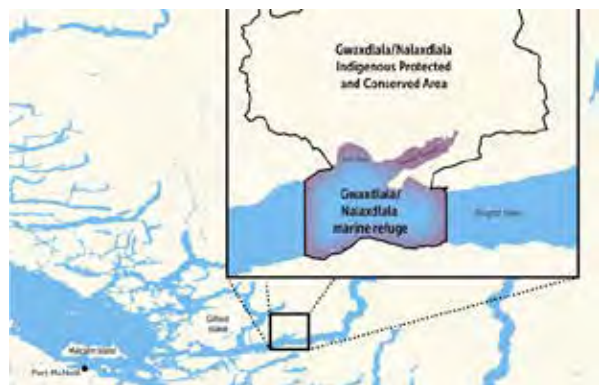


Figure 2: Map of Gwaxdlala/Nalaxdlala Indigenous Protected area and associated marine refuge. (Credit Government of Canada)

Although both the diminutive Gwaxdlala/Nalaxdlala and the 133,000 square kilometre Tang.gwan-ḥačxʷiqak-Tsigis are referred to as “indigenous marine protected areas” under the federal NSB plan, they are in fact two very different versions

of what Canada's "30x30" strategy represents on the ground. Gwaxdlala/Nalaxdlala is real. It enjoys full protection of the Mamalilikulla Nation, as it did before federal and provincial confirmation a week ago. Its rare corals and sponges and other rare invertebrates enjoy ironclad protection and are to be managed with conservation of cultural and ecological heritage as a priority. That means that the species in that territory enjoy cultural rights in themselves. And, that will probably be the case for other MPA's closely associated with First Nations' territories, which have been areas of contention and friction with DFO over the past decades in the wake of the destruction of herring through DFO mismanagement. These areas are real because they are homes to the people who reside there, though officialdom in Victoria and Ottawa may think of them as "parks" or extensions of "recreation areas," and refer to them as such.

That distinction does not necessarily apply to other prominent indigenous protected areas and MPAs to be listed under Canada's 30x30 goals. Given its vastness and distance from the nearest shore, Tang.gwan-hačx"iqak-Tsigis poses a number of obvious logistical problems for monitoring. It is said to be home to the largest assemblage of seamounts in the world and to a rare assemblage of marine species and ecosystems. It is, however, also known that many of those endangered species are already adversely affected by severe climate-change related stresses that make these ecosystems potentially "uninhabitable".<sup>3</sup> Notwithstanding their acknowledged vulnerability, while the government very publicly elects to designate the area as a "marine protected area", that does not mean that potentially destructive commercial exploitation will necessarily be banned. Trawling, hook and line fisheries, and dumping at sea are expected to continue to be permitted.<sup>4</sup> In Europe, where marine protected areas allow destructive forms of fishing to continue, research has found that the seabed in 90% of marine protected areas has been effectively "bulldozed."<sup>5</sup> In following European norms, Canadian claims of "protection" amount to the creation of a deceitful illusion known as "paper parks" sold to the public as conservation successes.

These areas are not culturally understood as a "home," but merely as tracts of "resources" enclosed in "paper parks" where "harvesting" can go on without consequences. These announcements reflect the kaleidoscopic shallowness of the actual commitment to conservation that politicians and industry brought to COP15. The public is being sold well-marketed lies with the intent of facilitating and continuing "business-as-usual." As the American oceanographer Sylvia Earle noted at IMPAC5: "...industrial fishing drives species to extinction. We're seeing species after species winked out. The trajectory is more than a million species will be lost. We don't know enough about the ocean to say how many have already been lost ... But we do know that we're good at eliminating whole ecosystems," she says. "We're on the brink."<sup>6</sup> We could also note that we don't know enough about the forests, and we have been very good at eliminating them too, because we have been guided by an extractivist commercial mentality that masquerades as "science" at work for industry.

This raises important questions about Canada's 30x30 strategy. Is 30x30 just intended to create paper parks and paper conservation areas? Is 30x30 just the illusion of conservation that opens an

eventual avenue for extractivism to continue unabated, just as we have had for decades the illusion of sustainable forestry? While the public assumes in good faith that protected areas are biodiversity rich areas generally free from commercial exploitation, government and industry seem to be using UNDRIP and "reconciliation" as a means to facilitate business as usual with willing First Nations. As with the MPAs, recent government announcements and settlements with First Nations provide a range of interpretations as to what 30x30 will mean for future generations.

In keeping with Justice Burke's ruling on Blueberry River First Nations (Yahey) v. Province of British Columbia, the province and Blueberry Nation have reached a precedent-setting settlement on January 18, 2023 led by the new premier that gives Blueberry Nation a greater say and share in oil and gas development. Unlike the previous interim settlement that focused on land restoration and compensation for lost trapping rights, this announcement focused squarely on First Nations' partnerships in oil and gas development: "Indigenous partnerships and participation are integral to the success of the natural gas and oil industry in British Columbia," Baiton said in a statement issued on January 18th. "This agreement is a positive step forward and we are focused on gaining an understanding of the details within the agreement to chart a path forward, which enables the responsible development of B.C.'s rich natural resources in a way that ensures mutual benefits for industry, Indigenous Nations, and British Columbians across the province."<sup>7</sup>

This has triggered a number of similar notable announcements of industry partnerships with First Nations. The Yaqit ʔa·knuq̓i't in south-eastern British Columbia have entered into a partnership with NWP Coal Canada, making it a stakeholder as well as regulator and reviewer of the \$400 m Crown Mountain Project. As the project director of NWP, David Baines tacitly put it: "it's the next thirty years living in each others pockets."<sup>8</sup> It would be disingenuous not to understand from Baines' statement that at least one party in this relationship understands this contractual arrangement to be a form of economic assimilation that promotes business-as-usual, with full support of the provincial government.

That is also clear in the almost simultaneous settling with the province of a \$16 million fine imposed on Teck Coal for decades of contamination of the Fording and Elk rivers with untreated selenium and nitrates. It allows Teck to resume business as usual. The previous federal fine was for \$60 million.<sup>9</sup> The fines need to be put into perspective. Teck Resources' annual income is \$10.756 billion per year!<sup>10</sup> \$66 million over two years is a drop in the ocean. In this environment, these laughable fines are no more than just the cost of doing business. Such fines are really a kind of social permit to operate to the detriment of the public interest, particularly when the perpetrator seems to garner fines annually. The coal industry in BC can now get back to business as usual with ample pockets. For all the talk, the priority in BC remains industry, not the environment.

As a recent study notes, there is increased concern about the loss of unfragmented intact forest landscapes: "intact forests have exceptional conservation value considering the range of ecosystem services they deliver, like regulating climate and harbouring biodiversity."<sup>11</sup> The authors also note that Canada

is only second to Russia in terms of forest degradation and intact forest loss. This comes in spite of the continuous industry re-assurances that our forestry is sustainable and meets the highest standards. In that context, it is re-assuring to note that Eco-justice has had the forest industry investigated by the Competition Bureau and is taking the forest industry to court for false advertising.<sup>12</sup> Against a background of disinformation and false advertising, how politicians, First Nations and the voting public understand what “protected area” means for biodiversity is therefore of utmost importance.

The indigenous protestors who were escorted out of COP15 had legitimate grievances. From the very start of COP15, Canada’s and Europe’s 30x30 strategy became a matter of concern, because developed countries (Europe and North America) maintained that, in principle, protected areas can continue to be exploited by extractive industries and still be considered to be “protected areas.” Under that definition a designated “protected area” can even sustain mining and drilling, “provided that they do not negatively affect biodiversity.”<sup>13</sup> When we consider the collapse of BC’s forests after over three decades of “forests forever”, the publicity, and the complicity of the corporation of professional foresters that have sustained what can only amount to a big lie, any suggestion that governments can rely on staff and professionals to determine that a protected area can sustain industrial exploitation “provided that they do not negatively affect biodiversity,” can only ring hollow. This is particularly so when we know that biodiversity determinations are not a requirement in site assessments.<sup>14</sup> So most of the settlements made with First Nations are mainly done on the basis of political and economic considerations. Biodiversity and conservation are secondary concerns. While provincial and federal levels of government talk about climate change and biodiversity, they remain mainly interested in stimulating oil, gas, and coal revenues.

Finally, as though to distract public attention from the ongoing clearcutting of old growth that continues in spite of deferment announcements,<sup>15</sup> and before the premier’s revelation that BC’s forests were exhausted, the minister of Environment and Climate Change released a “good news” story. After decades of controversy, an agreement between the provincial government, indigenous groups, Interfor, and the Nature Conservancy of Canada was reached to save 75,000 hectares of the Incommappleux Valley on the northern edge of Glacier National park.<sup>16</sup> Once again, this is an indigenous-led initiative that was expected because of obligations under UNDRIP, but which was opportunistically used by politicians.

January heralded the permanent closure of the Canfor mills in Prince George, with a forecast that more sawmills are expected to close around the province over the coming months, due to “insufficient supply.”<sup>17</sup> The forest collapse is normally referred to in the media as a “fibre supply collapse,” as though the forest were just a batch of “Metamucil” pills or “Bowel Buddies” for indisposed investors. The list of mill closures grows weekly. These closures are part of a long-foreseen trend that has been decades in the making.<sup>18</sup> It comes as no surprise that a recent report found that together with Brazil and Russia, Canada has garnered an international reputation as a leader in biodiversity destruction thanks to the rate of its industrial deforestation. For decades, civic protests calling for an end to forest destruction

have only been met by government and judicial protection of forest corporations, with the RCMP acting as a corporate goon squad. In his mandate letter to the new minister of Water, Land and Resource Stewardship, Nathan Cullen, BC’s new premier, David Eby, has finally admitted that after years of claiming that BC managed its forests sustainably, “*We have seen the impacts of short-term thinking on the British Columbia land base—exhausted forests...*”

Contrary to what one might think, this does not signal a change. The ministerial mandate letter makes interesting reading. It is an edifying catalogue of contradictions. The new minister is urged to work with who else but the ministry largely responsible for having gutted BC’s forests, degraded both forests and rivers, and collapsed the salmon industry. The minister is urged to work with: “*the Ministry of Forests to begin implementing the Old Growth Strategic Review.*” This is the same review that was supposed to be implemented over two years ago. Instead, it was delayed by the “deferment strategy” during which forestry companies were allowed to continue business as usual while seeking partnerships with willing First Nations.

While the ministerial letter promulgates grand plans for loud-sounding “strategies” of “watershed security” and “coastal marine funds,” and developing “visions” of “clean coast,” and “clean waters,” the real nuts and bolts of the ministry is “*improve timing and transparency of permitting processes to support sustainable economic development, housing and infrastructure while maintaining high levels of environmental protection.*” Since there is no high level of environmental protection in BC, maintenance will be minimal and will not obstruct development. In brief, the mandate is to support the interests of industry by facilitating development and growth and pretend that is compatible with the protection of the environment. This is once again a re-iteration of the neo-liberal ideological principles that govern the *The Forest and Ranges Practices Act*, which was written in 2001 by the Gordon Campbell government to facilitate the deregulation of forestry by industry. The Act purports to regulate the industry while demanding that nothing “unduly reduce the supply of timber from British Columbia’s forests.” Since their election in 2015, the current NDP governments have never sought to repeal it. Compliance has led to “exhausted forests.” Below the exhortations of clean coasts, clean waters, and security, what does it really mean? It means maintain a status quo of endless growth, all the while claiming it is “sustainable.” The reality is that this is all as sustainable as the “forests forever” that were heralded 30 years ago, and which are now by the premier’s own admission demonstrably “exhausted.”

Perhaps it is not strange for a government committed to its mantra: “putting people first,” that the concern voiced in Nathan Cullen’s ministerial letter is focused on the well-being of the forest industry, rather than on the well-being of the forest itself. That is the hallmark of the priorities of both the federal and the provincial governments at the time of COP27 and COP15, where all the forgotten buzz was climate and biodiversity.

What the government deftly refers to as a “dwindling fibre supply” is the miles of checkerboard clearcuts that are familiar to anyone who has flown over the province in the past two decades since the Liberals implemented *The Forest and Ranges*



*Practices Act*, which has been protected by the NDP. *The Forest and Ranges Practices Act* was written explicitly to protect the interests of the logging industry. Contrary to the spin put out by government and industry, there are no “stringent regulations.” In an excellent review of the reality of the government’s forestry policies and practices, aptly entitled “British Columbia’s Big Lie”, Dave Broadland documents two aspects of the system of lies repeatedly promoted by the government that have brought both the forest and the forest industry in BC to its knees: A) that forest operations are guided by “science-based regulations that ensure sustainability” and B) that the ongoing liquidation of forests is “being carefully monitored using powerful information technology to ensure we don’t exceed natural limits.”<sup>19</sup> The reality in B is that the mapping is repeatedly shown to be at odds with ground-truthing, and inventory is limited to the biomass of timber without a determination of site biodiversity. So as Sylvia Earle said of the oceans, we also don’t know very much about our forests.

Clearly, now that the premier has admitted that the forests are exhausted and mills are shutting down, the claim that science-based regulations ensure sustainability can no longer be sustained. By law, the impact of conservation on the timber supply is limited to 6%, so an overwhelming 94% of the consideration is biased for extraction. Forestry in BC is a deregulated industry with little regard for the environment. The *Forest Planning and Practices Regulation* repeatedly (seven times) specifies that regulations can only be enforced if they do not “unduly reduce the supply of timber from British Columbia’s forests.” Who determines what is “unduly”—foresters in the pay of government and government ministers beholden to unions and corporations. The entire system has no real enforcement mechanism to curtail the rapacity of the industry. The Natural Resource and Enforcement Branch, which is nominally responsible for enforcing regulations, has never managed a single administrative penalty since its creation 12 years ago!

The problem that this poses for the 30x30 strategy is that the extractive priorities of industry are supported by both levels government. From what we can glean from the discussion referred to at the beginning of this essay between Hammond, Marshall and Gelowitz, the extractivist mentality is pervasive and prevalent among professionals who are tasked to determine risks to biodiversity. These are the professionals who will work with First Nations, industry, and government ministries and who will provide “scientific” expertise. Our current forestry laws and regulations give no protection to biodiversity. The government has not changed that in a recent re-organization of *The Forest and Ranges Practices Act*. If the 30x30 strategy discussed at COP15 allows for industrial development in protected areas, under our laws, biodiversity has no real protection, only lip service. Only the industry is protected. The public should be very concerned about the government’s position on so-called “protected areas,” both terrestrial and marine, which can be developed by extractive industries, “provided that they do not negatively affect biodiversity.”<sup>20</sup> Who will make that determination? How will it be enforced in paper parks? What percentage of 30% will have real protection in 2030?

And of course, that may all be just in tune with Canada’s renewed consultation on its “Biodiversity Offset Plan”, which invites the public to think that the environment is disposable and replaceable.<sup>21</sup>

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**Check out the CSEB Video at**  
<http://youtu.be/J7cOuDbBf9c> or  
<https://www.youtube.com/watch?v=J7cOuDbBf9c>

## Was COP15 Really about Biodiversity?

Submitted by Loys Maingon (retired biologist)

Strathcona Wilderness Institute

In spite of the very best intentions of individuals, COP participants are trapped in the mindset of colonial extractivism. “Transformative change” called for by scientists and First Nations requires a cultural re-connection with our evolutionary relatives, and a recognition of the importance and rights of other species.

During the first week of December when political representatives met in Montreal for COP15, scientists released yet another of the now banal reports of species decline that went largely unnoticed.<sup>1</sup> By 2100, 65 per cent of Antarctica’s native terrestrial species, including the iconic Emperor penguins face population collapse and even possible extinction. Scientists agree that we are in the midst of Earth’s sixth mass extinction event. As the work of Suzanne Simard and others shows, this comes at a time when scientists are also returning to the Humboldtian vision of a living earth. Climate and ecosystem processes are no longer reductively understood as just mechanistic phenomena separate from the Earth’s biology. Increasingly, scientists understand climate as a biotic product of the diversity of life on Earth. So, the IPCC and the IPBES agree: you can’t solve the climate crisis without solving the biodiversity crisis.

Climate change is driven by species habitat destruction associated with fossil fuel energy demands, resource extraction, and over development. 1.50 C is neither “an aspiration” nor “a target,” as politicians are all too often prone to tell the public. 1.50 C is a biological limit, beyond which the continuity of life on earth as human civilization has known it for the past 80 thousand years becomes increasingly untenable as ecosystems and the fragile fabric of life that supports ecosystems unravels. Our lives depend on the wellbeing of these ecosystems and ultimately on the millions of species that make them possible. That is not a consideration in the ethos of “extractivism”, the mass exploitation of resources for benefits of a global colonial economy.

It isn’t just that “no man is an island,” but that there is no island without biodiversity. We have to move beyond John Donne’s seventeenth-century concern for saving “a piece of the continent.” Just saving pieces of land for their value as carbon sinks will not protect biodiversity, because the ongoing destruction will not stop. Species shape their ecosystems. Without their work, human cultures and prosperity are impossible. Conservation, therefore, lies in species, not “carbon sinks.” Our preservation lies in the recognition of the rights of those species, co-extensive with, but preceding, the rights of humans. It is about recognizing our obligations in the unity of life.

In politics, as in magic, illusion depends largely on misdirection, the ability of illusionists to distract viewers into looking elsewhere and not paying attention while actors choreograph an illusion. Greta Thunberg was on the money when she pointed out that: “*The COPs are mainly used as an opportunity for leaders and people in power to get attention, using many different kinds of greenwashing.... So as it is, the COPs are not really working,*

*unless of course we use them as an opportunity to mobilise.*”<sup>2</sup> The negativity of Greta’s comment is undoubtedly unnerving for many people. It is the perception of youth that demands that we do better, and it should not be dismissed, especially as it is bolstered by the assessment of scientists. As one scientist noted: “*My scientific colleagues think it a step forward..But setting high targets does not compel their realization.*” None of the 2010 Aichi targets were ever met. “COP commitments” always depend on financial promises that are never fulfilled.

Greta has a point because the COPs aren’t really about biodiversity, or climate change. They are not primarily about saving species or addressing climate change. The COPs are about sustaining an economic system based on endless growth of finance, resource exploitation and human populations. The COPs are a recognition of biological problems caused by an economic system to which participants are addicted. As with all addictions, some addicts acknowledge the problem, but a large majority are in denial and come to COPs to prevent or limit treatment.

Contrary to all public illusions fomented by a fawning media, the primary interest of politicians and industry lobbyists, who have controlled the agenda at climate and biodiversity COPs for the past three decades, is maintaining the disastrous economic status quo that has now brought us to the brink.

COPs are a formulaic three act play: Act 1: a drumroll and dire reports of the urgency to reach an agreement, and arrival of the groupies and “the important people.” Act 2: backroom intrigue and “crisis” with key actors leaving in a huff. Act 3: “denouement” late night negotiations, dramatically beyond the final hour and into the early morning, saved by a grand announcement, that something important and earth-shattering has been achieved, to be forgotten six months hence.

Representations do not even add up. The promise is to set aside 30% of the planet by 2030. (“30x30” is catchy.) But, there isn’t really 30% left. The text calls for the restoration and management of 30% of “degraded” lands and ocean, and if possible, reduce to near zero the loss of “areas of high biodiversity value.” Since Earth Day 1970, conservation areas have increased fourfold. We have “nominally” set aside 17% of land and 8% oceans. (“Nominally,” because extraction is still allowed in many of these “protected” areas—think of Westmin Mine in Strathcona Park.) In 1970, the global population was at 3.7 billion. We already knew then that we needed at least two Earths to support our consumption and destructiveness. We are now eight billion and need four Earths. But, 30% of 1/4 will apparently do? Meanwhile, in the name of meaningless “sustainability,” we have tripled mining, fossil fuel, agricultural, and forestry development. Nobody really talks about scaling that back. To pay for implementation, the economy depends on the continuation of business as usual. Extractivism is alive and well at COPs, biodiversity much less so.

Even in the darkest times, it is important to remain hopeful. It is only hope that can carry us forward and help future generations to adapt. However, after three decades of failed COPs, it is also increasingly important to temper the illusions with pragmatism. The scientific community has been calling for “transformative change.” The closest we have come to anything transformative is

<sup>1</sup> Threat Management Priorities for Conserving Antarctica Biodiversity. <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001921>

<sup>2</sup> <https://www.theguardian.com/environment/2022/oct/31/greta-thunberg-to-skip-greenwashing-cop27-climate-summit-in-egypt>

with UNDRIP, because, in principle, indigenous and aboriginal cultures recognize human obligations to the species with whom they share the living land. As the record shows, there is no doubt that indigenous-managed lands provide the best possible protection for biodiversity.

The problem with UNDRIP was well illustrated at COP15. As at COP27, indigenous activists came and found that they were just a useful ornament for a top-down agenda. They were not listened to. Young land defenders were ignored and escorted out, so that the Prime Minister could unfold his vision. UNDRIP means one thing to aboriginal peoples and to scientists. For politicians, it is just another means towards the passive assimilation of aboriginal cultures into an extractivist economy. As seen in countless indigenous protests, or at Site C, government and corporate agendas roll on no matter what, land defenders are criminalized, and compliant indigenous governments who support extractivism are rewarded. What 30x30 really means for biodiversity depends on which version of UNDRIP will prevail, and whether people in power will really change their approach and listen to indigenous peoples and to the land.

For non-indigenous peoples, the journey to 30x30 really begins by reconnecting with nature in the long cultural and scientific traditions that lie before and after John Muir. That tradition always saw the land and other species as sentient, in ways largely compatible with indigenous cultures. Real reconciliation means finding common cultural ground in our evolutionary bonds to other species, and acknowledging where our common obligations lie.

Those obligations come with the laws that we write. Given the ongoing rate of extinction, meeting our obligations to other species and UNDRIP requires that we move beyond selective Species at Risk legislation to an over-arching “*Biodiversity Protection Act*”.<sup>3</sup> Biodiversity cannot be arbitrarily left to ministerial discretion over select species, recommended by select individuals. So far, that has just left species at risk of extractivism and extinction. In British Columbia, deforestation does not require that the proponents account for species, other than commercial species, that may be affected by resource operations. We extract resources with little or no consideration of other species present. How can we protect biodiversity if we do not first account for it?

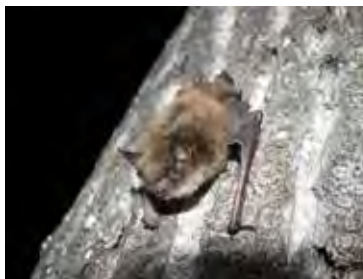
In December 2021, Grand Chief Phillip wisely noted that a complete inventory of BC forest lands was urgently needed, including water, fisheries, and wildlife, before any management proposals are made. That is the cornerstone of a “*Biodiversity Act*,” recognizing and protecting the presence and rights of other species. It is essential to any real talk of 30x30, and real reconciliation. And it was all strangely absent from COP15.

<sup>3</sup> John Neilson, Loys Maingon and Natasha Lavdovsky (2022) Without an Over-arching biodiversity protection act, what protections exist for biodiversity...? *Canadian Field Naturalist* <https://www.canadianfieldnaturalist.ca/index.php/cfn/issue/current>

# ALBERTA News

Submitted by Brian Free, CSEB Alberta Regional Director

## White-nose Syndrome in Bats



Recently, a deadly fungal disease affecting bats has been detected in Alberta. The white-nose syndrome has been wiping out bat colonies in eastern Canada and the USA and appears to be steadily spreading west. It was found in Saskatchewan in 2021.

The most deadly effects occur in the winter during hibernation. The fungus infects their skin and they awaken from hibernation. Awake, they burn more energy and with no insects to feed on and cold temperatures to endure, the bats cannot survive through the winter.

A program of the Wildlife Conservation Society Canada is studying the spread of this disease by collecting bat guano from roosting sites. They are also engaging the public in observing bats in roosts and collecting guano. Many hands make lighter work.

For more information, see <https://www.albertabats.ca/>.



# SASKATCHEWAN News

Submitted by Curt Schroeder, CSEB President and Saskatchewan Member

One significant environmental issue in Saskatchewan is the impact of resource extraction activities, such as mining and oil and gas development, on the province’s land, water, and air. Saskatchewan is home to rich deposits of minerals and fossil fuels, and these resources have been a major driver of the province’s economy. However, resource extraction can have negative environmental impacts, including deforestation, water contamination, and greenhouse gas emissions.

For example, uranium mining in northern Saskatchewan has raised concerns about the release of radioactive materials into the environment. Similarly, the extraction and transportation of oil and gas have led to air pollution, water contamination, and habitat destruction. Climate change, driven in part by greenhouse gas emissions from fossil fuel combustion, is also a growing concern for the province, which is vulnerable to impacts such as drought, wildfires, and flooding.

Efforts are being made to address these environmental challenges, including the development of new regulations, the adoption of cleaner technologies, and the promotion of renewable energy sources. However, finding a balance between economic development and environmental sustainability continues to be a complex and ongoing challenge in Saskatchewan.

*[Note: This was composed entirely by ChatGPT in answer to the question “What is one environmental issue of significance in Saskatchewan?” The result is a dialog with a general response. However, more detailed or specific questions can be asked, but fact checking is still advisable at this time]*

## MANITOBA News

*Submitted by Robert Stedwill, CSEB Vice-President*

In my review of environmental happenings in Manitoba, I try to look for a good variety of issues, such as Manitoba's action on climate change, management of zebra mussels, water contamination from derelict and long forgotten ships, or the work of environmental professionals, such as those associated with Manitoba Hydro or the Churchill Marine Observatory. These are just a few examples that I have come across over the last few years.

As a non resident of Manitoba, it is sometimes difficult to keep track on a daily basis of environmental issues that are germane to the CSEB; and as a retired person, the number of my Manitoba contacts has diminished considerably, to the point of not “being in the know”.

In my former career with Saskatchewan Power Corporation, I worked with a number of First Nation Communities to address the impacts that that company's generation and electrical transmission projects and operations might have, could have, and will have on the First Nation's cultural, social and physical environment. It was not always easy, as I was quite often conflicted between the corporation's needs and the indigenous community's expectations, which I often agreed with.

In exploring what I might contribute to this edition of the Bulletin, I came across a reference to the Wa Ni Ska Tan Alliance of Hydro-Impacted Communities. “[A] community-academic research partnership that emerged out of the priorities voiced by hydro-impacted Indigenous communities. We are an Indigenous-led organization governed by a Steering Committee made up of impacted communities, university researchers, and NGOs. Members of Wa Ni Ska Tan include researchers, academics, hydro-impacted community members,

concerned citizens, and members of the NGO community in Manitoba. Some of our members are also Treaty rights holders with constitutionally-affirmed and protected rights.”

What caught my attention was a question while exploring Wa Ni Ska Tan's website —“Can a River Have Rights?”

The following paper by Amy Cherpako explores this possibility.

### **Environmental Personhood as a Decolonizing Environmental Protection Strategy**

#### **What is environmental personhood?**

Legal personhood, Rights of Nature, environmental personhood... This concept has many different names and applications all around the world. In recent years, this environmental protection strategy has gained momentum, throughout various countries' domestic laws, legislative actions, and international legal systems, forging strong connections and interpretations of existing environmental laws and human rights.

The general ideology behind environmental personhood is attaining legal rights for natural entities, for the purpose of protection or preservation. More specifically, it involves a critical “paradigm shift” that places the natural environment as “a holder of the right to be protected, as opposed to an object of protection” (Cárdenas 2000, para. 4). Therefore, natural entities have value in and of themselves, which is completely independent from its short-term value to human beings.

This idea was famously introduced into the Western legal system by Christopher D. Stone in his landmark 1972 article “*Should Trees Have Standing? Toward Legal Rights for Natural Objects*”. He argued that natural entities like trees and rivers should be granted legal rights, in the same way that corporations have legal rights and authority. He also proposed the use of legal guardians who can represent the natural entity in practical contexts.

However, viewing the natural world in this way was practiced long before Stone's article. Indeed, many Indigenous peoples have complex, long-standing beliefs regarding the personification of nature.

#### **How Does Environmental Personhood Relate to Indigenous Worldviews?**

Indigenous peoples around the world have diverse belief systems, cultures, spiritualities, and worldviews. However, there are some underlying, foundational patterns of values that relate to perceptions of the natural world, such as viewing some natural entities as personified, rather than inanimate. Some Indigenous worldviews also emphasize an inherent connection to the natural world as equal living parts of the ecosystem (Salmón 2000), as well as a corresponding responsibility to protect the natural world and ensure sustainability. For example, the Seventh-Generation principle, which originated with the Iroquois peoples, “states that any action or decision should take into account its consequences for up to seven generations to come” (Ebel & Rinke 2014, p. 82). Worldviews like this have allowed Indigenous populations to thrive in a sustainable manner for millennia, developing Traditional Ecological Knowledge (TEK) and rich cultural and spiritual ways of life. However, Western scholars

are just recently beginning to understand the implications and benefits of Indigenous knowledges within the context of scientific and political solutions. This is how environmental personhood provides a bridge between Western legal systems and Indigenous worldviews, in an embodiment of Two-Eyed Seeing.

### Why are Innovative Strategies Needed?

Indigenous peoples and their traditional territories around the world tend to be disproportionately affected by environmental degradation and exploitative resource extraction, including mining and hydropower operations. This is a continuing effect of colonizing, anthropocentric, and capitalistic ideologies, which prioritize the commodification of nature and corporate economic gain over Indigenous and environmental rights. This ideology enforces dominance over the natural world, often in an unsustainable manner.

These practices negatively affect Indigenous livelihoods and traditional ways of life, which are intrinsically related to the land and natural resources, as well as a multitude of explicit and implicit effects on physical, mental, emotional, cultural, and spiritual wellbeing.

Unfortunately, Indigenous peoples are also typically excluded from domestic and international decision-making regarding environmental protection initiatives. Multilateral organizations such as the United Nations and the World Bank have been reluctant to “recognize the standing of Indigenous peoples and to allow their active participation and consultation” in a meaningful way (Havemann 2016, p. 345).

All of these patterns are intricately intertwined with colonial undercurrents, as Indigenous peoples around the world continue to fight for their rights and land recognition against state powers, corporations, and exploitation of the natural world.

### Why is Environmental Personhood a Promising Solution?

The environmental personhood model is different from other conservation strategies because it values the rights of nature independently from anthropocentric motives. It also provides opportunity to legally enhance Indigenous land stewardship, as many protected natural entities have Indigenous groups appointed as legal guardians, who are entrusted with the enforcement of its legal rights.

As the emphasis is placed on the entity itself and its relation to Indigenous stewards, this increases Indigenous autonomy and self-determination, rather than relying on perpetual, unbalanced negotiations with governments and corporations.

For example, the Innu of Ekuanitshit First Nation band have strived for generations to protect the Magpie River or Muteshekau Shipu from hydroelectric dam development by Hydro-Québec. This river has important cultural value to the community related to their traditional land-based practices.

On February 23, 2021, the Muteshekau Shipu became the first river in Canada to be granted legal personhood. The river now has nine legal rights, and the Innu Council of Ekuanitshit are appointed as its legal guardians. David Boyd (UN Special Rapporteur on Human Rights and the Environment) described this protection as “a recognition of the importance of integrating

Aboriginal legal concepts into the Canadian legal system” (as cited in Cárdenas 2021, para. 5).

The Innu of Ekuanitshit First Nation peoples have proven that attaining environmental personhood is possible within Canada. As education and awareness about this journey is shared, there is potential for more Indigenous communities across Canada to use environmental personhood in their own territories.

## ONTARIO News

By Gary Ash, CSEB Bulletin Editor

### Ontario Announces New First Nations Partnership to Operate Mississagi Provincial Park



The Ontario government has entered into an operating agreement with the newly formed Mississagi Park Foundation to maintain and operate Mississagi Provincial Park. The new operating agreement came into effect January 15, 2023.

“Our government is proud to partner with the City of Elliot Lake, Serpent River and Mississauga First Nations to support our provincial park system, which will help build stronger communities,” said David Piccini, Minister of the Environment, Conservation and Parks. “Mississagi Provincial Park is one of Ontario’s best-kept secrets with a rugged landscape of ancient hills, and valleys with sparkling blue lakes ideal for fishing or canoeing, and I encourage everyone to come and enjoy all it has to offer.”

This innovative agreement for the operation of Mississagi Provincial Park by the Mississagi Park Foundation, comprised of the City of Elliot Lake, Serpent River First Nation, and Mississauga First Nation, will bring new tourism and other economic benefits to the local economy, as all three partners share in the employment opportunities.

“This initiative is a win-win for Ontario Parks visitors and local First Nations who will share in the economic benefit of operating this important recreational space,” said Greg Rickford, Minister of Indigenous Affairs. “I would like to acknowledge the hard work that has gone into the creation of the Mississagi Park Foundation, and I encourage all Ontarians to visit this outstanding park and experience local Indigenous culture.”

“Years of hard work and determination have resulted in the formation of the Mississagi Park Foundation, an effort that will allow all three communities to continue to provide recreational activities within this unique landscape both now and for the next Seven Generations,” said Chief Bob Chiblow, Mississauga First Nation. “We will ensure all those who visit the park will not only experience its great beauty but will also gain a deeper and more meaningful understanding of the Anishinaabe culture when they leave.”

“Serpent River First Nation looks forward to working in partnership with our neighbours and relatives,” said Chief Brent Bissaillon, Serpent River First Nation. “The Mississagi Park Foundation will provide a strong base to strengthen our relationships, and make Mississagi Provincial Park a premier destination for relaxation and enjoying the natural environment. Visitors will experience the best the North Shore has to offer.”

“The city was pleased to keep the park open and operating efficiently since 2014, but I look forward to this new partnership with our neighbours being recognized by the provincial government,” said Andrew Wannan, Acting Mayor, City of Elliot Lake.

Mississagi Provincial Park — located in the Penokean Hills, within the Robinson Huron Treaty territory and the traditional territory of the Anishinaabek, (about 25 kilometres north of Elliot Lake) — offers seven hiking trails of varying duration and difficulty levels, rustic and backcountry camping, lakes for canoeing and kayaking, excellent trout fishing, and more.

### Quick Facts

- In celebration of this new operating agreement, the Mississagi Park Foundation has released a redesigned park crest. The new crest predominately features a thunderbird, a mythological creature routed in Indigenous storytelling and tradition, the Helenbar Lookout, a unique geographic element in the park, as well as shades of orange, symbolizing the ongoing journey of truth and reconciliation.
- Mississagi Provincial Park was established in 1965. It consists of more than 12,100 acres (4,900 hectares) of pristine wilderness.
- The park is classified as a Natural Environment Park because of its significant, preserved natural features, such as its rolling hills, forests, lakes, and streams.
- Visitors can paddle pristine lakes, hike numerous trails, and explore abandoned copper mines and logging camps from the area’s industrial past.
- In 2021, Mississagi Provincial Park hosted over 19,000 visits.
- In addition to Mississagi Provincial Park, Ontario Parks has operating agreements with four Indigenous communities, including Beausoleil First Nation to operate Springwater Provincial Park, Moose Cree First Nation to operate Tidewater Provincial Park, Curve Lake First Nation to operate the visitor centre at Petroglyphs Provincial Park and Lac La Croix to operate park entry stations and maintenance of canoe portages at Quetico Provincial Park.

Source: Ontario Ministry of Environment, Conservation and Parks.

## ATLANTIC News

By Peter Wells, CSEB Atlantic Member

Once again, a wide range of environmental issues have been in the Nova Scotia news over the past three months, many not unlike those presented before. Between the concerns are some positive initiatives related to land protection and biodiversity. Some highlights follow:

The effects of climate change continue to dominate the news (Campbell 2023a; Fairclough 2022a; Beswick 2022), especially given the relatively warm and snow-free winter that most of Nova Scotia (NS) has had to date. A new climate change fund has been approved for NS, to be in place in 2024 and focussed on “reducing, limiting, avoiding, or capturing green house gas emissions and conducting research and development related to mitigation and adaptation measures” (Campbell 2023a). Some ponds and wetlands in NS have experienced low water levels in recent years of summer drought, threatening duck and geese populations (Fairclough 2022a). On the other hand, flooding from heavy rain events tops the climate change risk assessment for NS, in a report entitled “Weathering What’s Ahead: Climate Change Risk and Nova Scotia’s Wellbeing (Beswick 2022).

Forestry impacts on the land and its wildlife are still being debated at the same time as the release of a government high production forestry plan (Guderley 2023a,b; Beswick 2023). The plan purports to be following the recommendations of the 2018 Lahey report, *An Independent Review of Forest Practices in Nova Scotia*, but concerns have been expressed around reliance on Crown land, short time frames between harvesting, the push for comprehensive biomass harvesting, and giving companies sole rights to the Crown land for decades without assurance that ecological forestry will be carried out. The approach to managing our forests is a plan for high production forestry on Crown land, with an eye on biodiversity and forest ecology. But the question remains—will wildlife and their habitat needs be adequately protected, despite such government plans and promises?

Fisheries and species at risk have been in the news over concerns about the eel/elver fishery (Couture 2023). Glass eels or elvers, caught at night in freshwater bodies near Atlantic coasts, are hugely valuable but the eel is yet to be protected under the *Species at Risk Act*, in this case managed by DFO. Sustainability and viability of the eel fishery may be at risk due to the high market value of eels and proliferating black markets. Is this another species threatened by greed and mismanagement?

Coastal aquaculture continues in local news due to the proliferation of open pen sites in coastal Nova Scotia, despite public opposition. Sadly, one of the most active marine scientists opposing such run-away coastal aquaculture, Dr. Ronald Loukes, passed away recently and will be greatly missed. The recent decision in Washington State to cancel rainbow trout farm leases held by Cooke Aquaculture (Dean-Simmons 2022a) is being fought in court, but the decision is being lauded by local government officials, stating that “today, we are returning our waters to wild fish and natural habitat”.

Recommendations for a new approach to coastal zone management (CZM) in Canada, penned by a former DFO research biologist, were wide-sweeping and likely to cause controversy if not ignored (Hurley 2022). Amongst his comments are the suggestions that DFO relinquish the oceans part of its mandate due to conflict of interest, that DFO focus solely on fisheries management, and that a new multi-partner agency responsible for integrated CZM be formed under an expanded *Oceans Act*. The piece is worth reading but in my view is unlikely to have much influence in government. Amongst other criticisms is the question as to where the current critical, government-run, oceanographic research should reside. Public service science has a key role and its continuity over many decades is essential. That said, perhaps a new CZM agency augmenting the current DFO could be considered? The discussion should take place on all three coasts.

Continuing the coastal discussion, a new federal ban on single use plastics came into effect on December 20th, 2022 (Fairclough 2022b). The issue was highlighted in NS by describing the efforts of one dedicated lady who has collected 31,000 pounds (yes, pounds! Not kilos!) of garbage at several beaches in Kings County, the upper Bay of Fundy, much of it plastics (caps, lids, containers, straws, cutlery, etc.). This points once again to the magnitude of the ocean plastics catastrophe that modern society has produced and the hazards to marine life that it presents. As described in the Winter CSEB Bulletin, even animals such as whales are impacted by this material and the risks to sea turtles are just becoming understood.

Will the issue of contaminants of concern (those that are persistent-bioaccumulative-toxic at low levels) ever be resolved? It has been with us since the days of Rachel Carson! The use of a herbicide containing glyphosate as its active ingredient remains a public concern in the region, as herbicides containing it are used extensively in forestry and along power lines. Most recently, Health Canada is being taken to court due to not taking the latest health information into account as it approves the renewal of the herbicide; new evidence from the USA “links glyphosate to cancer and other diseases” in humans (Campbell 2023b). One question of concern to wildlife biologists —is wildlife impacted and are there serious ecological effects related to this compound? Perhaps a CSEB member can delve into this question.

Gold, uranium, and coal mining have been in recent news, given their abundance in the province. A new open pit gold mining project proposed for Buchans, NL, is deemed good for the local economy (Dean-Simmons 2022b) but as with all gold mines, it carries environmental concerns—loss of land, permanent landscape changes, noise, water drainage, and metal contaminants. Mining uranium is a new possibility in NS due to an interest in building small nuclear reactors; this raises questions about possible effects on subsurface and surface water quality (Grantham 2022). Finally, a large coal mine in Cape Breton may be restarted and run for seven years (Nathanson 2022), again showing the provinces continuing dependence on coal for electrical power.

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Finally, some good news. There were sightings of three calves of the endangered North Atlantic right whale off the Florida coast (Campbell 2023c), a sign of hope for the population. This whale is still threatened by ship strikes, entanglement with fishing gear, ship and seismic noise, and changed food distribution, and hence is the subject of much monitoring in the NW Atlantic (the US east coast), and in the summer months, the Gulf of St. Lawrence. They are seen less often now in the outer Bay of Fundy (a personal anecdote—I photographed them in late summer while boating in the Passamaquoddy Bay region in the 1970s, a rare and memorable experience.).

On the subject of wildlife biology, interest remains high about coyotes in NS due to a new ecological study (S. Gehrt, *J. Appl. Ecol.*, 2022) and some concerns about human safety as there was a rare fatal attack in 2009, and numerous coyote-human incidents since. Coyotes are quite common in the woods of NS, and their normal food preference (small mammals) has dwindled (Sweet 2022). People are advised to not hike alone and to carry a stick and bear spray. Deer have become very common in the province and are a common sight in urban areas (Krochak 2022), and a major nuisance for gardeners on the fringes of Halifax.

Biodiversity and protected areas have been much in the news. Six new protected areas across the province were unveiled by the NS Nature Trust in December (Fairclough 2022c), in support of protecting biodiversity globally. The areas, though small in size, “protect a diversity of rare and endangered plants, wildlife, habitats, and landscapes”, include both coastal and inland areas, and were made possible through a combination of government and generous public support. Protection of natural areas around the ever expanding Halifax Regional Municipality (HRM) is a constant debate (Stevenson 2023); HRM’s focus is on development and that leads to more loss of natural areas, despite the city regional council having major green policies and plans, seemingly ignored. There is an HRM Alliance of many citizen groups demanding “smart growth/development” and ensuring that the existing Halifax Green Network Plan be resourced and implemented. On the outskirts of Halifax, the Sackville River Wilderness Area has now been designated and protected as a provincial park, protecting mature forests, wetlands, lakes, waterways, and an important watershed tapped for drinking water (Campbell 2022a). Protection of designated parks (Owls Head, West Mabou) remains a concern (Campbell 2022b; Smith 2022). Finally, a new report from the organization NatureServe in the USA has expressed concern about the risk of extinction of many plants and animals in both countries (Brooks 2023); it has identified areas in both countries critical for the protection of specific species (e.g., wildlife corridors for species that migrate or require large areas as habitat) and suggested enhanced conservation-focussed legislation.

The global climate crisis is here and finally recognized politically, yet as Hurley (2023) states, “it is actually quite easy to get regulatory approval for potentially harmful, large-scale development projects in Canada”. A proposed large offshore petroleum project, the Bay du Nord, in Flemish Pass to the east of Newfoundland, has gone through the environmental assessment phase in 2019-20, managed by the renamed Impact Assessment Agency of Canada. Despite criticism of the environmental submission from the Norwegian company Equinor, the project

was approved in April 2022 (Bourgon 2023). One has to wonder whether anything was learned or taken seriously in the wake of the 2010 Deepwater Horizon blowout, given this project size and its remoteness. The full story is reported by Bourgon (2023) and worth reading if one cares about the marine environment – the offshore is an oasis of wildlife and fisheries species. A blowout or even minor spills could be devastating. But more to the point—should Canada be supporting such oil developments at the same time as promoting a move away from the use of fossil fuels as an energy source? The hypocrisy is unbelievable, embarrassing, and bodes poorly for the future.

As mentioned in the column before, it would be nice to have input from CSEB members living in other parts of Atlantic Canada. We need to engage them and also have a member recruitment campaign in this region.

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## Remembrances

### Brian Davies (UK/Canada/USA):

As well, we should remember the career and contributions of the amazing Brian Davies, who passed away in old age in December 2022. He was a well-known animal rights activist, founder of three organizations, e.g., the IFAW or International Fund for Animal Welfare. Born in Wales (UK), he lived for a few years in New Brunswick in the 1960s and 1970s. After serving in the Canadian armed forces for five years, he changed jobs and soon brought international attention to the inhumane seal hunt in the Gulf of St. Lawrence. His work led to a moratorium of overseas sales of pelts and tighter regulations of the traditional hunt. His organizations, supported by millions of people around the world, now contribute to the care of animals such as elephants, rhinos, and monkeys in many countries. This is a lasting legacy of a man who deeply cared for other species in a world much changed by a burgeoning human population.

### Alan Ruffman (Nova Scotia):

I knew Alan over many years, through our joint work with the Nova Scotian Institute of Science (he was a member and served on the NSIS Council), and our many meetings on the Dalhousie campus to discuss environmental matters. As Taplin (2023) states, "he was a scientist, scholar, author, relentless activist and investigator". He helped create the Ecology Action Centre, a very prominent NGO in Halifax, and needled the city council and province on numerous occasions, on numerous topics or proposed development projects. His energy, activism, curiosity, and broad knowledge will be greatly missed.

- Taplin, J. 2023. Obituary. Community activist Alan Ruffman dies. The Chronicle Herald Jan. 4th., p. A3.

## Forest Fire Ecological Impacts Call for Interest

With the large number of extensive forest fires over the last few years, it would be interesting to publish some research on the effects of forest fires (both negative and positive) on biological communities.

If you are doing any research in this area, or know any colleagues doing research on this topic, please consider submitting an article for publication in the CSEB Bulletin. Deadline for the Summer 2023 edition is May 15, 2023.

If interested, please contact Gary Ash, CSEB Bulletin Editor at [garyash@shaw.ca](mailto:garyash@shaw.ca).

## 2023 Canadian Ecotoxicity Workshop (CEW)

CEW will take place at the Shaw Centre in Ottawa, ON in October 2023. For more information, please contact the 2023 Organizing Committee Co-chairs:

- Leana Van Der Vliet, Environment and Climate Change Canada
- Stacey Robinson, Environment and Climate Change Canada
- Rebecca Dalton, Environment and Climate Change Canada

Or check the CEW website at <http://ecotoxcan.ca/>

## CSEB VOLUNTEERS NEEDED

### Website Assistant:

CSEB requires a volunteer to assist our Webmaster Brian Free with managing the CSEB Website. You should be familiar with using WordPress for website management, and able to gather relevant material for posting on the site. It would also be useful to have experience with MailChimp for sending out webinar and other notices, but training can be provided. For more information, please contact Brian Free at [bfree@cseb-scbe.org](mailto:bfree@cseb-scbe.org).

For more information, contact President Curt Schroeder at [schroederc@saskpolytech.ca](mailto:schroederc@saskpolytech.ca).

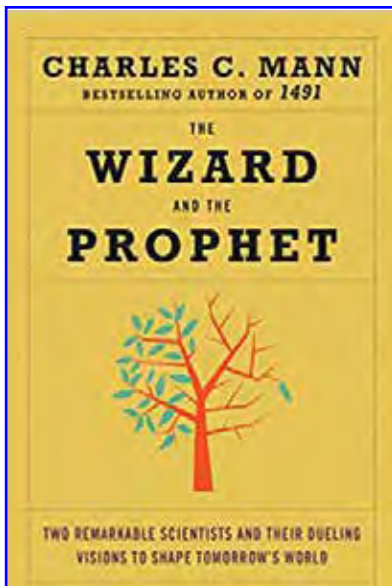
## BOOK Review

Submitted by Peter Wells, CSEB Atlantic Member

### The Wizard and the Prophet

by Charles C. Mann. 2018. Vintage Books, Penguin Random House LLC, New York. 616 p. (PB).

Available from [Amazon.ca](https://www.amazon.ca) \$24.00 Paperback; \$13.99 Kindle Ed.



This book describes the efforts of two scientists concerned about the global impact of human population increases in the 20th century and their opposing views and approaches to tackling “the problem”. The scientists are “the wizard”, Norman Borlaug, an agronomist and eventual Nobel Prize Winner, and “the prophet”, William Vogt, a conservationist and author of *Road to Survival* (1948), a very popular book at the time. Mann’s book is an

engrossing read and for me an eye-opener, being unfamiliar with both Borlaug and Vogt, despite their enormous contributions to addressing the global population crisis and associated issues such as poverty and starvation. Their work was very influential—Borlaug’s—taking a technological approach to increase grain and maize crop yields and food supplies in less developed countries (LDCs) and, hence, fighting off massive starvation in many countries mid-20th century; and Vogt’s—enhancing an understanding of the natural environment to increase food availability and adopting various approaches to population control, again largely in LDCs (Vogt) where numbers were increasing rapidly. The opposing viewpoints of these two men, the technological “Green Revolution” approach versus the more nuanced ecological approach, fueled many debates about environmental sustainability, the unjust and discriminatory distribution of wealth, and the future of humanity on an increasingly crowded planet. This debate continues and is increasingly urgent now that we have passed the eight billion mark.

The environmental story weaved by Mann also introduces the pivotal contributions and viewpoints of Lynn Margulis, the famed American evolutionary biologist; Georgii Gause, the Russian microbiologist, author at age 24 of *The Struggle for Existence* (1934), a treatise on population dynamics; Aldo Leopold, author of the conservation classic *The Sand County Almanac* (1949); Fairfield Osborn, *Our Plundered Planet* (1948), a polemic about our eventual doom; Paul Erhlich, *The Population Bomb* (1968);

and Julian Huxley, the English scientific sage. I learned or revisited a lot of environmental history by reading Mann’s book—those by Leopold, Osborn, and Erhlich were very inspirational in my early years, but I had missed the contributions of Gause, Borlaug and Vogt. Some of these early books and their authors apparently influenced Rachel Carson while she prepared her masterpiece *Silent Spring* (1962) that helped launch the modern environmental movement.

A final reflection—my courses 50+ years ago in ecology and environmental science at McGill, Toronto, and Guelph universities made no mention of most of the above scientists. Hopefully we now have comprehensive environmental history taught in our universities—more stories about the actors in this ongoing environmental play to augment the essential but dry scholarly information of the various disciplines. Mann’s book is engrossing and highly recommended.

*Acknowledgement: My friend and colleague Dr. Gareth Harding, formerly with DFO-BIO, Dartmouth, NS, kindly gifted me this book, knowing that it would be of interest. It is another example of serendipity in our lives—a chance encounter with a book that has greatly enlightened and inspired this reader; hopefully, it will do the same for CSEB members and other readers.*

## BOOK Review

Submitted by Bob Gainer, CSEB Alberta Member

### How to be a Climate Optimist

by Chris Turner. 2022. Random House Canada, Toronto.



Available from [Amazon.ca](https://www.amazon.ca): \$13.99 Kindle Ed.; \$19.67 Paperback.

Another great book by a Canadian author published by a Canadian publishing house. It is about several success stories in the conversion of the planet’s energy needs from fossil fuels to non-emission energy sources that have happened much sooner than anticipated. Turner has made a career for the last 25 years as a paid professional reporter for several news organizations. These organizations had heard about these success stories that exceeded all expectations. He wrote about them and became one of the world’s expert on

the topic. I would argue that the world environment is steadily improving and at a pace faster than anyone predicted. He does not write another “gloom and doom” climate bible thumping “the end is near” story; he does the opposite. A positive “there is hope for the future” story.

As per usual, I am writing a book review to stir my own little pot. Full confirmation bias disclosure, I have lived rurally much

more than I have lived urban, probably by a factor of 10:1, and most of it in Alberta so I would probably qualify as having a bit of a rosy tint to my neck (“You’re a redneck” I hear roared down the hall at me from she who must be obeyed). “Maybe a little bit but an educated one,” I retort with my head lowered and puppy dog eyes looking up. “Grrr...” “I have many years of veterinary and post graduate education,” I squeak. “Professional student,” I hear yelled from my father’s grave, “but little of it is liberal arts”.

If I am told that the temperature of the planet can be controlled by giving money to a government that has pretty much failed at everything it has promised in the past seven years, I may be a bit sceptical. Especially today after I have seen Greta Thurnberg picked up in a stage arrest protesting the mining of coal in Germany, a country that has turned to coal use in desperation, only to have Greta whisked away in a limo to Davos. Apparently, she is welcome there this year and Greenpeace not. Greenpeace in retaliation has put out press releases saying that the Davos crowd doesn’t care about ordinary people and the negative effect their policies have on them. Greenpeace includes a video “do as I say not as I do” with clips of some of the more than 1,000 private jets flying over the warming and acidifying ocean to attend the meetings. John Kerry waxes philosophically about being a member of an elite group getting to decide on how to save the planet. Al Gore is in another room raging away about the need to pump up all major pension funds by investing in his “Generation Investment Management Fund”. Al is already a billionaire several times over, will this make him the richest man in the world? Michael Moore in his “Planet of the Humans” exposes the Greenwashing and carbon credits that are making all the expected suspects richer. Net zero should not mean the people who produce the fossil fuels get all the emissions credits and the people who burn the fuels don’t get any, and there should be no difference between renewable CO<sub>2</sub> production and non-renewable CO<sub>2</sub> production.

Since when does saving the planet equate with rewarding unlimited greed? A backlash is growing to Davos, especially when people are suggesting that Davos is Putin’s biggest ally. This is Russian Disinformation Davos counters. Really? The cryptocurrencies Davos promoted have collapsed. Overselling of renewable energy sources is being blamed for inadequate supply and delivery and the price of just about everything is going up. Germany is struggling to provide its people with heat and power.

The planet really does need saviors but probably not this crowd. I did a book review for CSEB on Alan Longhurst’s pdf in the 2018 winter edition 75(4):21 in which he outlined how the oceanography group have done a much more credible job of demonstrating global warming than the atmospheric group. In 2020, the IPCC began using ocean data instead of atmospheric data. The Ocean absorbs over 90% of the increase in CO<sub>2</sub> and consistently, since the 1950s, has shown a steady increase in temperature and pH. The atmospheric record is trending but there is much greater variation in results. I spent four years in East Africa. It prompted me to learn about monsoons being controlled by the Indian Ocean currents, about the effects of ocean temperatures on ocean currents, the Southern Ocean Oscillation, the thermocline and Kelvin waves, Walker cells, El Ninos and La Ninas and their effect on the Kuro Silwa (Japanese current), the North Pacific Drift, and the California ocean currents. Similarly

the North Atlantic Oscillation affects the Gulf Stream, the North Atlantic Drift and the Canaries ocean currents. There is no need for models or imaginations to know that warming these Oceans by the slightest amount is going to have a significant impact on the planet’s weather.

Turner’s first point is that no one, not the smartest or best informed, has ever been any good at predicting the future. There have been thousands and thousands of predictions by scientists and the best and the brightest and they were all wrong. If by any chance they predicted something right it was a fluke, random chance. This includes both sides of the climate debate. During the 1970s, I was involved with prediction modelling of population dynamics at UBC’s Institute of Resource Ecology. Paul Ehrlich was our guru; he had written the *Population Bomb*, a hysterical prediction to the day in 1974 of the start of the end of the world. He had measured and counted and graphed and calculated and modeled his predictions, he was everything I was taught to be (Ehrlich humans Gainer wildebeest). The day, the hour, the minute came when we were to run out of fuel at the gas pumps and it didn’t happen. None of his predictions were of value, and he was never held accountable for all the anxiety he had caused. An economist, Julian Simon, offered to bet Ehrlich that any of a basket of raw materials would be cheaper after 10 years. The basis for his belief was that people were ingenious, adaptable, and resourceful if allowed the freedom in the economy to do so. Ehrlich scoffed at the total stupidity of economists and refused to bet. Luckily, he would have lost, everything was cheaper. Ehrlich in his 90s now was just interviewed January, 2023 on CBS “60 minutes” and still wouldn’t admit he was wrong.

The basis for Ehrlich’s model of the carrying capacity of the planet was two billion people. He now claims that there needs to be five more earths for today’s eight billion. About 10 years ago, the ICUN measured his six different ecological footprints and only one, the carbon footprint was out of sync. The basis for the need for five more earths was that the planet needed to increase forest cover to absorb CO<sub>2</sub>, but the increase in population would require the forests to be used for wood for poor peoples’ fuel. It turned out that power came from other sources other than wood. The 1987 document “*Our Common Future*” co authored by Gro Brundtland, denounced nuclear energy again in favour of poor using wood. Ehrlich also claimed that humans were causing the 6th mass extinction of species on the planet. The ICUN examined his claim and it is wrong. It turns out Conservationists (humans that Simon had faith in) were really good at preventing species extinctions the last 100 years. Humans have reduced the overall area inhabited by native species (mainly by cultivation and increased grazing) but they have not caused their extinction. The extinction rate was based on a MacArthur and Wilson’s 1967 species area model of island invasions and now is completely discredited for use in this way. The “*Limits to Growth*” thesis was presented at the 1973 Davos symposium and became part of its founding platform. Shouldn’t the complete lack of credibility of all of these population biology predictions from the 1960s influenced by Ehrlich and company and their complete lack of credibility be recognized by now? Credibility goes to the oceanographers who have established that continued present levels of CO<sub>2</sub> will continue heating the ocean and increasing its pH.

In the 1980s, I got involved with my own small business of operating a small town veterinary service and left population biology and computers behind. In the 1970s, no one I knew had imagined what has happened with cell phones and Internet computers today. The youngest most unsophisticated people are miles ahead of the computer ability I was once exceptional at. It wasn't any industry or government policy, it just evolved in the market place, Julian Simon style. The other thing is the power it gives inventing new technologies or developing new ways of doing things because of the increased speed of communication. As Turner points out, it will advance this transition to a non-emission energy society much more quickly than we realize.

Turner grew up in several different countries, his parents being in the Canadian military and serving on bases such as in Germany. His teen years in Germany were when the Wall came down and unification commenced. He saw the transformation happen in East Berlin and East Germany. The German leadership wasn't prepared for the integration of the two regions and decided to convert several of the Soviet factories to factories producing solar panels and wind turbines. This was before the Climate Change movement; it was more of a German copy of the "Marshal Plan" that the Americans had instituted in West Germany after the second world war, and not knowing what else to do, they started the solar and wind movement in East Germany that gradually evolved into energy efficient house designs, community designs, suburb and city designs. Germany accidentally backed into being the world's leader in everything energy efficient as a way to unify the country.

Turner says the greatest success is China's new "Silk Road", 25,000 going on 75,000 km of an electric powered railroad connecting the country with Europe and the Middle East. China is also the biggest manufacturer of solar panels and wind turbines by far, mostly for their own use but also for export (initially they were heavily subsidized). This has led to an incredible reduction in their dependence on coal fired power. Even though they have expanded their coal fired power plants, wind and solar has reduced considerably what would have been required for the expansion of the country's needs.

The real success stories are the small islands, especially in the Baltic areas, where wind and solar have achieved total victory. Other areas are large urban areas where densification has meant there is no need for vehicles, or cities where vehicle traffic is replaced, or at least greatly favoured by rapid transit, cyclists, and pedestrians. Again many Baltic cities have bicycles as favoured means of transportation.

About 15 years ago, Turner moved his family to inner city Calgary. This was when Calgary was drunk on an oil boom and was not at all interested in an energy transition—the red neck capital of Canada. Let us use our "Confirmation Bias" again: the most evil city, the most evil province, the most evil people, etc... They almost elected him a Green MP in 2012!!! Then came the pandemic starting in 2019, during which this "Optimistic" book was written; "chaos, anxiety, heartbreak for a household with multiple immunocompromised members and a disabled children not able to go to school;.. multiple villages worth of friends, neighbours, and family" came to their assistance. "The most powerful transformative aspect of this whole catastrophe for me

(Turner) has been the constant reminder that there is nothing ever built by human hands more important to our collective survival than a strong community full of compassionate people". A real Julian Simon sort of observation (Gainer).

Turner is a magnificent writer, winner of many awards, and this book is extremely readable. He makes a strong case for humanity's willingness to reduce the consumption of the planet by humans. Everyday it seems there are good news stories about the reduction of fossil fuels and their emissions. Today we heard about a breakthrough in Nuclear fusion, a source of energy much like the source of energy from within the sun. Digital technology is making progress so much faster. What is required is the political will to sacrifice social services for investment in the future. At the moment of his writing this in 2022, his country's food banks were overwhelmed and that winter homeless people were freezing to death. A lot more of this is going to happen when taxes have to pay for the future to change too quickly to fund the Green movement we are striving towards.

Most climate evangelists (if not all including Turner) would like to see two billion people on the planet not the impending 10 billion. In 1968 when the world population had just shot past the three billion mark, Paul Ehrlich published *The Population Bomb*. In 1987, about the time Simon wanted to bet with Ehrlich, the population had continued its race to five billion and one third were considered to live in extreme poverty. In 2019, just before making it to eight billion, less than 9% lived in extreme poverty. Simon was so right and Ehrlich, my idol, so wrong. Before this, every "right minded person", especially in the UN, thought eight billion people was so wrong. Now the UN "embraces the growth in population for its infinite possibilities, for people and the planet".

The anxiety about the future of humanity and the planet began for me in the 1950s. I remember in school we would have fire drills and march outside, then we would have H-bomb drills and hide under our desks, McGuire was barking out "*Eve of Destruction*" and Dylan "*A Hard Rain's Agonna Fall*" in 1960. Nobody was ever held accountable for the unnecessary anxiety this caused. Look at what the 1960s glorification of drugs and lack of regard for society got us. Maybe us "Boomers", including ahem population biologists, need to own up to a lot of what we think is wrong in society today.

Is there the potential that changes to the climate could actually increase the planet's carrying capacity for humans? Computers, electronics, and digital technology will accomplish more than I will ever realize. What I have seen in agriculture is a rapid utilization of the planet's fresh water supplies, up until now the basis for much of the increase in food productivity. The northern hemisphere, especially Siberia, is letting a lot of water being dumped into the Arctic Ocean unused by humanity. Maybe the Chinese will lead the way in reversing these rivers? Improving reverse osmosis? That would take a big change in thinking. Would Turner champion such causes? This book is very personal and autobiographical; it also shows how personal and vulnerable we all can be starting with, ahem moi and his "Confirmation Biases".

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