



CLIMAFACTS

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Climate Change Affecting Canadian Butterfly Populations

Author: Abby Marsden

Date: Jan 28, 2025

Link to Blog Post:

<https://climafacts.ca/climate-change-affecting-canadian-butterfly-populations/>

Pollinators like butterflies are essential for the reproduction of many plants and the overall health of ecosystems throughout Canada, but their distributions are not well documented. These species face many threats, with anthropogenic climate change being one of the most significant risks. “Butterfly species richness patterns in Canada: energy, heterogeneity, and the potential consequences of climate change” focuses on how climate change and habitat heterogeneity impact butterfly species prosperity in Canada.

This study focuses on the spatial patterns of butterfly species across Canada and identifies the key factors influencing these patterns. The central question of the study was whether contemporary climate – specifically the presence of higher amounts of water in the atmosphere – or habitat heterogeneity – measured by the variety of land cover types – better predicts butterfly diversity in the region. This research is crucial as it addresses the gap in understanding how climate and landscape structure together influence species distribution, an area where previous studies have often focused on energy availability alone.

RESULTS AND DISCUSSION

The research shows that butterfly species richness in Canada follows patterns similar to those observed in many other species such as beetles, mammals, and birds. Butterfly diversity generally decreases looking northward and eastward, with the highest diversity found in southern Ontario and the south central Great Plains.

Diversity is lowest in the eastern Arctic but higher in the more heterogeneous western Arctic. These patterns suggest that similar environmental factors, such as climate and habitat heterogeneity, influence species richness across different taxa.

Both high regional habitat heterogeneity (land cover variation) and climatic energy (potential evapotranspiration) are the main drivers of butterfly diversity, which explains 50 to 80% of the observed variation in species richness. But the predictability of these factors declines at finer spatial scales, possibly due to variations in data sampling intensity and ecological factors that become more pronounced in smaller areas.

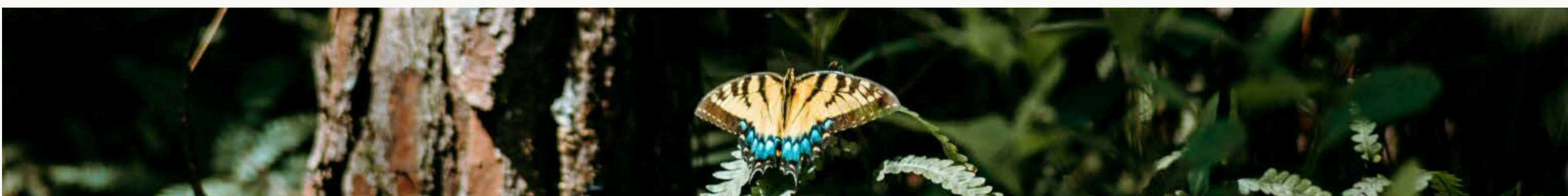
Overall, the study’s findings strongly suggest that climate change does have a significant capacity to impact regional butterfly diversity, particularly in areas vulnerable to increased temperatures. The research also supports earlier models predicting that habitat diversity may decline in a rapidly warming climate, potentially leading to shifts in species richness patterns and even local extinctions.



Some of the study’s strengths include its detailed analysis of butterfly data and the application of advanced GIS methods. However, a significant limitation is the unequal sampling across different regions, which may affect the accuracy of the results for some areas.

The research presented in this study sheds light on the factors that shape butterfly diversity in Canada, which is important for understanding how these species might be affected by climate change. Butterflies are key pollinators, and changes in their populations can impact plant life and broader ecosystems, as well as the agricultural sector. By showing that both climate and habitat diversity play significant roles in butterfly species richness, the study provides valuable information for conservation efforts, helping to protect these species as the environment changes.

To learn more and read the full article, visit our website Blog Page.



Colossal Corn Crop Credited to Climate Change?

Author: Rachen Wadden

Date: Jan 28, 2025

Link to Blog Post:

<https://climafacts.ca/colossal-corn-crop-credited-to-climate-change/>

For Canadians, summer 2024 has delivered a collection of extreme weather. From torrential rain to suffocating heat, it is becoming difficult to remain positive while facing the realities of climate change. But this may only be the case for some. While most eastern Canadians dread the weekly weather forecasts, some local farmers have been reaping the benefits. The heat, rainfall, and sunshine crafted the perfect growing season for corn, resulting in an early and abundant corn season.

To learn more and read the full article, visit our website Blog Page.



The Big Canadian Weather Events of Last Year

Author: Sarah Norman

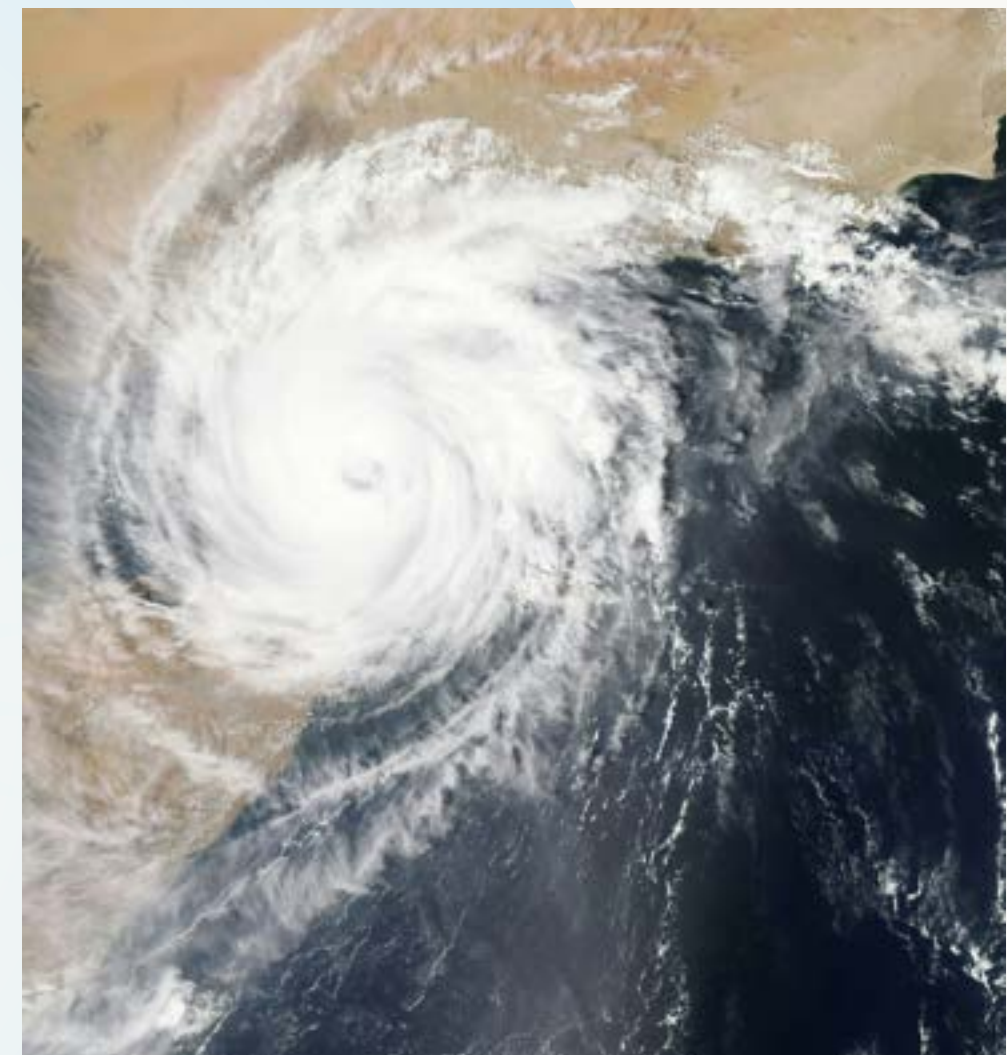
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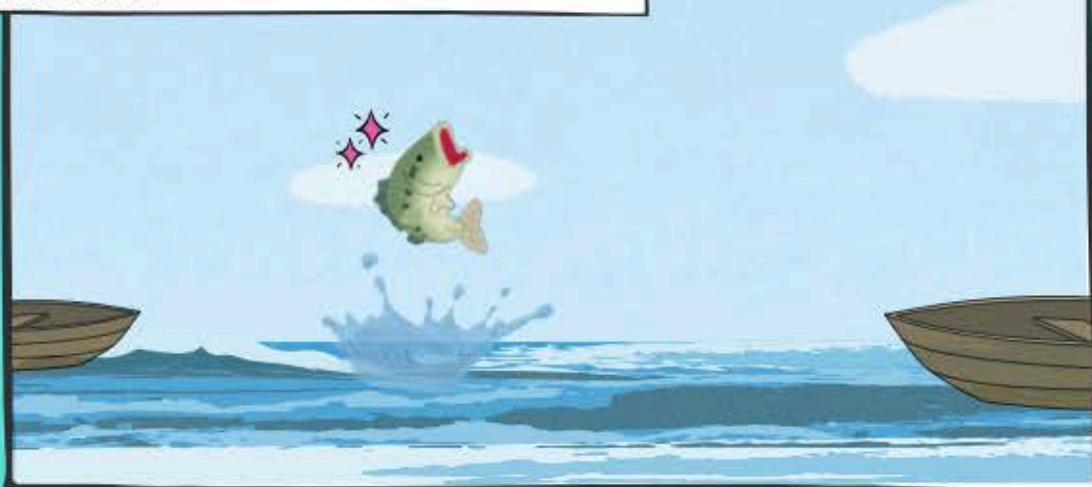
Weather is a complex thing, and thanks to climate change over the last two years it's been nothing but chaotic. Near the end of 2023, senior climatologist David Phillips assembled the notable Canadian climatological events of the year and put them into an article.

To learn more and read the full article, visit our website Blog Page.



Atlantic Fish at Risk!

The fish in Atlantic Canada once thrived in the cold, clear waters, supporting the livelihoods of local fishers.



The water's getting warm!

And our numbers... they're dwindling!

Rising global temperatures would severely impact fish. Marine ecologists say that the Maritimes are particularly vulnerable.

Fishers are affected, too.



Rising temperatures threaten not just the fish but also the communities that depend on them.

We need immediate, region-specific strategies to protect these fish and our future. We must act now to save our oceans and our way of life.

With the right actions, we can ensure the survival of fish in Atlantic Canada and protect the future of our oceans.

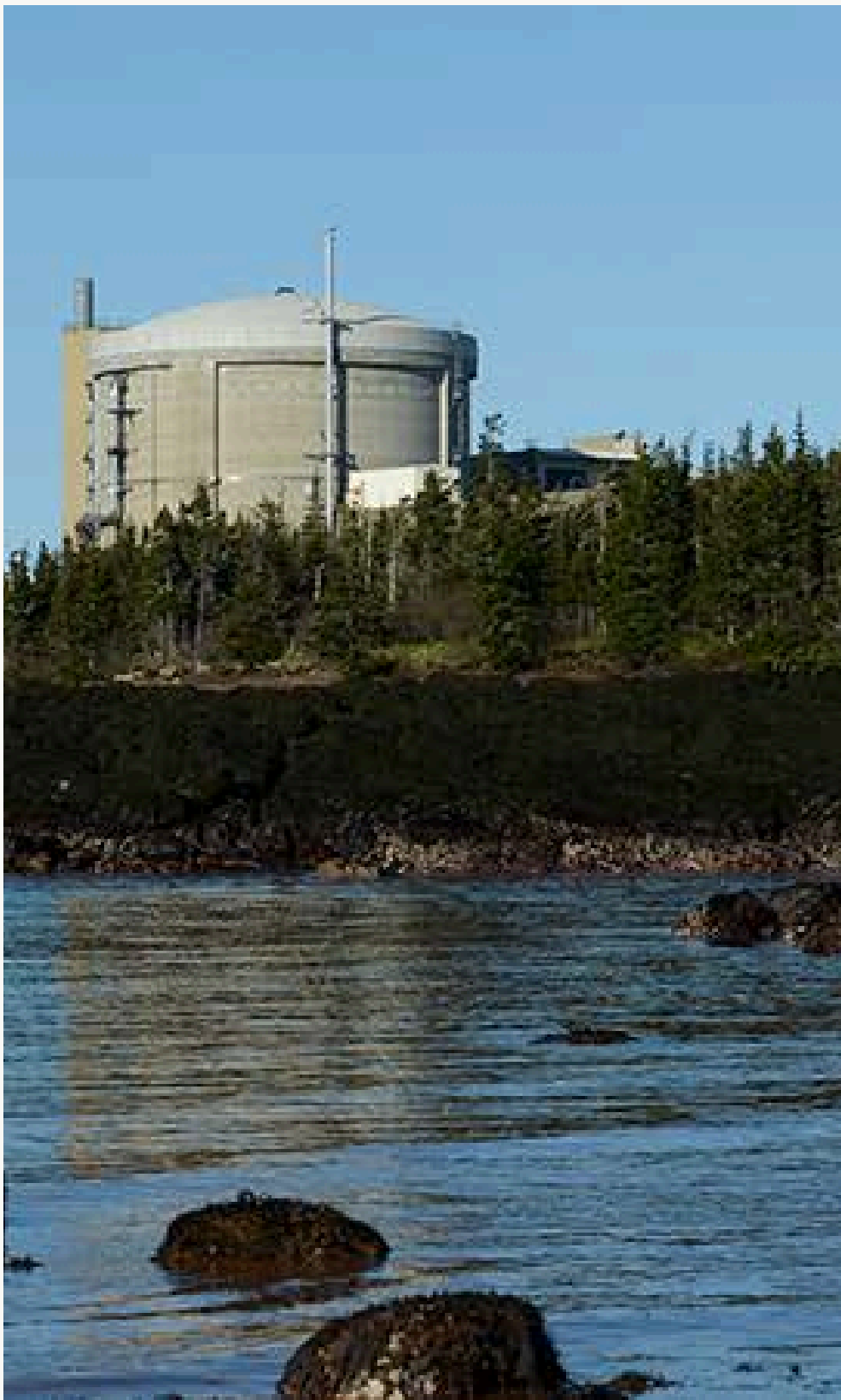


Support sustainable practices and policies to safeguard our marine resources.

Play your part in keeping our sea life safe!

Made by Sanuli Wijayasundara





The Power of Power: Is Nuclear the Answer?

Author: Rachen Wadden

Date: Jan 28, 2025

Link to Blog Post:

<https://climafacts.ca/the-power-of-power-is-nuclear-the-answer/>

Power and electricity are the backbones of our society. To quote Steve Martin’s character from the hit show Only Murders in the Building, “There’s a thin line between civilization and chaos, and that line is electricity.” Most North Americans no longer rely on lantern lights, letters, or chamber pots. Still occasionally plagued by temporary power outages, everyone gets a taste every once in a while of how accustomed we are to having power sources and how their accessibility is often taken for granted. Despite the importance of electricity in the lives of many, people are less inclined to question how and where this power is generated.

Historically, fossil fuels have been burned to produce power. However, as the 2030 ‘get-off coal deadline’ fast approaches in Canada, many provinces have turned to alternatives. One alternative is nuclear power. In Canada, there are currently four nuclear power stations, with only one located outside of Ontario. The Point Lepreau Nuclear Generating Station opened in New Brunswick in the 1980s. In the past 40 years, it has served as an alternative to the province’s other oil, gas, and coal plants. However, it reportedly suffers often from extended shutdown periods. Summer 2024 is an example of one such period. The Point Lepreau Nuclear Generating Station first began a planned shutdown in the spring, which was supposed to last 100 days. However, the plant’s scheduled maintenance evolved into an extended shutdown, with a prediction of being offline for at least 200 days, carrying the spring outages through the summer and into November.

INFORMATION AND SIGNIFICANCE

When not shut down, the Point Lepreau Nuclear Generating Station provides about a third of the province’s energy. Therefore, when it is not functioning, the province must turn to its backup resources, such as coal, gas, and oil. Moe Qureshi, the director of climate research and policy with the Conservation Council of New Brunswick, is critical of New Brunswick’s power sources, labeling Point Lepreau a “sputtering power plant” and a “costly symptom of the province’s overreliance on nuclear.” These criticisms are supported by findings from NB Power, which estimates that the province spends 9 million dollars daily for the plant to be shut down. “Instead of investing in reliable and proven renewable energy sources such as solar and wind, the province is resisting transitioning off fossil fuel while hinging its energy future on nuclear power,” says Qureshi.

Presented with this information, many individuals may now be asking New Brunswick, ‘Why?’ Faced with questions, NB Power admits that the full extent of the outage is not yet known and denied any response to other questions from Canada’s National Observer concerning cost and other criticisms. Because of the looming 2030 deadline to stop using coal, New Brunswick has begun plans to convert one of their plants to biomass—renewable energy obtained through animal and plant matter—in the coming five years. However, when discussing the deadline and changes to power plants, NB Premier Blain Higgs said that the province would not “put ourselves in jeopardy, turn the lights out because we have a magic 2030 date.”

“THE PROVINCE IS RESISTING TRANSITIONING OFF FOSSIL FUEL”

CONCLUSION

As electrical power is a pillar in Canadian society, the 2030 ‘get off coal deadline’ means that alternatives to fossil fuel power plants must be found. While most provinces have turned to solar and wind power sources, New Brunswick has geared resources towards Nuclear power. While Nuclear power is a positive replacement for coal, gas, and oil, the recurrence of prolonged shut-down periods at the Point Lepreau Generating Station is becoming worrisome and costly. Something to remember when forgetting to turn your lights off while leaving a room.

To learn more and read the full article, visit our website Blog Page.