Saving the Bee(tles)

By Kennedy Halvorson

"If one could conclude as to the nature of the Creator from a study of creation, it would appear that God has an inordinate fondness for beetles."

- John B. S. Haldane

Photo © K. Halvorson

A note to readers: Pollinators are not just bees!

In fact, the first suspected pollinator was Earth's favorite type of insect (constituting a quarter of all species on the planet), the mighty beetle, celebrated on the front cover of the magazine. Many animals provide pollination services, including flies, moths, butterflies, ants, wasps, birds, bats, rodents, lizards, primates, and marsupials — bees just happen to be the most common and often effective floral visitor. They are also the most researched for my purposes here, but please keep in mind these many other wonderful pollinating species!

You know their plight. You've heard about their threats, declines, and their ecological and economic importance. You know their need for robust ecosystems and global food security. People love pollinators, more specifically, bees. It's hard to think of another type of organism with such widespread public support.

Just one iteration of the #savethebees hashtag has over 2.9 million posts on Instagram, and while the phrase is unfortunately often complicit in "bee-washing" campaigns, it helpfully illustrates my point. If anecdotes aren't enough, research reverberates the same message; the public overwhelmingly thinks pollinators are important and should be protected.

Much like you, I agree. I love pollinators. I think they are the coolest. I read all the same articles, consume all these repetitive messages; "how to save the bees," "10 ways to protect pollinators," "make your garden bee-friendly this summer," "grow these native plants pollinators will love," "join no-mow May," etc.

These articles will reiterate individual actions, which people are eager to implement. And we're becoming more educated on pollinator issues, we're planting bee gardens with native flora,

leaving leaf and plant litter for nesting and habitat, going chemical-free, pulling household pesticides out of the lawn care rotation. All these things are meaningful — at a local level, I promise your pollinators appreciate it, and importantly, engaging with nature in such an intimate way is just generally good for your wellbeing. However, it is not enough.

But what more can we do? We are past awareness. The threats faced by pollinators need to be tackled systemically, and those ideally positioned to do so are the federal and provincial governments.

Government pollinator policy

Native pollinators are not explicitly addressed at either the federal or provincial levels. In fact, most mentions of the word "bee" within government policy imply non-native honey bees, or in some cases, are not referring to bees at all.

Under the *Species at Risk Act,* the majority of pollinator species have had no formal assessment. Of the 16 assessed and present in the province, 63 percent are without and/or overdue for recovery strategies. No action plans have been completed. There are no provincial-level status assessments of pollinators. This reflects existing taxonomic biases in conservation research and efforts; insects are consistently underrepresented, underappreciated, and threatened. In the absence of explicit native pollinator protection legislation, our wild bees, flies, moths, butterflies, beetles, and other pollinators are left without real targeted support from our governments. And on a global context, that means we are behind.

Canada lags its peers

In North America, the U.S. and Mexico have had national pollinator protection strategies in place since 2015 and 2021 respectively. Further abroad, 34 nations including Belgium, Colombia, England, Ireland, France, Nigeria, Norway, the Netherlands, and Spain have enacted similar plans and initiatives to protect pollinators. Pollinator legislation also need not be restricted to just the federal level; in the U.S., 32 states have their own subnational plans coordinated within the country's national strategy, with more developed each year. With such a large body of international examples to draw on, there should be no reason Canada can not endorse similar policies — if anything, the process should be easier with the ability to learn from spearheading nations' challenges and successes.

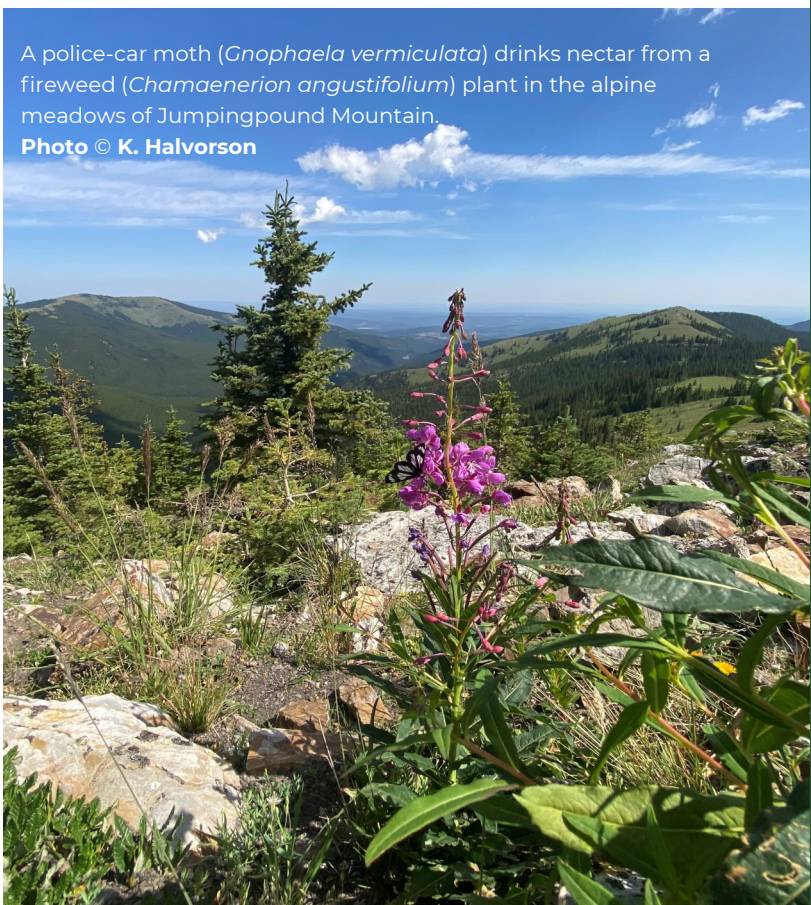
What could a policy look like?

The core principles of an effective Canadian pollinator policy should:

- Focus on the health of wild, native pollinator communities.
- Be supported, feasible, and science-based.
- Overcome Canada's decentralized system of governance.

International and Canada-specific policy recommendations already exist to inform the development of pollinator protection legislation and identify four major threats that must be addressed: habitat loss, non-native species, pathogens, and pesticides. The recommendations for Canada were published in 2023 by over 30 experts of diverse professional and personal backgrounds, who considered both the utility and feasibility of almost a hundred proposed solutions for protecting pollinator populations, as well as knowledge gaps and research priorities. Good policy would address non-native species and their impacts, increasing regulations, monitoring, and reporting on movement of materials potentially containing exotic species from other regions, and subsidizing the removal of invasive plants already established.

For pesticides, policy recommendations that were both strongly supported and considered very feasible by experts included eliminating the cosmetic use of pesticides for homeowners, municipalities, and other sectors within the province, and reducing the number of household insecticides available for purchase by the average, untrained person. Establishing a bee-friendly certification for farms, adopting targeted crop insurance programs, increasing investments in Integrated Pest Management, and making technicians specialized in pollinator best



A police-car moth (*Gnophaela vermiculata*) drinks nectar from a fireweed (*Chamaenerion angustifolium*) plant in the alpine meadows of Jumpingpound Mountain.
Photo © K. Halvorson

management practices available and accessible would support and protect producer livelihoods while better protecting pollinators.

To help address pathogens, experts recommended regulating the use, distribution, and disposal of commercially managed pollinators. Colonies should be independently tested and confirmed as pathogen-free, and movement should be closely tracked and reported. Excluding honey bees who are already widely introduced, use of other managed pollinators like bumble bee, leafcutter, and mason bee species should be limited to within their native ranges. All precautions must be taken to ensure reproducing individuals do not escape into native habitats.

Policy required to combat habitat loss could take a variety of approaches; in an agricultural context, increasing producer access to seeds free from pesticide applications and incentivizing the adoption of less-intensive practices would create landscapes more accommodating to pollinators. Supporting native plant nurseries and regional seed libraries/exchanges while eliminating invasive plants from marketed seed mixes would improve biological and genetic diversity and help restore habitats. The experts also were highly supportive of initiatives that protect and expand habitat, particularly within pollinator hotspots. Planting native flower mixes along anthropogenic corridors like roads and utility lines to increase ecological connectivity for pollinators is another great example of how policy could help address habitat loss.

A dogbane leaf beetle pictured in June 2023. **Photo © D. Donnelly**

Alberta's next advantage

Alberta is a prime candidate for the country's first successful pollinator protection legislation.

Almost 10 million acres or one-fifth of the total cropland in Alberta grow field and greenhouse crops that either require or benefit (through increased yield and nutrients) from pollinators. The farm gate value for greenhouse crops alone was estimated at over $140 million in 2023. Canola, the largest field crop requiring pollination, has yearly exports valued in the billions. Ensuring strong protections for pollinators is not just a good environmental choice, it's an economic one, as providing sufficient and effective pollination for these crops represents both larger and higher quality yields for Alberta farmers, and reduced input costs required to maintain ecological and farm health. Imagine for a moment the worst-case (and very real) scenario – in places where pollinators have declined substantially, hand pollination by humans is required for crop production. Laborious, time-intensive, and costly, it can not be overstated what a loss the freely provided services of pollinators would be to Alberta agriculture.

From an ecological perspective, over a third of Canada's bee diversity, 375 species, exists in Alberta. The province is also home to 2,700 beetle, 2,000 fly, and 2,500 butterfly and moth species, which means increasing pollinator protections here is meaningful for biodiversity at a national scale. While not every single one of these species functions as a pollinator, they fulfill many other important ecological functions that are similarly threatened by a lack of protection. According to the *Wild Species: The General Status of Species in Canada* in Alberta, 22 percent of beetle, 16

Did You Know: Ontario had a short-lived attempt to help pollinators

In what was an unprecedented commitment by a provincial government in Canada to protect pollinators, the strongly supported, but ultimately ill-fated plan (known as the *Ontario Pollinator Health Action Plan*) was enacted in 2016 to support healthy populations, ecosystems resilience, food system sustainability, and the economy.

The quiet termination of this plan two years later came as a shock and violated protocol, best summarized by the Office of the Auditor General of Ontario:

"[The] Agriculture Ministry did not notify or consult the public on this decision through the Environmental Registry, as required under the *Environmental Bill of Rights*, 1993. As a result, pollinator researchers and the public were unaware that the Pollinator Plan and its targets had been cancelled."

"Beewashing" is a thing

Beewashing is a type of greenwashing which advertises a product or initiative as supporting wild bee or pollinator populations without the appropriate due-diligence and research.

percent of bee, 23 percent of fly, and 11 percent of butterfly and moth species are considered vulnerable to critically imperilled.

Alberta's native pollinators coevolved with regional plants; together they are foundational to the function of ecosystems throughout the province. Enacting robust pollinator protections does not just serve wild populations; Alberta is home to 40 percent of the nation's honey bee colonies which would also stand to benefit. Charismatic though they are, honey bees are non-native and managed like livestock for their pollination abilities, and their production of honey, wax, and other bee products. Similar to other livestock species, disease prevalence and transfer are a key concern in their husbandry and represent the greatest threat to beekeepers' livelihoods. Increased regulation and reporting on the movement of managed bees around the province is beneficial as it can improve rapid reporting and response to disease outbreaks, limiting the extent and severity of impacts in both honey bees and native pollinator populations. Reducing stressors like pesticides and other agrochemicals would keep honey bee populations healthier, which in turn allows them to fight off parasites and disease better and reduce transmission into native populations. Increased floral availability and diversity reduces competition with wild species and benefits honey bees as well, who much like us, need variety in their diets.

Alberta needs, deserves, and wants robust pollinator protections. Six cities, representing over 1.7 million Albertans and 38 percent of the province's population, are already registered Bee Cities, demonstrating strong support at the municipal level for pollinator conservation and protection.

The agricultural, economic, environmental, and societal co-benefits of adopting the policy recommendations into formal legislation would be substantial for the province, and it is an action that is desperately needed.

What can you do?

Do what you can locally. Reduce how much you mow, stop using pesticides, switch to a native lawn, don't swat, etc. And, consider contacting your provincial and federal representatives. Send them all the articles you read (including this one), emphasize how much you love pollinators, and highlight their immense importance to our landscapes and societies. Most critically, demand their legislated protection.

Spring always comes

-By Kris Unger

I find walking wild
-content through woods
one of the finest
of pleasures.

I cross rivers and keep going
walk the floodscape
the hills
so dense the trees
today I climb one

a pine apart
with prospect
and good vantage

a fine tree
crackle-lush with lichen
bark and brach

like a porcupine
I muse
as the prickles
entangle

and then nestle
so high I sway
in the wind
Raven laugh-cackles
at me in
this old one

this tree
among trees
happy crowd
sun wind aplenty

tangled roots in soft rocks
wait for spring warmth and rains
spring always comes
rain always comes

and sun warms the rocks
and the living.