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Honey Bees on an Artichoke Blossom

Photo by Heather Cameron, Salt Spring Island, BC

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Keeping Bees while the Climate Changes

by Ron Miksha

Alligators on the Fraser? Lemon groves on the Saanich? Soybeans in the Peace? If the past temperature changes are a clue to the future, children born this year could see all of these things. It would take about a five degree change in the average temperature. British Columbia has witnessed at least half degree Celsius increase in ten years; some areas more. If climate change accelerates, those toddlers will have a hot retirement.

Is climate change real? Yes. Are we responsible? Probably. But predicting the future with certainty is best left to thick-skinned fortune-tellers who can quickly move to a new neighbourhood if guesses go wrong. Scientists are generally more cautious, but the evidence is mounting. Even Exxon boss Rex Tillerson admitted last year that climate change is real, though he also implied there could be some great business opportunities in engineering our way out of the worst of its effects.

For most meteorologists, the past is the key to the future. Between 1950 and 2001, average winter temperatures in the Cariboo-Chilcotin rose 3.5° C. Climatologists expect winters to continue to become milder with less snow and more rain. They expect summers to grow warmer, with longer dry spells. For Vancouver, the average high in August has recently been 5 degrees warmer than the normal back in the 1940s. This means that extremes will become, well, even more extreme.

In researching this article, I looked for recent climate trends in the raw Environment Canada records. The stats for Vancouver are among the most continuous in the country, so I went through those, year-by-year for the past forty years. I'm not a meteorologist, but I wanted to see if anything would leap up and grab my attention. Something unexpected did. Days with fog. Who would have thought? For fifteen consecutive years – from the mid-70s to 1991, there were an average 130 foggy days a year, and all of those years had at least 100 foggy days. It was gloomy back then. Jump ahead to the past fifteen years and the average is 21 days of fog per year in Vancouver. And none of those recent years had as many as 50 days of fog. The difference is so dramatic in such a short time that I have to wonder about the data set. Did the definition of fog change? Or is something else at work? But I also noticed that the average wind speed for Vancouver during those foggy years was 11 kph, but for the past 15 years it has been over 13 kph. And the average daytime temperature increased from 10.1 to 10.6 degrees C.

Windier and slightly warmer air might dissipate fog. Less fog means better queen mating weather and more hours of foraging – so pollination has possibly improved, too. This could



be a sign of a small positive benefit from climate change. But mostly, climate change is not benevolent.

Among the beekeeper's great climate change threats are increased likelihood of fires, which could turn your apiary into ashes, and fires can also lead to more flooding due to uncontrolled runoff. The fires would be more likely because of the spread of pine beetles and drought – both responding to predicted climate change trends. Along

with pine beetles, vermin as diverse as yellow wasps, bears, and small hive beetles will all be on the move with continued temperature rises. Your bees will face habitat loss, with native plants being replaced by invaders.

Bees need water – during expected prolonged droughts, they will spend even more time lounging about at the neighbour's pool. The water shortages – especially as glaciers disappear – will affect you, too. Not only will water cost more, but fields of irrigated clover and alfalfa may become a memory. The BC government sees delta flood management a likely problem as seas rise and flooding from rapid glacier melt and increased runoff of denuded lands increase. The freeze-thaw cycle will add costly maintenance charges while stress on highways expands road bans and weight restrictions. Slope stability will weaken with extreme storms, posing a risk to homes and beeyards in mountainous districts. Expect less reliable weather forecasts to wreck your plans – in fact, the wrong weather at the right time and the right weather at the wrong time will mean pollination schedules will change. It will be hard to have strong colonies weeks earlier, partly because even with intense stimulation feeding, bees build up slowly when nights are longer than days. And that's something that won't change with climate change.

What might the beekeeper do? The likelihood that climate change can be stopped – or reversed – is pretty remote. As developing countries race ahead, they consume mind-numbing amounts of forests for their cook stoves and furniture; the use of dirty coal for power generation besmirches the atmosphere with heat-absorbing black carbon soot. On an individual basis, a respect for the Earth demands that we limit waste and conserve resources. We may try to petition the worst offenders – India and China – but the North American model of big SUVs, remote suburbs, huge houses, and the plowing of our prairies makes our credibility rather weak. And besides, everyone else wants the car, TV, and fridge that your neighbour already has. So stopping the rising tide (and I mean this literally), which is our only escape from likely global disaster, is almost futile.

What does the beekeeper do?

As I mentioned, you do what you can to reduce your personal gray footprint through the reducing, recycling, and reusing that you probably already do. Beekeeping is such a marginal business that beekeepers quickly learn to eschew waste. You know how to do this already. I usually don't like to offer beekeeping advice because each operation and each micro-geographic niche responds differently.

Every area and every beekeeper has unique issues to face. However, here are a few generalities I've learned from other beekeepers: Look out for the bad bugs. With a warmer climate, everything from hive beetles and wax moths to foulbrood will become more common. Learn what these look like; acquire some skills to lessen their impact. Hive beetles are nasty filthy creatures that thrive in warm climates, wax moths will chew up your combs unless equipment is properly stored, and all sorts of pests and diseases are worse when the growing season is long.

Watch your yards. Bears will be active earlier and might be hungry longer. The 'hundred-year' flood might swamp your beeyard every other year. You might have to give up some favourite locations. On the other hand, some new spots might make more sense than they did a generation ago.

Be prepared for freaky seasons. Would your bees be ready for pollination if the orchard man calls three weeks earlier than usual? Do you have enough supers for the bumper crop to beat all bumper crops? With erratic weather, the best crops are likely to surpass anything you've ever seen. But expect that to be followed by some years without honey.

Keep some money for a (hot) rainy day. Most beekeepers run their finances pretty tight and don't have the extra money they'll need for an emergency. The best business advice I ever heard from anyone was what a Toronto honey packer once said about a northern prairie beekeeper: "He doesn't need money." If you don't need money and don't particularly care for the bright shiny stuff it buys, you'll always have the reserve that will get you through the bad seasons.

Embrace the change. Well, maybe not embrace. Don't be thrilled that the planet is burning up, but be psychologically prepared for change. Change is not always bad. It can make you a better beekeeper. It might force you to learn more about your environment. Any monkey can stack boxes on a hive, then pull them off a few months later. And you will feel like an ape if this is what you do year after year. Challenges make us smarter. Better beekeepers will survive.

Can we know – for certain – that climate change is coming? Yes, if the past is any indication of the future. Advanced planning is essential for beekeepers' survival. This short article was not intended to convince anyone that climate change is happening. Instead, the idea is to show what climate change might do to the beekeeper – and suggest some strategies for coping with change. More vigilance, more supers, more reserve cash. If you tend to operate on a tight budget with little money set aside for emergencies, you will find yourself sitting opposite your banker more times than you'd like. If you can't cope with change, you may find yourself out of beekeeping. The good news is that the bees are extremely resilient. They are kept almost everywhere – from Greenland to the Sahara. The bees will survive. Hopefully, the beekeepers will, too.

Ron Miksha works around bees near Calgary. His blog is at www.badbeekeeping.com. ☼