

Life's catastrophe: An angry editorial

“There is no right way to do a wrong thing.”

– An old saying used by Doug Tompkins

The human enterprise is eradicating non-human life on Earth. The WWF's *Living Planet Report 2016* reveals that, worldwide, wildlife populations declined by 58% between 1970 (itself too late for a proper base year) and 2012, with the expectation that this decline will reach 67% by 2020 (WWF, 2016). In Canada, my home, the situation is similar: half of 903 species monitored saw population declines over the same period, and the average for half of these was a population loss of 83% (WWF-Canada, 2017). Recent reports from Germany detail how the insect population there is crashing – with a decline of 76% of total flying insect biomass in protected nature reserves since 1990, and an even higher decline (over 80%) in the summer months (Hallmann *et al.*, 2017). As I write this, reports show that bird populations in the French countryside have declined there by more than a third in just the past 17 years – a situation described by conservation biologists as “catastrophic” (Geffroy, 2018).

Where are the mayflies? In my youth – the 1950s – they were everywhere, clouds of them and all over the lights, windows and clothes lines. In the last few years I've seen exactly one, and had to look it up to be sure I was right. Similarly, the once ubiquitous June bugs are largely gone now and a huge number of monarch butterflies are missing. Where are all the rest of the bugs, squashed against car windshields, that used to blot out vision? All gone. What do fish, birds, bats and dragonflies eat now? Nothing, as it turns out: they are largely gone too.

While all parts of our civilization are implicated in this catastrophe, in this

editorial I'll focus on agriculture, and “the erasure of non-human life from the land by farming,” as George Monbiot puts it (Monbiot, 2017).

Before I begin, I'd like it to be clear that I write, unapologetically, as an amateur field naturalist and specifically not as an academic, scientist or environmental professional. As such, I feel no compulsion to restrict myself to statements that can be ‘rigorously proved’. My personal observations, the weight of evidence, and the precautionary, reverse-onus, creeping-baseline, and least-harm principles are some of my guiding lights. I interpret these through the lens of an ecocentric value system.

I started this editorial as a one page essay on the plight of bumblebees but, no doubt because everything is interconnected, it rapidly ballooned to include agriculture, then paradigm and then, in an effort to keep its size under control, back to agriculture.

Bumblebee rage

A recent major but seriously downplayed scientific study (reported only on page 3 of my newspaper) found that a widely used neonicotinoid agricultural poison is associated with a considerable risk of bumblebee population extinctions (Baron *et al.*, 2017). Two key findings from the study make the point. First, as the title of the study states, pesticide use “reduces bumblebee colony initiation and increases probability of population extinction” and, secondly, “Modelling the impacts of a 26% reduction in colony founding on population dynamics dramatically increased the likelihood of population extinction.”

As one reads the study, it comes across as cold and dispassionate. Away from the emotionless world of scientific reporting, what kind of person, who knows about

Ian Whyte

About the author

Ian is a naturalist who lives in Ottawa, ON, Canada. He is Associate Editor of the Journal.

Citation

Whyte I (2018) Life's catastrophe: An angry editorial. *The Ecological Citizen* 2: 5–10.

Keywords

Agriculture; sixth mass extinction; societal change

Photos

The photos of bees in the editorial were taken by **Tony Cassils** in Gatineau Park, Chelsea, QC, Canada.

The photos of beetles and birds were taken by **Ian Whyte** at Mud Lake, in Ottawa, ON, Canada.



**Common eastern
bumblebee**

neonics killing bees in general, and the likely extermination of bumblebees in particular, could react with anything but rage? Their use and the resulting losses are wrong on so many levels.

Bumblebees have intrinsic value in and of themselves. Their lives are valuable to themselves, and to the ecology of the Earth systems of which they are an integral part. Bumblebees' lives are interwoven with all the other lives in their ecosystems, and they cannot be removed without harm occurring to all those other lives and the impoverishment of the ecosystem. Neonic users destroy one and weaken the other – both immoral acts. A pox on neonic

Red milkweed beetle



producers and on those farmers who use these insect-killing super toxins!

It is astonishing that our society is so ho-hum about the prospective destruction of bees and bumblebees. Much else is damaged too. Bees are agriculturally and economically important, and thus get most of the research and press. Where is the rage that farm and 'Big Ag' profits are put before the ecosphere and its life? Why should all life bear the brunt of Big Ag companies' profit-driven malevolence?

I began to watch for reports relating neonics, agriculture and bee deaths. Unfortunately, once alerted, within a few days I found dozens of reports concerning the adverse effects of agricultural chemicals on all life. On reading report after report it became obvious that agriculture, especially as practised today, is propelling all life into an ever-deepening death spiral. One can almost hear the suction, pulling life down. Here, my ecocentric principles kick in: any group that kills life in general is evil. Period. Despite the fact that I am not at all religious, a phrase from an acquaintance (personal communication with Tom Hershelman) who is, resonates with me, and sums a lot up quite nicely, even while not couched in terms I usually use: "It is a sin to destroy God's creations."

The weight of evidence piles up

It quickly became apparent that *all* agricultural chemicals, no matter how used, are inimical to life on Earth.

Take herbicides. They only kill weeds, right? Well, no, wrong. Henri Goulet, a Canadian entomologist, has concluded, through a series of field observations extending for 50 years, that common herbicides also kill ground beetles, sawflies and Proctotrupid wasps. This effect occurs not only in the fields sprayed, but also in areas a long distance downwind of the application, even if there has been no pesticide drift – deaths that are due to subsequent poisoned, sickened, insect drift. And where the insects are poisoned and slaughtered, deaths of spiders and birds follow (Goulet, 2018).

In case you think it is only insects that suffer from herbicides, read on. Herbicides are

implicated, for example, in extreme variance in the sex ratios of Blanchard's cricket frogs. A study found that the sex ratio was changed from male dominated in atrazine-free areas to 55% fewer males than females on exposure (Hoskins and Boone, 2018). It thus appears that a herbicide is implicated in the decline of amphibian populations.

Fungicides are another source of problems: "Tumbling bumblebee populations linked to fungicides" is the headline of an article from *Science Daily* (Schwartz, 2017) that reports on a study by McArt and colleagues (2017). In the article, the lead researcher of the study remarks, "While most fungicides are relatively nontoxic to bees, many are known to interact synergistically with insecticides, greatly increasing their toxicity to the bees" (Scott McArt of Cornell University, quoted in Schwartz [2017]).

Insecticides are a gigantic problem, and kill in many ways. Vertebrates are not immune: studies suggest that "wild songbirds consuming the equivalent of just four imidacloprid-treated canola seeds or eight chlorpyrifos granules per day over 3 days could suffer impaired condition, migration delays and improper migratory direction, which could lead to increased risk of mortality or lost breeding opportunity" (Eng *et al.*, 2017). Moreover, we have all heard how life in general, but particularly insect life, is diminishing. When insects diminish, so too does the bird and other animal life dependent on them (McCarthy, 2017).

Another article in *Science Daily* starts with "Four pesticides commonly used on crops to kill insects and fungi also kill honeybee larvae within their hives, according to new research. Scientists also found that N-methyl-2-pyrrolidone – an inert, or inactive, [sic] chemical commonly used as a pesticide additive – is highly toxic to honeybee larvae" (LaJeunesse [2014] reporting on on Zhu *et al.* [2014]). Other studies (e.g. Mitchell *et al.*, 2017; Hamers, 2017) show the presence of bee-harming pesticides in honeys across the world (and, remember, honey is larval and colony food).

Another study reported in *Science Daily* shows that even "low levels of pesticides can impact the foraging behaviour of

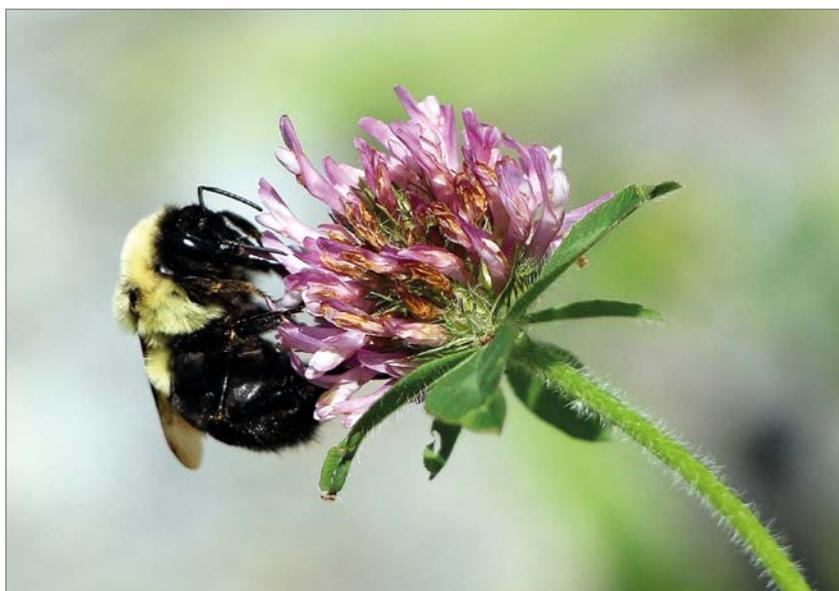


Pine warbler

bumblebees on wildflowers, changing their floral preferences and hindering their ability to learn the skills needed to extract nectar and pollen" (University of Guelph [2016] reporting on Stanley and Raine [2016]). Further research shows that combinations of very small residues of toxins can have large effects, suggesting that *no* application of toxins is viable (De Castro-Català *et al.*, 2017). Fertilizers are also implicated in life's imminent demise; agricultural run-off is a major cause of the increasingly large dead zones in oceans (Breitburg *et al.*, 2018).

The situation is made even worse, if that is possible, by the knowledge that pesticides are not needed. Summarizing a

Common eastern bumblebee





Common eastern
bumblebee

recent UN report (Human Rights Council, 2017), Damian Carrington (2017) writes in *The Guardian* that, “The idea that pesticides are essential to feed a fast-growing global population is a myth, according to UN food and pollution experts”. A major study conducted in the US found that application of neonicotinoids produced no consistent benefits to maize crops (Krupke *et al.*, 2017). Interviewed by *Nature*, the lead researcher stated that it is “foolish” to use seeds with pesticides pre-applied (so-called ‘prophylactic’ use), and his summary conclusion is telling: “The way they’re used doesn’t make any sense,” he says. “It only makes sense from one motive. That is the profit motive for the manufacturer” (Christian Krupke of Purdue University, quoted in Cressey [2017]).

Considerations and conclusions

I believe we will not succeed without expressing the passion and the rage that we feel about the ongoing destruction of life on Earth. It is readily apparent that the application of science and reason have utterly failed both the Earth and ecocentrists. While correct facts and science are important, their importance is mostly to insure that our passions and emotions, roused by the ongoing catastrophe to life on Earth, are not misplaced or misdirected. It is my opinion that this passion must be expressed first and foremost, in all that

we do. In fact, we must wear our hearts on our sleeves! Here, I cannot urge you too strongly to read John Livingston’s short but important book *The Fallacy of Wildlife Conservation* (Livingston, 1981).

It is important to remember that the inimical effects discussed above are for various groups of *non-target* organisms, with the focus on them in research and the press being mostly because these species are deemed to be important to humans. The slaughter among target species is probably very much worse, and all life suffers for it.

Wiping out life on any basis is wrong, and on a systemic basis it is purely evil. This evil is compounded when the available evidence demonstrating it to be so is ignored or denied. (Memories resurface of Big Tobacco’s lies, prevarications, partial truths and political wrangling which brought to so many people disease, suffering and death.) It has become evident that the human agricultural enterprise is both out of control and dragging us all down the blind alley which leads to the death of life on Earth – or, at least, life as we know it.

We hope and expect that in *The Ecological Citizen*, authors will do more than show what is wrong; we want the *how* too, how to start to address the problems shown. This is of course hard – harder by far than stating those problems.

My friend Ted Mosquin convinced me, many years ago, that there are two levels where responsibility can appropriately be assigned: the individual’s and the group’s. Sometimes, both levels need to take responsibility. I believe that this is the case with the current malaise in agriculture – and this is a message that comes through clearly from our agriculture-themed content in this issue.

I also believe that the continuance of life on Earth should be a strong driver for reform. It seems to me that every one of us should feel obligated to work to the best of our ability to promote change. A question, for which I do not expect an immediate answer: *are you so working?*

The need for chemical-free agriculture is a subset of a greater demand: halt the manufacture of all toxic substances and stop

digging them out of the Earth where they have been, until now, safely sequestered (Rowe, 2002). This larger demand is beyond this editorial's scope.

Personally, I believe one should eat and promote organic food whenever possible. When at the grocer's ask for it, give the reasons, and try to buy organic food. Ask for organic in restaurants, complete with reasons. Tell your dinner hosts about organic's advantages. Patronize organic merchandizers. Talk to any farmer or farmer's market person that you know or meet; do they know the damage being done? Do they know of your decision to buy only organic where possible? Does the farmer know that pesticides are not even needed for high yields? Do they know that 30 miles or more away spiders, insects and vertebrates are dying because of their application of herbicides?

Each of us has circles of friends, and is a member of one or more groups and associations. All are fair and prime game for the organic message. Is the luncheon organic? Are the sandwiches? How about the cheese and crackers? And the wine? Have we tried to get the group's food policy changed?

Attempting to influence the larger world is important too. For the academics, what is your university cafeteria's food policy? Attempt to change it if necessary. Get involved (remember, life on Earth is at stake). Involvement at higher levels is needed too. Have any of you asked your professional meetings to serve organic at their functions?

Perhaps concerted letter writing campaigns are needed. Organize one. Assemble a large and noisy group. Learn how to influence politics on a large scale (an excellent book on this subject is *New Conservation Politics* [Johns, 2009]). Much needs to be changed at the political level; do you not think it is time to put a huge effort in here? Reverse onus would be a good place to start: instead of society having to prove something unsafe (by an untold number of illnesses and deaths, or environmental catastrophe) the proponent must prove it safe before approval (by a proper process, unlike today's processes). How about the removal of limited liability from corporate



Goldenrod soldier beetles

directors, or even from the shareholders themselves? Perhaps tax advertising rather than subsidizing it?

I feel that I am weak on the *hows* (they are hard!), here and elsewhere, so here is a suggestion and a request: please send your good ideas, or other comments, to *The Ecological Citizen* team using our contact form: <http://www.ecologicalcitizen.net/contact.html>.

Of course while all this directs attention to agriculture's failed microcosm, we are aware this is just part of the greater failure of our society's paradigm to be life-affirming rather than death-dealing. While the paradigm problem is outside the purview of this editorial, it casts its long shadow over the discussion. Ah, another editorial! ■

Common eastern bumblebee





Yellow-rumped warbler

References

- Baron G, Jansen V, Brown M, Raine N (2017) Pesticide reduces bumblebee colony initiation and increases probability of population extinction. *Nature Ecology & Evolution* **1**: 1308–16.
- Breitburg D, Levin L, Oshlies A et al. (2018) Declining oxygen in the global ocean and coastal waters. *Science* **359**: eaam7240.
- Carrington D (2017) UN experts denounce ‘myth’ pesticides are necessary to feed the world. *The Guardian*, 7 March. Available at <https://is.gd/HKVYhG> (accessed March 2018).
- Cressey D (2017) The bitter battle over the world’s most popular insecticides. *Nature News*, 8 November. Available at <https://is.gd/RELBuc> (accessed March 2018).
- De Castro–Català N, Muñoz I, Riera J and Ford A (2017) Evidence of low dose effects of the antidepressant fluoxetine and the fungicide prochloraz on the behavior of the keystone freshwater invertebrate *Gammarus pulex*. *Environmental Pollution* **231**: 406–14.
- Eng M, Stutchbury B and Morrissey C (2017) Imidacloprid and chlorpyrifos insecticides impair migratory ability in a seed-eating songbird. *Scientific Reports* **7**: 15176.
- Geffroy L (2018) Where have all the farmland birds gone? *CNRS News*, 21 March. Available at <https://is.gd/q8SNYE> (accessed April 2018).
- Goulet H (2018) *Herbicides, Beetles, and the Decline of Insectivorous Birds* [PowerPoint slides]. Presentation to the Ottawa Field Naturalists’ Club. Available at <https://is.gd/38nRUy> (accessed March 2018).
- Hallmann C, Sorg M, Jongejans E et al. (2017) More than 75 percent decline over 27 years in total flying insect biomass in protected areas. *PLoS ONE* **12**: e0185809.
- Hamers L (2017) Much of the world’s honey now contains bee-harming pesticides. *Science News*, 5 October. Available at <https://is.gd/qwAIR9> (accessed March 2018).
- Hoskins T and Boone M (2018) Atrazine feminizes sex ratio in Blanchard’s cricket frogs (*Acris blanchardi*) at concentrations as low as 0.1 µg/L. *Environmental Toxicology and Chemistry* **37**: 427–35.
- Human Rights Council (2017) *Report of the Special Rapporteur on the Right to Food*. UN General Assembly, New York, NY, USA. Available at <https://is.gd/KLLAoa> (accessed April 2018).
- Johns D (2009) *New Conservation Politics: Power, organization building and effectiveness*. Wiley–Blackwell, Chichester, UK.
- Krupke C, Holland J, Long E and Eitzer B (2017) Planting of neonicotinoid-treated maize poses risks for honey bees and other non-target organisms over a wide area without consistent crop yield benefit. *Journal of Applied Ecology* **54**: 1449–58.
- Lajeunesse S (2014) Common crop pesticides kill honeybee larvae in the hive. *Science Daily*, 27 January. Available at <https://is.gd/FRMOj2> (accessed March 2018).
- Livingston J (1981) *The Fallacy of Wildlife Conservation*. McClelland and Stewart, Toronto, ON, Canada.
- McArt S, Urbanowicz C, McCoshum S et al. (2017) Landscape predictors of pathogen prevalence and range contractions in US bumblebees. *Proceedings of the Royal Society of London B* **284**: 20172181.
- McCarthy M (2017) A giant insect ecosystem is collapsing due to humans. It’s a catastrophe. *The Guardian*, 21 October. Available at <https://is.gd/Bu8LvA> (accessed April 2018).
- Mitchell E, Mulhauser B, Mullet M et al. (2017) A worldwide survey of neonicotinoids in honey. *Science* **358**: 109–11.
- Monbiot G (2017) Insectageddon: Farming is more catastrophic than climate breakdown. *The Guardian*, 20 October. Available at <https://is.gd/vtGtP2> (accessed April 2018).
- Rowe S (2002) *Home Place: Essays on ecology* (revised edition). NeWest Press, Edmonton, AB, Canada.
- Stanley D and Raine N (2016) Chronic exposure to a neonicotinoid pesticide alters the interactions between bumblebees and wild plants. *Functional Ecology* **30**: 1132–9.
- Schwartz J (2017) Tumbling bumblebee populations linked to fungicides. *Science Daily*, 14 November. Available at <https://is.gd/7patuj> (accessed March 2018).
- University of Guelph (2016) Bee flower choices altered by exposure to pesticides. *Science Daily*, 14 March. Available at <https://is.gd/CCm3bA> (accessed March 2018).
- WWF (2016) *Living Planet Report 2016: Risk and resilience in a new era*. WWF International, Gland, Switzerland. Available at <https://is.gd/rcbOx9> (accessed March 2018).
- WWF–Canada (2017) *Living Planet Report Canada: A national look at wildlife loss*. WWF–Canada, Toronto, ON, Canada. Available at <https://is.gd/ZdCXDe> (accessed March 2018).
- Zhu W, Schmeidl D, Mullin C and Frazier J (2014) Four common pesticides, their mixtures and a formulation solvent in the hive environment have high oral toxicity to honey bee larvae. *PLoS ONE* **9**: e77547.