Bee Friendly Monmouthshire

The impact of pesticides on the natural world

Pesticides, herbicides and fungicides are used in vast quantities throughout the globe. There is no limit to the amounts of these chemicals that get into the environment and little monitoring of their effect on wildlife, on our food and on us.

Immense harm has been done in the past, by DDT for example, and Rachel Carson's book *Silent Spring*, first published 55 years ago, which investigated the toxic effects of DDT, was a wake-up call and an inspiration for many environmentalists and conservationists. Carson identified DDT as the cause of the deaths of thousands of birds and exposed the agro-chemical companies that manufactured it. The toxic pesticide was building up in the food chain, wiping out our birds of prey and putting us all at risk and insects were developing resistance to the poison. Carson was one of the first biologists to advocate rigorous testing and monitoring of pesticides. Of course her findings were rubbished by the giant agro-chemical companies who even tried to sue her and her publishers.

Unfortunately we have failed to heed the warnings of *Silent Spring*. Although DDT was eventually phased out (10 years later in the US), other equally lethal chemicals have taken its place, first organophosphates and now neonicotinoids. Organophosphates pose risks to mammals and humans and so they have been supplanted by neonicotinoids which do not directly have an adverse effect on humans.

These are systemic insecticides that affect the entire plant, meaning that sap, nectar and pollen are all contaminated. So, although they kill pests like greenfly which feed on the sap, they also harm pollinating insects that feed on the nectar and the pollen. Neonicotinoids are far more lethal than DDT: the lethal dose of DDT to kill one bee is 27,000 nanograms but it only takes 0.4 nanograms of a neonicotinoid to kill one bee (Dave Goulson). Countless scientific studies have identified the risks posed by their application to pollinating insects and other invertebrates in the soil and in water courses.

Governments, predictably, are still slow to take steps to limit the negative effects of pesticides. They are still swayed by the enormous lobbying power of the big companies like Syngenta, Bayer and Monsanto for whom neonicotinoids represent an investment worth millions of dollars. But the EU has woken up to the dangers posed by neonicotinoids and in 2013 imposed a partial 3 year ban on certain crops which is currently under review. So now we have another fight on our hands – to persuade our governments to stand up to the global agro-chemical companies and to take urgent action to at least limit the use of these harmful chemicals or impose an outright ban.

Regulations do exist that are meant to protect the natural environment as well as ourselves but they are still woefully inadequate. Rather than adopting the precautionary principle governments demand proof that pesticides are causing harm before considering any ban. Surely we need proof that they are harmless before putting them into production. The regulations have ignored the impact of "dosing whole landscapes" according to Professor

Ian Boyd, chief scientific advisor to the UK Department of Environment, Food and Rural Affairs whose report was recently published in the magazine *Science. [see the link below]*

Links to two articles on the legacy of Rachel Carson are given below plus 3 articles discussing widespread pesticide use in agriculture. If you have never read *Silent Spring* do try to get hold of a copy and we also recommend *Silent Spring Revisited* by Conor Mark Jameson - an update of how far environmentalism has come in the past 50 years.

Sue Harrison May 2017

Useful links:

https://www.theguardian.com/science/2012/may/27/rachel-carson-silent-spring-anniversary
Robin McKie asks what we have learned from a biologist who saw the need for science to work with nature.

https://www.theguardian.com/books/2012/dec/07/why-rachel-carson-is-a-saint
Margaret Atwood considers the legacy of Rachel Carson's *Silent Spring*

https://www.theguardian.com/environment/2017/sep/21/assumed-safety-of-widespread-pesticide-use-is-false-says-top-government-scientist
Report on Professor Boyd's article

https://www.theguardian.com/environment/2017/apr/06/farms-could-slash-pesticide-use-without-losses-research-reveals
Farms could slash the amount of chemicals they use (Damien Carrington)

https://www.theguardian.com/environment/2017/mar/07/un-experts-denounce-myth-pesticides-are-necessary-to-feed-the-world
UN denounces the myth that pesticides are necessary to feed the world (D. Carrington)

Recommended reading:

Silent Spring by Rachel Carson [1962]

Silent Spring Revisited by Conor Mark Jameson [2013]

Review*: Silent Spring Revisited* is an enlightening read for anyone interested in wildlife conservation. It documents the history of environmentalism in Europe, but in so doing, reveals the heartbreak and fear, insight and hope, struggle and continued vigil of the many conservationists that uphold it as an ideal. The same could be said of Rachel Carson's book. I highly recommend reading both works of literature: begin with Carson's *Silent Spring* and follow with Jameson's *Silent Spring Revisited* to learn where we have gone in subsequent years." – Stacia Novy