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Why did the European Food Safety Authority claim that glyphosate was not ecotoxic?

EFSA said that glyphosate was not ecotoxic even though ECHA classified it as a substance that is toxic to aquatic invertebrates with long lasting effects (and causes serious eye damage).¹

The EU Commission only assesses the active ingredient glyphosate. "While active substances are approved at EU level, plant protection products are authorised by national authorities in each EU Member State taking into account their agricultural and environmental conditions."²

I sent the piece below to all the pesticide regulators who had fraudulently allowed the European Glyphosate Task Force to assess their own products. The European regulators had simply cut and pasted what Monsanto had chosen for them.³ No scientific papers from Latin America, where Roundup Ready Crops had been forced on them in 1996, were selected.

A first-hand description of the effects of GM Roundup Ready corn on biodiversity

Childs, C. *Apocalyptic Planet. Field Guide to the Future of the Earth.* ⁴

Chapter 6 Species Vanish: Page 185. Grundy County, Iowa was where Craig Childs spent a long weekend in a monoculture of GM-Roundup® Ready Corn looking for wildlife.

Page 187: "In this cornfield, I had come to a different kind of planetary evolution. I listened and heard nothing, no bird, no click of an insect ... Page 188: Mr Owen was the farmer who had given us permission to backpack across his cornfields. He grew a combination of DuPont and Monsanto stock. We were in DuPont now. It didn't look any different to me." Page 192: Childs said: "I chose Iowa for a mass-extinction analogue because it is the most thorough picture of genetic exhaustion, the many organs of what was once tallgrass prairie removed and replaced with this."

Robert Krulwich's blog commented on Craig Child's description: ⁵ "Corn farmers champion corn. Anything that might eat corn, hurt corn, bother corn, is killed. Their corn is bred to fight pests. The ground is sprayed. The stalks are sprayed again. So, Craig wondered, "What will I find?" The answer amazed me. He found almost nothing. There were no bees. The air, the ground, seemed vacant. He found one ant "so small you couldn't pin it to a specimen board." A little later, crawling to a different row, he found one mushroom, "the size of an apple seed." Then, later, a cobweb spider eating a crane fly (only one). A single red mite "the size of a dust mote hurrying across the barren earth," some grasshoppers, and that's it." Though he crawled and crawled, he found nothing else. "It felt like another planet entirely," he said, a world denuded.

Yet, 100 years ago, these same fields, these prairies, were home to 300 species of plants, 60 mammals, 300 birds, hundreds and hundreds of insects. This soil was the richest, the loamiest in the state. And now, in these patches, there is almost literally nothing but one kind of living thing. We've erased everything else. There's something strange about a farm that intentionally creates a biological desert to produce food for one species: us. It's efficient, yes. But it's so efficient that the ants are missing, the bees are missing, and even the birds stay away. Something's not right here. Our cornfields are too quiet."

Iowa was just one state in which the US Geological Survey said: "Glyphosate and AMPA were detected frequently in soils and sediment, ditches and drains, precipitation, rivers, and streams; and less frequently in lakes, ponds, and wetlands; soil water; and groundwater."⁶

¹ <https://echa.europa.eu/-/glyphosate-not-classified-as-a-carcinogen-by-echa>

² https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_glyphosate_eci_final.pdf

³ <https://www.theguardian.com/environment/2017/sep/15/eu-report-on-weedkiller-safety-copied-text-from-monsanto-study>

⁴ Childs, C. *Apocalyptic Planet. Field Guide to the Future of the Earth*, New York: Vintage Books (2013).

⁵ <https://www.npr.org/sections/krulwich/2012/11/29/166156242/cornstalks-everywhere-but-nothing-else-not-even-a-bee>

⁶ <http://onlinelibrary.wiley.com/doi/10.1111/jawr.12159/abstract>

Destruction of coral on the Great Barrier Reef by Roundup and Clothianidin

The Australian Regulators did not read the instructions: Roundup and the systemic neonicotinoid pesticides are highly toxic to aquatic life. Instructions for use state that all water bodies should be protected

“The APVMA reminds users of the importance of following all label instructions”

Instructions for using Roundup Advance AG Herbicide by Monsanto include: *“Protection of Wildlife, Fish, Crustacea and Environment. Do not contaminate dam, river or stream with the product.”*⁷

Clothianidin (Sumitomo Shield a systemic neonicotinoid insecticide) has been granted registration by the Australian Pesticides and Veterinary Medicines Authority (AVMA) for use on very low-lying sugar cane plantations draining into the Great Barrier Reef.

In addition to global warming that is why there has been progressive destruction and bleaching of coral.

Instructions: PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT⁸

*DO NOT apply under weather conditions, or from spraying equipment, that may cause spray drift onto nearby or adjacent areas, particularly wetlands, water-bodies or watercourses. **This product is highly toxic to aquatic invertebrates.** DO NOT contaminate streams, rivers or waterways with the chemical or used containers. DO NOT apply when there are aquatic and wetland areas including aquacultural ponds or surface streams and rivers downwind from the application area and within the mandatory no-spray zone shown in table 1.*

When the APVMA granted registration for Sumitomo Shield, did it know the length of action of clothianidin? Its half-life in soil is 545 (13-1385) days and in one case it was more than 19 years. According to (EC) 1107/2009 clothianidin should never have been registered in the first place because it failed to the EU criteria for half-life in soil; this should be no greater than 120 days. However, when challenged, Michael Flüh former Head of Unit Pesticides and Biocides for the European Commission defended this. *“The allegation as regards the illegality of the registration of clothianidin is strongly rejected. The assessment of clothianidin, carried out by a Rapporteur Member State (RMS), and peer reviewed by experts from all Member States, concluded that safe uses for this substance exist. The assessment covered the persistence of the substance in soil as well as its toxicity and leaching potential.”* Michael Flüh was a non-scientist.

Report by the Queensland Government in 2003 on water quality⁹

“Regional assessments of coastal water quality condition found that sites in the Burdekin, Mackay/Whitsunday and south-east Queensland regions most commonly experienced poor water quality. Phosphorus and nitrogen were the two indicators contributing to this rating. Metals bioaccumulated in prawns, shellfish and other marine fauna were greatest in south-east Queensland waterways, particularly canals, and occasionally exceeded Australian food quality standards. In central and north Queensland, the persistence of pesticides and herbicides, including a number of banned substances, in sediment, seagrass and some marine mammals is an issue.”

Herbicides: A new threat to the Great Barrier Reef¹⁰

In 2009, researchers showed runoff of herbicides particularly associated with sugar cane cultivation in the adjacent catchment.

⁷ <http://websvr.infopest.com.au/LabelRouter?LabelType=L&ProductCode=70096>

⁸ http://www.sumitomo-chem.com.au/sites/default/files/pdf/labels/shield_label.pdf

⁹ <https://web.archive.org/web/20070614223713/http://www.epa.qld.gov.au/register/p01258bs.pdf>

¹⁰ <https://www.sciencedirect.com/science/article/pii/S0269749109001304>

Abstract: The runoff of pesticides (insecticides, herbicides and fungicides) from agricultural lands is a key concern for the health of the iconic Great Barrier Reef, Australia. Relatively low levels of herbicide residues can reduce the productivity of marine plants and corals. However, the risk of these residues to Great Barrier Reef ecosystems has been poorly quantified due to a lack of large-scale datasets. Here we present results of a study tracing pesticide residues from rivers and creeks in three catchment regions to the adjacent marine environment. Several pesticides (mainly herbicides) were detected in both freshwater and coastal marine waters and were attributed to specific land uses in the catchment. Elevated herbicide concentrations were particularly associated with sugar cane cultivation in the adjacent catchment. We demonstrate that herbicides reach the Great Barrier Reef lagoon and may disturb sensitive marine ecosystems already affected by other pressures such as climate change.

Glyphosate persistence in samples of seawater extracted from the Great Barrier Reef ¹¹

Extracts: Glyphosate is one of the most widely applied herbicides globally but its persistence in seawater has not been reported. Here we quantify the biodegradation of glyphosate using standard “simulation” flask tests with native bacterial populations and coastal seawater from the Great Barrier Reef. The half-life for glyphosate at 25 °C in low light was 47 days, extending to 267 days in the dark at 25 °C and 315 days in the dark at 31 °C, which is the longest persistence reported for this herbicide. AMPA, the microbial transformation product of glyphosate, was detected under all conditions, confirming that degradation was mediated by the native microbial community. This study demonstrates glyphosate is moderately persistent in the marine water under low light conditions and **is highly persistent in the dark**. Little degradation would be expected during flood plumes in the tropics, which could **potentially deliver dissolved and sediment-bound glyphosate far from shore**.

Risk of extinction of the migrant Monarch butterfly due to Roundup

Risk of extinction of the migrant Monarch butterfly due to milkweed plants being destroyed

“In February 2017 the annual “overwintering” count of monarchs confirmed that butterfly numbers fell by nearly one-third from the 2016 count, indicating an ongoing risk of extinction for America’s most well-known butterfly.¹² The heart of the monarch’s range is the midwestern “Corn Belt,” where most of the world’s monarchs are born on milkweed plants growing in agricultural fields. Because of the ubiquitous spraying of Roundup on corn and soy that have been genetically modified to resist herbicides, the monarch is in bad trouble in the core of its range, where its sole host plant, milkweed, is disappearing. In a one-two punch, climate change is undermining the stable weather conditions and predictable flowering seasons that monarchs need to complete their migration. Climate change also threatens these butterflies’ overwintering habitat in the mountain forests of Mexico. Just as Joshua Tree National Park will soon no longer support Joshua trees, the International Monarch Reserve in Mexico is expected to become climatically unsuitable for monarchs by the end of the century.”

The status of the Monarch Butterfly: Press release 24/05/2019¹³

“Recent studies found that if current trends continue, both monarch populations face migratory collapse within the next 20 years. In the 1990s the eastern population numbered nearly 1 billion butterflies, and the western population numbered more than 1.2 million. Last year’s winter counts recorded fewer than 30,000 western monarchs and around 225 million eastern monarchs.

¹¹ <http://www.sciencedirect.com/science/article/pii/S0025326X14000228>

¹² https://www.biologicaldiversity.org/species/invertebrates/monarch_butterfly/

¹³ <https://biologicaldiversity.org/w/news/press-releases/decision-on-monarch-butterfly-endangered-species-protection-extended-2019-05-24/>

Monarchs have lost an estimated 165 million acres of breeding habitat in the United States to herbicide spraying and development. Their caterpillars only eat milkweed, but the plant has been devastated by increased herbicide spraying in conjunction with corn and soybean crops genetically engineered to tolerate direct spraying with herbicides. In addition to glyphosate, monarchs are threatened by other herbicides and by neonicotinoid insecticides that are toxic to young caterpillars.”

Ecological Armageddon after dramatic plunge in insect numbers 18/10/2017

More than 75 percent decline over 27 years in total flying insect biomass in protected areas in Germany.¹⁴

Part of Abstract: Global declines in insects have sparked wide interest among scientists, politicians, and the general public. Loss of insect diversity and abundance is expected to provoke cascading effects on food webs and to jeopardize ecosystem services. Here, we used a standardized protocol to measure total insect biomass using Malaise traps, deployed over 27 years in 63 nature protection areas in Germany (96 unique location-year combinations) to infer on the status and trend of local entomofauna.

When the total weight of the insects in each sample was measured a startling decline was revealed. The annual average fell by 76% over the 27-year period, but the fall was even higher – 82% – in summer, when insect numbers reach their peak.

Global insect apocalypse due to intensive agriculture and pesticides¹⁵

The analysis, published in the journal Biological Conservation, says intensive agriculture is the main driver of the declines, particularly the heavy use of pesticides. Urbanisation and climate change are also significant factors. *“If insect species losses cannot be halted, this will have catastrophic consequences for both the planet’s ecosystems and for the survival of mankind,”* said Francisco Sánchez-Bayo, at the University of Sydney, Australia, who wrote the review with Kris Wyckhuys at the China Academy of Agricultural Sciences in Beijing. The 2.5% rate of annual loss over the last 25-30 years is “shocking”, Sánchez-Bayo told the *Guardian*: *“It is very rapid. In 10 years, you will have a quarter less, in 50 years only half left and in 100 years you will have none.”*

One of the biggest impacts of insect loss is on the many birds, reptiles, amphibians and fish that eat insects. *“If this food source is taken away, all these animals starve to death,”* he said. Such cascading effects have already been seen in Puerto Rico, where a recent study revealed a 98% fall in ground insects over 35 years. The new analysis selected the 73 best studies done to date to assess the insect decline. Butterflies and moths are among the worst hit. For example, the number of widespread butterfly species fell by 58% on farmed land in England between 2000 and 2009. **The UK has suffered the biggest recorded insect falls overall**, though that is probably a result of being more intensely studied than most places. He thinks new classes of insecticides introduced in the last 20 years, including neonicotinoids and fipronil, have been particularly damaging as they are used routinely and persist in the environment: *“They sterilise the soil, killing all the grubs.”* This has effects even in nature reserves nearby; the 75% insect losses recorded in Germany were in protected areas.

German wild bees are in decline¹⁶

The pollination services provided by wild bees are indispensable, not only for ecological but also for eminently economic reasons. However, over half of the more than 500 wild bee species found in Germany are either at risk of extinction, or have already died out in certain areas. The German Association for Environmental Protection and Conservation (BUND) has estimated that the economic value of the pollination services provided annually by insects in Europe amounts to more than 14

¹⁴ <https://www.theguardian.com/environment/2017/oct/18/warning-of-ecological-armageddon-after-dramatic-plunge-in-insect-numbers>

¹⁵ <https://www.theguardian.com/environment/2019/feb/10/plummeting-insect-numbers-threaten-collapse-of-nature>

¹⁶ <https://phys.org/news/2019-03-insects-declineon-farmland-latecomers.html>

billion euros. But insect populations worldwide are declining at alarming rates, as recent studies have shown – and bees are no exception to this trend. *"Generally speaking, bee diversity appears to be diminishing as a result of intensive agriculture and the increased use of pesticides, both of which have a negative impact on the food sources and nesting opportunities available,"* says Renner. *"We set out to identify the factors that make local populations of certain species particularly vulnerable to extinction."*

Wild bees and hoverflies lost from a quarter of the places they were found in 1980 in the UK¹⁷

"A widespread loss of pollinating insects in recent decades has been revealed by the first national survey in Britain, which scientists say "highlights a fundamental deterioration" in nature. The analysis of 353 wild bee and hoverfly species found the insects have been lost from a quarter of the places they were found in 1980. A third of the species now occupy smaller ranges, with just one in 10 expanding their extent, and the average number of species found in a square kilometre fell by 11. A small group of 22 bee species known to be important in pollinating crops such as oilseed rape saw a rise in range, potentially due to farmers increasingly planting wild flowers around fields. However, the scientists found "severe" declines in other bee species from 2007, coinciding with the introduction of a widely used neonicotinoid insecticide, which has since been banned. Researchers have become increasingly concerned about dramatic drops in populations of insects, which underpin much of nature. The study, published in the journal *Nature Communications*, is based on more than 700,000 sightings made by volunteers across Britain from 1980 to 2013. These are used to map the range of each species of bee and hoverfly over time. The data did not allow the assessment of numbers of insects, but some researchers think populations have fallen faster than range.

Pollinating insects are vital to human food security, as three-quarters of crops depend on them. They are also crucial to other wildlife, both as food and as pollinators of wild plants. *"The declines in Britain can be viewed as a warning about the health of our countryside,"* said Gary Powney at the Centre for Ecology and Hydrology in Wallingford, who led the research. Prof Dave Goulson, at the University of Sussex and not part of the latest research, said: *"Previous studies have described declines in UK butterflies, moths, carabid beetles, bees and hoverflies – this new study confirms that declines in insects are ongoing."* Goulson also said the start of more rapid declines in southern bees after 2007 coincided with the first use of now-banned neonicotinoid pesticides.

Roy van Grunsven, at the Dutch Butterfly Conservation project, said the decline in numbers of insects was very likely to be a lot higher than the shrinking of their range: *"Going from flowery meadows full of bees to intensive agriculture with a few individuals in a road verge does not result in a change in distribution, but of course is a huge change in [numbers]."* Most of the studies analysed were done in western Europe and the US, with a few ranging from Australia to China and Brazil to South Africa, but very few exist elsewhere."

Over a century of data reveal more than 80% decline in butterflies in the Netherlands¹⁸

Butterflies have declined by at least 84% in the Netherlands over the last 130 years, according to a study, confirming the crisis affecting insect populations in western Europe.

According to Van Swaay, the study, published in *Biological Conservation*, confirms that *"industrial agriculture is simply leaving hardly any room for nature"* across the EU and in developed nations such as the US. He said: *"These are butterflies which are easy to see but this will also be happening to all kinds of other insects and animal life in the soil. It's also happening to farmland birds who eat insects. It goes all the way up the chain from insects to birds to predators."*

¹⁷ <https://www.theguardian.com/environment/2019/mar/26/widespread-losses-of-pollinating-insects-revealed-across-britain>

¹⁸ <https://www.sciencedirect.com/science/article/abs/pii/S0006320718315283?dgcid=coauthor>

Invertebrate declines in rivers made 2016 disastrous for salmon and trout in Wales¹⁹

Leading fisheries charity, Salmon & Trout Conservation UK (S&TC UK) has brought forward its programme of river invertebrate monitoring on three rivers in Wales to support efforts by Natural Resources Wales (NRW), who are investigating the unprecedented threats facing rivers and salmon stocks in Wales. Shockingly, a recent report identifies that 61 per cent of Wales' water bodies do not meet 'Good Ecological Status' as required under the Water Framework Directive (WFD). Earlier this year, S&TC UK's Riverfly Census in England, revealed that many rivers and chalk streams across the country were in a poor state because of pollution caused by human pressure, ranging from sewage treatment works, septic tanks and agricultural run-off to abstraction and degraded river habitats.

Glyphosate on Giant Hogweed by rivers as well as Japanese Knotweed in the valleys

There was an NRW document about the River Usk.²⁰ On page 12 it described the problem of another invasive weed, Giant Hogweed. "Five spray teams are working on the project from Environment Agency Wales (now Natural Resources Wales). Extensive control work has continued in the growing season along the river between Crickhowell and Newbridge-on-Usk since 2006. A number of Forum events have been organised periodically to update and involve local riparian owners and river users on the progress of the project." This was presumably Roundup/Dakar Pro.

On Page 55 of another NRW document there was a paragraph marked Evidence Gaps:²¹

"Impacts of new and emerging chemicals and substances, such as neonicotinoid pesticides, nanoparticles and pharmaceuticals, on water quality and ecology."

Neonicotinoid insecticides are not new. They were introduced in 1994. There is plenty of independent evidence that seeds coated with these insecticides act by causing virtually irreversible blockage of postsynaptic nicotinic acetylcholine receptors (nAChRs) in the central nervous systems of insects.²²

A note from Complete Weed Control, a national contractor, about aquatic weeds

"Although the Environment Agency has banned the use of herbicides in lakes and ponds they can still be used on emergent plants such as bull rushes and lilies.²³ It is also possible to use a dye or colourant which improves the look of the water as well as creating conditions that reduce photosynthesis therefore making it more difficult for *algae* to form."

Deleterious actions of Glyphosate-based herbicides on a variety of living organisms: these are just a small selection of the increasing numbers of scientific papers

The endocrine disruptor effect of the herbicides atrazine and glyphosate on *Biomphalaria alexandrina* snails.²⁴ Roundup exposure promotes gills and liver impairments, DNA damage and inhibition of brain cholinergic activity in the Amazon teleost fish *Colossoma macropomum* Chemosphere 2015.²⁵ Glyphosate as an Acetylcholinesterase Inhibitor in *Cnesterodon decemmaculatus*.²⁶ Effects of glyphosate on cholinesterase activity of the mussel *Perna perna* and the fish *Danio rerio* and *Jenynsia multidentata*: In vitro studies.²⁷ Evaluation of biochemical markers

¹⁹ <http://www.salmon-trout.org/river-invertebrates-could-hold-the-key-to-abysmal-state-of-rivers-in-wales/news/403>

²⁰ http://www.naturalresources.wales/media/679394/2016_updated_usk_catchment_summary_nrw.pdf

²¹ <http://www.naturalresources.wales/media/679427/annex-chapter-3-final-for-publication.pdf>

²² <http://disasterinthemaking.com>

²³ <http://www.completeweedcontrol.co.uk/weed/services/aquaticweedcontrol>

²⁴ <https://journals.sagepub.com/doi/abs/10.1177/0748233713506959>

²⁵ <https://www.sciencedirect.com/science/article/pii/S0045653515002635>

²⁶ <https://www.ncbi.nlm.nih.gov/pubmed/22002176>

²⁷ <https://www.sciencedirect.com/science/article/pii/S0166445X13000088>

in the golden mussel *Limnoperna fortunei* exposed to glyphosate acid in outdoor microcosms.²⁸ Glyphosate perturbs the gut microbiota of honey bees.²⁹ Sex-dependent impact of Roundup on the rat gut microbiome.³⁰ Multiple papers on the effects on earthworms of glyphosate-based herbicides.³¹

Evaggelos Vallianatos wrote about annihilation of the natural world³²

Vallianatos worked for the US Environmental Protection Agency for 25 years and then became a whistle blower. He wrote a book in 2014: *Poison Spring: The Secret History of Pollution and the EPA*. He formerly wrote regularly in the US Huffington Post.

“At home, factory farming and its sprays and genetic engineering of crops are altering the very nature of our food and agriculture. Giant companies are converting rural America to their private fiefdom. Where is a bird, monarch butterfly or honeybee supposed to find food when thousands upon thousands of acres of land are growing bioengineered corn or soybeans and poisons flood the land? Gerardo Ceballos (National Autonomous University of Mexico), Paul R. Ehrlich and Rodolfo Dirzo (Stanford University), distinguished biologists, speak of a severe sixth mass extinction wiping out countless vertebrate animals (mammals, birds, reptiles, and amphibians) and plants. Indeed, they emphasize the seriousness of the destruction of animals going on all over the world by speaking about the population extinction pulse, that is, biological annihilations of vertebrate animals caused by human activities. These economic activities include taking forests and land away from animals for plantations and fracking the land for petroleum and natural gas and for golf courses and mega cities; overexploitation of land, forests, mountains, deserts; overfishing the seas; ceaseless poisoning of the environment. Disease, human overpopulation, continuing population growth, overconsumption, particularly by the rich, and a probable “large-scale nuclear war” also threaten the natural world. These scientists warn that planetary destruction of vertebrate animals “will itself promote cascading catastrophic effects on ecosystems, worsening the annihilation of nature... while the biosphere is undergoing mass species extinction, it is also being ravaged by a much more serious and rapid wave of population declines and extinctions.... Humanity will eventually pay a very high price for the decimation of the only assemblage of life that we know of in the universe.”

On 10 June 2017 he wrote about the US EPA poisoning honeybees with chemical and biological weapons:³³ *A weed killer like glyphosate (Roundup) devastates life in the soil, killing the bacteria that make the crops healthy and enhances the power of the bad bacteria giving disease to crops: But the chemicals that cause outright destruction to honeybees are the so-called neonicotinoids, products of the giant German company Bayer. Neonicotinoids or neonics are terrible nerve and brain poisons. They decimate honeybees.*

Corporate greed is poisoning food and destroying biodiversity 26/12/2017³⁴

Vandana Shiva trained as a physicist but she has fought for the rights of small farmers in India tells an identical story of corporate poisoning as 2017 transitions into 2018: *“Two decades of corporate driven globalisation has destroyed the biodiversity and cultural diversity of our indigenous food systems. The ecological crisis, the agrarian crisis, the food crisis, the health and nutrition crisis, the crisis of democracy and sovereignty are not separate crises. **They are one.** And they are connected through food. The web of life is a food web. When it is ruptured by chemicals and poisons that come*

²⁸ <https://www.sciencedirect.com/science/article/pii/S0147651313002157>

²⁹ <https://www.pnas.org/content/115/41/10305>

³⁰ <https://www.sciencedirect.com/science/article/pii/S2214750017301129>

³¹ <https://environmentpapers.wordpress.com/2019/03/15/glyphosate-effects-on-earthworms/>

³² http://www.huffingtonpost.com/entry/annihilating-the-natural-world_us_596a9443e4b022bb9372b23a

³³ https://www.huffingtonpost.com/entry/toxic-morality-is-killing-honeybees_us_593c867fe4b0b65670e56b21

³⁴ <http://www.asianage.com/opinion/oped/261217/food-sovereignty-is-need-of-the-hour.html>

from war, and rules of “free trade” that is a war declared by corporations against the earth and humanity, biodiversity is wiped out, farmers are killed through debt, and people die either because of hunger or because of cancer, diabetes, heart problems, hypertension and other environment and food related chronic diseases.

Everyone is paying a very high price for corporate greed and dictatorship and collusion of corporate states to spread the toxic empire of corporations in the name of “reforms”.

Emerging pathogens wipe out wildlife species across the globe secondary to immune suppression by Roundup, Atrazine and Systemic Neonicotinoid Insecticides

Emerging pathogens as threats to animal and plant health

Outbreaks of infectious diseases amongst species of wildlife around the world (such as amphibians, honey bees and wild bees, fish, birds and bats) have occurred over the last 30 or so years. Kiesecker (2002) found that atrazine (herbicide) and malathion (pesticide) made frogs more susceptible to a parasite, a burrowing trematode worm, which caused limb deformities in tadpoles.³⁵ Field experiments conclusively demonstrated that exposure to trematode infection was required for the development of limb deformities in wood frogs, *Rana sylvatica*. Even very low levels of exposure (“at concentrations considered safe for drinking water by the US Environmental Protection Agency”) could produce “dramatic effects on the immune response of the animals”. Field studies showed “considerably higher rates of limb deformities where there was pesticide exposure... Amphibian deformities, in particular those related to limb development, have now been reported in 43 states in the U.S. and in five Canadian Provinces, as well as in several other countries around the world.”³⁶

Since the late 1990’s scientists have written in increasingly desperate tones. In 2012 there were two papers in *Nature*: “Biodiversity loss and the impact on humanity”³⁷ and “Emerging fungal threats to animal, plant and ecosystem health”.³⁸ Authors of this last review had appealed to scientists urgently to find ‘*the elusive magic bullet*.’ Only one other (in addition to Kiesecker’s) paper from California dared to mention pesticides. Davidson *et al.*³⁹ reported in 2002 spatial patterns of decline for four California ranid frogs and matched the declines with the distribution of agricultural lands (based on USGS land use maps and key predominant wind directions based on California Air Resources streamline wind maps). The authors stated that “*In California, the transport and deposition of pesticides from the agriculturally intensive Central Valley to the adjacent Sierra Nevada is well documented, and pesticides have been found in the bodies of Sierra frogs.*” The widespread use on agricultural crops of the systemic neonicotinoid insecticides⁴⁰ and the herbicide glyphosate,⁴¹ both of which cause immune suppression, make species vulnerable to emerging infectious pathogens, driving large-scale amphibian extinctions.

Chytrid fungus has wiped out amphibian populations over five continents.

Chytrid fungus, *Batrachochytrium dendrobatidis* has wiped out amphibian populations over five continents. A spokesman for IUCN said: “*The IUCN Red List currently considers 31% of the earth’s amphibians are threatened with extinction...it’s thought that 159 species have vanished forever in recent years.*” Amphibians, particularly tadpoles, are considered to be environmental indicators of indirect ecosystem effects because of their unique niche at the boundary of the aquatic-terrestrial ecosystems as well as their sensitivity to pollutants. While tadpoles feed on periphyton, adult

³⁵ <http://www.pnas.org/content/99/15/9900.full.pdf>

³⁶ [http://onlinelibrary.wiley.com/doi/10.1002/1096-9926\(200009\)62:3%3C147::AID-TERA2%3E3.0.CO;2-2/full](http://onlinelibrary.wiley.com/doi/10.1002/1096-9926(200009)62:3%3C147::AID-TERA2%3E3.0.CO;2-2/full)

³⁷ http://www.nature.com/nature/journal/v486/n7401/full/nature11148.html?WT.ec_id=NATURE-20120607

³⁸ <http://www.ncbi.nlm.nih.gov/pubmed/22498624>

³⁹ <http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2002.01030.x/abstract>

⁴⁰ http://www.boerenlandvogels.nl/sites/default/files/JEIT%20Immune%20Suppression%20pdf_6.pdf

⁴¹ http://www.fs.fed.us/foresthealth/pesticide/pdfs/seratr01_43_08_04.pdf

amphibians are strictly insectivorous. Amphibians were the first group of vertebrates to be affected by the epidemics of diseases caused by uncommon pathogens. Joseph Mendelson an amphibian taxonomist wrote in 2011.⁴² *“The reality of amphibian declines and extinctions has shifted the ecological baseline in so many ecosystems, that an entire generation of biologists is conducting their research in a framework that has been very recently remodelled. I am a taxonomist and I have seen my career vacillate between the thrill of discovering new species and the chill of tracking extinction events—including species that I described.”*

Monsanto says Roundup is toxic to plants, bacteria and fungi

Professor Suzanne Simard works at the University of British Columbia. In 1997, Simard was part of a team of researchers that discovered that trees were connected to one another through an underground web of mycorrhizal fungi. This network allows trees to communicate by transferring carbon, nutrients and water to one another.⁴³ In the US Roundup is frequently used in forests for killing unwanted vegetation before replanting.

Birth defects in animals in Montana correlates with glyphosate usage on crops and with birth defects in humans

A recent study by Hoy *et al.* found alarming increases in congenital malformations in wildlife in Montana that Hoy has been documenting for the past 19 years. Similar birth defects have occurred in humans in the USA. Their graphs illustrating human disease patterns over the twelve-year period correlate remarkably well with the rate of glyphosate usage on corn, soy and wheat crops, which has increased due to “Roundup® Ready” crops. While the animals’ exposure to the herbicide is through food, water and air, the authors believe that human exposure is predominantly through food, as the majority of the population does not reside near agricultural fields and forests. They conclude: *“Our over-reliance on chemicals in agriculture is causing irreparable harm to all beings on this planet, including the planet herself. Most of these chemicals are known to cause illness, and they have likely been causing illnesses for many years. But until recently, the herbicides have never been sprayed directly on food crops, and never in this massive quantity. We must find another way.”*⁴⁴

The Pesticide Conspiracy: even in the 1970s the Agricultural Industry was given massive power by the British Government

Robert van den Bosch, writing in 1978 in *The Pesticide Conspiracy*:⁴⁵ *“If one considers how dangerous these chemicals are, one would suppose that it would be Government policy to minimize their use by every possible means. However, the Royal Commission on Environmental Pollution notes, ‘there is... no such policy in the UK, nor does the possible need for it appear to have been considered, notwithstanding the great increases in the use of these chemicals.’”*

The Agrochemical Industry, on the contrary, seems to be under the impression it is Government policy to encourage the maximum use of pesticides. Thus, according to the Agrochemical industry, of 367,000 acres of potatoes grown in this country in 1976, 310,000 acres are treated with herbicides, 114,000 acres with granular insecticides and nematocides, 218,000 acres with foliar insecticides and 265,000 acres with fungicides.⁴⁶ In this way one acre of potatoes, the industry boasts, can be treated from 2-11 times with different pesticides.” Van den Bosch also condemns the UK for aerial spraying. *“What is particularly shameful in this country is the prevalence of aerial spraying. One million acres of agricultural land are sprayed each year, which involves 34,000 flights. Controls on*

⁴² http://nationalzoo.si.edu/support/volunteer/documents/HR_Mar2011_JoeM_proofs.pdf

⁴³ <http://www.forestry.ubc.ca/2011/05/prof-suzanne-simard-talks-about-mother-trees/>

⁴⁴ <http://www.esciencecentral.org/journals/the-high-cost-of-pesticides-human-and-animal-diseases-2375-446X-1000132.php?aid=56471>

⁴⁵ Van den Bosch, R. *The Pesticide Conspiracy*: USA Doubleday & Company (1978); Dorchester, UK: Prism Press (1980).

⁴⁶ Industry’s Statistics: British Agrochemical Association London 1976

this practice are practically non-existent...nor as the Royal Commission points out, does there appear to be any controls on the type of spraying equipment.” Britain still uses aerial spraying as derogation from the EU recommendations.

The Rapid Decline of The Natural World Is A Crisis Even Bigger Than Climate Change. Why aren't pesticides blamed? Because Bayer and Syngenta scientists are pollination experts

A three-year UN-backed study from the Intergovernmental Science-Policy Platform On Biodiversity and Ecosystem Services has grim implications for the future of humanity.⁴⁷ Industrial farming is to blame for much of the destruction and extinction of nature. We need agriculture systems that regenerate ecosystems not degenerate them.⁴⁸

– Sir Robert Watson, IPBES Chair says:

“The loss of species, ecosystems and genetic diversity is already a global and generational threat to human well-being. Protecting the invaluable contributions of nature to people will be the defining challenge of decades to come. Policies, efforts and actions – at every level - will only succeed, however, when based on the best knowledge and evidence. This is what the IPBES Global Assessment provides.”

The only mention of pesticides in the Report appears to be: *“Pesticides, including neonicotinoid insecticides, threaten pollinators worldwide, although the long-term effects are still unknown.”*

It's a pity Sir Robert (former UK Scientific Adviser to Defra 2007-2012) didn't take notice of Dr Henk Tennekes' toxicological studies on systemic neonicotinoid insecticides. He said that these chemicals act on the brains of insects (and humans) in an irreversible and time-dependent manner and that they were a *'Disaster in the Making.'*⁴⁹ Instead Sir Robert believed Syngenta and Bayer who said that they were harmless to bees.

Did Sir Robert invite Dr Christian Maus, Global Pollinator Safety Manager at Bayer CropScience and Dr Helen Thompson, Environmental Safety Officer, Product Safety, Syngenta as experts to author some of the Chapters on Pollination because they had opposed Dr Tennekes?⁵⁰

Dr Tennekes has written an Editorial in 2019, describing Bayer's strategy.⁵¹ At the end, he says, *“Maus and Nauen did not retract earlier publications of Bayer experts (Abbink and Mehlhorn) that had asserted irreversibility of receptor binding, and did not declare a conflict of interest, that they were employed by Bayer. “*

He concludes: *“Unwarranted product defense by Bayer and Syngenta may have had catastrophic consequences for the environment.”*

Germany reported 57 different pesticides in one dead bee

Irish beekeeper [Mary Montaut](#) said campaigners were advocating for the banning of a class of pesticides known as neonicotinoids, and also the well-known pesticide Roundup. *“Roundup is systemic and gets into the whole plant and is therefore on the nectar and the pollen,”* she explained. She cited a recent German report which found 57 pesticides in one dead bee. *“What we don't know is what is the effect of that combination? We have only recently discovered that fungicides and pesticides together make it even more damaging for bees.”*

⁴⁷ <https://www.ipbes.net/news/ipbes-global-assessment-summary-policymakers-pdf>

⁴⁸ <https://www.awaken.com/2019/03/the-rapid-decline-of-the-natural-world-is-a-crisis-even-bigger-than-climate-change/>

⁴⁹ <http://www.disasterinthemaking.com/reviews.html>

⁵⁰ <https://www.ipbes.net/pollination-assessment-experts>

⁵¹ <https://juniperpublishers.com/oajt/pdf/OAJT.MS.ID.555623.pdf>

UN warns of global failure to tackle sales of synthetic chemicals – with risks ranging from cancer to coral damage: but continued growth in the Crop Protection Industry ⁵²

Sales of synthetic chemicals will double over the next 12 years with alarming implications for health and the environment, according to a global study that highlights government failures to rein in the industry behind plastics, pesticides and cosmetics.

The second [Global Chemicals Outlook](#), which was released in Nairobi on March 11th 2019, said the world will not meet international commitments to reduce chemical hazards and halt pollution by 2020. In fact, the study by the United Nations Environment Programme found that the industry has never been more dominant nor has humanity's dependence on chemicals ever been as great. Depending on the chemical and degree of exposure, the risks can include cancer, chronic kidney disease and congenital anomalies. The World Health Organization estimated that the burden of disease was 1.6 million lives in 2016. Halpaap said this was likely to be an underestimate. In addition to the human health dangers, he said chemicals also affect pollinators and coral reefs.

Global Chemicals Outlook II – From Legacies to Innovative Solutions: Implementing the 2030 Agenda for Sustainable Development March 2019⁵³

Mandated by the UN Environment Assembly in 2016, seeks to alert policymakers and other stakeholders to the critical role of the sound management of chemicals and waste in sustainable development. It takes stock of global trends as well as progress made and gaps in achieving the global goal to minimize the adverse impacts from chemicals and waste by 2020.

Continued growth in the pesticide/crop protection industry

Pesticides include herbicides, insecticides, termiticides, nematocides, rodenticides and fungicides. These products are largely used for crop protection in agriculture. Today the industry is valued at over US dollars 50 billion and there are around 600 active ingredients. Herbicides account for approximately 80 per cent of all pesticide use (Phillips McDougal 2018).

Top 10 products used on major crops in the United States by volume, 1968 and 2016 (Phillips McDougal 2018, p. 4)

Glyphosate	an herbicide, an antibiotic, a fungicide, an antiprotozoal, an organic phosphonate, a growth regulator, a toxicant, a virulence enhancer and is persistent in the soil. It chelates (captures) and washes out the following minerals: boron, calcium, cobalt, copper, iron, potassium, magnesium, manganese, nickel and zinc. (Monsanto/Bayer)
Metolachlor	an organochlorine, selective herbicide
Pyraclostrobin	a fungicide (Aldrich-Sigma)
Mesotrione	an herbicide (Syngenta)
Thiamethoxam	a neonicotinoid insecticide (Syngenta)
Acetochlor	an herbicide (Monsanto and Zeneca)
Azoxystrobin	a systemic fungicide (Syngenta)
Atrazine	an endocrine-disrupting herbicide (Syngenta)
Abamectin	an insecticide, acaricide, nematocide
Clothianidin	a long acting (545 (13-1386) days) systemic neonicotinoid insecticide (Bayer)

⁵² <https://www.theguardian.com/environment/2019/mar/12/surge-in-chemical-use-a-threat-to-health-and-environment>

⁵³

<https://wedocs.unep.org/bitstream/handle/20.500.11822/28113/GCOII.pdf?sequence=1&isAllowed=y>

Documents reveal European Commission bowed to demands of pesticide lobbies

An environmental non-profit has obtained documents showing the extent to which the European Commission has been lobbied by pesticide producers seeking to protect their interests, leading to a more lenient regulation of these controversial substances⁵⁴

The environmental group, Pesticide Action Network Europe (PAN), has obtained over 600 documents from the Commission showing top EU officials fighting to “cripple” the bloc’s pesticide protection legislation. *“The Commission has chosen the side of the industry,”* PAN’s Chemicals Coordinator Hans Muilerman told De Morgen.⁵⁵

The haul of over 600 documents was obtained after a two-year legal battle won by the Pesticide Action Network Europe (PAN). They show top officials trying to protect chemical and farming interests from incoming European rules that were expected to directly ban up to 32 (page 115) endocrine disrupting (EDC) pesticides. The law set out specifically to protect human, animal health and the environment and followed 25 years of mounting scientific evidence linking EDC pesticides to severe human health impacts and gender-bending effects on animals. They may be the cause of birth defects that shocked France last year and made international news headlines.

The secret papers, released by order of European Court of Justice, show an internal struggle to define scientific criteria for identifying and banning EDC pesticides. Outnumbered environment and research department officials are seen resisting attempts by agriculture, enterprise, industry and even health department officials to water down the criteria by introducing non-scientific factors, such as farming profitability. They were joined by the Commission Secretary General who orchestrated [documents 42, 559] a flawed impact assessment process. Its bizarre early results downplayed health impacts [document 258]; found that the more pesticides that remained in use, the less the impact on health and the environment [document 560]; and that the fewer EDC pesticides identified, the better [document 273].

A new report for the Commission, written together with industry-linked experts and supporters of anti-regulation pressure groups, recommends scrapping the hazards approach. This is the Report.

Scientific advice in the area of authorisation processes of plant protection products⁵⁶

Following a request from the College of Commissioners, led by Commissioner Andriukaitis, the European Commission's Group of Chief Scientific Advisors (former High-Level Group of Scientific Advisors) adopted at their 7th meeting (23-24 March 2017) a scoping paper (see below) confirming their intention to produce a Scientific Opinion on “Authorisation processes of Plant Protection Products in Europe from a scientific point of view”.

Experts from across Europe nominated by SAPEA (Science Advice for Policy by European Academies) contributed with their knowledge and expertise to this topic. A co-ordination group was established by the Group of Chief Scientific Advisors to which SAPEA experts Professors David N. Coggon, Jean Golding, Paul Miller, Evangelia Ntzani, Dominique Parent-Massin, Colin Ockleford, Susanne Hougaard Bennekou and Alan Boobis were invited. The Group of Chief Scientific Advisors also established a sounding board to which experts Thomas Backhaus, Hubert Deluyker, Daniel Dietrich and Jørgen Schlundt, were invited and were involved in fact checking the draft final scientific opinion. Their aim was to **increase** the use of pesticides.

⁵⁴ <http://www.brusselstimes.com/eu-affairs/15496/documents-lobbies-attempts-cripple-undermine-pesticide-regulation-eu>

⁵⁵ <https://www.pan-europe.info/press-releases/2019/05/top-eu-officials-fought-higher-pesticide-exposure-secret-documents-show>

⁵⁶ <https://ec.europa.eu/research/sam/index.cfm?pg=pesticides>

Experts' declarations of interest were examined by the Commission and no declared interests were found to constitute a conflict of interest. These declarations of interest were published at the same time as the Group of Chief Scientific Advisors' scientific advice and remained available for consultation for six months.

We established a small nature reserve in South Wales in response to the closure of the wildlife research sites

Closure of Wildlife Research Centres in the UK

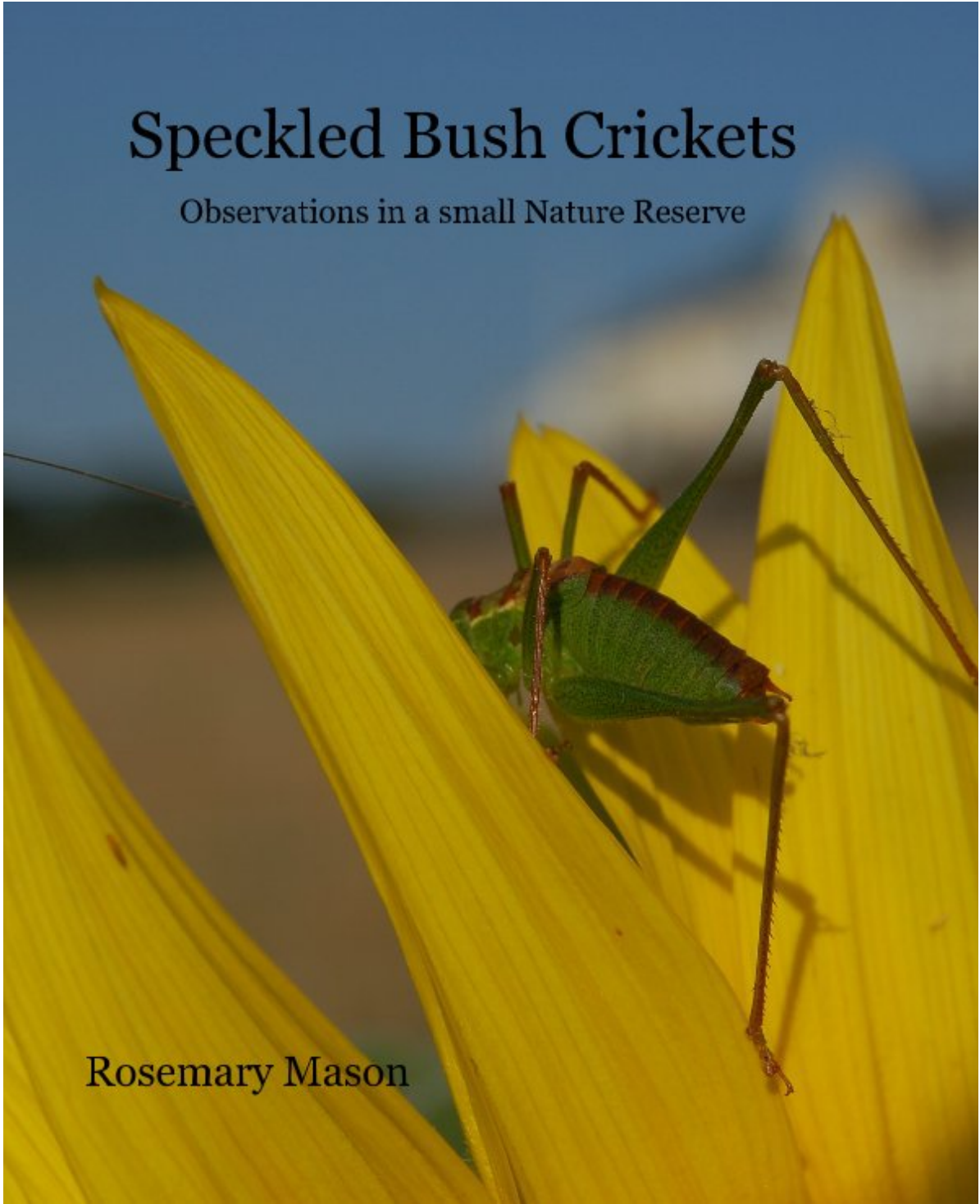
In March 2006, UK's Natural Environment Research Council (NERC) announced the closure of its wildlife research centres, a decision opposed by 99% of 1 327 stakeholders. Monks Wood centre, which hosted BBC's Spring Watch, pioneered work on DDT and pesticides in the 1960s, and more recently revealed how climate change is affecting wildlife, with spring arriving three weeks earlier. The research centres were also involved in assessing the impacts of GM (genetically modified) crops on wildlife, with findings contradicting industry claims that no harm would be caused.

In 2006, we established a small nature reserve in South Wales. In 2010, we published two photo-journals. Speckled Bush Crickets and The Year of the Bumblebee. We photographed many insects that were clearly benefitting from wild flowers, often insignificant ones, which supplied nectar and pollen resources but which had been eliminated from many conventional arable fields. By 2010, we had documented six species of bumblebee, 3 species of bush cricket, 3 species of grasshopper, up to 50 ladybirds on our west facing hedge in evenings in April, six species of shield bug, other beetles, up to 123 species of moth, 22 species of butterfly, hoverflies, 3 species of wasp, solitary bees, several dragonflies, damselflies, orb web and other spiders, pond life and bats.

Speckled Bush Crickets

Observations in a small Nature Reserve

Rosemary Mason



The Year of the Bumblebee

Observations in a small Nature Reserve (2)



Rosemary Mason & Palle Uhd Jepsen

In 2013, the biodiversity started to decline. We measured glyphosate in August 2013 and August 2014. The Council said they would not stop spraying Roundup unless the HSE instructed them to.

The UK Health and Safety Executive refused to ask the Council to stop spraying Roundup that was poisoning our nature reserve

We asked the HSE to request the Council to stop spraying Roundup in Swansea

On several occasions between February 2014 and October 2017, I wrote to the HSE about Roundup®

poisoning our nature reserve and glyphosate being present in River water and tap water. We had sent samples of water to the Biocheck Veterinary Laboratories in Leipzig.⁵⁷ I told HSE, that in August 2013, the level of glyphosate in the Clyne River draining from areas of Japanese Knotweed spraying was 190 parts per trillion (ppt) and in local tap water it was 30 ppt. Analysis of local tap water in August 2014 revealed a 10-fold increase since August 2013: from 30 ppt to 300 ppt. I told them that these were of the order of concentrations found in a laboratory study in 2013 that showed that breast cancer cell proliferation is accelerated by glyphosate in extremely low concentrations.⁵⁸ CRUK statistics: In 2015 there were 55,122 new cases of invasive breast cancer and in 2016 11,563 deaths. The deaths from cancers keep on increasing and no treatments make any difference.

----- Forwarded Message -----

Subject:Roundup sprayed in Swansea - CETO/358/16

Date:Tue, 20 Dec 2016 11:26:06 +0000

From:Dan.Manghai@hse.gov.uk

To:rosemary.mason01@btinternet.com

Dear Dr Mason,

Thank you for your emails and attachments of 9 and 19 December to HSE's Chair, Martin Temple, and the one of 14 December to me. Further to my acknowledgement of 9 December I am now writing with a substantive response. The various points you raise have been addressed in previous correspondence between you and HSE or Defra so there is nothing further to add on these. With regard to your key point on the use of glyphosate by Swansea Council, glyphosate is approved as a pesticide active substance in the EU and glyphosate products are authorised for use in the UK. The Council's duty in this case is to use pesticide products which are authorised in the UK and to comply with the rules on use of pesticides. In doing this, it is for the Council to decide how it chooses to control weeds in its area not HSE.

Yours sincerely,

Dan Manghai

**Chief Executive, Parliamentary and Secretariat Office
Health and Safety Executive**

HSE consistently refused to write to the Council and ask them to stop spraying Roundup® because "it was still legal." The response to my letter of 28th July 2017 was:

"Dear Dr Mason,

*Thank you for your latest email of 28 July to Martin Temple. HSE's response to your question is the same as expressed in previous correspondence on this. I would advise you that, unless your correspondence raises any issues on which HSE considers it should respond, **we will not be responding to you in future.***

Yours sincerely,

| Health & Safety Executive

CE, Parliamentary and Secretariat Office | Legal and Governance Division

Desk 39, 5N.3, Redgrave Court, Merton Road, Bootle, L20 7HS"

July 2019, our reserve has few butterflies or moths. They fly around aimlessly, not knowing what flowers to find nectar or pollen from.

⁵⁷ <https://biocheck-leipzig.de/index.php/en/impressum>

⁵⁸ <http://www.ncbi.nlm.nih.gov/pubmed/23756170>

We sent our photo-journals to EFSA, the European Commission and ECHA

Letter to Bernhard Url challenging the report on the lack of ecotoxicity of glyphosate

Bernhard Url
Executive Director
European Food Safety Agency February 1 2016

Dear Bernhard Url

In December 2015 I challenged the BfR Rapporteur Member States' report on the lack of ecotoxicity of glyphosate with EFSA. I had a reply from Dr Jose Tarazona on 29 January 2016 saying I wasn't to worry, because there were 'data gaps.' **So, I assumed that the decision hadn't been made.**

I have looked at the EFSA Risk Assessment for glyphosate timeline and found that the decision for authorisation until June 2016 **had already been made the previous October.**⁵⁹

Therefore, the fact that I told Jose Tarazona that I had sent you a copy of our photo-journal The Year of the Bumblebee 2010 that showed the deleterious effects on biodiversity of Roundup sprayed from outside the reserve must have been very awkward for EFSA. You must have buried it, as did the European Commission when I sent copies to Michael Flüh. However, Geert Dancet **did** acknowledge it. He said that ECHA's role is in the labelling and classification of chemicals. "*We only look at the hazardous properties of a chemical,*" he said, "*not at the risks that occur when you use a chemical.*"

According to Defra, 13 March 2018, European Regulatory assessments found no safety concerns that would prevent continuing approval of glyphosate

----- Forwarded Message -----

Subject:Request for information - Ref: TO2018/05500

Date:Tue, 13 Mar 2018 13:45:53 +0000

From:correspondence.section@defra.gsi.gov.uk on behalf of Ministerial Contact Unit
<correspondence.section@defra.gsi.gov.uk>

Reply-To:Ministerial Contact Unit <correspondence.section@defra.gsi.gov.uk>

To:rosemary.mason01@btinternet.com

Dear Ms Mason,

Thank you for your recent emails to Clare Moriarty. I have been asked to reply on behalf of Defra. Pesticide active substances such as glyphosate are assessed at EU level and the European Commission takes the decision on whether each active substance should be approved. Products containing approved active substances are assessed and decisions on authorisation are taken at national level. Applicants for authorisation must show that their products are effective and **have no harmful effects to people or unacceptable effects on the environment.** If their products were to pose such risks, they would not be authorised; or if such effects were discovered later, they would be withdrawn.

As you point out, the European Commission has renewed the approval of glyphosate until December 2022. This followed reviews of the scientific data by the European Food Safety Authority and the European Chemicals Agency's Committee for Risk Assessment. **Those reviews found no safety concerns that would prevent continuing approval.**

Following the Commission decision, the UK and all other Member States will review the authorisations of **every product containing glyphosate to ensure that they meet the current legal**

⁵⁹

https://www.efsa.europa.eu/sites/default/files/corporate_publications/files/efsaexplainsglyphosate151112en.pdf

requirements and safety standards. The rules for this review are set out in EU legislation and guidance documents. The review will be carried out by the Health and Safety Executive as the UK competent authority.

Yours sincerely,

Defra

Ministerial Contact Unit

Public Parliamentary Inquiry: Japanese knotweed and the built environment

Roundup (shown to be carcinogenic and to affect human brains) is sprayed to kill weeds on pavements, open spaces, City Parks, playgrounds and playing fields in all Boroughs but one Only the London Borough of Hammersmith and Fulham has agreed to ban Roundup and try other non-chemicals methods.⁶⁰ All the Councils in Wales use Roundup.⁶¹

There were 10 companies giving oral evidence at the Inquiry, including Monsanto's contractor, Complete Weed Control and The Crop Protection Association, and 37 written submissions.

Written evidence (abbreviated) submitted by Dr Rosemary Mason, MB, ChB, FRCA⁶²

Introduction: Swansea is dubbed '*the Japanese Knotweed Capital of Europe*'. Monsanto, whose factory was/is,⁶³ still in Newport, used Swansea as the testbed of its flagship herbicide, Roundup. Roundup was sprayed time and time again on Japanese Knotweed until it became a superweed, just like the weeds in the US, where they grow Roundup Ready crops.



Northern Indiana. Giant Ragweed (3 m) resistant to glyphosate.

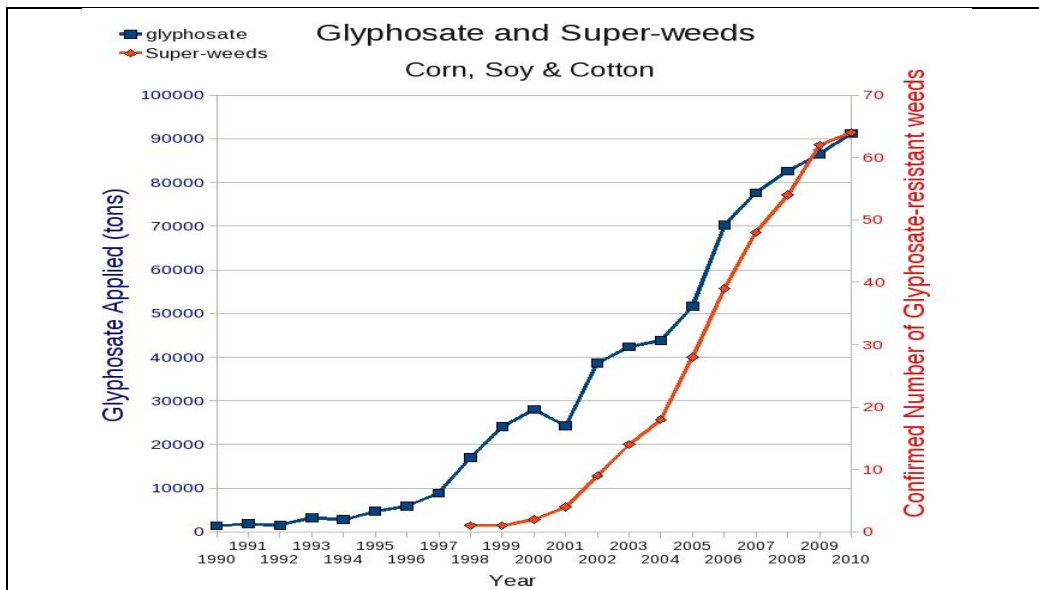
Farm workers have to weed it by hand. At that time this was one of nine different weeds that commonly occur.

⁶⁰ <https://www.hortweek.com/london-council-bans-contractor-use-glyphosate-parks/parks-and-gardens/article/1398373>

⁶¹ <https://www.walesonline.co.uk/news/local-news/welsh-councils-use-carcinogenic-weedkiller-15086510>

⁶² <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/science-and-technology-committee/japanese-knotweed-in-the-built-environment/written/93210.pdf>

⁶³ In July 2012 the old company (Solutia) was acquired by the [Eastman Chemical Company](#). Its Board of Directors includes Officers from Monsanto, Dow Chemicals, Dow Corning, General Mills, and Cargill.



Glyphosate and Super-weeds: Glyphosate applied to Corn, Soy and Cotton crops in the U.S. and the number of confirmed glyphosate-resistant weeds. Glyphosate data from USDA; super-weed data from Charles Benbrook. By kind permission of Dr Nancy Swanson.



Photo taken Ilston Valley, Penmaen 10 July 2015. Dakar Pro has been sprayed over Japanese Knotweed since March 2015, but new shoots are emerging by July. This is due to resistance by gene amplification

Herbicide-Resistant weeds in the US

International Survey of Herbicide-Resistant Weeds Updated to July 2018.⁶⁴ Run the cursor over the map and it will tell you how many herbicide-resistant weeds each US State has. The number of herbicide-resistant weeds in the US vary from one (Massachusetts) to 30 (California). California is the fruit-growing capital of the US.

Glyphosate-based herbicides and other herbicides are a waste of money for Councils because they cause weeds to become superweeds. As in the US, they have to be removed by hand.

*Research has traced the resistance mechanism in Palmer amaranth (*Amaranthus palmeri*) to 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) gene amplification. Resistant weed populations from Georgia contained 5-fold to 160-fold more copies of the EPSPS gene, compared to susceptible plants. Moreover, EPSPS gene amplification is heritable, leading Gaines et al.⁶⁵ to warn that the emergence of GR weeds “endangers the continued success of transgenic glyphosate-resistant crops and the sustainability of glyphosate as the world’s most important herbicide.” Resistant Palmer amaranth (*Amaranthus palmeri*) has spread dramatically across southern states since the first resistant populations were confirmed in 2005, and already poses a major economic threat to U.S. cotton production. Some infestations are so severe that cotton farmers have been forced to leave some crops un-harvested.”*

Despite this evidence, that Monsanto knew that Glyphosate-based herbicides don’t work on superweeds, Complete Weed Control and the Crop Protection Association won the battle.

To whom could we complain about Roundup having destroyed our nature reserve?

Professor Gilles-Eric S eralini, one of the members of the Organizing Committee of the Monsanto Tribunal, suggested that we sent our two photo-journals to the judges of the Monsanto Tribunal to contribute to the evidence that Monsanto’s Roundup causes Ecocide.

The Verdict of the Judges of the International Monsanto Tribunal: Monsanto found guilty of ecocide

Summary of the advisory opinion of the International Monsanto Tribunal⁶⁶

Delivered on the 18th of April 2017 in The Hague, Netherlands

The International Monsanto Tribunal is a unique "Opinion Tribunal" convened by civil society to clarify the legal obligations and consequences of some of the activities of the Monsanto Company. In brief: the five judges of the Monsanto Tribunal agree that:

- **Monsanto has violated human rights to food, health, a healthy environment and the freedom indispensable for independent scientific research.**
- **‘ecocide’ should be recognized as a crime in international law.**
- **human rights and environmental laws are undermined by corporate-friendly trade and investment regulation.**

*The Monsanto Tribunal hearings allowed for the gathering of testimonies related to various impacts on human health (especially on farmers), soils, plants, aquatic organisms, animal health and biodiversity. These testimonies also included the impacts of spraying crop protection products (herbicides, pesticides). Based on the above findings and to answer Question 1, **the Tribunal concludes that Monsanto has engaged in practices that have negatively impacted the right to a healthy environment.***

⁶⁴ <http://weedscience.org/vmap/statemap.aspx>

⁶⁵

http://www.pnas.org/content/107/3/1029?ijkey=e2066eddc44aa8e0f054b2e1ccb0fdcc5a6b000c&keytype2=tf_ipsecsha

⁶⁶ http://www.monsanto-tribunal.org/upload/asset_cache/1016160509.pdf

Question 6 asked the Tribunal if the activities of Monsanto could constitute a crime of ecocide, understood as causing serious damage or destroying the environment, so as to significantly and durably alter the global commons or ecosystem services upon which certain human groups rely. *“Developments in international environmental law confirms the increased awareness of how environmental harm negatively affects the fundamental values of society. Preserving dignity for present and future generations and the integrity of ecosystems is an idea that has gained traction in the international community. As an evidence of these developments, and according to the Policy Paper on Case Selection and Prioritisation from September 2016, the Prosecutor of the International Criminal Court in the Hague wants to give particular consideration to Rome Statute crimes involving the illegal dispossession of land or the destruction of the environment. However, despite the development of many instruments to protect the environment, a gap remains between legal commitments and the reality of environmental protection. The Tribunal assesses that international law should now precisely and clearly assert the protection of the environment and the crime of ecocide. The Tribunal concludes that if such a crime of ecocide were recognized in international criminal law, the activities of Monsanto could possibly constitute a crime of ecocide. Several of the company’s activities may fall within this infraction, such as the manufacture and supply of glyphosate-based herbicides to Colombia in the context of its plan for aerial application on coca crops, which negatively impacted the environment and the health of local populations; the large-scale use of dangerous agrochemicals in industrial agriculture; and the engineering, production, introduction and release of genetically engineered crops. Severe contamination of plant diversity, soils and waters would also fall within the qualification of ecocide. Finally, the introduction of persistent organic pollutants such as PCB into the environment causing widespread, long-lasting and severe environmental harm and affecting the right of the future generations could fall within the qualification of ecocide as well.”*

The health impacts generated by food systems are severe, widespread, and closely linked to industrial food and farming practices⁶⁷

Breaking away from industrial food and farming: International Panel on Sustainable Food Systems
October 2018

A major new report on the damage to human health from existing industrial and chemical-intensive conventional food and farming systems was launched today by the UN Committee on World Food Security in Rome.

Food and farming systems around the world are driving environmental degradation, loss of vital ecosystem services, economic hardship for smallholders, socio-economic inequities, and debilitating health impacts and food insecurity for many. The majority of these problems are linked to ‘industrial agriculture’: the input-intensive crop monocultures and industrial-scale feedlots that now dominate many farming landscapes. Some of the most impressive impacts of these transitions – greater resource efficiency, improvements in community livelihoods and nutrition, increased resilience to shocks, biodiversity enhancement – tend to be overlooked at the political level. Moreover, transition initiatives may be delivering positive impacts simply by keeping land in (sustainable) agricultural production and keeping people in rural communities in the face of unfavourable macro-economic and political conditions.

Sustaining Life: How Human Health Depends on Biodiversity⁶⁸

Dr Eric Chivian founded the Center for Health and the Global Environment at Harvard Medical School in 1996: *“To help people understand that our health, and that of our children, depends on the health of the environment and that we must do everything we can to protect it”*

⁶⁷ http://www.ipes-food.org/_img/upload/files/CS2_ExecutiveSummary.pdf

⁶⁸ <https://global.oup.com/academic/product/sustaining-life-9780195175097?cc=gb&lang=en&>

Eric Chivian and Aaron Bernstein co-edited the above book, which includes contributions from more than 100 leading biodiversity and health scientists. It was published in June 2008 by Oxford University Press and co-sponsored by the United Nations Development Programme, the United Nations Environment Programme, the Secretariat of the Convention on Biological Diversity and the World Conservation Union.

Humans need invertebrates; without them they cannot survive

Prof E.O. Wilson the eminent field entomologist from Harvard, who in his book *Naturalist*,⁶⁹ has documented massive global declines of ant colonies at the hand of man, said: *“The one process now going on that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us.”*

Rosemary Mason 2 July 2019

⁶⁹ Wilson, E.O. *Naturalist: New Edition for a New Generation*. Washington, DC: Island Press (2006).