

Research Suppression at USDA and Stagnation of Agricultural Science

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In 2004, I moved from graduate school almost directly to a career federal research position with USDA's Agricultural Research Service (ARS). There, I continued to pursue research in pesticide risk assessments and developing ecologically-based solutions to pest problems.

High-reaching tentacles

In 2012, farmers interested in planting Bt corn were required by the EPA label to devote 10% of each field to a non-Bt hybrid. The reason for this was that insect pests quickly adapt if an insecticide is too effective. But, if some pests remain susceptible to the insecticide, then resistance can be delayed substantially. So, the 10% refuge was mandated to preserve the longevity of Bt as a pesticide. Seed companies make more money off GM crop varieties than non-GM varieties, and they have more legal means for controlling these seeds than non-GM seeds. So, industry saw an opportunity. If they could get rid of the refugia, they could quickly increase the market-share of Bt corn seed by 10% with little expense.

The seed companies proposed including a small percentage of non-GM seeds within a bag of Bt corn seed as a way around the 10% refuge requirement; they called it "Refuge-in-a-bag". They provided a lot of mathematical models that showed that their approach would reduce the risk of Bt resistance in corn pests.

Public sector corn entomologists almost unanimously agreed that Refuge-in-a-bag would lead to faster pest resistance. A team of experts formed to refute industry's attempt to circumvent the refuge claim and preserve the farmers' well-being. A number of federal scientists were on this team, including myself. A public letter was prepared to the EPA.

When the report was filed, USDA administrators unexpectedly instructed all the federal scientists to provide a complete bio on themselves, and an explanation for why they were qualified to address this issue of Bt corn refuges. Apparently, a seed company had caught wind of the report and had seen federal scientists listed as co-authors. A lobbyist for this company got an instant meeting with the U.S. Under Secretary of Agriculture to complain about these federal scientists. The Under Secretary developed a dossier on each of us. I sensed that my colleagues and I had been blacklisted.

Our efforts were for naught. The companies were able to market Refuge-in-a-bag, and the corn rootworm was resistant to at least one of the Bt corn hybrids within three years of its commercialization. New products were then registered, and new technologies were developed that could further the stranglehold that the industry had on American corn farmers.

This example revealed how USDA political appointees were beholden to agroindustry. Scientists who might threaten industry's agenda are quickly identified and watched closely.

Marketing before science

After five years in federal service, I began to notice patterns in insect communities that did not add up. We had been infesting young corn plants with corn rootworm eggs annually, in this way ensuring that we would have sizable populations of the pests to test new ideas in pest management like using cover crops.

In 2008, nearly all the rootworms were inexplicably killed in our experiments. The farm manager who had planted our plots looked at the bag and saw something new. Without our knowledge, the seed had been treated with something called a neonicotinoid. Neonicotinoids - or "neonics" for short - are systemic insecticides. A systemic insecticide is taken up by the developing seedling and is meant to control early season pests on the young crop plants. But because Bt corn is already targeting the important pests of corn, and soybeans do not really have any early season pests throughout most of the crop's range, these products did not make a lot of sense to me. We decided to test whether these new seed treatments actually were benefitting farmers. One of my post-docs ran a two-year trial to see if there were differences in the performance of seed-treated and untreated soybeans. We found that there were no effects of the insecticides on soybean aphids, nor would there ever be: the aphids didn't arrive until long after the insecticide had left the plant.

The industry responded that there were unidentified subterranean pests that were hurting farmers' yields. However, we demonstrated that there were no yield benefits of the insecticides. So, no secret pests were being controlled either. But, beneficial predators of the soybean aphids WERE harmed by the insecticide, with reduced survival and abundance in the treated fields. There were no yield benefits from neonics, no pests were being controlled, beneficial insects were being killed, and farmers were being charge \$10-15 per acre for it all.

A scientific manuscript was prepared for this work, and this was the first time that I had encountered challenges to my publishing from within my USDA chain of command. Within the federal system, to publish a scientific manuscript, a paper needed to be peer-reviewed by two fellow scientists, and then supervisors needed to sign off on the work.

In cases of sensitive topics (a nebulous grouping including climate change and GM crops), a national program leader would also have to sign off on the paper prior to submission. It is a lengthy internal process that can add months to the release of the data to the public who funded the work. This paper was flagged as being sensitive, and the USDA-ARS national program leader decided to ask a series of questions about the scientific rigor of the study and its conclusions. The paper was eventually published following revisions from the program

leader.¹ This was the first time in 60 published papers that any such scrutiny was given to my work by the chain of command.

The soybean study began to gain attention from farmers and beekeepers. I was interviewed by the Western Producer, a large newspaper in the Northern Plains of Canada and the U.S., which reported the results of our study accurately. One neonic company printed a response to the article, proclaiming false benefits of their seed treatments on crop yields, and claiming that they delayed population growth rates in soybean aphids. They also falsely claimed farmers could cut seeding rates because the treated seeds were better protected. No data were presented to support these claims. They also argued that producers were not trapped into using the treated soybeans, although most producers had a difficult time trying to find untreated seeds.

My efforts on pesticide assessments brought me into closer contact with beekeepers in the state, which led to me pursuing additional controversial research topics. South Dakota is one of the top honey-producing states in the nation, and many of the commercial beekeepers in 2010 were coming to terms with the fact that pesticides contamination, and specifically neonics, were major contributors to the collapse of the honey industry in the U.S. I was asked by the South Dakota Beekeeping Association to present at their annual meeting in Deadwood. I presented the data on the detrimental effects of soybean seed treatments to an audience of militant beekeepers who were tired of their hives dying, and even more tired of scientists who were afraid to publicly question the unnecessary use of neonic seed treatments.

The battle for the bees

In 2014, beekeepers were on the national stage for the continued hive losses that the U.S. was experiencing (“colony collapse”). At the behest of some South Dakota beekeepers, I presented my work on soybean seed treatments to the annual national meeting of American Honey Producers Association in San Antonio, Texas. It consisted of research on soybean seed treatments that had been validated by numerous university studies from around the country. I was nervous about presenting the data. The EPA Assistant Administrator in charge of pesticide programs would be there, as would several top officials in the USDA-ARS. Representatives from the chemical companies and CropLife America, one of their puppet industry associations, were also present. I explained to the beekeeper friend who invited me to the meeting “If I present my data to the beekeepers, it will likely be the end of my career at USDA”. “Tell the truth, Jon, and the beekeepers will have your back,” was the reply. Both of us were right.

After my presentation, I sat down, and saw that the next speakers on the agenda were the head of the EPA’s pesticide programs and then a representative from one of the chemical companies responsible for neonics. Both publicly derided the research results I had presented, but they provided no data to support their criticisms. I was surprised at how close the regulated and regulators were in their arguments and resistance to information that challenged the chemical

¹ Seagraves, M. P. and J. G. Lundgren. 2012. Effects of neonicotinoid seed treatments on soybean aphid and its natural enemies. *Journal of Pest Science* 85(1): 125-132.

industry. Within three years of this meeting, this EPA administrator in charge of regulating the pesticide industry would become a VP for one of the associations in charge of lobbying on their behalf. The “revolving door” was real.

After the trouble I had with approvals on my earlier soybean seed treatment paper, I braced for a challenging internal review process for my research investigating the risks associated with pesticidal RNAi. The first step was to review the potential ways that RNAi based pesticides might affect non-target organisms. Prior to even submitting the paper into the internal system, I obtained six independent reviews of the paper from leaders in risk assessment and pest management. Then I sent the paper to regulators within EPA and USDA-APHIS (the regulatory branch of the USDA) who would be in charge of signing off on the registration of RNAi. All but one of these reviewers offered suggestions on the paper and said it should be published. The only hold-out was the Director for Environmental Risk Programs at the USDA-APHIS, who pointed out that the agency did not feel that there were environmental risks posed by RNAi, nor that we should continue to alter our risk assessment protocols to accommodate the unique aspects of RNAi-based pesticides. I addressed each of the USDA-APHIS comments and submitted the revised draft to this Director. He explained that he would not be able to look at the paper again as he was retiring the next day. I congratulated him and asked him what he would be doing in his retirement. He explained that he was moving to St. Louis. The federal official in charge of assessing environmental risks of pesticides, and RNAi, had just accepted a position with the seed company, Monsanto, that was most heavily invested in RNAi-based pesticide technology. And he had just read the first science that criticized their technology. This additional example of the “revolving door” between USDA and the agrichemical industry meant that my job would become more difficult.

Despite seven positive reviews, my chain of command within USDA-ARS would not allow the paper to be published. In what became a six-month dialogue, my supervisors with very little expertise in this area of research functionally ripped the paper apart. They removed any language that might provide insight to regulators or policymakers on RNAi-based pesticides. A few of the major points of the paper were softened and allowed to remain, and I finally submitted the work to *BioScience*, where it was quickly accepted for publication. It came out approximately one year after the first iteration of the paper had been finished.²

Prior to the release of a new Bt product, or chemical, or GM organism, there often is an outflux of money that pours out of a company toward many expert scientists at universities and the USDA. These “independent opinions” on efficacy or risk are important for a company to gain credibility for its product. And there are seldom strings attached. The end result of this money is that the scientists’ programs become dependent on this industry money. Indeed, entire universities become dependent on it. And while it may not directly affect the quality of the data that is created, it certainly affects the questions that are asked by universities, and criticisms are made very carefully.

² Lundgren, J.G., and J.J. Duan 2013. RNAi-based insecticidal crops: potential effects on nontarget species, *BioScience* 63(8): 657–665, <https://doi.org/10.1525/bio.2013.63.8.8>

My work on risk assessment of RNAi continued for a few more years. I watched as more than one university scientist covered up their data on the negative effects of RNAi against non-target organisms. I watched as any interactions that I had with the press had to be approved by the Secretary of Agriculture's office. I watched as my slides for presentations had to undergo seven reviews by my chain of command with no expertise in GM crops or RNAi technology. After I left the USDA, I gave a presentation at the United Nations Convention on Biological Diversity (CBD) COP 13 meeting in Cancun, explaining the risks of RNAi, and the alternatives to this approach to pest management. The CBD recommended that its parties consider a ban on RNA-based pesticides.

The list

I quickly found myself in one of the strangest times in my life. The science I was generating was a great success, but it was coming with tremendous costs. On one hand, my career was on fire. I had millions in grants, a research team of 14 post-docs, graduate students, and technicians that were happy and working hard on important issues. I was creating new networks of collaborators and serving on advisory panels that were making a real impact on policies and public discussions on an international level. Meanwhile, I was being hit by a crippling barrage of harassment because the questions we were asking through our research program were controversial and inconvenient for industrialized agriculture. In 2014 I saw the handwriting on the wall. This was more than just normal governmental incompetence; something bigger was going on. I began recording the details of the mounting harassment.

Labelled by industry as a loose cannon, the USDA did not want me to discuss our research results on pesticide risks in public forums. In reality, my messaging was directly tied to the scientific results of the research, and I was blunt but factual in the implications of this science. Companies began to plant representatives in audiences of my talks at meetings, which is a common practice once a scientist is labelled as a threat. And in turn these companies made a trouble for me with my supervisors. Then these supervisors told me that I was no longer able to discuss my science with the public without prior approval. The USDA policy on presenting research and doing interviews is so vague that it can be selectively employed to restrict scientific dialogue. No more press interviews on our research pertaining to the risks of RNAi or neonics were permitted.

My supervisors began searching for any presentations I might be giving that I had not officially declared in order to trap me in the act of discussing my science without approval. They demanded to review my slides for any official presentations. My presentation for the European Food Safety Agency (Europe's EPA equivalent) required seven administrators to sign off on the slides on RNAi prior to allowing me to attend the special forum where I was an invited speaker. None of my colleagues within the agency were subjected to this level of scrutiny. If these policies on publicizing research were uniformly enforced across the staff, all productivity for the agency would have come to a screeching halt.

Scientists must be able to network with colleagues and maintain focus if they are to be successful, and my supervisors targeted these aspects of my career next. I was denied the

ability to travel to Colombia for an invited presentation. That would derail a multi-year collaboration that I had been growing. I was required to go through all of my records to ensure that the Colombians had offered to pay for my travel, rather than me asking if they would cover my travel. The effect was that I could not go.

Since we had limited travel money as part of our program, and I had to travel to present my research to a lot of places, I sometimes asked for beekeepers and farmers to help cover travel costs to their meetings. That way I could use my budget to generate the science that they needed to see. I always followed federal regulations to this end, and the meetings would pay for my plane ticket and all necessary forms and approvals from my chain of command. I remember one event where a group I spoke for mailed me an unsolicited \$1,000 grant to cover travel. My bosses required me to send the money back to the group, ask for permission to travel, and then ask the group to reissue the check.

Within a few days of speaking to the press about RNAi I was given a letter of reprimand that would remain on my personnel record for two years. During the 2013 government shut down, I had begun using my personal computer and a personal email account to maintain my professional career on my personal time. This was reinforced when my new staff was not able to receive government computers and were forced to use personal computers and emails for several months, because our understaffed lab was unable to provide them with government machines. Add to this that the government security programs frequently crashed whatever computer they were on and relying solely on government emails became prohibitive to accomplishing my mission as a government scientist. The USDA punished me for breaking a rule that the supervisors themselves could not adhere to. These hurdles seem petty, but when they became a daily occurrence my ability to focus on my research began to grind to a halt.

Another element critical to the success of a scientist is being able to grow one's program, and my supervisors began to harass this aspect as well. Prior to publicizing research on pesticides, I had submitted a \$500,000 proposal with colleagues around the country to a grant program. It received approvals on all levels within the agency, and high marks from the grant program, but was not funded. So, I decided to try again, after publicizing my pesticide research. This time my supervisors told me that I did not have the ability to conduct the research and would not allow me to re-submit the proposal. They reluctantly allowed the proposal to move forward, but then told me that my university colleague had not filed a form to their university (totally outside of USDA's direction), and so I would have to retract the submitted proposal and re-submit. Which was not allowed.

My university colleague quickly remedied the situation. The proposal was submitted, but the message from my supervisors was clear that growing my program was going to be hampered at every step from here on out. This was reinforced when having to submit our five-year research plan. I submitted a series of projects that would investigate risk of pesticides on different beneficial insects. The national USDA program staff for the agency had me remove all mention of these specific risk assessments, leaving me with very little formalized research left in the plan.

In 2015, the attention finally was turned to my supervisees. We had a large and generally very happy and inclusive group. I would say it was family-like, and we all regularly got together outside the workplace to spend time together. It was intended to be warm and welcoming, and informal. Sometimes the humor was a bit jocular, but it was never meant to hurt, and all participated. My employees' morale was really important to me - I would lay down in traffic for them, and they all knew it. But, at what I regard as their lowest point, the USDA decided to accuse me of "Conduct unbecoming a federal scientist". For a year, they kept a dossier on my activities and took events and actions out of context to cast me as a deviant. Then they brought each of my staff individually into a room with a spotlight and a video monitor, and interrogated each of them, asking for anything that I might have done to step out of line.

It was terrifying to everyone on the team -- and it crushed us. One of my post docs wound up in the hospital with a perforated ulcer from the tremendous stress we all experienced during this phase of the retaliation. My staff drafted and signed a letter to the area director shaming the entire proceedings and explaining that there was no conduct warranting punishment. The employees' union was brought in by USDA to represent my supervisees against me. But after hearing the circumstances, the union representative decided that I was innocent and took an unexpected stand: she began advising me against my supervisors.

Smear campaigns are a horrible experience. I am not perfect. Nor did I always behave perfectly. But the nature of my professionalism was no different than any of my colleagues. It was a witch hunt, and typically in a witch hunt, the real witches are the ones doing the hunting. I was suspended without pay for seven days. Not for "misconduct," since there was no evidence for this, instead I was tagged with the nebulous, fabricated crime of "conduct unbecoming a federal scientist".

King Corn

Meanwhile, my work in cornfields was gaining momentum as I tried to understand the ecological basis of how dwindling biodiversity caused pest outbreaks. An economist friend of mine, Scott Fausti, and I had teamed up on a series of papers on insect communities in cornfields in South Dakota. We showed how as insect diversity went up, pest populations went down. These patterns validated what regenerative farmers were doing. To solve the problem of a lack of biodiversity, it also became clear that agriculture in North America was far too heavily invested in a few commodities.

This overinvestment in "King Corn" and almost as ubiquitous soybeans had created a brittle food system, and ultimately was a threat to the stability of rural economies. Fausti and I decided to tease apart the factors that led to the overinvestment in corn. Through more than a year of research and analysis, we painted a picture of how policies, technology development and control by agroindustry, new subsidized markets in ethanol, and price spikes had produced a perfect storm to allow corn to dominate. The paper also presented a path to increase the resilience of our food system by re-strategizing the ethanol policies, fostering soil health, and doing more research aimed at farming innovations.

I followed the necessary steps to publish the paper, but the National Program Staff of USDA-ARS was now weary of me questioning the dogma of industrialized agriculture. They initially said the paper was flagged as sensitive because it had implications for policy development, and potential “misdirected interpretations,” and that they would work with me on a revision. But then, in a personal meeting, they told me the paper was not allowed to be published. From this point forward my work on this paper was stone-walled by my supervisory chain...

As the debate was going on internally, I had submitted the paper to the scientific journal as the corresponding author. The information was important and timely; farmers were suffering, and we are facing a breakdown of rural society. Submitting the paper for peer review was a way to get the ball rolling on a lengthy road to publication. I could incorporate additional changes in upcoming revisions. The paper was accepted by the journal following the peer review process. I reported that it had been so, but USDA-ARS told me I was not allowed to be an author of this piece.

My removal from co-authorship of our paper was a blatant case of scientific suppression for political reasons that is never acceptable. Statements in the paper were supported with evidence either from the scientific literature or our own calculations that were clearly reported. It was peer-reviewed by experts in the field and accepted for publication. USDA-ARS’s scientific suppression was evidence that the agency had no interest in changing agriculture into a more resilient food system that could restore the natural resource base of our rural areas.

Nevertheless, the paper was eventually published the following spring in *Environmental Science and Policy*, and my co-author Scott Fausti included the following footnote on the title page.³

“I would like to acknowledge Dr. Jonathan G. Lundgren’s contribution to this manuscript. Dr. Lundgren is an entomologist employed by the USDA Agricultural Research Service (ARS). However, the ARS has required Dr. Lundgren to remove his name as joint first author from this article. I believe this action raises a serious question concerning policy neutrality toward scientific inquiry.”

The scientific integrity complaint.

It became so easy for my supervisors at the USDA-ARS to kick me around that they relaxed and finally made a key mistake. They suppressed important science that would help the people that we were being paid by: the taxpayers and farmers of the United States. Such a clear ethical violation was enough to wake me up to what was really going on. It revitalized me to start pushing back. At the end of this fight, there was going to be a lot of blood on the floor. But it was not all going to be mine.

I had been directed to a couple of lawyers in Washington, DC, that might be able to help. One was a non-profit group named PEER (Public Employees for Environmental Responsibility). PEER

³ Fausti, S. W. 2015. The causes and unintended consequences of a paradigm shift in corn production practices. *Environmental Science and Policy* 52: 41-50.

and I knew that this was not going to stop, and we decided to give the Department of Agriculture a shot across the bow that I wasn't going to continue taking their abuse. The first step was to take advantage of the scientific integrity policy that was supposed to protect USDA scientists. We quickly discovered that there was no scientific integrity officer as USDA's policy required, and the policy was written so vaguely as to be completely useless. A later Freedom of Information Act request determined that there had been a few other scientific integrity complaints lodged at USDA, but all had been determined by the agency to be meritless. After several months of review, my scientific integrity complaint was also dismissed.

There were several positive outcomes of filing this complaint. The first was that mine was the first credible direct challenge to the scientific integrity policy of the USDA, and the agency had to clean up its act substantially, providing scientists with an avenue to contend with retaliation for their science. Next was that now any further actions of retaliation by my chain of command could be linked to a formal complaint that I was well-justified to make. Yet, the agency moved forward with harassment as though it had nothing to lose.

Hammer-wielding butterflies

Monarchs have declined to approximately 10% of their historic population levels. A lot of attention had been given to a dwindling population of milkweed, the host plant of the monarch. Widespread use of glyphosate in agriculture was touted as one of the reasons for the milkweed declines. But, as I drove around the region, I saw a lot of milkweed in the road margins still. And there were almost no monarch eggs or larvae on those milkweed plants, although monarchs were seen flying through the landscape. The story did not add up.

In 2014, we did a small study to determine whether neonics might be contaminating milkweed and poisoning the monarchs. Our risk assessment of clothianidin's (a neonic seed treatment) effects on monarch caterpillars considered both toxicity and exposure. Dose makes the poison, and our first set of trials looked at how much clothianidin was toxic to the caterpillars. We did not know how long they would be exposed to the toxin in the field, so we guessed that it might be around 36 hours, when pollen or some dust from a planter might fall onto the leaf surface of milkweed plants. The amount of pollen necessary to kill 50% of the caterpillars was 18 parts per billion (ppb). But we saw significantly smaller caterpillars when they were exposed at just 1 ppb. This brought us to the field, and we sampled milkweed plants from 18 field sites around Brookings County, South Dakota. A simple test determined that 51% of the plants were contaminated with clothianidin, at up to 4 ppb (mean of 0.58 ppb). But what was most interesting about the exposure analysis is that the amount of neonics increased in milkweed as the summer progressed. Although our results showed clothianidin was highly toxic to monarchs, the duration of our toxicity assessment underestimated the toxicity of the compound to caterpillars in the field.

These research results showed the threat of a dominant pesticide on monarchs, and by this point I knew that these research results would not be well received by my chain of command, and I had little hope that the research would be allowed to be published without contention. I had it reviewed by five experts in the field to ensure the science was correct, so when it would

be turned down for publication, I would have a defense. To my surprise, my supervisor and the chain of command allowed the work to be submitted for publication with a few simple revisions. The work was set to be published and received a substantial amount of attention. Minnesota Public Radio decided to interview me on the topic, and this interview was heard by National Program Staff of USDA-ARS. The reaction was swift.

My research leader stomped into my office, explaining that the approval to submit the monarch paper was retracted, and that I was receiving an official letter of reprimand for submitting it without prior approval. The approved paper had already been accepted by the journal and was heading into press in early 2015.⁴ I was given a 14-day suspension without pay for publishing the paper without approval, even though I had prior approval.

A fateful trip

The wind was cold, and the snow blowing on the wintery day that I flew to Pennsylvania to speak to a no-till farmer group and the National Academy of Sciences (NAS) about my research. The NAS is one of the most prestigious organizations for scientists in the U.S., and for it to ask me to present my science on the risks of GM crops was a huge personal event and reflected very positively for my agency. But calling out the environmental risks of the main money maker of a large seed company was exactly the kind of exposure that USDA despises. The trip was intended to be short, but the impact of the presentations would be large.

As I walked out the door of the USDA research facility in South Dakota, any feelings of excitement were squashed. For the first time in my career, I had forgotten to sign my travel paperwork for the meetings I would attend. It was not intentional, and I did not learn about my paperwork oversight until I was heading for the airport. I felt awful about it. I filled out the necessary paperwork as I was leaving, but in my haste, I forgot to sign it. This minor oversight proved to be a grave error.

Travel documents were overlooked or signed after the trip routinely within the USDA. Indeed, in the facility where I worked, three to four similar events had happened with other staff in recent months, with no repercussions. And I had no other travel violations on my record. Although I am quick to challenge senseless rules, I try my best to adhere to normal routines and guidelines. To constantly challenge authority is a waste of time and distracts from my mission.

When I arrived in Pennsylvania there was a text from my research leader explaining that I was to return to my duty station in South Dakota immediately. That I was not allowed to accept any travel reimbursements for getting to the meeting and that I was not allowed to present any of my science to anyone in Pennsylvania nor in Washington, DC. The farmers of Pennsylvania had based their conference around my attendance; but USDA decided that my punishment was more important than the interests of the farmers they were charged to help. Furthermore, I was not going to be paid until I returned to South Dakota.

⁴ Pecenka, J. R., and J. G. Lundgren. 2015. Non-target effects of clothianidin on monarch butterflies. *Science of Nature* 102 (3/4): 19.

At this point, I had nothing left to lose. The agency was placing bureaucracy over mission. I was not going to let these Pennsylvania farmers down; they didn't deserve that. And then I drove to Washington to present to the NAS. It was quite a surprise to one of my bosses, who was watching the proceedings remotely, to see me on his screen at a national event – especially since I was presenting my research to a group who would advise the regulators of the pesticide technology that the USDA was trying to protect.

What my supervisors couldn't have known (although I later tried to explain) was that I would have returned to South Dakota immediately except for a comedy of errors that would prevent my return for several days. A three-day blizzard had set in on Pennsylvania and there were no outgoing flights for the next 24 hours. Next, the airline double-booked my seat on day 3, and the plane engine caught on fire on day 4. It was ridiculous and added tremendous stress to an already stressful situation.

At our wits' end, a close farmer friend who was also afflicted by the same travel problems and I decided to rent a car and drive half-way across the country together (he lives in Kansas).

The upshot was serious. After days of threats, I was given a proposed 14-day suspension without pay, \$9,000 in personal costs, and stress to myself, my family, and research program – all for a forgotten signature. It was clear that my career with USDA was coming to a close.

Blowing the whistle

My attorneys at PEER decided that the best way to keep me employed until I could be safely extracted from the USDA system was to file a formal whistleblower complaint. With the scientific integrity complaint, we had set the stage well to defend myself at the USDA if their harassment continued. Suppressing the monarchs/neonics paper and doling out a 14-day suspension for an unsigned travel document were clear evidence of harassment that we put forth in a credible whistleblower case.

Please understand, a whistleblower complaint is often a career-ending move. This was not going to be a case of me retiring from federal service with a comfortable pension. A whistleblower complaint relies on a bureaucracy to punish itself over violations of its own policies; dramatic reforms resulting from a whistleblower case are rare.

The whistleblower complaint was an exit strategy. I quit the USDA noisy. To get them to stop their harassment, this fight had to be public. PEER ran a press release on us filing the case and it ran in the *Washington Post*. This quieted the USDA's retaliation down for a few months and I kept my head down.

A freelance reporter out of Pennsylvania, Steve Volk, decided to do a comprehensive story on my situation, and *the Washington Post Magazine* was interested in it. This profile would have to be well-researched and fair. The reporter had to substantiate that I was not some

malcontent federal employee who was justifiably punished, or there really was not a story at all.

The 3,500-word story ran on the front page of the *Washington Post Magazine* on March 3, 2016.⁵ Five days later I quit my career position with the USDA.⁶

A new beginning

In 2016, I decided that to transform farming along regenerative principles we needed a different approach to how agricultural science is done. I formed Ecdysis Foundation (a 501c3 non-profit corporation) and Blue Dasher Farm (a practicing regenerative farm) in Estelline, South Dakota, to change how the science was practiced free from the influences of agroindustry and the entrenched USDA research bureaucracy that enabled it. I was now free to pursue real solutions, rather than just pointing out problems with a broken system. This chapter of the story is still going on. Ecdysis and Blue Dasher Farm are thriving in pursuit of our mission of changing agriculture for the better.⁷

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⁵ Volk, S. 2016. Was a USDA scientist muzzled because of his bee research? *Washington Post Magazine*, March 3, at: https://www.washingtonpost.com/lifestyle/magazine/was-a-usda-scientist-muzzled-because-of-his-bee-research/2016/03/02/462720b6-c9fb-11e5-a7b2-5a2f824b02c9_story.html .

⁶ PEER website video, "Jonathan Lundgren, Former USDA Entomologist: A Bee Expert With His Integrity Intact," at: <https://www.peer.org/jonathan-lundgren-former-usda-entomologist-a-bee-expert-with-his-integrity-intact/> .

⁷ For more information about the Ecdysis Foundation, see <https://www.ecdysis.bio/> .