

Implementation of the Saving America's Pollinators Act of 2019



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EXECUTIVE SUMMARY

This report examines the Saving America's Pollinators Act of 2019 (H.R. 1337), a bill seeking to remedy the problem of pollinators decreasing in significant numbers due to the use of neonicotinoid pesticides. Between 2012 and 2018, commercial beekeepers reported annual hive losses within 35 and 46 percent, posing a harsh threat to the \$15,000,000 pollination service that honey bees provide. The bill proposes three solutions to this problem, which are to convene agricultural stakeholders to reform the pesticide approval process, ban neonicotinoid pesticides, and monitor pollinator populations. The first section of the report introduces the background of the bill, which is guided by over a decade's worth of scientific research by the Department of Agriculture and independent researchers on the economic and agricultural importance of pollinators and declining pollinator populations. The second section of this report will explain the three solutions proposed by H.R. 1337 and detail their implementation.

This report will detail the implementation of each mandate. The report will first discuss the goals of each mandate. Following this, the program design and implementation plans will be outlined. These include the staff and budget allocations, the metrics by which to measure success, and the timeline for implementation. Finally, this report will conclude with the immediate next steps that must be taken to successfully implement the Saving America's Pollinators Act Of 2019.

INTRODUCTION

The Saving America's Pollinators Act of 2019 (H.R. 1337) was introduced by Representative Earl Blumenauer (D-OR) as a remedy to reduce systemically high pollinator mortality rates, called Colony Collapse Disorder. Across the country, commercial beekeepers are losing up to 90 percent of their hives each year. In recent years, colony collapse disorder has destroyed upwards of 40 percent of bee colonies in the U.S., which is significantly higher than historic levels prior to the introduction of neonicotinoids, which was around 15 percent.¹ As a result, the crop farmers who depend on pollination services are finding it increasingly difficult to pollinate their crops, which ultimately threatens the nation's food supply. The bill distinguishes between commercial bees and wild pollinators because commercial bees are an important economic asset that can be managed by farmers; wild pollinators, on the other hand, are still important, but are unmanaged and far less understood. Thus, the bill focuses on this measurable known threat to commercial bees that are uniquely exposed to neonicotinoids because they are directly inserted into fields where these pesticides are applied. Neonicotinoid exposure can ultimately be lethal, outright killing bees on their own, as well as exacerbating other hive threats by degrading immunity, virility, and cognitive functions. As climate change creates warm temperatures in which crop pests can flourish, crop farmers will have to resort to more pesticides, ultimately harming bees, commercial bee farmers, and food supply security.

The Saving America's Pollinators Act of 2019 (H.R. 1337) would initiate a multi-agency effort to ban current neonicotinoid registrations, amend approval procedures for future pesticides, and require federal monitoring of native pollinator populations. These efforts contribute to the legislation's ultimate goal, which is to stabilize bee and pollinator mortality by ceasing further application of neonicotinoids and ensure food security. Without additional introductions of the chemical into the environment, current accumulations would be able to degrade over time. The absence of neonicotinoids in bee habitats would protect populations from the lethal and sublethal effects that leave them susceptible to colony collapse, disease, reproduction difficulties, and parasites. In addition, the bill aims to improve understanding of the agricultural and ecological services that bees and other pollinators provide—these data have been difficult to substantially quantify because those populations are not actively managed like commercial bees. A concentrated, interagency effort will enhance understanding of these populations and inform future policy concerned with conservation and food security.

¹ Saving America's Pollinators Act of 2019, H.R.1337, 116th Congress. (2019).

THE NEED FOR LEGISLATION

Food Crisis

Agriculture is essential to support the global population. For centuries, humans have actively managed crops by wielding natural processes and developing new tools in order to support growing demand. However, mechanization nor any other artificial means are yet able to replicate certain natural processes at a scale comparable to nature. Pollination, one of those processes, is an essential step in the proliferation of plant species, and is consequently a vital component of the global agricultural system. Some flowering plants are capable of self-pollination, but the vast majority rely on animal pollination: 78 percent of species in temperate climates and 94 percent of species in tropical climates are dependent on pollinators.² Figure 1 demonstrates global reliance on pollinators, and subsequently, food supply vulnerability to colony collapse disorder.

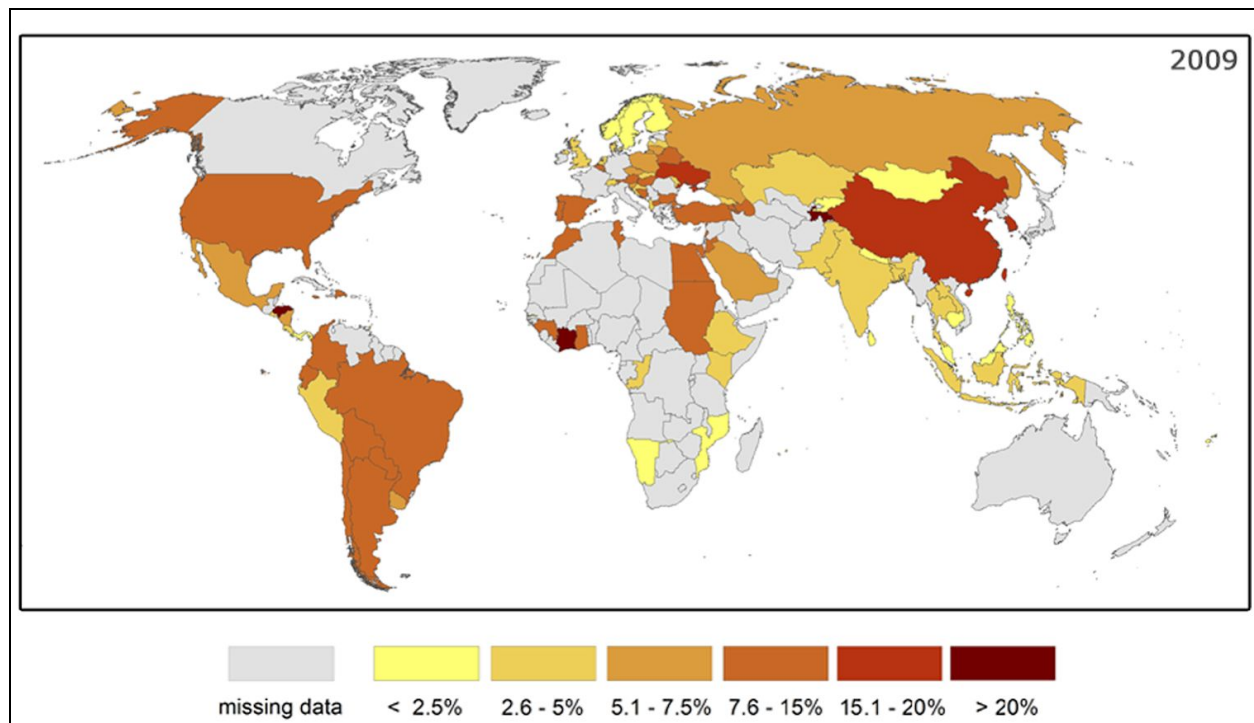


Figure 1. Spatial pattern of vulnerability. The maps show the national dependency of the agricultural GDP on pollination for the year 2009 as an indicator of the vulnerability of agriculture in the different countries.³

Any species that transports pollen between plants is considered a pollinator, the most notable of which are insects, birds, bats, and even humans. Bees, however, are the single most important pollinators for the US agricultural system, and their invaluable role has led humans to commercialize apiculture, or beekeeping. Commercialized honey bees and wild

² Ollerton, Jeff, Rachael Winfree and Sam Tarrant. "How many flowering plants are pollinated by animals?" *Nordic Society Oikos*, 22 October 2010. doi: 10.1111/j.1600-0706.2010.18644.x

³ Lautenbach, Sven, Ralf Seppelt, Juliane Liebscher, and Carsten F Dormann. "Spatial and Temporal Trends of Global Pollination Benefit." *PLOS ONE* 7, no. 4 (April 26, 2012): e35954. <https://doi.org/10.1371/journal.pone.0035954>.

native bees cumulatively pollinate 30 percent of the food currently produced in North America,⁴ including nearly 100 types of fruits and vegetables.⁵ Across the world, approximately 73 percent of cultivated crops—such as cashews, squash, mangoes, cocoa, cranberries and blueberries—are pollinated by some variety of bees.⁶ The commercial bee industry has been estimated to provide over \$15 billion in crop production annually. Native bees, which are not actively managed, provide an additional \$3 billion worth of crops to the United States.^{7 8}

Bees are the most critical pollinators, but all pollinator species are decreasing globally. Without reliable animal pollination, food security is compromised. If current trends in pollinator mortality continue, consumers will experience shortages of a startling number of fruits and vegetables. This would have a direct impact on household food budgets, which are, on average, a home's third highest expenditure. On a macro level, a food crisis would negatively affect agriculture's \$1 trillion contribution to US GDP and 21.6 million jobs.⁹ A commercial bee deficit of over 1 million has already affected California's almond industry, the state's largest export sector which supplies 80 percent of the world's almonds.¹⁰

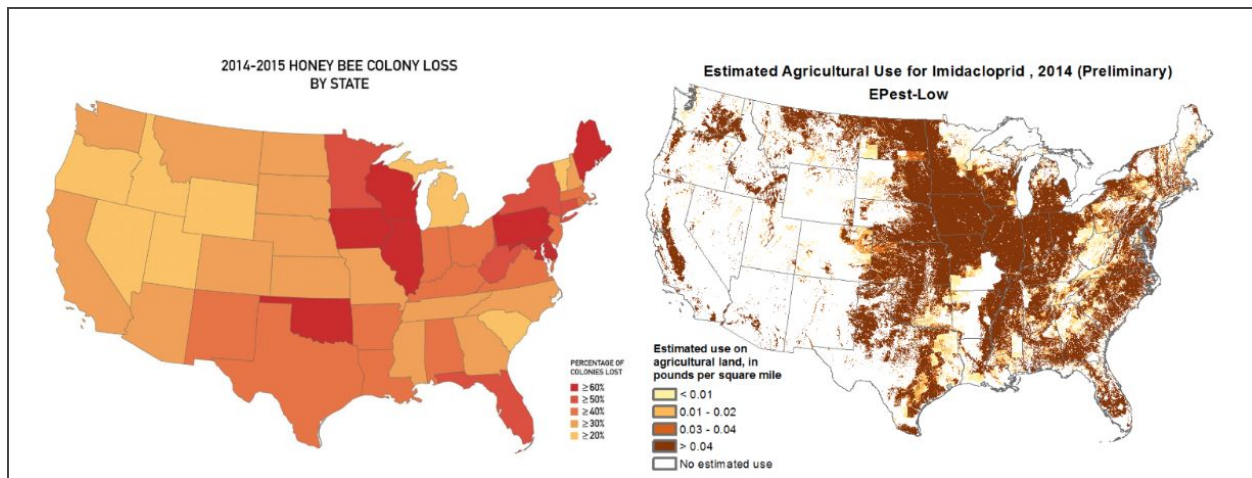


Figure 2. 2014-2015 honey bee colony loss (Bee Informed) compared to the estimated usage levels of imidacloprid (USGS). Darker areas of each map correspond to high levels of colony loss and high levels of pesticide usage, respectively.^{11 12}

⁴ United States. Cong. House of Representatives. Saving America's Pollinators Act of 2019., 116th Cong. 1st sess. HR 1337. Congress.gov. Online. <https://www.congress.gov/bill/116th-congress/house-bill/1337>.

⁵ Saving America's Pollinators Act of 2019, H.R.1337, 116th Congress. (2019).

⁶ Kleinschmit, Jim. "Unknown Benefits, Hidden Costs." Institute for Agriculture and Trade Policy, 5 Aug. 2015, www.iatp.org/documents/unknown-benefits-hidden-costs.

⁷ Hopwood, Jennifer, et al. "How Neonicotinoids Can Kill Bees: The Science Behind the Role These Insecticides Play in Harming Bees." The Xerces Society for Invertebrate Conservation. 2016, www.xerces.org/wp-content/uploads/2016/10/HowNeonicsCanKillBees_XercesSociety_Nov2016.pdf

⁸ Saving America's Pollinators Act of 2019, H.R.1337, 116th Congress. (2019).

⁹ United States Department of Agriculture Economic Research Service. "Ag and Food Sectors and the Economy." 2018.<https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy.aspx>

¹⁰ Kathy Garvey, "Troubling Honey Bee Shortage in California Almond Orchards. University of California Davis Department of Entomology and Nematology. February 8, 2013.

http://entomology.ucdavis.edu/News/Troubling_Honey_Bee_Shortage_in_California_Almond_Orchards/.

¹¹ University of Maryland. Loss Map. Bee Informed Partnership/University of Maryland/Loretta Kuo.

<https://www.eurekalert.org/multimedia/pub/91682.php?from=296073>. 2015.

¹² USGS. Estimated Annual Agricultural Pesticide Use. Pesticide National Synthesis Project.

https://water.usgs.gov/nawqa/pnsp/usage/maps/show_map.php?year=2014&map=IMIDACLOPRID&hilo=L. 2014.

THE SCIENCE OF THE PROBLEM

Pollinators are essential animals or insects, which transfer pollen from the anther of one flower to the stigma of another flower. A common example of pollinators is bees. Bees provide an irreplaceable ecosystem service to humans. Humans have commercialized this ecosystem service through commercial beehives strategically deployed to specific croplands that rely on animal pollination. However, they are deployed to environments in which they interact with toxic chemicals in the form of pesticides. Pesticides are any substances used to prevent, destroy, repel and control pests.¹³ Farmers commonly encounter the issue of pests. Pests are animals or insects that hinder the growth of, harm, and/or destroy of crops or food.

Farmers began to use pesticides in the United States in the late nineteenth century. Following World War II, chemical pesticides, such as DDT, use became widespread. In 1962, Rachel Carson published *Silent Spring* to expose the deleterious health and environmental effects of pesticide use. This seminal work highlighted the accumulation of chemicals in the environment and the increase in accumulation of chemicals as the food chain increases. This increase in accumulation has both acute and long-term implications for animal and human health. Following this, pesticide research and pesticide use shifted to pesticides targeted towards specific pests and those that did not affect humans or mammals. These pesticides have a devastating impact on their environment, potentially harming any organism with which they come into contact.

Climate can have a tremendous impact on the development and amount of pests due to insect body temperatures varying with the temperature of their surroundings. Researchers at the University of Birmingham in the Atmospheric Impacts Research Group estimate climate change will significantly increase pests and their adverse effects on agriculture.¹⁴ Since these insects are temperature-dependent, rising temperatures could promote ideal conditions for these pests to thrive for longer portions of the year. Similarly, with altering climate conditions in certain regions of the planet, pests may migrate to locations they were not previously found. For example, the European corn borer is expected to shift northward under current climate projections.¹⁵ Additionally, aphids have already been found flying up to four weeks earlier than the average likely due to the shortening winter season, especially in the UK where winters are mild.¹⁶ Even with the great uncertainty

¹³ "What is a Pesticide?" United States Environmental Protection Agency.

<https://www.epa.gov/minimum-risk-pesticides/what-pesticide>

¹⁴ Porter, J. H., M. L. Parry, and T. R. Carter. "The potential effects of climatic change on agricultural insect pests." *Agricultural and Forest Meteorology* 57.1-3 (1991): 221-240.

¹⁵ Porter, J. H., M. L. Parry, and T. R. Carter. "The potential effects of climatic change on agricultural insect pests." *Agricultural and Forest Meteorology* 57.1-3 (1991): 221-240.

¹⁶ Biotechnology and Biological Sciences Research Council. "Aphids Are Sentinels Of Climate Change." ScienceDaily. ScienceDaily, 12 August 2008. <www.sciencedaily.com/releases/2008/08/080806113145.htm>.

regarding how the climate will shift in the coming years, it is estimated that pests numbers will grow, leading to further economic losses from lower crop yields.¹⁷

Neonicotinoid Pesticides

Neonicotinoids were developed and first patented in 1985, reaching widespread usage in the 1990s.¹⁸ They are used on common staple crops, and other commonly grown fruits and vegetables to control aphid and other insect populations.^{19 20} The USDA has found that neonicotinoids are often used to treat pests on common vegetables and fruits including apples, strawberries, lettuce, and potatoes.

Neonicotinoids operate by disrupting neural transmission in the central nervous system of organisms. Neonicotinoids are sprayed on plant surfaces, coated on plant seeds and injected into plant roots and stems.²¹ They are systemic and are therefore absorbed and transported throughout the plant, including its pollen, nectar, and guttation water. Following contamination, the chemicals will indiscriminately come into contact with both target and non-target species, including critical pollinators such as bees. The target species are insects that are considered pests, which in the US are primarily aphids that can chew and suck on crops to the point at which the crops die.

The very definition of a pest is both anthropogenic and anthropocentric: it is defined by humans based on their own agricultural needs, not based on ecosystem services or biological taxonomy. Neonicotinoids are also found in soil fields where they are not directly applied because pollen or dust containing neonicotinoids pollen can be blown by the wind to nearby regions. Its long half-life enables the chemical to reside in soil for more than 1000 days and in plant tissues for more than a year, increasing the likelihood that pollinators will experience chronic exposure.²² There is a growing body of evidence supporting the notion that neonicotinoids pose serious risks to ecosystem functioning, resiliency, and the services and functions provided by terrestrial and aquatic ecosystems. Several studies have replicated beehives and observed how control hives survived in comparison to bees being fed imidacloprid sugar water. An *in situ* replication study focusing on honeybee colony collapse disorder as it relates to neonicotinoids was conducted by the Department of Environmental Health at the Harvard School of Public Health. This study lasted 23 weeks with 16 “neonicotinoid-treated hives” and 4 control hives. Over this timespan, 15 out of 16 neonicotinoid-treated hives collapsed, between 13 and 18 weeks, while only 1 out of 4 of the control hives collapsed, which took 21 weeks.²³

¹⁷ Porter, J. H., M. L. Parry, and T. R. Carter. “The potential effects of climatic change on agricultural insect pests.” *Agricultural and Forest Meteorology* 57.1-3 (1991): 221-240.

¹⁸ Tomizawa, Motohiro, and John E. Casida. “Neonicotinoid insecticide toxicology: mechanisms of selective action.” *Annu. Rev. Pharmacol. Toxicol.* 45 (2005): 247-268.

¹⁹ Ibid.

²⁰ Craddock, Hillary A., et al. “Trends in neonicotinoid pesticide residues in food and water in the United States, 1999–2015.” *Environmental Health* 18.1 (2019): 7.

²¹ Kleinschmit, Jim, and Ben Lilliston. “Unknown Benefits, Hidden Costs.” *Institute for Agriculture and Trade Policy* (2015).

²² Michelle L. Hladik, Anson R. Main, and Dave Goulson. “Environmental Risks and Challenges Associated with Neonicotinoid Insecticides” *Environmental Science & Technology* 2018 52 (6), 3329–3335. DOI: 10.1021/acs.est.7b06388

²³ Chensheng, L. U., Kenneth M. Warchol, and Richard A. Callahan. “In situ replication of honey bee colony collapse disorder.” *Bulletin of Insectology* 65.1 (2012): 99-106.

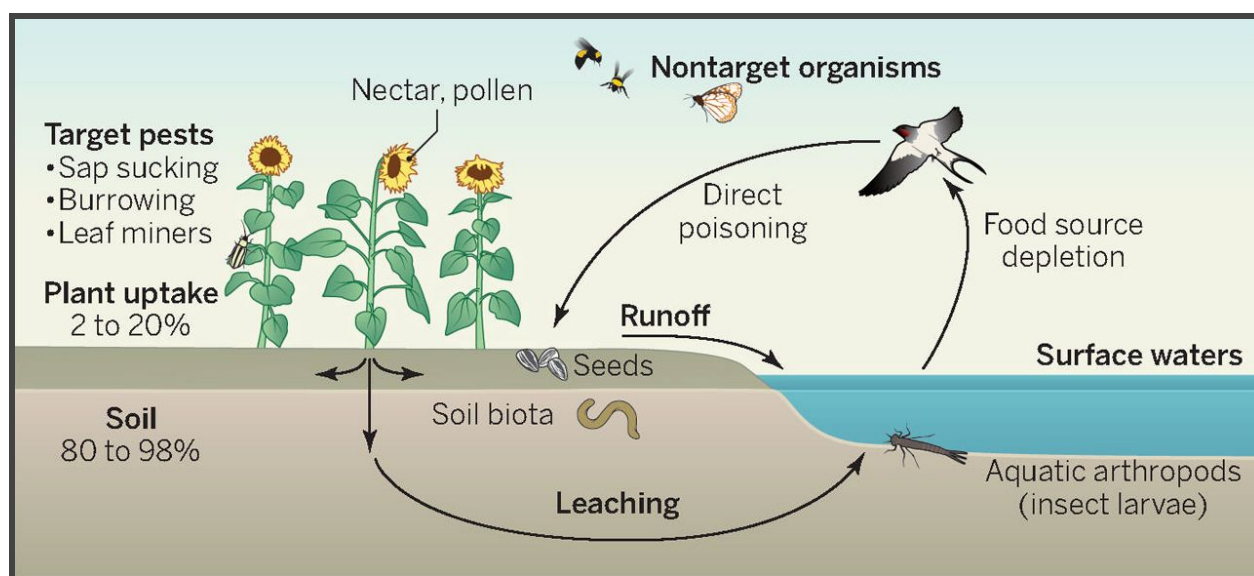


Figure 3. Illustration of the fate of neonicotinoids in surrounding environments and the pathways they take to reach non-target organisms.²⁴

Colony Collapse Disorder

Bees come into contact with neonicotinoids when they pollinate, consume guttation water from, and otherwise interact with, contaminated plants. A lethal amount will paralyze and kill a bee.²⁵ Sublethal amounts of neonicotinoids can disrupt a bee's cognitive and communication abilities by impairing its ability to learn, navigate and forage, but are not high enough to kill the bee immediately.²⁶ Bees risk the health of their hive when they return covered in neonicotinoids or carrying contaminated pollen.

Commercial bees become particularly exposed and vulnerable when they are employed to pollinate crops on which neonicotinoid pesticides had been applied. When a neonicotinoid is present in a beehive, likely contaminated by neonicotinoid-contaminated bees and pollen, it endangers the hive by:

- Reducing the viability of sperm stored in queen bees
- Increase the chances of breed failures
- Suppress the immune system response to viruses, diseases, and parasites
- Delay or cease the growth of colonies

These effects ultimately contribute to the colony failing as the bees die out.^{27 28} Colony collapse disorder (CCD) is the name given to the phenomenon of the increase in recorded annual colony loss since 2006 and the increasing number of beekeepers experiencing high

²⁴ Sánchez-Bayo, Francisco. "The trouble with neonicotinoids." *Science* 346.6211 (2014): 806-807.

²⁵ Saving America's Pollinators Act of 2019, H.R.1337, 116th Congress. (2019).

²⁶ Goulson, Dave. "An overview of the environmental risks posed by neonicotinoid insecticides." *Journal of Applied Ecology*, 2013, 977-987. <https://doi.org/10.1111/1365-2664.12111>

²⁷ Saving America's Pollinators Act of 2019, H.R.1337, 116th Congress. (2019).

²⁸ Ibid.

rates of loss.²⁹ Rather than being a specific disease, therefore, it describes widespread increased annual population declines. Colony collapse can occur when there is “an insufficient number of bees to maintain the amount of brood,” or the eggs, larvae, and pupae, “in the colony,” for example.³⁰

Scientific Consensus

Neonicotinoids are the most widely used class of pesticide in the world, and can disrupt a bee’s cognitive function negatively affecting reproductive success and immunity within the hive.³¹ Neonicotinoids pose negative impacts on pollinators, in soil and water systems that have far-reaching consequences that extend into ecosystems, biodiversity, the food supply chain, and human health. In 2015, 42 percent of bee colonies in the US collapsed, and on average, two-thirds of beekeepers experienced loss rates greater than the established acceptable winter mortality rates.^{32 33} Its long half-life can allow the substance to persist in soil for more than 1000 days and reside in plant tissues for more than a year, allowing the pollinators to be exposed to the chemical for extended periods of time.³⁴

Research on neonicotinoids in produce has shown 90 percent of honey, 72 percent of fruit, and 45 percent of vegetables tested in a study were positive for one or more neonicotinoids.³⁵ Neonicotinoids do not affect mammalian nicotinic acetylcholine receptors in the same manner, so insects are at a much higher risk for the toxic side effects. While low concentrations have not been shown to cause adverse health effects in humans, the range of these values is higher than the LD₅₀ (lethal dose of a toxic substance that can kill 50% of a population) for bees. These neonicotinoids cannot simply be washed off produce and continually accumulate in soil over time.

According to the USDA, current losses of honey bee colonies are too high to confidently ensure the United States will be able to meet the pollination demands for agricultural crops.³⁶ Having confirmed their toxicity towards pollinators and underlying negative consequences on food production and security in Europe, the EU banned neonicotinoid use in 2013, reaching a consensus that neonicotinoids are detrimental to bees.³⁷ Despite

²⁹ Ellis, James D., Jay D. Evans, and Jeff Pettis. “Colony losses, managed colony population decline, and Colony Collapse Disorder in the United States.” *Journal of Apicultural Research*, Vol. 49 No. 1, 2010, 134.

³⁰Ibid.

³¹Goulson, Dave. “An overview of the environmental risks posed by neonicotinoid insecticides.” *Journal of Applied Ecology*, 2013, 977–987. <https://doi.org/10.1111/1365-2664.12111>

³² Saving America's Pollinators Act of 2019, H.R.1337, 116th Congress. (2019).

³³ Zissu, Alexandra. “The Buzz About Colony Collapse Disorder.” NRDC. www.nrdc.org/stories/buzz-about-colony-collapse-disorder. 4 Oct. 2017.

³⁴ Michelle L. Hladik, Anson R. Main, and Dave Goulson. “Environmental Risks and Challenges Associated with Neonicotinoid Insecticides” *Environmental Science & Technology* 2018 52 (6), 3329–3335. DOI: 10.1021/acs.est.7b06388

³⁵ Chen, Mei, et al. “Quantitative analysis of neonicotinoid insecticide residues in foods: implication for dietary exposures.” *Journal of agricultural and food chemistry* 62.26 (2014): 6082–6090.

³⁶ Saving America's Pollinators Act of 2019, H.R.1337, 116th Congress. (2019).

³⁷ Ribeiro, Susana De Almeida. “Neonicotinoids.” *Food Safety – European Commission*, 10 Sept. 2018, ec.europa.eu/food/plant/pesticides/approval_active_substances/approval_renewal/neonicotinoids_en.

substantial scientific evidence confirming their lethal effects and numerous international bans, neonicotinoids are still unregulated in the US.

There is an international scientific consensus that neonicotinoid use, among other pesticide use and additional dangers, such as climate change, threaten pollinator health. There is also agreement on the potentially catastrophic condition of declining pollinator population and health. Due to the invaluable and irreplaceable role pollinators play, declines in their population will lead to an increasingly fragile food system and decreased biodiversity.

H.R. 1337 OVERVIEW

H.R. 1337, or The Saving America's Pollinators Act of 2019 (SAPA), seeks to reduce the harm done to bees and other pollinators by examining the effect of certain pesticide chemicals on pollinators and their habitats. The bill was introduced by Representative Earl Blumenauer (D-OR), and is the fifth version of SAPA since 2013. The bill builds upon previous versions of SAPA by including a provision that would require the administrator of the Environmental Protection Agency (EPA) to establish a board that would be authorized to review, for registration, pesticides that pose a threat to pollinators and their habitats. The bill would be a significant legislative action following previous presidential and judicial mandates to reduce harm and increase bee populations.

With its reintroduction, H.R. 1337 ultimately seeks to stabilize bee mortality by ceasing further application of neonicotinoids. Without additional introduction of the chemical into the environment, current accumulations would be able to degrade over time. The absence of neonicotinoids in bee habitats would protect populations from the lethal and sublethal effects that leave them susceptible to colony collapse, disease, reproduction difficulties, and parasites. In addition, the bill aims to improve understanding of the agricultural and ecological services that bees and other pollinators provide—these data have been difficult to substantially quantify because those populations are not actively managed like commercial bees. A concentrated, interagency effort will hopefully enhance understanding of these populations and inform future policy concerned with conservation and food security.

Pollinator Protection Board

H.R. 1337 builds upon previous versions by including a provision that would require the Administrator of the Environmental Protection Agency (EPA) to establish a board that would be tasked with reviewing applications for pesticide registrations. The Board, housed under the EPA, would inform policies under the Departments of the Interior (DOI) and Agriculture (USDA). Under current law, pesticide producers are required to prove that their products do not adversely affect humans or the environment, but not specifically pollinators. The bill would require the Board to assume the task of proving that a pesticide

would not harm pollinators using peer-reviewed studies, reducing the risk of biased or misleading safety reports.

The EPA Administrator would appoint members of the Board from nominations submitted by states, beekeeping organizations, and other interested parties. Board membership would include:

- 2 organic farmers
- 2 non-organic farmers
- 4 scientists
- 1 commercial beekeeper
- 1 chemical free beekeeper
- 1 hobbyist beekeeper
- 3 representatives of conservation organizations
- 1 commercial enterprise that work to protect bees

Board action would be decided by a two-thirds votes, with the Board Chair retaining equal voting power as other members. It is important to note that the Board would be comprised of all, if not most, of the major stakeholders involved in this issue. Ultimately, the creation of the Pollinator Protection Board would relocate the burden of proof in order to eliminate bias, track and analyze current research, and involve relevant stakeholders in regulatory decision making.

Neonicotinoid Ban

The bill would prohibit the EPA from issuing any new registrations for any pesticide seed treatment, soil application, and foliar treatment on bee-active plants, trees, and cereals. In addition, the bill would require the EPA to cancel the registrations of any pesticides registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) containing eight common neonicotinoids. Exemptions for pesticide registrations would be authorized in the event of an emergency pest outbreak. Neonicotinoids are engineered to kill pests that damage crops; aphids (a sucking insect) are the primary target. If the immediate risk posed by aphid damage were to outweigh the immediate risk posed by neonicotinoid application, it is possible that the “emergency” stipulation of the bill would come into play. However, this otherwise undefined stipulation would ultimately fall under the jurisdiction of the Board.

These cancellations would remain in effect until the Board has made a determination that a given insecticide would not cause unreasonable adverse effects on pollinators. It also would make additional registrations conditional upon an evaluation and field study conducted by the Board. Under FIFRA, the EPA is the primary federal regulator of pesticides -- state agencies may approve stricter regulations. This component aims to reduce the accumulation of neonicotinoids in the environment until the Board has reached a consensus on the safety of said pesticides.

Pollinator Research

Finally, the bill would require the DOI, in coordination with the USDA and the EPA, to monitor pollinator health and habitats, with a specific focus on improving understanding of under-researched wild bees. DOI would use findings and resources from the Pollinating Insects Research Service under the USDA's Agricultural Research Service (ARS) and the EPA's Pollinator Protection Board to submit and publish an annual report. The U.S. Fish and Wildlife Service would collaborate with the ARS, and universities to conduct native bee surveys—which will most likely inform a large part of the annual report. Additional studies funded by USDA's National Institute of Food and Agriculture and the National Science Foundation on other causes of pollinator decline (e.g. climate change and land-use) would likely inform the report as well.³⁸ The inclusion of this component in the bill holds these agencies accountable to continue, and in some cases expand, their research efforts on pollinator health and habitats. This research will also inform the Board, as outlined in the first component of the bill.

³⁸ Health, Pollinator, and Task Force. "Pollinator Research Action Plan." Improving the Health of Honey Bees and Other Pollinators: National Strategy and Research Action Plan, 2016.

Current Federal Structure

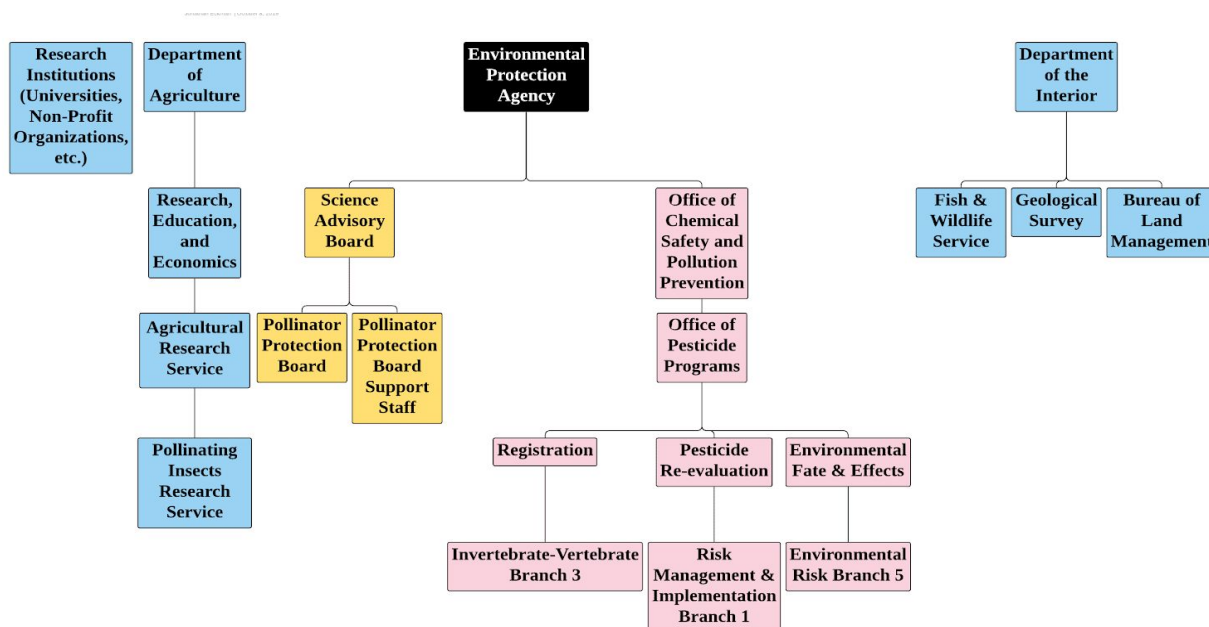


Figure 4. Current structure of federal agencies that oversee pesticide use.

Under current law, pesticide producers are required to prove that their products do not adversely affect humans or the environment, but not specifically pollinators. Pesticides are regulated under several pieces of legislation, the Code of Federal Regulations at 40 CFR Part 158, FIFRA and the Pesticide Registration Improvement Act of 2003 (PRIA). The majority of the governmental work and regulation of neonicotinoids resides within the Office of Pesticide Programs, which is within the Office of Chemical Safety and Pollution Prevention, which is within the Environmental Protection Agency. The Registration Division and Re-Evaluation Division are concerned with the initial registration and recertification of pesticides, and the Environmental Fates and Effects Division handles the environmental analysis of neonicotinoids.

The process of pesticide approval and registration rely on EPA staff, who are assigned as program managers for each pesticide to work closely with manufacturers to assist them through the process. Although the EPA requires scientific data and risk assessments conducted on each pesticide to be reviewed by an EPA panel, in lieu of conducting tests themselves, the EPA accepts this data on a specific pesticide's safety and potential effects from research conducted by the manufacturers themselves. This creates a conflict of interest where future profit of manufacturers are dependent on the results of their sponsored scientific studies.

Bees and other beneficial insects are not tested for pesticide residue exposure in this system, and toxicity of direct application of pesticide droplets (using the acute contact LD50 study) and foliage exposure are only tested for lethality. The process does not test for the many sublethal effects neonicotinoids trigger in bees, or how it affects CCD.

For federal research that does happen with bees, pesticide effects are not studied. Health and management for honeybees occurs under the USDA Agricultural Research Service division through its 4 bee labs, that focus primarily on diseases, pests, biological studies, and colony health. The USGS handles research on native pollinators through its Native Bee Inventory and Monitoring Lab, whose goal is to improve native pollinator conservation in existing programs and well as provide information and outreach materials. There is not currently a national protocol for the inventory and monitoring of native bees.

Short and Long Term Legislative Goals H.R. 1337

H.R. 1337 has short, medium and long term goals developed based on peer reviewed science and expert testimonial. These targets assume full compliance with the bill as denoted in the implementation timeline (see page 23), and take into consideration the chemical half-life of neonicotinoid pesticides in the environment.

Short term (2 years)

- Discontinued manufacturing of over 1600 banned pesticides in 1 year
- Neonicotinoid application reduced to 0 pounds per acre in 2 years

Medium term (3-7 years):

- Decrease in soil accumulation to pre-neonicotinoid baseline of 0 ng/g
- Stabilize colony loss and reach acceptable loss rate of 20%

Long term (7+ years):

- Nationwide comprehensive monitoring program on wild bee health
- Reach pre-neonicotinoid colony loss rates of 10%-15% annually

OVERALL PROGRAM SUMMARY

The Program itself is typically divided up by mandate. Portions of this summary section are still separated by mandate; however, all of these mandates are intimately connected and build upon one another. Provisions build on each other by the board cancelling neonicotinoid registrations, carrying out the notifications and bans, and collect data on neonicotinoid levels. The program exists in silos of mandates, but the interconnectedness and cooperation of all mandates ensure food security through pollinator protection.

- 1) The Pollinator Protection Board would be composed of appointed stakeholders

invested in pollinator and agricultural health (organic farmers, commercial beekeepers, scientists, and conservationists, etc.). This Board would create a new evaluation process that is pollinator-centric to approve safe, new pesticides.

- 2) The registration cancellation would cease the manufacturing and sale of neonicotinoids to halt the chemical accumulation behind colony collapse disorder.
- 3) The pollinator monitoring mandate would coordinate federal and non-federal research to understand the effects of pesticides on commercial pollinators and wild pollinators. This research would feed into the Board's evaluations.

The bill requires coordinated action by three federal agencies:

- Environmental Protection Agency - The ultimate authority on pesticide regulation
- Department of Interior - Monitors pollinator and ecosystem health through its conservation mission
- Department of Agriculture - Oversees food policy and provides research grants.

The mandates created by the bill would require the EPA to hire nine new staff members. The program design incorporates deadlines set by the bill starting six months after its implementation. The first half of the year would primarily be spent staffing for the program, communicating with entities affected by the ban, and coordinating agency roles. After staffing and appointments, the first Board meeting would convene the stakeholders to establish a baseline framework of the problem, as well as determine the role that each member plays within the Board's evaluation mandate.

The Cancel registration date would be the culmination of communication between the federal government and registration holders. The Administrator of the EPA would first issue a Notice of Intent to Cancel to the USDA for private comment, then a public comment period for registration holders. That comment period could influence when retailers are prohibited from selling these pesticides in year two, but it would not affect the strict manufacture-stop date at 6 months.

The annual report would be an analysis of neonicotinoids impacts as currently understood. It would be jointly produced by existing EPA, DOI, and USDA staff using current literature to inform the first Board meeting. Subsequent reports would include new research as coordinated by the agencies.

The three federal agencies will identify study sites and research partners, and publish the initial literature outlining the scope of the problem and work to be done. This will set up research on commercial and wild pollinators in subsequent years.

Implementing this program would cost \$1.4 million in this first year. One third of that will go towards paying for the 9 new staff members in the EPA, but does not include their full year salaries because they would not be hired until at least the spring. The remaining and majority of the budget would go towards non-personnel service, which includes recruiting

new staff, organizing Board meetings, communicating with stakeholders, publications, and ban enforcement training. This budget includes the cost of the government coordinating with outside, ongoing research, but does not fund new research.

Finally, the first year will use operational milestones to gauge progress towards the bill's long-term goals. In the first year, the Pollinator Board will be fully appointed and staffed, and ready to begin its new pollinator-centric evaluation process for pesticides. The ban will have gone into effect, canceling registrations and ending the manufacture of neonicotinoids. After manufacturing ceases, we hope to see a 25% reduction in neonicotinoid application, and even greater reductions in the second year after the prohibition on the sale of remaining stock goes into effect.

MANDATE 1: POLLINATOR PROTECTION BOARD

Provisions

H.R. 1337 requires that the EPA establish a Pollinator Protection Board (§3(a)). The Board must include one commercial beekeeper, one chemical-free beekeeper, one hobbyist beekeeper, two organic farmers, two conventional farmers, three representatives of environment, conservation, or resource organization, and one representative of a commercial enterprise that protects bees (§3(b)). The Administrator of the EPA selects the board members after receiving nominations from States and beekeeping organizations, and members would serve for five years (§3(c), (d)).

Goals

The goal of this mandate is to provide a dedicated authority on reviewing pesticides that could adversely affect pollinators and to ensure that the varying viewpoints on the intersection of pollinator health and agriculture are represented in the problem's solutions. One of the metrics for success of the Board is how well it represents the broad range of stakeholders involved in this issue. That range would provide knowledge and experience that aids a comprehensive review process. Furthermore, the diverse stakeholders on the board aim to remedy the disconnect in priorities between urban and rural populations complicates this bill's passage. Urban voters and residents' economic livelihood are not directly tied to the decision to use neonicotinoids for easy pest management. Thus, the lack of rural cosponsors indicates that rural voters find neonicotinoids to be an effective short-term pesticide, even though they pose long-term agricultural consequences.

Program Design: Open Board Member Nomination and Selection Process

The program design options for the Pollinator Protection Board primarily involve the board member nomination and selection process. In order to ensure the process remains nonpartisan, the EPA should issue a public notice via the Federal Register (similar to the

process for the Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel³⁹) available to all or as many as practicable:

- Environment-related state agencies
- Beekeeping associations
- Farmers unions and associations
- Nonprofit organizations working on pollinator-related issues
- Scientist associations, and
- Other relevant organizations

The selected organizations must represent a diverse array of stakeholders and must acknowledge the outsized role that rural stakeholders, including but not limited to farmers and beekeepers (who are in themselves a type of farmer) play in this issue. The Federal Register notice would outline a formal process for submitting nominations to the EPA. In addition, the EPA would also reach out to states for nominations. This can be done through two informal channels. The first way would be for the EPA to contact organizations that represent state interests, such as the National Governors Association. These organizations have access to state governments and networks of experts and interests that could fulfill the bill's mandate. The other method is for the EPA to contact a governor's office directly to solicit nominations. In addition to being informal, both of these methods and inexpensive, and would usually take about six to eight weeks.⁴⁰

The Administrator, in making their selections from the pool of nominees, should be required to submit a written public justification for each selection and to consider geographic diversity (as well as the sector diversity already required by the bill). This process, which would require a significant investment of time, would be housed within the office of the EPA Administrator and would require a new staff member to serve as liaison between the Pollinator Protection Board and the Administrator, as well as to prepare a list of organizations and individuals to target for potential nominations.

Implementation

The Pollinator Protection Board will be established under the EPA with a total of 15 unpaid board members to fulfill Mandate 1, as shown in the table below:

Category (Number of Members)	Division of Sectors		
Farmers (4)	Organic (2)		Non-organic (2)
Beekeepers (3)	Commercial	Chemical-free	Hobbyist

³⁹ EPA, "Request for Nominations of Experts To Consider for ad hoc Participation on Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Scientific Advisory Panel (SAP)," the Federal Register, 28 September 2018, <https://www.federalregister.gov/documents/2018/09/28/2018-21196/request-for-nominations-of-experts-to-consider-for-ad-hoc-participation-on-federal-insecticide>.

⁴⁰ Andrew Laughlin, former NGA staff, personal communication, October 11, 2019.

Scientists (4)	At least 1 expert in native bees
Environmental Organization Representatives (3)	Environmental Organization Representatives
Representative of Company that Protects Bees (1)	Representative of Company that Protects Bees
Total	15

It will be housed as a subcommittee of the Science Advisory Board due to the federal government's restriction on the number of boards permitted to exist, but it will remain the definitive authority on pollinator-affecting pesticides as required by H.R. 1337.

In addition to the 15 members the legislation stipulates, it is recommended to add 4 additional Support Staff housed within the board, ultimately reporting to the chairperson of the board, as shown below:

- One will be the executive director who reports to the board and oversees the remaining support staff
- One will be the liaison between the Board, EPA Administrator, Office of Pesticide Programs, Department of Agriculture, and Department of the Interior;
- One will provide administrative support to the Board;
- One will serve as interagency research coordinator.

Role	Government Title & General Schedule (GS) Level	Reports To
Executive Director of the Board	Environmental Protection Specialist, GS 12-14	Director of the Science Advisory Board Staff Office
Interagency & external research coordinator	General Natural Resource Manager and Biological Scientist, GS 9-11	Executive Director
Liaison between the Board and other divisions and agencies	Manager & Program Analyst, GS 9-11	Executive Director
Administrative support	Miscellaneous Clerk and Assistant, GS 4	Executive Director
Total	4	

Performance Management

Managing the performance of the Pollinator Protection Board will include measuring the number of board members (15 are required) and staff recruited, the number of board meetings held, the quantity of communication with the Office of Pesticide Programs, the USDA, and the DOI, and the number of reports produced. An important qualitative metric will be representation on the Board. The 15 members must come from diverse sectors like farming, beekeeping, entomology, and others. This representation must be tracked and ensured to guarantee the Board's success in its goal to represent the diversity of background and perspective on this issue. Coordination among these agencies and diverse representation will enhance the legitimacy of the Pollinator Protection Board and provide a definitive authority on the effects of neonicotinoids on pollinators. These metrics will be collected primarily by direct reporting from the Board's support staff to the executive director, and then to the EPA administrator. The specific indicators used to track success are listed in the table below.

Provisions	Indicators	Outcome
Board cancels current and future neonicotinoid registrations	15 new Board members representing diverse stakeholders	Dedicated authority on pollinator health
Supports research	4 new EPA staff	Greater understanding of neonicotinoids
Coordinates federal policy	2 Board meetings	Minimize impacts to farmers and suppliers and promote viable alternatives

MANDATE 2: NEONICOTINOID REGISTRATION CANCELATION

Provisions

H.R. 1337 requires that all current registrations of pesticides containing neonicotinoids be canceled and be restored only when deemed safe to pollinators by the Pollinator Protection Board (§4(a)). It also requires that all future registration applications of pesticides containing neonicotinoids be reviewed by the Board and registration will be denied if the pesticide is found to have adverse effects on pollinators (§4(b)).

Goals

The goal of this mandate is to halt the increase in the concentration of neonicotinoids and to allow time for the current level of neonicotinoids in the environment to degrade, thereby providing a chance for pollinator populations to recover and for more comprehensive research and discussion amongst stakeholders to occur. Discontinued

manufacturing of over 1600 banned pesticides the first year of the bill will ideally lead to a 25% reduction in the neonicotinoid application rate. Within two years, the target neonicotinoid application rate will be 0%. Eliminating the application will facilitate the degradation of accumulated neonicotinoids in various ecosystems. It will take 1-3 years to reach a pre-neonicotinoid baseline of 0 nanograms per gram of soil, depending on environmental factors such as precipitation and human disturbance. In the long term, eliminating neonicotinoids from the environment will allow for a halt in colony collapse, and eventually a stabilization of colony loss to around 20% annually. While this is higher than historical loss rates, the US agricultural industry can afford to lose roughly 20% of commercial bee hives and still meet domestic commercial pollination demand. With rigorous implementation of the neonicotinoid ban, the colony loss rate should stabilize to pre-neonicotinoid levels and reach 10-15% annually within 5-7 years.

Program Design: Pollinator Protection Board as Autonomous Authority

The program design options for neonicotinoid registration cancellation cover the organizational placement of the Pollinator Protection Board and its administrative authority to review pesticide registrations. One option is for the Board to remain a standalone entity within the EPA, reporting only to the Administrator. This placement would provide it wider latitude in exercising its authority over registrations of pesticides that contain neonicotinoids, thereby allowing it to fulfill the bill's goals of halting the decline in pollinator populations and stopping the increasing concentrations of neonicotinoids in the environment. The Office of Pesticide Programs is currently the office in the EPA that reviews, and approves or denies, pesticide registrations.⁴¹ Under this approach, this office should continue to do so and support the Pollinator Protection Board in its review of neonicotinoid pesticides. While the final authority over registration of pesticides containing neonicotinoids lies with the Board, the Office of Pesticide Programs should provide its experience and workflow in accepting applications, communicating with applicants, reviewing applications, and providing its review to the Board. A drawback of this approach is that it could disrupt the current EPA structure, create new workflows, and leave the Board in a position where it is partially duplicative of the Office of Pesticide Programs.

Implementation

As the ultimate regulatory authority, the EPA shall provide oversight on the implementation of the bill. The Federal, Insecticide, Fungicide, and Rodenticide Advisory Panel will contribute scientific advice to inform the Office of Pesticide Programmes policy work. Other key partners will include the US Fish and Wildlife Service, Bureau and Land Management, and the US Geological Survey, within the Department of Interior Ecosystems and Land use. Meanwhile the US Pollinating Insect Research Service will conduct

⁴¹ EPA, "Contact Us about Pesticide Registration," <https://www.epa.gov/pesticide-registration/forms/contact-us-about-pesticide-registration>.

pollinator research for the Department of Agriculture. The Pollinator Protection Board under the EPA will build onto the work conducted by the three agencies

Aside from building a Pollinator Protection Board, it is also recommended to include the Office of Pesticide Programs housed under the Office of Chemical Safety and Pollution Prevention within the Environmental Protection Agency to support the mandate banning neonicotinoids. Of the 9 divisions within the Office of Pesticide Programs, the following 3, Registration Division, Pesticide Re-evaluation Division and Environmental Fate and Effects Division, would be involved with the neonicotinoid ban due to the existing nature of their work. Each division will employ new staff in addition to the current staff to fulfill Mandate 2. The staff arrangement is shown in the following table:

Division	Registration	Pesticide Re-evaluation	Environmental Fate & Effects
Branch	Invertebrate-Vertebrate Branch III: Insecticides, Structural Fumigants, Rodenticides, Wildlife Control Products (Including Contraceptives)	Risk Management & Implementation Branch I: Diazinon, Dimethoate, Glyphosate, Neonicotinoids, Rodenticides	Environmental Risk Branch V
New Staff	1	2	2
New Staff Title & Supervisor	General Natural Resources Manager and Biological Scientist (GS 9-11) Reporting to Branch Chief	Environmental Protection Specialist (GS 9-11) Reporting to Branch Chief	General Natural Resources Manager and Biological Scientist (GS 9-11) Reporting to Branch Chief
Total Staff	6 (5 current + 1 new)	6 (4 current + 2 new)	7 (5 current + 2 new)

These staff will be hired to accommodate the increased workload caused by the banning of neonicotinoids. The day-to-day responsibilities include receiving and processing pesticide registration applications, liaising with applicants and registrants, reviewing pesticide effects, issuing determinations on pesticide registrations, and issuing registration cancelations. The increased staff, in addition to their existing day-to-day responsibilities, will assist the Board in issuing registration cancellation notices, reviewing new applications, and fulfilling the rest of the existing registration receipt, review, and determination workflow. This methodology reduces the administrative burden on the office, allowing work to continue with minimal interruption while fulfilling the requirements of the bill.

Performance Management

The core metric to be measured for the neonicotinoid registration cancelation will be the number of pesticide registrations canceled. There are over 1,600 neonicotinoid pesticides registered, and the goal is for that number to be 0 within the first year of the program. Doing so involves the Office of Pesticide Programs issuing a Notice of Intent to Cancel (NOIC) to the registration holder via the information on file. Both NOICs and complete cancelations will be tracked within the Office, as will future neonicotinoid pesticide registration applications or re-applications. This information will be tracked primarily by the OPP but will also be reported to the Pollinator Protection Board in order for it to fulfill its responsibilities in reviewing and deciding on pollinator-affecting pesticides. Other metrics to be tracked will be the amount of neonicotinoids applied (which will be provided by the U.S. Geological Survey (USGS), part of the DOI, given its existing work in that area) and amount of neonicotinoid pesticide stocks still available on the market. In the first year, the focus will be on issuing all NOICs and subsequent years will focus on enforcement, guaranteeing that neonicotinoid pesticide production has stopped, and mitigating existing stocks.

Provisions	Indicators	Outcome
Notification of registration holders, pesticide suppliers, and farmers	1600+ pesticide registrations cancelled	Compliance from pesticide manufacturers with ban on 8 neonicotinoids
Manufacturing of banned products ends in 180 days	5 new EPA staff within the Office of Pesticide Programs	Conditions created for full compliance in year 2
	25% reduction of neonicotinoid application rate	

MANDATE 3: POLLINATOR RESEARCH

Provisions

The bill mandates that the Secretary of the Department of the Interior (DOI) coordinate with the administrator of the EPA and the Secretary of the USDA “for purposes of protecting and ensuring the long-term viability of native bees and other pollinators of agricultural crops, horticultural plants, wild plants, and other plants” (§4(c)).⁴² They must submit an annual report on native bee and other pollinator health and population status (§4(c)(4)).

⁴² “H.R. 1337 — 116th Congress: Saving America’s Pollinators Act of 2019,” <https://www.congress.gov/bill/116th-congress/house-bill/1337/actions/2019>.

Goals

The goal behind this mandate is primarily to conduct more research on the health of non-commercial bees—native or wild bees and other pollinators, including butterflies, birds, and bats—and to confirm or qualify existing research on commercial bee health. The research will inform the decisions of the Pollinator Protection Board and other agencies.

Program Design: Interagency Coordination

Given the personpower, time, and network it would require to undertake monitoring of pollinator populations, DOI, USDA, and the EPA should coordinate with universities, research institutions, and non-profit organizations—particularly those focused on entomology—to conduct this research and monitoring. These departments and agency should provide grants to researchers and should coordinate the research from regional and national perspectives. The majority of the fieldwork costs of surveying will be due to sample processing, which will inform how the work is divided.⁴³ The National Center for Environmental Research within the EPA currently provides grants for approved research projects and should continue to fill the same role regarding pollinator research under this bill.⁴⁴ This would likely still require an additional staff member in the DOI or the EPA to coordinate the research and to liaise with the Pollinator Protection Board. Under this option, the EPA, USDA, and DOI should also continue its existing monitoring of pollinator populations and should accelerate and expand such research. Delegating to universities, non-profit organizations, and other institutions would ease the burden of this work and allow each organization to specialize and focus on its area of existing regional and scientific expertise. This approach runs the risk of duplicating efforts; it is therefore important that the work be coordinated and that its goals be clear.

Implementation

To monitor native bee and other pollinator populations, the EPA, Department of Agriculture, and the Department of the Interior will conduct their own research. They will also coordinate and contract with universities and other research institutions to utilize and facilitate ongoing research in order to fulfill the research and monitoring responsibilities. There will be 1 new staff member to serve as interagency research coordinator housed in the Pollinator Protection Board's support staff.

There should be a centralized system for tracking communications between the Pollinator Protection Board, OPP, USDA, DOI, and external research institutions. Such a system, rather than a disparate network of communication media, would help to ensure the quality and quantity of the work and would make facilitating and managing the work easier.

⁴³ Droege, Sam. Personal interview. 2 May 2019

⁴⁴ EPA, "Contact Us About Research Grants," <https://www.epa.gov/research-grants/forms/contact-us-about-research-grants>.

Performance Management

In the first year, the main metrics would be the quantity of communication between the aforementioned entities. In subsequent years, the number and amount of contracts provided to external research institutions, as well as the results of those contracts, will be a key metric.

Key environmental metrics will be population numbers and mortality rates of commercial honeybees and wild pollinators, including wild bees, birds, bats, and butterflies. Current annual loss rates for commercial honey bees range from 20% to 100%, with averages of approximately 20-40%. Currently there is "no systematic data" on populations of native bees.⁴⁵ It is expected that loss rates for wild pollinators are similar, as commercial bees are considered an indicator or umbrella population of environmental exposure and risk. The goal is to reduce mortality to no more than 20%, with a target of 10-15%, which is the historical average loss rate (given the natural loss that comes with winter).

Provisions	Indicators	Outcome
Gather data on broader impacts of neonicotinoids on pollinator health	Disburse \$14 million minimum in research grants	Greater understanding of wild bees
Continued USDA tracking of commercial bees	5 commercial farm study sites	Integrate protection of wild bees into federal environmental agenda
	Methodologies and partners identified for future monitoring	

COLLECTION, REPORTING, AND FEEDBACK

To receive and assess the metrics described above, the EPA will rely on internal data collection and tracking, external evaluations, and interagency collaboration. Data collection will involve internal audits, particularly of the OPP's progress on pesticide cancellations, and external research, such as on wild pollinator populations, commercial bees, and use of neonicotinoids.

- **Monitoring:** The health of commercial bees will be assessed and monitored using five test farms selected and carried out by the USDA. Wild pollinator monitoring, led by the USDA and the DOI with external research institutions and in consultation with the Board, will begin in year two. This will monitor the rates of pollinator decline and hopeful stabilization.
- **Industry data:** The OPP, USGS, and USDA will track neonicotinoid registrations, sales, and application rates, as well as reported commercial hive loss. This will

⁴⁵ Droege, Sam. Personal interview. 2 May 2019.

monitor the decline in neonicotinoid registrations, tracking the 1,600 registration, monitoring the decline to zero, and ensuring a 25% reduction of neonicotinoid application rate.

- Operations: The EPA, primarily through the Board's support staff, will track the funds expended, staff hired, and meetings held.

Reporting and feedback will be carried out by interagency data sharing, meetings, and public facing reports that highlight the progress that the Board and OPP staff make toward the goals outlined above.

- Reports: The Board will issue quarterly reports on pesticide research and pesticide registration statuses to inform the EPA, USDA, and DOI. These reports will track the number of pesticide registrations and the improved understanding of the effects of pesticides on pollinators.
- Meetings: The Board will hold biannual meetings and the OPP will hold quarterly meetings to review implementation of the neonicotinoid registration cancelations.
- Publications: The Board, USDA, and DOI will release an annual public facing report on pollinator population statuses and ongoing research and initiatives.

TIMELINE

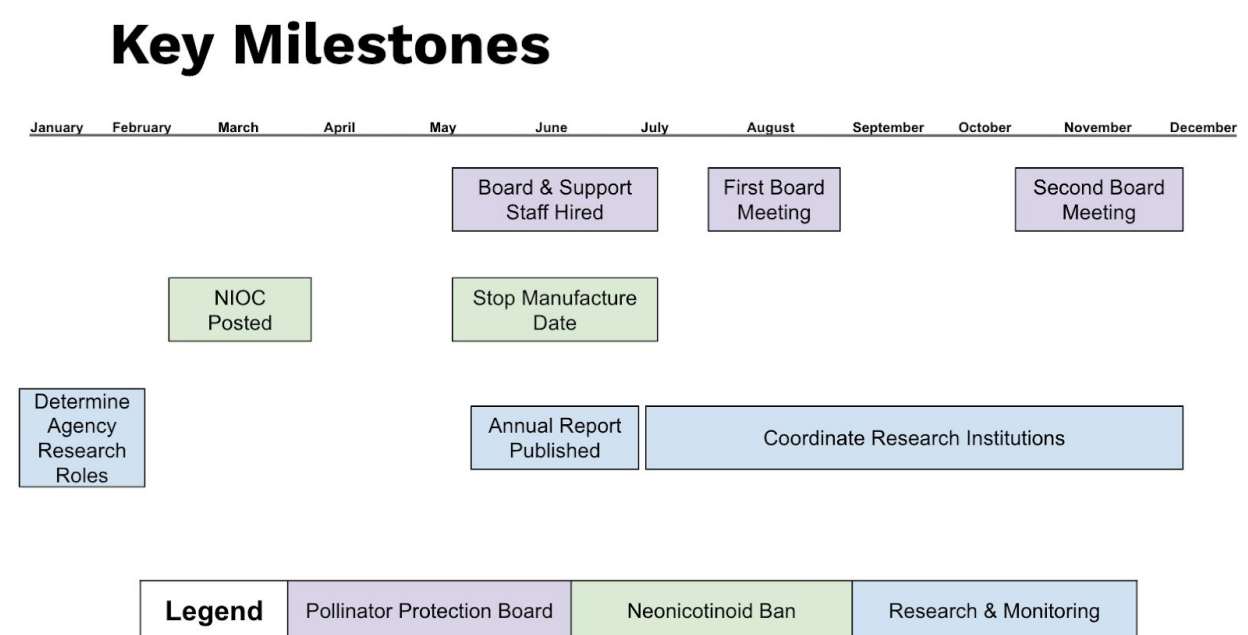


Figure 5. Master Calendar Key Milestones for first year of implementation .

This report details the first year of implementation of the Saving America's Pollinators Act of 2019. The first quarter of the first year of implementation will primarily be spent hiring an executive director, posting listings for support staff, posting listings for the board

members, putting into effect the notice of intent to cancel, and beginning the annual report. The second quarter will be spent finalizing hiring decisions and releasing the annual report. The third quarter will primarily be spent holding the first board meeting, putting into effect the neonicotinoid ban, and beginning to develop the native bee research monitoring program. The fourth quarter will be spent holding the second board meeting, continuing to structure native pollinator monitoring, and developing a website. A detailed week by week work plan is available in Appendix 2.

Quarter 1		
Mandate	Goals	Tasks
Pollinator Protection Board	Hire executive director and interview board support staff	- Post job, interview, & hire executive director - Post job and interview support staff - Announce and hold board nomination process
Neonicotinoid Ban	Hire OPP staff and communicate with manufacturers	- Post job, interview, & hire OPP staff - Draft notice of intent to cancel for neonicotinoid registrations - Hold USDA and science advisory committee comment periods - Put the notice of intent to cancel into effect
Research & Monitoring	Convene federal agencies	- Hold interagency meeting (EPA, USDA, & DOI) to discuss native bee research - Begin writing of annual report

Quarter 2		
Mandate	Goals	Tasks
Pollinator Protection Board	Appoint board members	- Hire board support staff - Appoint 15 board members - Begin preparations for first board meeting
Neonicotinoid Ban	Announce cancellations of neonicotinoid registrations	- Hold public comment period - Begin training staff for regulation compliance - Communicate with stakeholders
Research & Monitoring	Convene agencies and research institutions Publish annual report	- Reach out to potential research institutions - Finish writing annual report - Publish annual report - Begin website development

Quarter 3		
Mandate	Goals	Tasks
Pollinator Protection Board	Organize and hold first board meeting	• Prepare agenda, research, and accommodations for first board meeting • Hold first board meeting
Neonicotinoid Ban	Set stop manufacture date	• Announce stop manufacture date • Continued communications to stakeholders • Begin ban enforcement
Research & Monitoring	Convene federal agencies and research institutions Develop website	• Hold interagency and research institutions meeting to discuss annual report and current literature • Begin planning the infrastructure for native bee research • Website development

Quarter 4		
Mandate	Goals	Tasks
Pollinator Protection Board	Organize and hold second board meeting	• Prepare agenda, research, and accommodations for second board meeting • Hold second board meeting
Neonicotinoid Ban	Enforce ban	• Ongoing ban enforcement • Ongoing communications with stakeholders
Research & Monitoring	Plan infrastructure for research Develop website	• Planning the infrastructure for native bee research • Website development

FIRST YEAR BUDGET

Budget Overview

This first year budget is primarily concerned with laying the groundwork for a pesticide review process in future years rather than outlining the costs of that actual review process. Future budgets should take into consideration a higher Board output and the full costs of the review process.

Personnel Costs

Implementing the bill would require budgeting for nine new staff members in the EPA (not including the 15 unpaid members of the Pollinator Protection Board). Their salaries would adjust for cost-of-living in the Washington D.C. metro area. The cost of their salaries takes into account the latest likely start date of late May. Of those nine, four staff members would be recruited by the EPA's Administrator to form the Board and facilitate its operations.

Pollinator Protection Board

Position Title	Grade	FTE	Base Salary (annual)	Year 1 Salary + Fringe (30% of salary)
Executive Director	GS-14	1.00	\$117,191	\$117,191
Manager & Program Analyst	GS-11	1.00	\$69,581	\$55,664
Resource Manager & Biological Scientist	GS-11	1.00	\$69,581	\$55,664
Administrative Staff	GS-4	1.00	\$33,925	\$27,140
TOTAL	-	-	\$290,278	\$255,659

Office of Pesticide Programs

Position Title	Branch	Grade	FTE	Base Salary (annual)	Year 1 Salary + Fringe (30% of salary)
Environmental Protection Specialist I	Risk Management & Implementation Branch 1	GS-10	1.00	\$63,332	\$50,665
Environmental Protection Specialist II	Risk Management & Implementation Branch 1	GS-10	1.00	\$63,332	\$50,665
General Natural Resources Manager and Biological Scientist I	Environmental Risk Branch 5	GS-11	1.00	\$69,581	\$55,664
General Natural Resources Manager and Biological Scientist II	Environmental Risk Branch 5	GS-11	1.00	\$69,581	\$55,664

General Natural Resources Manager & Biological Scientist	Invertebrate-Vertebrate Branch 3	GS-11	1.00	\$69,581	\$55,664
TOTAL	-	-	-	\$335,407	\$268,332

The DOI and USDA will use current staff and resources to continue their pollinator research in year 1 of implementation, therefore no additional personnel are expected for the bill's requirement on research and monitoring aside from the Manager and Program Analyst on the Board's support staff, who would act as an interagency coordinator.

Other Than Personal (OTPS) Costs

Expense Category	Expense	Estimated Cost
Board meetings (2)	Member travel Member meals and incidentals Member lodging Catering Office supplies & miscellaneous Board recruitment	\$12,000 \$3,420 \$6,000 \$1,050 \$300 \$12,000 Total: \$34,770
Recruitment	Travel costs, marketing, background checks, etc.	\$18,000
Operational	Office Supplies Technology Annual Report printing Website	\$2,000 \$15,000 \$10,000 \$100,000 Total: \$127,000
Neonicotinoid ban	Public Communication (i.e. correspondence with neonicotinoid manufacturers, retailers, and farmers; announcements on website and in other EPA communications) Enforcement training	\$200,000 \$250,000
Research and Monitoring	Coordination (Public comment meetings, convening with research institutions)	\$100,000
OTPS before contingency		729,770
Contingency (10%)		\$125,376
TOTAL		\$855,146

Total Program Costs

Expense Category	Estimated Cost
Pollinator Protection Board	\$255,659
Office of Pesticide Programs	\$268,332
Other than Personal Costs	\$855,146
TOTAL	\$1,400,000

CONCLUSIONS

The Saving America's Pollinators Act of 2019 is the most comprehensive piece of legislation the United States has seen regarding colony collapse, pollinator protection and the resulting potential food security crisis. As this report discusses, neonicotinoid use and regulation are complex issues, and the solutions are equally as complicated to implement. Competing priorities among stakeholders, specifically the interests of pesticide manufacturers and commercial farmers versus those of beekeepers and conservationists, create friction around the solutions proposed by the bill. The presence of all perspectives on the Pollinator Protection Board will work to alleviate some of this tension.

The main quantitative metrics to be tracked will be pesticide registration cancellations, neonicotinoid pesticide application and stocks on the market, and pollinator loss rates. These will develop over time, however, and the main quantitative metric that can reasonably be tracked in the first year will be the number of pesticide registrations canceled. The other metrics will be measurable in years 2-5. Others include the number of board meetings, number of reports, and number of personnel. Qualitative metrics include communication, research, and planning, which also will develop over time and will change as the program moves beyond year one.

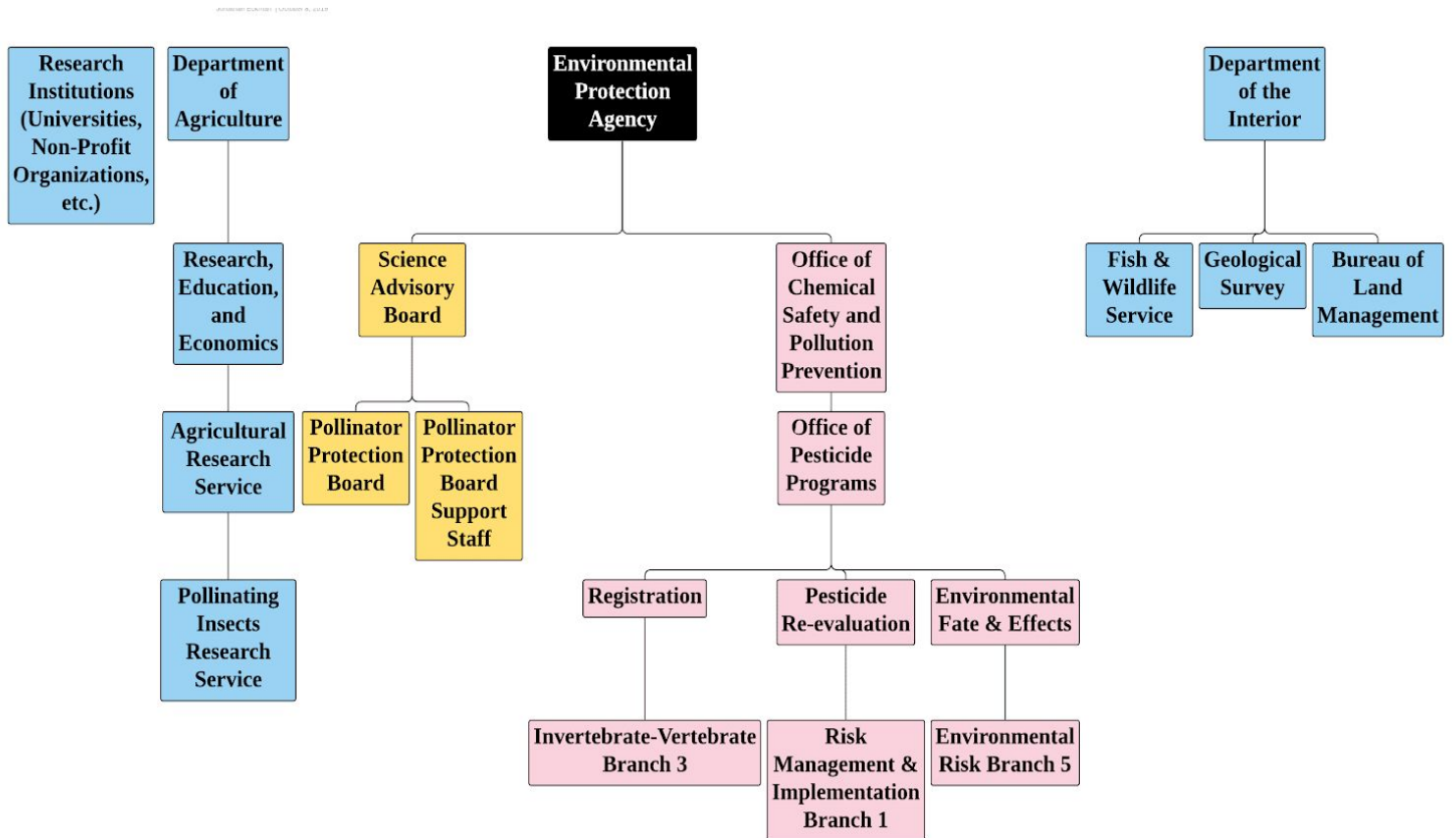
The OPP already tracks pesticide registration information, meaning there is already a monitoring system in place for such data. The Pollinator Protection Board will need to track its board meetings, staff, and decisions, which will be housed within the support staff overseen by the executive director. Similarly, there should be centralized communication for the Board, OPP, USDA, DOI, and external research institutions for research and monitoring. This could be email or another workplace communication platform as long as it is trackable and memorialized.

Ultimately, because of the number of offices involved in this program, information on pollinator populations, pesticide registrations, board meetings and staff, and all other

measures must be easily accessible and easily shared to facilitate coordination toward fulfilling the program's goals. The fate of America's pollinators and food supply relies on the successful implementation of the Saving America's Pollinators Act. Enhanced understanding of pollinator populations will inform policy regarding conservation and food security.

APPENDIX

APPENDIX 1: FEDERAL STRUCTURE



APPENDIX 2: MASTER CALENDAR

Master Calendar													
Individual / Agency		Quarter 1			Quarter 2			Quarter 3			Quarter 4		
		January	February	March	April	May	June	July	August	September	October	November	December
Pollinator Protection Board Goals Q1: Hire Executive Director and Support Staff for the Board Q2: Hire Board Members Q3: Organize and Hold First Board Meeting Q4: Organize and Hold Second Meeting	EPA Administrator		Post job, Interview, & Hire Executive Director				Board Appointed						
	EPA Administrator			Board Appointment Announcement									
	EPA Human Resources		Post job, Interview, & Hire Executive Director		Hiring Support Staff								
	States / Relevant Institutions			Board Nomination Process									
	Executive Director of the Board				Hiring Support Staff								
	Interagency Research Coordinator						Develop Pollinator Protection Board meeting agenda				Develop Board meeting agenda		
	Interagency Liaison						Compile relevant research/literature				Compile relevant research		
	Administrative Assistant						Manage communication between outside agencies and Board				Manage communication		
	Chairperson of the Pollinator Protection Board						Prepare meeting space, supplies, and travel accommodations				Prepare space, supplies, and travel		
	Members of Pollinator Protection Board						Pollinator Protection Board 1st Meeting				Pollinator Protection Board Meeting		
Neonicotinoid Ban Goals Q1: Hire OPP Staff and communicate with Pesticide Stakeholders Q2: Announce cancellation and hold public comment period Q3: Set stop manufacturing date Q4: Enforcement of ban	EPA Administrator		Hiring Process for OPP Staff										
	EPA Human Resources		Hiring Process for OPP Staff										
	Office of Pesticide Programs		Draft NOIC		NOIC becomes effective / Public Comment Period		Stop manufacturing date (180 days)						
	Office of Pesticide Programs						Quarterly Meeting- Recap, Set Agenda			Quarterly Meeting		Quarterly Meeting	
	Chief of Invertebrate-Vertebrate Branch 3, OPP						Quarterly Meeting- Recap, Set Agenda			Quarterly Meeting		Quarterly Meeting	
	Chief of Risk Management & Implementation Branch 1, OPP						Quarterly Meeting- Recap, Set Agenda			Quarterly Meeting		Quarterly Meeting	
	Chief of Environmental Risk Branch 5, OPP						Quarterly Meeting- Recap, Set Agenda			Quarterly Meeting		Quarterly Meeting	
	EPA Office of Compliance and Assurance						Training for ban regulation compliance			Manufacturing Ban Enforcement			
	U.S. Department of Agriculture						Communications regarding ban to registration holders, pesticide suppliers, and farmers						
	FIFRA Science Advisory Committee						USDA Comment Period on Notice of Intent to Cancel						
Research & Monitoring Goals Q1: Convene Agencies & Research Institutions Q2: Publish Report Q3: Develop Website and hold meeting with research institutions Q4: Develop Website and plan infrastructure for research	Regional EPA Offices & States									Manufacturing Ban Enforcement			
	EPA Administrator		Interagency meeting to discuss native bee research										
	Secretary of the Interior		Interagency meeting to discuss native bee research										
	Secretary of Agriculture		Interagency meeting to discuss native bee research										
	Research Institutions					Outreach to research institutions		Interagency meeting with research institutions to discuss literature review					
	Research Institutions					Organizing current native bee literature		Interagency meeting with research institutions to discuss literature review					
	Secretary of the Interior							Planning infrastructure within research institutions for implementing native bee research					
	Secretary of Agriculture							Planning infrastructure within research institutions for implementing native bee research					
	Office of Pesticide Programs/USDA/DOI		Writing of Annual Report (Literature Review)										
	EPA Publication Office						Oversee writing of Annual Report (Literature Review)						
Research & Monitoring Goals Q1: Convene Agencies & Research Institutions Q2: Publish Report Q3: Develop Website and hold meeting with research institutions Q4: Develop Website and plan infrastructure for research	Executive Director of the Board						Annual Report (Literature Review) is published						
	Interagency Liaison					Contact research institutions via existing networks		Interagency meeting with research institutions to discuss literature review					
	Interagency Liaison							Assisting coordination between EPA, USDA, DOI, and research institutions to plan for upcoming research					
	EPA Information Technology							Website development and editing					

Legend:

Pollinator Protection Board	Neonicotinoid Ban	Research & Monitoring	Staffing	Execution	Operations	Critical Path/Dependencies
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APPENDIX 3: YEAR 1 PERFORMANCE MANAGEMENT MATRIX

POLLINATOR PROTECTION BOARD		
Provisions	Indicators	Outcome
Board cancels current and future neonicotinoid registrations	15 new Board members representing diverse stakeholders	Dedicated authority on pollinator health
Supports research	4 new EPA staff	Greater understanding of neonicotinoids
Coordinates federal policy	2 Board meetings	Minimize impacts to farmers and suppliers and promote viable alternatives
NEONICOTINOID BAN		
Provisions	Indicators	Outcome
Notification of registration holders, pesticide suppliers, and farmers	1600+ pesticide registrations cancelled	Compliance from pesticide manufacturers with ban on 8 neonicotinoids
Manufacturing of banned products ends in 180 days	5 new EPA staff within the Office of Pesticide Programs	Conditions created for full compliance in year 2
	25% reduction of neonicotinoid application rate	

POLLINATOR RESEARCH		
Provisions	Indicators	Outcome
Gather data on broader impacts of neonicotinoids on pollinator health Continued USDA tracking of commercial bees	Disburse \$14 million minimum in research grants 5 commercial farm study sites Methodologies and partners identified for future monitoring	Greater understanding of wild bees Integrate protection of wild bees into federal environmental agenda

APPENDIX 4: REALITY CHECK - THE POLITICAL CONTEXT OF SAVING AMERICA'S POLLINATORS

United States Political Climate

H.R. 1337 is the fifth version of Saving America's Pollinators Act since 2013. None of its predecessors have succeeded in part due to the political climate in the US. The Obama administration viewed the large decline in bee colonies as a "potential ecological disaster" and attempted to make pollinators a legislative priority.⁴⁶ In 2014, the White House released "Presidential Memorandum - Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators." In addition, the Administration created a Pollinator Health Task Force that operated between the Environmental Protection Agency (EPA) and the US Department of Agriculture (USDA) to promote bee conservation and research on pollinator losses.⁴⁷ Later that year the US Fish and Wildlife Service (FWS) announced a ban of neonicotinoids on national wildlife refuge land. In 2015, Obama announced the "National Strategy to Promote the Health of Honey Bees and Other Pollinators" to preserve pollinators and their breeding grounds.⁴⁸ Following this announcement, the USDA and the Department of the Interior (DOI) issued Pollinator-Friendly Best Management Practices for Federal Lands which suggested guidelines for responsible land management to ensure pollinator safety.⁴⁹

Since 2017, the Trump Administration has been adverse to environmental regulation, unravelling several key pollinator initiatives. Several current cabinet officials such as EPA Administrator Andrew Wheeler and DOI Secretary David Bernhardt have industry as opposed to natural sciences backgrounds. President Trump spent his career in the private sector, and has close relationships with several leaders of the chemical industry.⁵⁰ With the widespread industry influence on the Administration, pollinator protection has not been a federal priority. In 2018, the US Fish and Wildlife (FWS) ban was reversed.⁵¹ In 2019, the USDA announced the suspension of its national honey bee population survey, which

⁴⁶Eilperin, Juliet. "How the White House Plans to Help the Humble Bee Maintain Its Buzz." *The Washington Post*, WP Company, 19 May 2015, https://www.washingtonpost.com/politics/whats-all-the-obama-buzz-about-bees/2015/05/18/5ebd1580-fd6a-11e4-805c-c3f407e5a9e9_story.html?noredirect=on.

⁴⁷Karimi, Faith. "Obama Launches Efforts to Save Honey Bees - CNNPolitics." CNN, Cable News Network, 23 June 2014, <https://www.cnn.com/2014/06/22/politics/honey-bees-protection/index.html>.

⁴⁸Eilperin, Juliet. "How the White House Plans to Help the Humble Bee Maintain Its Buzz." *The Washington Post*, WP Company, 19 May 2015, https://www.washingtonpost.com/politics/whats-all-the-obama-buzz-about-bees/2015/05/18/5ebd1580-fd6a-11e4-805c-c3f407e5a9e9_story.html?noredirect=on.

⁴⁹Holdren, John. "Announcing New Steps to Promote Pollinator Health." *The National Archives and Records Administration*, National Archives and Records Administration, <https://obamawhitehouse.archives.gov/blog/2015/05/19/announcing-new-steps-promote-pollinator-health>.

⁵⁰"Dow Chemical Pushes Trump Administration to Scrap Pesticide Study." VOA, Voice of America, 20 Apr. 2017, <https://www.voanews.com/usa/dow-chemical-pushes-trump-administration-scrap-pesticide-study>.

⁵¹Green, Miranda. "Trump Administration Reverses Rule That Banned Pesticide Use in Wildlife Refuges." *The Hill*, 3 Aug. 2018, <https://thehill.com/policy/energy-environment/400324-administration-reverses-rule-that-banned-pesticide-use-in-wildlife>.

provided crucial monitoring and data.⁵² The current EPA has also lifted several restrictions on pesticides known to harm pollinators.⁵³

Support

Currently, there is sparse congressional support for H.R. 1337. The bill is sponsored by Democratic Representative Earl Blumenauer (Oregon's 3rd congressional district) and currently has 67 cosponsors, all of whom are Democrats. However, despite the high number of cosponsors, the bill has little political support. Other than Rep. Blumenauer, there are no members of congress championing and advocating for the bill on the floor of the US House of Representatives.

H.R. 1337 is supported by the environmental and scientific communities. Non-profit organizations like Friends of the Earth US has played a pivotal role in elevating pesticide issues in Congress. Friends of the Earth has played a major role in getting at-home neonicotinoid pesticide products out of retail stores, and is working closely with Rep. Blumenauer on H.R. 1337.

Opposition

Most members of Congress oppose H.R. 1337. This bill, and virtually any other bill addressing environmental protection, has no support from the Republican Party, who currently hold a majority of votes. The current political climate within the Administration and Republican Party more broadly reflect a prioritization of industry outcomes over environmental or social goals. Most Democrats do not publicly express support for this bill due to perceived political risk. The rural urban divide is extremely important in today's political landscape, and politicians are eager to win rural votes. Democrats and Republicans alike will not support a bill with potential negative impacts to Midwestern farmers. While the bill would help farmers by protecting their sole source of pollination for many staple crops, most Congressional Representatives view this bill as an attack on synthetic pesticides and thus as harmful to farmers.

Farmers are likely to oppose H.R. 1337 if the legislation were to progress through the House of Representatives. Agricultural consulting firm AgInfomatics conducted regional listening sessions with 78 commercial farmers across the US and Canada, and documented concerns around a hypothetical ban on neonicotinoid pesticides. Common grievances included higher operating costs of using alternative pesticides, and weakened pest management

⁵²Conley, Julia. "USDA Indefinitely Suspends Honey Bee Tracking Survey as States Get Approval to Use Bee-Killing Pesticide." *Common Dreams*, 8 July 2019, <https://www.commondreams.org/news/2019/07/08/usda-indefinitely-suspends-honey-bee-tracking-survey-states-get-approval-use-bee>.

⁵³Beitsch, Rebecca. "EPA Sued Again for Expanding Use of Pesticide Harmful to Bees." *TheHill*, 6 Sept. 2019, <https://thehill.com/policy/energy-environment/460259-epa-sued-again-for-expanding-use-of-pesticide-harmful-to-bees>.

capacity.⁵⁴ Currently, H.R. 1337 is not receiving pushback from chemical lobbyists. If the bill gains more traction and support in Congress, pushback from the pesticide industry would be expected.

Political Feasibility

H.R. 1337 is not currently politically feasible because of its lack of widespread support. Within the environmental community, it is viewed as a symbolic bill that serves as an important organizing tool. It raises awareness about the crisis facing pollinators and hopes to spur conversation. For the bill to pass under this administration and with this current Congress, it would first need a plurality of supporters within the House Agriculture Committee. H.R. 1337 also needs Republican co-sponsorship if it is expected to pass a Republican Senate majority.

Unanswered Questions

The bill requires government action but does not specifically address certain crucial means to implement it. The bill does not specify which scientists will be chosen to conduct research, which people will serve on the Pollinator Protection Board, and who will recruit for these various roles. Specific details of inter-federal agency implementation has yet to be determined. Furthermore, the bill does not specify the costs of undertaking the the outlined programs or the source of funding.

Next Steps

For H.R. 1337 to get passed in this Congress or under future administrations, Colony Collapse Disorder and its ramifications for national food security need to be elevated in the news and national discourse. Campaigners working on this issue and co-sponsors in Congress need to continue to hold briefings, press conferences and actions to draw attention and build momentum. If neonicotinoid usage was a national concern, it would motivate lawmakers to seriously consider a legislative solution like the Saving America's Pollinators Act. Members of Congress would need to improve their outreach to farmers and constituents in rural America to ensure their concerns are integrated into the bill. If the bill does pass, it will likely take three to five years for any positive outcomes to be documented within impacted pollinator populations, underscoring the importance for swift political mobilization now.

⁵⁴ Shaw, Bret, et al. "The Value of Neonicotinoids in North American Agriculture: A Summary of Grower and Agri-Professional Perspectives From Regional Listening Sessions in the United States and Canada." *Aginfomatics.com*, AgInfomatics, 2014, https://aginfomatics.com/uploads/3/4/2/2/34223974/summary_perspectives_listening_sessions.pdf.