

THE GREAT “BEE-PRESSION:” DECLINING BEE POPULATIONS AMID AN EVER-GROWING HUMAN- CENTERED WORLD

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I. Introduction.....	454
A. The Importance of Pollination	454
B. The Role Bees Play in Agriculture	455
C. Types of Bees.....	455
D. Bee’s Contributions	456
II. The “Bee-cline”	456
A. Issues with Bees and Pesticides.....	458
B. What would be if there were no more Bees?	459
III. Laws and Protections.....	459
A. Federal Laws.....	459
B. State Laws.....	462
C. Protection Movements and Trends	464
D. Case Law	465
E. International Pollinator Protection Movements	466
IV. Plan of Action	468
A. What is Needed?.....	468
B. What can be Expanded?.....	468
C. What to get Rid of?.....	469
V. Conclusion.....	469
A. What must be Remembered.....	469
B. What must be Done.....	470

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I. INTRODUCTION

A. *The Importance of Pollination*

Many people do not like bees; maybe they are allergic or just really hate insects. However, others find them very interesting and even choose to become apiarists and have their own hives. No matter what one's feelings are, it does not demote the importance these small insects have on the world.¹ Almost 90% of plant species rely on pollinators.² This means there are approximately 180,000 plant species relying on pollination.³ "Globally, pollinators are responsible for pollinating more than 1,200 crops. 87 of the leading 115 food crops, or about 75%, depend on pollinators."⁴ There are many different types of pollinators: bees, ants, beetles, lizards, birds, bats, and butterflies.⁵

Maintaining the health of pollinators is a high priority national issue due to significant decreases in populations.⁶ Pollinators are not only vital to ecological health and safety but also extremely important to the food system and the national economy.⁷ For example, 90% of almond pollination is done by honeybees, which contributes \$4.8 billion to the United States industry each year.⁸ It is also estimated approximately one-third of the food consumed each day relies upon pollination.⁹ These foods "include avocados, soybeans, asparagus, broccoli, celery, squash, and

1. John Haltiwanger, *If All The Bees In The World Die, Humans Will Not Survive*, ELITE DAILY (Sept. 15, 2014), <https://www.elitedaily.com/news/world/humans-need-bees-to-survive/755737> [<https://perma.cc/NJG3-DKWB>].

2. *We Need Bees*, PLANET BEE FOUND. (Aug. 24, 2020, 2:03 PM), <https://www.planetbee.org/why-we-need-bees> [<https://perma.cc/WR5Z-NAVA>].

3. *Id.*

4. *Id.*

5. *Pollinator Health Concerns*, EPA (Aug. 24, 2020, 2:06 PM), <https://www.epa.gov/pollinator-protection/pollinator-health-concerns> [<https://perma.cc/UPT3-YZME>]; see also *Pollinator Health*, NAT'L CONF. OF STATE LEGISLATURES (Feb. 27, 2020), <https://www.ncsl.org/research/environment-and-natural-resources/pollinator-health.aspx> [<https://perma.cc/R5Y3-SE53>].

6. STATE FIFRA ISSUES, RESEARCH, AND EVALUATION GROUP, FINAL GUIDANCE FOR STATE LEAD AGENCIES FOR THE DEVELOPMENT AND IMPLEMENTATION OF MANAGED POLLINATOR PROTECTION PLANS 1 (June 2015), <https://aapco.files.wordpress.com/2015/08/sfireg-mp3-guidance-final.pdf> [<https://perma.cc/6J53-YVZT>] [hereinafter STATE FIFRA ISSUES].

7. *Pollinator Health*, *supra* note 5.

8. *We Need Bees*, *supra* note 2.

9. *Why bees are important*, SUSTAIN (Aug. 24, 2020, 2:05 PM), https://www.sustainweb.org/foodfacts/bees_are_important/ [<https://perma.cc/JKK6-5PKQ>]; *Pollinator Health*, *supra* note 5.

sunflowers for oil, cucumbers, citrus fruit, peaches, kiwis, cherries, cranberries and melons” to name just a few.¹⁰ This makes bees an indispensable part of the ecosystem.¹¹

B. The Role Bees Play in Agriculture

Bees are the most numerous, common, and efficient pollinators in the United States.¹² Statistics show honeybees are “used to pollinate over 100 crops grown in North America, and contribute \$15 billion to the US economy every year.”¹³ “The global crop production pollinated by bees is valued at \$577 billion. Pollinators contribute \$24 billion to the U.S. agriculture industry, making up a third of the food consumed by Americans.”¹⁴ Each year around the world it is estimated that “between \$235 and \$577 billion worth of annual food production relies on the direct contribution of pollinators.”¹⁵ Considering this dependency, reduced honeybee and pollinator populations pose a serious risk to domestic agriculture, ecological health, and the United States economy.¹⁶ The agricultural system in the United States would collapse without pollination from bees.¹⁷

C. Types of Bees

Bees can be found in every climate across the world, from deserts to forests to the Arctic Circle.¹⁸ There are 4,000 different bee species native to North America.¹⁹ Honeybees are an extremely vital pollinator in agriculture.²⁰ Native bees nevertheless remain an underappreciated treasure.²¹ Honeybees did not appear in North America until European settlers introduced them.²² Prior to that, native bees had been the primary pollinators, but today both bees share this role.²³

10. *Id.*

11. Jason Gooljar, *Fact Sheet: Bees*, EARTH DAY (May 23, 2018), <https://www.earthday.org/fact-sheet-bees/> [<https://perma.cc/ESW6-SBFV>].

12. *See We Need Bees*, *supra* note 2.

13. *Id.*; *Pollinator Health*, *supra* note 5.

14. Gooljar, *supra* note 11.

15. *Pollinator Health*, *supra* note 5.

16. *Pollinator Health*, *supra* note 5.

17. Haltiwanger, *supra* note 1.

18. Gooljar, *supra* note 11.

19. *We Need Bees*, *supra* note 2.

20. *Id.*

21. *Native Bees of North America*, BUGGUIDE, (Aug. 24, 2020, 2:06 PM), <https://bugguide.net/node/view/475348> [<https://perma.cc/CX4R-V4WR>].

22. *Id.*

23. *Id.*

However, honeybees are unable to pollinate tomatoes, eggplants, pumpkins, or squash as efficiently as native bees.²⁴ With honeybees being the exception, most bees are solitary creatures with 70% of the population living underground and 30% living in tree holes or hollow stems.²⁵ Although most people associate bees with flowers, bees get most of their nectar from blossoming trees.²⁶

D. Bee's Contributions

Globally there are more honey bees than other types of bee and pollinating insects, so it is the world's most important pollinator of food crops. It is estimated that one third of the food that we consume each day relies on pollination mainly by bees, but also by other insects, birds and bats.²⁷

Honeybees can visit more than 2,000 flowers a day, which greatly increases the chances of plant pollination.²⁸ In the United States, honeybees are the most used commercial pollinator every year.²⁹ Honeybees also play a vital role in the meat and dairy industry by pollinating the clover and alfalfa used to feed cattle.³⁰

II. THE "BEE-CLINE"

Honeybees are vital to the ecosystem, but their population numbers have been decreasing by the millions in recent years.³¹ Entomologists are currently researching why bee populations are declining across the world.³² "A recent USDA-sponsored survey conducted by the Bee Informed Partnership has found that the current rate of mortality for bees in managed hives was 44% in 2016, up 3.5% from the 2014-2015 year."³³ Managed domestic honeybee colonies have dropped from 6 million in 1947 to only 2.5 million today.³⁴

24. *Id.*

25. *10 Ways to Save the Bees*, THE HONEYBEE CONSERVATORY, (Aug. 24, 2020, 2:05 PM), <https://thehoneybeeconservancy.org/how-to-save-the-bees/> [https://perma.cc/89DA-RH6P].

26. *Id.*

27. *Why bees are important*, *supra* note 9.

28. *We Need Bees*, *supra* note 2.

29. *Id.*

30. *Why bees are important*, *supra* note 9.

31. *We Need Bees*, *supra* note 2.

32. *The Vanishing of the Bees*, PLANET BEE FOUND. (Aug. 24, 2020, 2:04 PM), <https://www.planetbee.org/colony-collapse-disorder> [https://perma.cc/4LWK-3N44].

33. *Id.*

34. *We Need Bees*, *supra* note 2.

Scientists believe the decline in honeybees is related to several factors, including but not limited to the following: pests or parasites, pathogens and viruses, poor nutrition, pesticide exposure, bee management practices, and lack of genetic diversity.³⁵ Urban sprawl is also considered one of the largest threats to the bee population.³⁶ Colony Collapse Disorder (CCD) is a phenomenon where the working bee population dies off, leaving only the queen bee and young bees.³⁷ Without the worker bees, the hive cannot survive and dies off.³⁸ Although sometimes used as a blanket term for bee decline, CCD is a unique phenomenon among bees, which is very interesting, but is not the main reason for the “mass die-off of the bees.”³⁹ In addition, according to a European Union (EU) study, cell phone radiation has been ruled out as a cause for the massive die-off.⁴⁰

Even though different scientists might disagree about which factor is impacting bees the most, many can agree on several of the top factors.⁴¹ The most lethal parasite to beehives is the Varroa mite.⁴² This mite can wipe out a beehive and affects the bees similarly to the relationship between ticks and mammals.⁴³

Local Iowa apiarists have seen declines in their bee populations and would concur that the main reasons for the declining bee populations are largely the same.⁴⁴ Kevin Hulett has been keeping bees in Eastern Iowa since 2003.⁴⁵ He notes wax worms and Varroa mites are definitely issues contributing to the depletion of his colonies, but he has also seen the effects pesticides can have on the decline.⁴⁶ Kevin notes, even when a pesticide does not kill the bee, if the unknown substance lingers on the bee it may not be welcome back in its colony due to the unfamiliar scent.⁴⁷ William Swain, also located in Eastern Iowa, has been beekeeping for over

35. *Pollinator Health Concerns*, supra note 5; see *Pollinator Health*, supra note 5.

36. *10 Ways to Save the Bees*, supra note 25.

37. *Pollinator Health*, supra note 5.

38. *Id.*

39. *The Vanishing of the Bees*, supra note 32.

40. *Id.*

41. *See id.*

42. *Id.*

43. *Id.*

44. *See* Email from Kevin Hulett, Iowa Apiarist, to Megan Hall, Drake Univ. L. Student (Jan. 14, 2020, 05:13 CST) (on file with author).

45. *Id.*

46. *Id.*

47. *Id.*

30 years and agrees pesticides and Varroa mites are some of the biggest downfalls for bee populations.⁴⁸

A. Issues with Bees and Pesticides

Pesticides can be harmful to humans, but they are even more harmful to bees.⁴⁹ The use of pesticides has increased exponentially since World War II.⁵⁰ Chemicals and pesticides used on lawns, gardens, and crops can weaken a bee's immune system, leaving the bee vulnerable to parasite infections.⁵¹

Research has shown pesticides are especially dangerous to bees when they are applied to flowers in full bloom.⁵² The most studied pesticides used for agricultural purposes are "neonicotinoids."⁵³ These neonicotinoids have a chemical makeup similar to nicotine.⁵⁴ Research also indicates "neonicotinoid pesticides linger in the nectar and pollen of flowers, where bees are most likely to come into contact with them, [which] . . . weaken[s] bee immune systems and make[s] them more susceptible to disease and infestation by pests."⁵⁵ This weakening leads to issues in the bees' communication between one another, physical behavior, and reproduction.⁵⁶ The Environmental Protection Agency (EPA) is working with states to address concerns with agricultural pesticides and dust applications, and the effects they have on bee populations.⁵⁷

48. See Email from William Swain, Iowa Apiarist, to Megan Hall, Drake Univ. L. Student (Jan. 15, 2020, 09:07 CST) (on file with author).

49. See *Help Honey Bees*, PLANET BEE FOUND., (Aug. 24, 2020, 2:03 PM), <https://www.planetbee.org/save-honeybees> [<https://perma.cc/24MN-TG7U>]; see *The Vanishing of the Bees*, *supra* note 32; see also *Natural Pest Control*, PLANET BEE FOUND., (Aug. 24, 2020, 2:04 PM), <https://www.planetbee.org/natural-pest-control> [<https://perma.cc/Z9F3-7ZU5>].

50. Haltiwanger, *supra* note 1.

51. *The Vanishing of the Bees*, *supra* note 32.

52. *Help Honey Bees*, *supra* note 49.

53. *The Vanishing of the Bees*, *supra* note 32.

54. Haltiwanger, *supra* note 1.

55. *Help Honey Bees*, *supra* note 49; see *10 Ways to Save the Bees*, *supra* note 25; see also *Pollinator Health*, *supra* note 5.

56. *The Vanishing of the Bees*, *supra* note 32.

57. *Pollinator Health*, *supra* note 5.

B. What would be if there were no more Bees?

Currently, it is estimated that one-fourth of bees are at risk of extinction in the United States.⁵⁸ Bees are important to survival and too much reliance on pesticides could lead to human extinction.⁵⁹ A chain reaction could take place because, without bees, the health of crops and plants could be detrimentally impacted.⁶⁰ The chemicals in pesticides are especially harsh to bees, and even more so when applied to flowers in full bloom.⁶¹ Today’s citizens need to realize the waterfall effect that fewer bees will have on our world, as described by entomologist Marla Spivak:

Fewer bees lead to lower availability and potentially higher prices of fruit and vegetables. Fewer bees mean no almonds, less coffee and less alfalfa hay available to feed dairy cows. . . .We need good, clean food, and so do our pollinators. If bees do not have enough to eat, we won’t have enough to eat. Dying bees scream a message to us that they cannot survive in our current agricultural and urban environments⁶²

There are many steps that can still be taken to produce beautiful gardens and crops without the use of pesticides.⁶³ Simple ways to do this are: to use natural deterrents (i.e. salt or corn gluten); try biocontrol options (i.e. “the bacterium *Bacillus thuringiensis* thrives in healthy soil” and bees are immune to it); or simply read the label carefully and consider all options before picking a random pesticide.⁶⁴

III. LAWS AND PROTECTIONS

A. Federal Laws

The federal government has slowly been taking notice of the need for more pollinator protection, which is evidenced by a variety of statutes proposed or enacted over the years.⁶⁵ One such example can be found in 23 U.S.C. § 319.⁶⁶

58. Gooljar, *supra* note 11.

59. Haltiwanger, *supra* note 1.

60. Melissa Petruzzello, *What Would Happen If All the Bees Died?*, BRITANNICA (Sept. 2, 2020, 12:21 PM), <https://www.britannica.com/story/what-would-happen-if-all-the-bees-died> [<https://perma.cc/P7TG-M3AJ>].

61. *Help Honey Bees*, *supra* note 49.

62. Haltiwanger, *supra* note 1.

63. *Natural Pest Control*, *supra* note 49.

64. *Id.*

65. *See* 23 U.S.C. § 319.

66. *Id.*

This statute allows for highway funds to be used to landscape and enhance scenic beauty along highways.⁶⁷ The beautification is a two-fold process—it is pleasurable to look at and, more importantly, planting flowers and other forage is meant to attract pollinators.⁶⁸

Another example of the federal government acting to proactively encourage pollinator protection can be found in 16 U.S.C. § 3844.⁶⁹ This statute gives the United States Secretary of Agriculture the right to encourage pollinator habitat development and protection.⁷⁰

In 2018, the government took an affirmative stance on the issue by including “pollinator protection” as a part of the High-Priority Research and Extension Initiatives Statute.⁷¹ This statute appropriated \$10 million annually from 2008 to 2023 solely for research grants concerning topics such as investigating pollinator biology, development of preventative measures to improve pollinator health, promotion of the health of honeybees, etc.⁷² This same statute allotted funds for the United States Department of Agriculture (USDA) to research and address CCD and enhanced honeybee and pollinator research within the department.⁷³

In addition, there have been several federal legislative bills enacted recently to combat the issues plaguing pollinators.⁷⁴ The problems for pollinators have been acknowledged by the highest of leaders, including President Obama in 2014, who called for the establishment of a Pollinator Health Task Force.⁷⁵ In 2015, there were several acts proposed, such as the Saving America’s Pollinators Act and Highways Bettering the Economy and Environment Pollinator Protection Act, but neither of these made it past being introduced to subcommittees in the House.⁷⁶ In 2019, the continued push for pollinator protection was evidenced by House Bill

67. *Id.* § (a).

68. *Id.*

69. *See* 16 U.S.C. § 3844.

70. *Id.* § (h).

71. 7 U.S.C. § 5925(g).

72. *Id.* § (g)(1)(A-B).

73. *Id.* § (g)(2), (4).

74. *See, e.g., Pollinator Protection*, EPA (Jan. 19, 2017), https://19january2017snapshot.epa.gov/pollinator-protection/federal-pollinator-health-task-force-epas-role_.html#:~:text=In%20June%202014%2C%20President%20Obama,%2C%20butterflies%2C%20and%20insects [https://perma.cc/P7RL-EMUM].

75. *Id.*

76. *See generally* Saving America’s Pollinators Act of 2015, H.R. 1284, 114th Cong. (2015); *see also* Highways Bettering the Economy and Environment Pollinator Protection Act, H.R. 2738, 114th Cong. (2015).

1337, which revitalized previous attempts at passing the Saving America’s Pollinators Act.⁷⁷ This Act was referred to the Subcommittee on Biotechnology, Horticulture, and Research by the Committee on Agriculture in March of 2019.⁷⁸

Different federal agencies have also gotten involved in this area and are beginning to take action.⁷⁹ The EPA has voiced concerns over the declining bee populations and actively works to protect not only bees, but pollinators of all kinds.⁸⁰ In 2015, the EPA took a stand on neonicotinoid pesticides by informing new registrants that, until pollinator risk assessments could be completed, the EPA would likely not approve new uses of these chemicals.⁸¹ In 2017, the EPA also enacted a measure to protect bees and other pollinators from pesticides and dust applications while the pollinators are under contract to provide pollination services.⁸²

Another agency involved in the protection of bees and other pollinators is the USDA’s Natural Resource Conservation Service (NRCS).⁸³ The NRCS noted “[e]ach winter since 2006, about 30 percent of beehives collapsed because of disease, parasites, poor nutrition, pesticide exposure and other issues.”⁸⁴ This is one of the reasons why the NRCS has stepped in to provide financial and technical assistance to agricultural producers to combat future declines.⁸⁵ Also, the NRCS is concerned with the decline in the Monarch butterfly population, which has significantly decreased in the past two decades.⁸⁶ The NRCS has focused its efforts

77. Saving America’s Pollinators Act of 2019, H.R. 1337, 116th Cong. (2019).

78. H.R. 1337.

79. *Pollinator Health*, *supra* note 5.

80. *Pollinator Health Concerns*, *supra* note 5.

81. *April 2015 Letter to Registrants Announcing New Process for Handling New Registrations of Neonicotinoids*, EPA (Aug. 24, 2020, 2:08 PM), <https://www.epa.gov/pollinator-protection/april-2015-letter-registrants-announcing-new-process-handling-new> [<https://perma.cc/LWU5-J628>].

82. *EPA Actions to Protect Pollinators*, EPA (Aug. 24, 2020, 2:09 PM), <https://www.epa.gov/pollinator-protection/epa-actions-protect-pollinators> [<https://perma.cc/3MDV-X3KV>].

83. *See Insects & Pollinators*, USDA (Aug. 24, 2020 2:09 PM), <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/pollinate/> [<https://perma.cc/XB4R-QNEX>].

84. *Conservation Work for Honey Bees*, USDA (Aug. 24, 2020, 2:10 PM), <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/pollinate/?cid=stelprdb1263263> [<https://perma.cc/V3RQ-YNRA>].

85. *Id.*

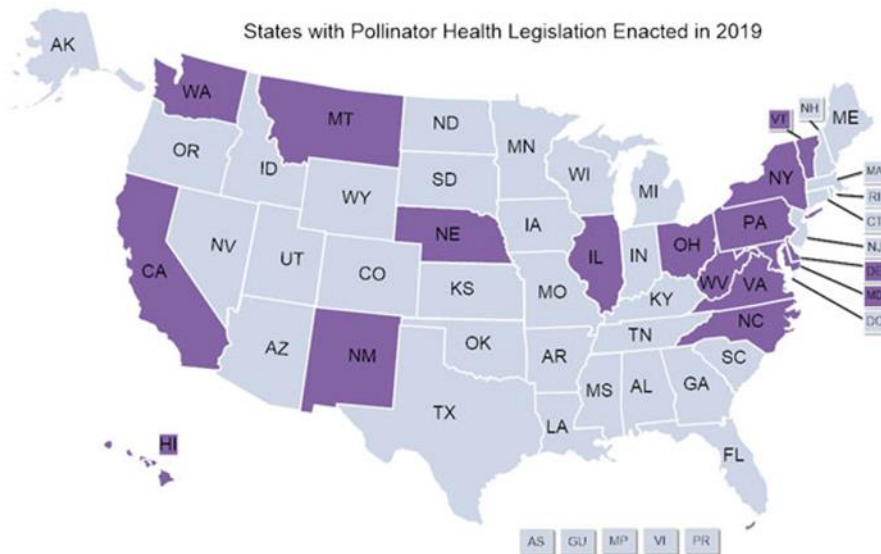
86. *Monarch Butterflies*, USDA (Aug. 24, 2020, 2:10 PM), <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/pollinate/?cid=nrcsep rd402207> [<https://perma.cc/LF4D-J4PQ>].

on the Midwest and Great Plains area by trying to encourage the planting of more milkweed and other nectar-rich plants; vital food sources for Monarch butterflies.⁸⁷

It is important not to underestimate the impact the federal government can have on promoting change. Further, it is important that interventions continue to be proposed by the federal government. The federal government can indirectly influence states, localities, private actors, and citizens through its leadership roles in certain agencies.⁸⁸

B. State Laws

Twenty-eight states have enacted legislation in at least one of five categories: research, awareness, pesticides, habitat protection, and beekeeping.⁸⁹



90

Of those 28, 10 states have legislation to allow the study of pollinator health, 10 states directed legislation at protecting pollinators from pesticides, 10 states

87. *Id.*

88. POLLINATOR HEALTH TASK FORCE, NATIONAL STRATEGY TO PROMOTE THE HEALTH OF HONEY BEES AND OTHER POLLINATORS 28 (2015).

89. *Pollinator Health*, *supra* note 5.

90. *Id.*

have enacted legislation to restore the habitat to a suitable condition for pollinators, 10 states used the legislation to promote awareness of the importance pollinators have on the environment, and 10 have legislation focused on supporting local beekeepers.⁹¹

Many states are implementing plans known as a Managed Pollinator Protection Plan (MP3) in an effort to reduce pesticide exposure to bees and increase communication between beekeepers and pesticide applicators.⁹² The underlying idea is the improved communication can prevent unnecessary and risky exposure of pesticides to bees.⁹³ These plans are guidelines for states with recommendations from both the EPA and the Federal Insecticide, Fungicide, and Rodenticide Act’s (FIFRA) issues research and evaluation group, but are by no means comprehensive or mandatory for states to follow.⁹⁴

Iowa has taken many steps to protect honeybees and raise awareness for pollinators through a variety of agencies.⁹⁵ Only a few years ago, in 2018, Governor Kim Reynolds declared March 14 as Iowa Honeybee Day to highlight the important role honeybees play in Iowa agriculture.⁹⁶ In 2009, the state replaced its outdated bee rule from 1979 with an updated one.⁹⁷ This new rule limited the time when commercial applicators could apply pesticides within one mile of registered apiaries.⁹⁸ The rule was meant to protect bees at times when they are most actively foraging.⁹⁹ Therefore, the pesticides must be applied prior to eight o’clock a.m. or after six o’clock p.m. and must call registered apiaries to inform them of when the pesticides will be sprayed.¹⁰⁰

91. *Pollinator Health*, *supra* note 5.

92. STATE FIFRA ISSUES, *supra* note 6, at 1.

93. *Id.*

94. *Id.*

95. See *New Iowa “Bee Rule” Will Better Protect Health of Honeybees*, WALLACESFARMER (Feb. 25, 2009), <https://www.farmprogress.com/story-new-iowa-bee-rule-will-better-protect-health-of-honeybees-9-22032> [<https://perma.cc/M8QW-XHTC>] [hereinafter *New Iowa “Bee Rule”*]; see also *Pollinators*, IOWA DEP’T OF NAT. RES. (AUG. 24, 2020, 2:11 PM), <https://www.iowadnr.gov/Conservation/Iowas-Wildlife/Pollinators> [<https://perma.cc/ZPP8-2AQE>]; see also *Gov. Reynolds signs Iowa Honey Bee Day proclamation*, OFF. OF THE GOVERNOR OF IOWA: KIM REYNOLDS (Feb. 22, 2018), <https://governor.iowa.gov/2018/02/gov-reynolds-signs-iowa-honey-bee-day-proclamation> [<https://perma.cc/VAE3-6HZQ>].

96. *Gov. Reynolds Signs Iowa Honey Bee Day Proclamation*, *supra* note 95.

97. *New Iowa “Bee Rule”*, *supra* note 95.

98. *Id.*

99. *Id.*

100. *Id.*

Local apiarists have mixed feelings about this “Bee Rule” though. One apiarist discussed the frustration with the inaccuracies and inability to truly mandate commercial applicators to take heed of this rule.¹⁰¹ Even though this frustrated apiarist is registered and supposed to receive a call, it is a toss-up of if the call will come.¹⁰² Even if there is a call, sometimes the call is just to let him know to keep the bees in the hive because the caller intends to spray in the middle of the day.¹⁰³ Another apiarist described the process as an “honor system” that was “next to impossible” to enforce.¹⁰⁴

C. Protection Movements and Trends

Today, a variety of methods can be used to promote bee protection, including: urging Congress to pass legislation to protect the bees; signing pesticide pledges; beekeeping; and going green and encouraging others to do the same.¹⁰⁵ There are also a variety of groups who support research of pollinators and provide education to others.¹⁰⁶ Two examples of such groups are The Great Sunflower Project and NASA Honeybee Net Study.¹⁰⁷

The Great Sunflower Project is a citizen-based science project focused on collecting data about pollinators.¹⁰⁸ This Project was created to be easy enough for anyone to participate, and the Project’s website has helpful videos on how to get started.¹⁰⁹ The basics behind this Project is to get people to count flowers, count how many pollinators they see on those flowers, record how long they watched these pollinators, etc. Then, all of this data is uploaded onto the Project’s website into a larger database.¹¹⁰ This creates an easy way for citizens to get involved, and helps researchers gather data on a larger scale, more quickly, and over a wider geographical area.¹¹¹

101. Email from Kevin Hulett, *supra* note 44.

102. *Id.*

103. *Id.*

104. Email from William Swain, *supra* note 48.

105. *BEE Protective Protecting honey bees and wild pollinators: What can you do?*, BEYONDPESTICIDES (Sept. 17, 2020, 1:27 PM), <https://www.beyondpesticides.org/programs/bee-protective-pollinators-and-pesticides/what-can-you-do> [<https://perma.cc/34KD-GMDL>].

106. *Help Honey Bees*, *supra* note 49.

107. *Id.*

108. *The Great Sunflower Project*, THE GREAT SUNFLOWER PROJECT (Aug. 24, 2020, 2:12PM), <https://www.greatsunflower.org/node/1000010/> [<https://perma.cc/UY4U-TTUN>].

109. *See id.*

110. *See id.*

111. *See generally id.*

The NASA Honeybee Net Study tracks colonies of honeybees to monitor changes in timing of the pollinator and plant interaction.¹¹² NASA and ecologists are concerned these interactions are being disrupted due to climate change.¹¹³ This project relies mostly on small-scale backyard beekeepers in 20 states, which gives data collectors more than 87 sites to base their findings on.¹¹⁴

Opinions from Iowa apiarists differ on how trends and movements need to progress to see change.¹¹⁵ One apiarist believes the focus should be on pollinators in general, seeing as honeybees are not native to the United States, and the focus should be brought back to native pollinators.¹¹⁶ Another feels the rules are simply too lax and, without stricter rules coupled with proper enforcement, there is really no hope for true positive change to occur.¹¹⁷

D. Case Law

Relevant case law on the topic of pollinator protection exists, but unsurprisingly it is mostly focused on pesticide regulation.¹¹⁸ For example, the Ninth Circuit overturned an unconditional registration by the EPA of certain insecticides containing sulfoxaflor because of the unknown risks to bees.¹¹⁹ The EPA had originally been limiting the registration of that specific pesticide, which is within their power when “necessary to prevent unreasonable adverse effects on the environment.”¹²⁰ The main issue in this case was the EPA taking action without conducting any further studies into the effects of the sulfoxaflor, which the court ruled was unreasonable and impermissible.¹²¹

A case from the Northern District of California directly addressed the EPA and its requirement to give notice in the Federal Register if it approves certain products containing substances that have been found to be harmful to

112. *HoneyBeeNet*, NASA: GODDARD SPACE FLIGHT CTR. (Aug. 24, 2020 2:13 PM), <https://honeybeenet.gsfc.nasa.gov/> [<https://perma.cc/QZ55-VMNM>].

113. *Id.*

114. Adam Voiland, *Honey Bees Turned Data Collectors Help Scientists Understand Climate Change*, NASA, (Sept. 2, 2020 5:02 PM), <https://www.nasa.gov/topics/earth/features/beekeepers.html/> [<https://perma.cc/BY8Z-3G8P>].

115. See Email from William Swain, *supra* note 48.

116. *Id.*

117. Email from Kevin Hulett, *supra* note 44.

118. See *Pollinator Stewardship Council v. EPA*, 806 F.3d 520, 521 (9th Cir. 2015); see also *Anderson v. McCarthy*, No. C 16-00068 WHA, 2016 U.S. Dist. LEXIS 63671, at *2 (N.D. Cal. May 13, 2016).

119. *Pollinator Stewardship Council*, 806 F.3d at 532-33.

120. *Id.* at 522 (quoting 7 U.S.C. § 136a(a)).

121. *Id.* at 528.

pollinators.¹²² The issue, according to the plaintiffs, was an alleged FIFRA violation by the EPA when they suspended the registration of products containing certain active ingredients previously found to be dangerous to bees.¹²³ Unfortunately for pollinator activists, the Court ruled more favorably for the EPA in certain aspects by denying many of the plaintiff's claims because of a failure to meet their burdens of proof.¹²⁴

The Supreme Court of Minnesota held “a land possessor with actual knowledge or notice of foraging honeybees on the property comes under a duty of reasonable care in the application of pesticides.”¹²⁵ This was a highly unusual decision, as most litigation concerns either the actual pesticide itself or the pesticides that are allowed to drift into neighboring land.¹²⁶ The Minnesota Supreme Court appeared to stand in favor of higher protections for pollinators, diverging from what would commonly be found in similar lawsuits.¹²⁷

Another example can be found in *Anderson v. McCarthy*.¹²⁸ This case dealt with neonicotinoids, a specific type of pesticide that is currently very controversial.¹²⁹ The complainants alleged that use of this pesticide was causing a “dust off” and the excess pesticide was killing bees and other pollinators.¹³⁰

Numerous cases discuss the effect of pesticides on bees and highlight the attention such concerns are getting in American courts. This attention suggests a need for additional protection and regulation by the government or a firmer hand when it comes to enforcing the rules already set in place.¹³¹

E. International Pollinator Protection Movements

Bees are just as important around the globe as they are in the United States.¹³² In the United Kingdom, bees contribute £165 million annually and pollinate crops such as “apples, pears, field beans, runner and dwarf beans, broad beans, strawberries, blueberries, raspberries, blackberries . . . with 39 commercial crops

122. *Ellis v. Housenger*, 252 F. Supp. 3d 800, 814 (N.D. Cal. 2017).

123. *Id.* at 810.

124. *Id.*

125. *Anderson v. State*, 693 N.W.2d 181, 192 (Minn. 2005).

126. *Id.* at 188.

127. *See id.* at 192.

128. *See generally* *Anderson v. McCarthy*, No. C 16-00068, 2016 U.S. Dist. LEXIS 63671 (N.D. Cal. May 13, 2016).

129. *Id.* at *2.

130. *Id.*

131. *See, e.g.*, Email from Kevin Hulett, *supra* note 44.

132. *See e.g., id.*

reliant on bees in total.”¹³³ The United Kingdom has 25 native types of bumble bees, but three are extinct, two critically endangered, and many other types are in serious population decline.¹³⁴

There are many different organizations worldwide to combat the declining pollinator populations, and different approaches have been taken by different countries.¹³⁵ One example is the World Bee Project, started by a private British organization, whose mission was “to launch a global honeybee monitoring initiative to inform and implement actions to improve pollinator habitats, create more sustainable ecosystems, and improve food security and nutrition by establishing a globally-coordinated monitoring program for honeybees and eventually for key pollinator groups.”¹³⁶

In France, the Minister for Agriculture and Food and the Minister for Environment put together a work group to address pollinator protection.¹³⁷ In Germany, officials supported an EU ban on neonicotinoids in April 2018 as part of their country’s continued efforts to protect its pollinators.¹³⁸ Another country that has seen wide success with their efforts to maintain bee colonies is Slovenia.¹³⁹ On a balcony just outside the office of the prime minister, a wooden beehive can be seen.¹⁴⁰ The country has raised awareness for bees and seems to be extremely successful with their efforts.¹⁴¹ As countries around the world feel the impact of bee populations declining, Slovenia sits comfortably watching and potentially having the answers everyone seeks on how to maintain their bee populations.¹⁴²

133. *Why bees are important, supra note 9.*

134. *Id.*

135. *See, e.g., Protecting Pollinators, People & the Planet, THE WORLD BEE PROJECT* (Aug. 24, 2020 2:13 PM), <https://worldbeeproject.org/> [<https://perma.cc/BT25-XCEP>].

136. *Protecting Pollinators, People & the Planet, THE WORLD BEE PROJECT*, (Aug. 24, 2020 2:13 PM), <https://worldbeeproject.org/> [<https://perma.cc/BT25-XCEP>].

137. *France taking pollinator health seriously, FRENCH FOOD IN THE US* (Feb. 15, 2019), <https://frenchfoodintheus.org/4125> [<https://perma.cc/9GJE-QL8G>].

138. *Small creatures with a big impact, DEUTSCHLAND.DE* (May 18, 2018), <https://www.deutschland.de/en/topic/environment/bees-at-risk-germanys-strategy-for-protecting-bees> [<https://perma.cc/2BGC-SWEC>].

139. Denise Hruby, *What the US could learn from Slovenia about protecting bees*, THE WORLD (Feb. 5, 2019, 3:00 PM), <https://www.pri.org/stories/2019-02-05/what-us-could-learn-slovenia-about-protecting-bees> [<https://perma.cc/TU3Q-E6YY>].

140. *Id.*

141. *Id.*

142. *See id.*

IV. PLAN OF ACTION

A. What is Needed?

Taking action is easy, even for such a big job, and it can start in a community.¹⁴³ When the State does step in, there will need to be collaboration between them and pollination advocacy groups to allow both groups to work together and share resources.¹⁴⁴ Proactive approaches have been successful in helping maintain bee health, while also allowing farmers to continue using the tools they need for a successful harvest.¹⁴⁵

However, some approaches have not been as successful and truly show the need for a widespread effort to save the bees.¹⁴⁶ Beekeepers have tried replacing nectar with a substitute to help sustain their bees, but it is not as efficient as the natural substance.¹⁴⁷

B. What can be Expanded?

Many things can be done by individuals, including making a bee bath, building homes for native bees, or planting a bee-friendly garden.¹⁴⁸ Bee gardens are immensely helpful to the bee population as they provide food for bees who can otherwise starve in areas without flowers.¹⁴⁹ Not all action by individuals has to be physical though; monetary donations to hives or bee ambassadors can go a long way in supporting the bee community.¹⁵⁰ Another simple way to contribute is to buy the products (soaps, candles, honey) of local beekeepers to support them and help them stay in business.¹⁵¹ Humans have done the most damage to the planet and it is our responsibility to undo the destruction we have caused.¹⁵²

If one feels inclined, they could begin beekeeping and maintain a colony of their own. Whether you just love insects, are following a family tradition, or stumble upon it accidentally, anyone can be an accomplished apiarist.¹⁵³ It does not

143. *10 Ways to Save the Bees*, *supra* note 25.

144. STATE FIFRA ISSUES, *supra* note 6, at 3-5.

145. *Id.* at 1.

146. Haltiwanger, *supra* note 1.

147. *Id.*

148. *10 Ways to Save the Bees*, *supra* note 25.

149. *Help Honey Bees*, *supra* note 49.

150. *10 Ways to Save the Bees*, *supra* note 25.

151. *Id.*

152. Haltiwanger, *supra* note 1.

153. See, e.g., Email from Kevin Hulett, *supra* note 44; Email from William Swain, *supra* note 48.

2020]

The Great “Bee-Pression”

469

have to be a large-scale honey-selling business; it can simply be a hobby done for pleasure and enjoyment.¹⁵⁴

C. What to get Rid of?

Humans are their own worst enemy and they must stop being an enemy of the bees.¹⁵⁵ Pesticides are harmful to pollinators—not just to bees in particular.¹⁵⁶ There needs to be a balance between the agricultural demand for use of pesticides and the natural pollination process, which is so vital to the economy.¹⁵⁷ The lack of concern and regulation by agencies purporting to be extremely concerned by the decline in pollinator population needs to cease, and true action must commence.¹⁵⁸ Finally, the EPA needs to take an affirmative stance on the dangers of neonicotinoid pesticides once and for all and ban the use of any such chemical, thereby protecting pollinators across the United States.¹⁵⁹

V. CONCLUSION

A. What must be Remembered

Bees are truly an amazing species that can have such an important impact on so many different aspects of the agricultural industry in the United States. Most people do not realize just how important bees are and take for granted the fact they can simply go to the grocery store and buy a jar of honey. It rarely dawns on someone that, without honeybees, this option would no longer be possible. In today’s society, it can be easy to forget about such a small creature, but the honeybee has a vital role in the economy. It is vastly important for the country to realize this before bees find their way onto an endangered species list. Action must start at the top to bring proper attention to the issue. Without people in power making decisions to address the rapid decline of bees, little can be expected of anyone else.

However, honeybees are not the only pollinator facing population declines. All others, including butterflies, bats, and other bee species, are struggling with the increased use of dangerous pesticides, infestations of mites, lack of nectar-

154. See Email from William Swain, *supra* note 48.

155. Haltiwanger, *supra* note 1.

156. See *Pollinator Health Concerns*, *supra* note 5; *The Vanishing of the Bees*, *supra* note 32.

157. See generally Email from Kevin Hulett, *supra* note 44.

158. See *id.*

159. See generally Haltiwanger, *supra* note 1; see also *April 2015 Letter to Registrants Announcing New Process for Handling New Registrations of Neonicotinoids*, *supra* note 81.

producing flowers, and so on.¹⁶⁰ Without some dramatic changes by the government and citizens, the pollinator's prospects will continue to be dim. This issue goes beyond the higher powers of a governmental body. Rather, it seeps down to the ordinary citizen in such simple ways as planting a few flowers.

B. What must be Done

Legislators and scientists must come together to create regulations and laws protecting the bee populations. Not all pesticides have to be banned to find a solution. Balance is needed across the board and it begins with education. Simply asking for communication between pesticide applicators and registered beekeepers is not enough; there must be accountability. Without it, there is no incentive for beekeepers to register their hives or take notice of pesticide applications because beekeepers are aware there are no repercussions if something goes amiss.¹⁶¹ When the legislators begin to take this matter seriously, change is possible.

The government must make states address the specific bee and pollination concerns that are unique to their region. What is true in Iowa may not be anywhere near the same in Nevada. States should use incentive programs to encourage their citizens to become bee-friendly. It could be as simple as a small tax reduction for planting a bee-friendly garden or donating to a beekeeper. If one can take clothes to Goodwill and write it off on their taxes, it should be just as simple to put something in place to assist with the bee crisis.

Locally, beekeepers request some respect from fellow farmers. It is a flip of a coin when it comes to whether a neighbor is a gem or a rotten apple.¹⁶² One neighbor may religiously call when he is going to apply pesticides and take extreme caution. Another may not give any notice, or, even if he does, may spray however and wherever he likes.¹⁶³ Unfortunately, there is very little beekeepers can do to fix this. They could try to call the police but the likelihood of anything happening is minimal. Pollinators, beekeepers, and communities would benefit from a more respectful working relationship that benefits both the farmer and the beekeeper.

Although bees have a small physique, they have a significant impact on agriculture. The average citizen does not seem to grasp just how big of an impact pollinators have on the food they eat or what would truly happen if pollinators became extinct. Today's society can be bogged down by easy fixes, such as relying

160. See *Pollinator Health Concerns*, *supra* note 5.

161. See Email from Kevin Hulett, *supra* note 44.

162. See Email from Kevin Hulett, *supra* note 44.

163. *Id.*

2020]

The Great "Bee-Pression"

471

on pesticides, without thinking of the long-term consequences. Bees are the natural pollination remedy that needs to be protected. Bees can be immensely useful to farm and garden production, but only if they are around to do their job. Size should not be a factor in our ability to protect such a necessary part of the natural pollination process.