

# Beeport Card

Evaluating Bee Conservation Policies in Our States



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Written by:

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# **Executive Summary**

B ees are vital to ecological health and global food security. Hundreds of thousands of plants depend on bees for pollination, including key fruit and vegetable crops. But bee populations are collapsing, with alarming consequences for the future. <sup>1</sup>

Colony collapse disorder was first identified following the winter of 2006-2007, which saw the loss of 23 percent of domestic honeybee hives.<sup>2</sup> We know that wild bees are also at risk. The International Union for Conservation of Nature lists several wild bee species as critically endangered.<sup>3</sup>

Research exploring the causes of colony collapse disorder has discovered various causes, including global warming, habitat loss, parasites and a class of bee-killing pesticides called neonicotinoids (or neonics).<sup>4</sup> The threats of habitat fragmentation, degradation and loss and neonicotinoid use have been particularly well-documented and assessed by the ecological research community.

The threat of colony collapse deserves immediate attention from state policymakers for three main reasons. First, bees are fundamental to ecological health and stability -- hundreds of thousands of plants depend on their pollination. Large-scale bee deaths have a cascading effect on entire ecosystems.

Second, the global food supply is dependent on pollination. We rely on bees

to pollinate everything from strawberries to almonds to the alfalfa to feed dairy cows, etc.<sup>5</sup> Considering this dependency, we ought to be particularly vigilant.

Third, current regulations are too weak to prevent unsustainable colony collapse. No comprehensive federal legislation regarding pollinator conservation has been enacted.<sup>6</sup> US states need to assume responsibility for policy innovation and pollinator conservation.

Unfortunately, so far, most states are failing to take measures that address the main threats facing bees. Our review of 50 states' laws and regulations finds:

- Thirty states have taken no initiative to either expand pollinator-friendly habitat or regulate the use of bee-killing neonics.
- Only three states -- Connecticut, Maryland and Vermont -- have banned the consumer sale of neonicotinoids.
- No states have banned consumer sale of seeds that are pre-treated with neonicotinoids.

More specifically, when assessed in terms of protecting pollinator health, these states' policies earned the following grades:

State	Grade
CT, MD, MN, VT	А
CA, IL, NC, NM, VA	В
CO, KY, ND, OH, OR, SD, WA	С
AK, GA, HI, IA, KS, LA, MA, ME, MT, NJ, NV, NY, PA, SC, TX, WV	D
AL, AR, AZ, DE, FL, ID, IN, MI, MS, MO, NE, NH, OK, RI, TN, UT, WI, WY	F

Given the fundamental nature of bees to ecological health and food security, state action must be taken to strictly regulate bee-killing pesticides, protect against habitat loss, and raise awareness and promote public conservation. To address the threat of bee-killing neonicotinoids, we recommend statewide bans on the consumer sale of neonicotinoids, including treated seeds.

States can work to curb habitat loss by designating pollinator-friendly habitat, which utilizes a variety of native vegetation, along public lands as well as designating solar sites as pollinator habitats if they meet certain criteria. Lastly, pollinator-related events, official state designations, specialty license plates and studies of colony collapse all increase public awareness of the importance of pollinators.

The promise and viability of these policies can be seen in states across the country. Connecticut, Maryland and Vermont have enacted bans on consumer sale of neonicotinoids. Illinois, Maryland, Minnesota, New York, South Carolina and Vermont have created systems for designating and commending pollinator-friendly solar sites, and Kentucky has transformed coal reclamation sites into pollinator-friendly habitat with native vegetation. With the exception of Nevada, every state issued a proclamation celebrating National Pollinator Week in 2019.

# Introduction

B ee populations are plummeting at alarming rates. Domestic honeybee hives have dropped from 6 million colonies in the 1940s to about 2.5 million today.<sup>7</sup> The death of honeybee colonies continues to rise. Last winter, U.S. beekeepers lost nearly 40 percent of their colonies -- the greatest reported winter hive loss on record.<sup>8</sup>

It's not just honeybees that are at risk. Wild bee species are also experiencing severe die-offs, some as much as 96 percent of their population.<sup>9</sup> One North American species, the Franklin's bumblebee, has not been seen since 2006, and is at high risk of extinction.<sup>10</sup> Another, the rusty patched bumble bee is the first bee of any kind in the contiguous US to be listed as endangered.<sup>11</sup>

The health of bees is vital to ecological health and stability, and the global food supply. Bees conduct 90 percent of the world's pollination.<sup>12</sup> Continuing hive collapse threatens the survival of plants and animals that rely on those plants as a food source -- a pattern that disrupts the entire food chain.

We rely on bees to pollinate 71 of the 100 crops that provide 90 percent of the world's food.<sup>13</sup> These crops range from almonds to strawberries to the alfalfa used to feed dairy cows. According to the U.S. Department of Agriculture's Agricultural Research Service, about one mouthful in three directly or indirectly benefits from honeybee pollination.<sup>14</sup> Considering this dependency,

bee colony collapse poses a serious risk to ecological health and food security.

Scientists point to several causes behind colony collapse disorder, including global warming, habitat loss, parasites and a class of bee-killing insecticides known as neonicotinoids (or neonics).<sup>15</sup>

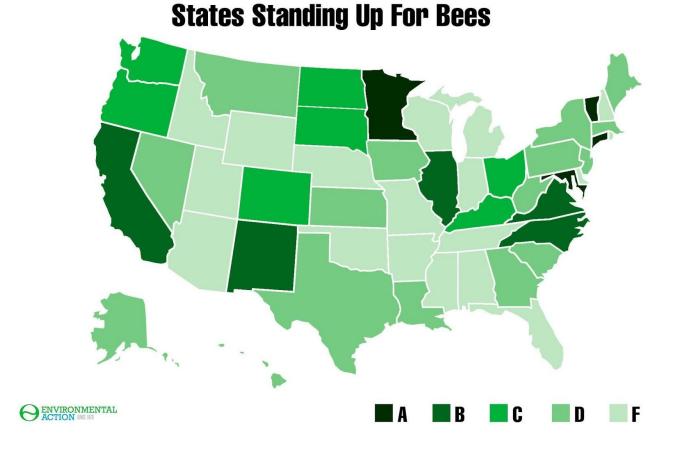
Neonics, which can be applied to seeds before they are planted or directly applied, are persistent in the environment and highly toxic to bees. Only five percent of the toxin is absorbed by the plant; the rest leaches into surrounding soil, and can be carried away by rain or wind to waterways and neighboring land. Depending on the soil type and weather conditions, neonics can remain toxic in the environment for up to 1,000 days.<sup>16</sup>

Neonics are between 5,000 and 10,000 times more toxic to bees than DDT (dichlorodiphenyltrichloroethane).<sup>17</sup> A breadth of laboratory studies have concluded that exposure to neonics impairs bee health in various ways. Neonics, which are nerve agents, target bees' central nervous systems, causing neurological damage, paralysis and death.<sup>18</sup>

An additional threat facing bees is habitat loss, fragmentation and degradation. As native vegetation is replaced by roadways, crop fields and neighborhoods, bees lose the food and nesting sites critical to their survival.<sup>19</sup> In areas of extreme fragmentation, bee populations are smaller and the number of bee species is lower than in natural or minimally disturbed areas.<sup>20</sup>

To address the health of bees and other pollinators, some state governments are enacting policies to stem losses and raise awareness. Policies regarding pollinator-conservation generally fall into one of three categories: Pesticide Regulation, Habitat Protection, and Awareness and Research. To showcase the spectrum of policy innovation and encourage further action, we catalog and evaluate more than 100 state initiatives below.

# **Findings**



#### tate policy initiatives fell into the following categories: (1) regulating pesticide use, (2) establishing and improving pollinator habitat, and (3) raising public awareness about pollinators and funding research. We detail each below.

#### A. Pesticide Regulation

In order to stem hive losses, we recommend a ban on the consumer sale of neonicotinoids and seeds treated with neonicotinoids. Given the consequences for our environment and food supply, it is imperative that we curb the use of these proven bee-killing pesticides.

Three states -- Connecticut, Maryland and Vermont -- have enacted bans on the consumer sale of neonicotinoids. In 2016, Connecticut became the first state in the nation to ban the consumer sale of neonics, when the legislature unanimously passed An Act Concerning Pollinator Health.<sup>21</sup> Maryland followed soon after, similarly classifying neonics as restricted use pesticides.<sup>22</sup> In 2019, Vermont became the latest state to ban consumer sale of neonicotinoids, but joins Connecticut and Maryland in exempting treated seeds from regulation.<sup>23</sup>

A few other states have restricted the use of neonicotinoids, but shied away from enacting bans on consumer sales. In 2018, California's Department of Pesticide Regulation announced it will no longer consider applications that would "expand use" of neonicotinoids until an evaluation of the pesticide has been completed.<sup>24</sup> Former Minnesota Governor Mark Dayton issued a 2016 executive order requiring a "verification of need" prior to the application of neonicotinoids, which the state Department of Agriculture was directed to review.<sup>25</sup> In 2015, Oregon's Department of Agriculture prohibited the use of any product containing neonicotinoids on linden, basswood trees or any other Tilia species.<sup>26</sup>

In 2016, both New Jersey and Nevada passed legislation requiring pesticide applicators to alert nearby registered beekeepers prior to applying pesticides that are toxic to bees.<sup>27,28</sup>

#### **B.** Habitat Protection

In order to address habitat loss, degradation and fragmentation, we recommend that states designate public lands as pollinator-friendly habitat, which makes use of native vegetation. We also recommend that states create a system for commending pollinator-friendly solar sites, in order to encourage further habitat expansion. The most effective way to curb the threat of habitat destruction is, quite simply, to protect, restore and increase it. Fourteen states have either seen agency initiatives or enacted legislative to restore and expand pollinator-friendly habitat. These include: California, Colorado, Connecticut, Illinois, Kentucky, Maryland, Minnesota, New Mexico, North Carolina, North Dakota, Ohio, South Dakota, Virginia and Washington.<sup>29</sup> Most of these initiatives appoint an enforcing agency, and direct the use of a variety of native vegetation.

Additionally, six states -- Illinois, Maryland, Minnesota, New York, South Carolina and Vermont -- have enacted legislation that creates a system for recognizing pollinator-friendly solar farms.<sup>30</sup> These bills require solar sites to meet certain criteria, such as the use of native vegetation, to be identified as pollinator-friendly solar sites. They also appoint an agency for reviewing and commending the sites.

#### C. Awareness and Research

Through education, constituents are encouraged to protect bees, and given the information to do so effectively. As such, we recommend states take steps to raise awareness, which may include holding pollinator-related events, designating specialty license plates and developing research committees.

All states, with the exception of Nevada, recognized National Pollinator Week in 2019. A few states declared additional pollinator-related events and hosted celebrations. In 2019, Texas Parks and Wildlife hosted the Texas Pollinator BioBlitz, which encouraged residents and visitors to learn more about the vital role of pollinators to the ecosystem.<sup>31</sup> Iowa recognized March 14, 2018 as Honey Bee Day.<sup>32</sup> In 2016 and 2017, the New Mexico proclaimed a "Bee Aware Day" to promote education about the importance of bees to the state.<sup>33</sup>

Six states -- Georgia, Illinois, Louisiana, New Mexico, Virginia and West Virginia -have authorized specialty license plates with designs that promote pollinator protection.<sup>34</sup> Seventeen states have all recognized the honeybee as an official state insect or official state pollinator. These include: Arkansas, Georgia, Kansas, Louisiana, Maine, Mississippi, Missouri, Nebraska, New Jersey, North Carolina, Oklahoma, South Dakota, Tennessee, Texas, Utah, Vermont and Wisconsin.<sup>35</sup>

Additionally, several states have directed research into colony loss and pollinator protection. These include: California, Connecticut, Iowa, Minnesota, New Mexico, North Carolina, Virginia, Vermont and Washington.<sup>36</sup> Fives states -- Hawaii, Kansas, Massachusetts, New York and Oregon -- have formed committees with the specified intent of investigating the impact of pesticides on bees.<sup>37</sup>

# **Policy Recommendations**

or generations, bees have been a symbol of community, partnership and hard work. Yet persistent threats put the future of both honeybee and wild bee populations at risk. Given this reality, it is imperative that states now work together to adopt the following solutions to protect bees:

- Ban consumer sale of neonicotinoids, including seeds treated with neonicotinoids. The most effective way to curb the threat of bee-killing neonics is, quite simply, to limit their use. As documented above, neonicotinoid exposure is a major cause of hive loss.
- Designate public lands as pollinator-friendly habitat, which uses bee-friendly, native vegetation. To attract and sustain foraging bees, state action should be taken to protect and restore suitable habitat. Research shows that bees are four times more attracted to native than non-native plants.<sup>38</sup> Bees are also best adapted to local, native plants, which reliably produce the nectar and pollen that they rely on.<sup>39</sup>
- Establish a system for identifying and commending pollinator-friendly solar sites. As pollinator habitat wanes, solar installations are taking up ever more

land. This creates an opportunity to reclaim habitat for bees by replacing the usual grass or gravel with native vegetation.<sup>40</sup>

 Raise awareness of the importance of bees by holding pollinator-related events, designating special license plates and/or initiating research.
 Education is critical to encouraging public action, and research aids scientists and policymakers' efforts to strategize bee conservation.

# Methodology

e conducted a comprehensive review of policies passed by US states' legislative bodies, executive office and agencies that are actively addressing pollinator conservation. Initial results came from Damon Hill and Rebecca Steiner's study, "Insect pollinator conservation policy innovations at subnational levels: Lessons for lawmakers." which identifies pollinator-relevant policy passed by US state-level legislatures between 2000-2017. To update this information with policies passed between 2017-2019 and capture actions taken by state executive offices, we searched legislative trackers and state government websites using the following terms, stemmed words and Boolean searches: "pollina\* OR bee\*," "colony collapse disorder," "neonicotinoids," "pollination," and "apiary." For triangulation, we mailed letters to each state's governor's office with a summary of our findings and request for correction regarding any missing or inaccurate information.

After data collection was complete, each policy was read, summarized and awarded points based on our assessment of its relative importance in protecting bees. When states took the same bee-related action multiple times, the most recent action was scored and older policies were excluded. To generate a final grade for each state, we summed the policy points and assigned a corresponding letter as follows.

Point Range	Grade
0 - 1.5	F
2 - 6	D
6.5 - 10	С
10.5 - 14	В
14.5+	А

We graded states in three main categories: Awareness and Research; Habitat Protection; and Pesticide Regulation. In each of these categories, a full recommended measure was identified. Then, the criteria were tiered so that states not taking the full recommended measure could still earn points for the steps they are taking. For example, states not taking the full recommended measure of banning consumer sale of neonicotinoids, including treated seeds could still receive points in the category of pesticide regulation for a freeze on neonicotinoid applications.

The most weight was given to, in descending order, steps taken to limit the use of pesticides that are toxic to bees, address habitat loss, and draw awareness to and investigate colony collapse disorder.

To a large degree, the successful implementation of bee-protection policies will depend on funding and enforcement. Yet funding comes from so many different sources that we could not establish a reliable way to assess sufficient funding for any given state's efforts. Similarly, absent uniform data, we had no meaningful way to compare the effectiveness of state enforcement or compliance efforts.

Appendix A provides a breakdown of our full recommended measures in each category and the tiered criterion. Appendix B shows where each state earned (or did not earn) points on our grading structure. Appendix C lists the states that responded to our request for comment.

	Score	AL	AK	AZ	AR	СА
Pesticide Regulation	Max Score: 10 points	0	0	0	0	4
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					
Restriction on neonic applications or crops to be sprayed with neonics	4 points					4
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	0	0	0	0	6
Designation of bee-friendly spaces on public lands	6 points					6
Development of a system for identifying and commending bee-friendly solar sites	3 points					
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	1	2	1	1.5	3
Initiation of research or policy committee	2 points					2
Proclamation of a pollinator-related event	1 point	1	1	1	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point		1			
Designation of specialty license plate to promote pollinator conservation	1 point					
Proclamation of any pollinator specific designation or commendation	0.5 points				0.5	
No action on awareness and research	0 points					
Total Points		1	2	1	1.5	13
Grade		F	D	F	F	В

	Score	со	СТ	DE	FL	GA
Pesticide Regulation	Max Score: 10 points	0	8	0	0	0
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points		8			
Restriction on neonic applications or crops to be sprayed with neonics	4 points					
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	6	6	0	0	0
Designation of bee-friendly spaces on public lands	6 points	6	6			
Development of a system for identifying and commending bee-friendly solar sites	3 points					
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	1.5	3	1	1	2.5
Initiation of research or policy committee	2 points		2			
Proclamation of a pollinator-related event	1 point	1	1	1	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point					
Designation of specialty license plate to promote pollinator conservation	1 point					1
Proclamation of any pollinator specific designation or commendation	0.5 points	0.5				0.5
No action on awareness and research	0 points					
Total Points		7.5	17	1	1	2.5
Grade		С	Α	F	F	D

	Score	н	ID	IL	IN	IA
Pesticide Regulation	Max Score: 10 points	0	0	0	0	0
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					
Restriction on neonic applications or crops to be sprayed with neonics	4 points					
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	0	0	9	0	0
Designation of bee-friendly spaces on public lands	6 points			6		
Development of a system for identifying and commending bee-friendly solar sites	3 points			3		
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	3	1	2	1	4
Initiation of research or policy committee	2 points	2				2
Proclamation of a pollinator-related event	1 point	1	1	1	1	2
Declaration of recommendations for constituent action in addressing colony collapse	1 point					
Designation of specialty license plate to promote pollinator conservation	1 point			1		
Proclamation of any pollinator specific designation or commendation	0.5 points					
No action on awareness and research	0 points					
Total Points		3	1	11	1	4
Grade		D	F	В	F	D

	Score	KS	KY	LA	ME	MD
Pesticide Regulation	Max Score: 10 points	0	0	0	0	8
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					8
Restriction on neonic applications or crops to be sprayed with neonics	4 points					
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	0	6	0	0	9
Designation of bee-friendly spaces on public lands	6 points		6			6
Development of a system for identifying and commending bee-friendly solar sites	3 points					3
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	3.5	2	2.5	2.5	1
Initiation of research or policy committee	2 points	2				
Proclamation of a pollinator-related event	1 point	1	1	1	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point				1	
Designation of specialty license plate to promote pollinator conservation	1 point			1		
Proclamation of any pollinator specific designation or commendation	0.5 points	0.5	1	0.5	0.5	
No action on awareness and research	0 points					
Total Points		3.5	8	2.5	2.5	18
Grade		D	С	D	D	Α

	Score	MA	МІ	MN	MS	MO
Pesticide Regulation	Max Score: 10 points	0	0	4	0	0
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					
Restriction on neonic applications or crops to be sprayed with neonics	4 points			4		
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	0	0	9	0	0
Designation of bee-friendly spaces on public lands	6 points			6		
Development of a system for identifying and commending bee-friendly solar sites	3 points			3		
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	3	1	3	1.5	1.5
Initiation of research or policy committee	2 points	2		2		
Proclamation of a pollinator-related event	1 point	1	1	1	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point					
Designation of specialty license plate to promote pollinator conservation	1 point					
Proclamation of any pollinator specific designation or commendation	0.5 points				0.5	0.5
No action on awareness and research	0 points					
Total Points		3	1	16	1.5	1.5
Grade		D	F	Α	F	F

	Score	МТ	NE	NV	NH	NJ
Pesticide Regulation	Max Score: 10 points	0	0	2	0	2
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					
Restriction on neonic applications or crops to be sprayed with neonics	4 points					
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points			2		2
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	0	0	0	0	0
Designation of bee-friendly spaces on public lands	6 points					
Development of a system for identifying and commending bee-friendly solar sites	3 points					
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	2	1.5	0	1	2.5
Initiation of research or policy committee	2 points					
Proclamation of a pollinator-related event	1 point	1	1		1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point	1				1
Designation of specialty license plate to promote pollinator conservation	1 point					
Proclamation of any pollinator specific designation or commendation	0.5 points		0.5			0.5
No action on awareness and research	0 points					
Total Points		2	1,5	2	1	4.5
Grade		D	F	D	F	D

	Score	NM	NY	NC	ND	ОН
Pesticide Regulation	Max Score: 10 points	0	0	0	0	0
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					
Restriction on neonic applications or crops to be sprayed with neonics	4 points					
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	6	3	6	6	6
Designation of bee-friendly spaces on public lands	6 points	6		6	6	6
Development of a system for identifying and commending bee-friendly solar sites	3 points		3			
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	5	3	4.5	1	1
Initiation of research or policy committee	2 points	2	2	2		
Proclamation of a pollinator-related event	1 point	2	1	2	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point					
Designation of specialty license plate to promote pollinator conservation	1 point	1				
Proclamation of any pollinator specific designation or commendation	0.5 points			0.5		
No action on awareness and research	0 points					
Total Points		11	6	10.5	7	7
Grade		В	D	В	С	С

	Score	ок	OR	ΡΑ	RI	SC
Pesticide Regulation	Max Score: 10 points	0	4	0	0	0
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					
Restriction on neonic applications or crops to be sprayed with neonics	4 points		4			
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	0	0	0	0	3
Designation of bee-friendly spaces on public lands	6 points					
Development of a system for identifying and commending bee-friendly solar sites	3 points					3
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	1.5	3	2	1	1
Initiation of research or policy committee	2 points		2			
Proclamation of a pollinator-related event	1 point	1	1	1	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point			1		
Designation of specialty license plate to promote pollinator conservation	1 point					
Proclamation of any pollinator specific designation or commendation	0.5 points	0.5				0.5
No action on awareness and research	0 points					
Total Points		1.5	7	2	1	4
Grade		F	С	D	F	D

	Score	SD	TN	тх	UT	VT
Pesticide Regulation	Max Score: 10 points	0	0	0	0	8
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					8
Restriction on neonic applications or crops to be sprayed with neonics	4 points					
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	6	0	0	0	3
Designation of bee-friendly spaces on public lands	6 points	6				
Development of a system for identifying and commending bee-friendly solar sites	3 points					3
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	1.5	1.5	2.5	1.5	3.5
Initiation of research or policy committee	2 points					2
Proclamation of a pollinator-related event	1 point	1	1	1	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point					
Designation of specialty license plate to promote pollinator conservation	1 point			1		
Proclamation of any pollinator specific designation or commendation	0.5 points	0.5	0.5	0.5	0.5	0.5
No action on awareness and research	0 points					
Total Points		7.5	1.5	2.5	1.5	14.5
Grade		С	F	D	F	Α

	Score	VA	WA	wv	WI	WY
Pesticide Regulation	Max Score: 10 points	0	0	0	0	0
Ban on consumer sale of neonics and seeds treated with neonics	10 points					
Ban on consumer sale of neonics	8 points					
Restriction on neonic applications or crops to be sprayed with neonics	4 points					
Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees	2 points					
No action on pesticides	0 points					
Habitat Protection	Max Score: 9 points	6	6	0	0	0
Designation of bee-friendly spaces on public lands	6 points	6	6			
Development of a system for identifying and commending bee-friendly solar sites	3 points					
No action on habitat	0 points					
Awareness & Research	Max Score: 5.5 points	4.5	3	2	1.5	1
Initiation of research or policy committee	2 points	2	2			
Proclamation of a pollinator-related event	1 point	1	1	1	1	1
Declaration of recommendations for constituent action in addressing colony collapse	1 point					
Designation of specialty license plate to promote pollinator conservation	1 point	1		1		
Proclamation of any pollinator specific designation or commendation	0.5 points	0.5			0.5	
No action on awareness and research	0 points					
Total Points		10.5	9	2	1.5	1
Grade		В	С	D	F	F

# Appendix A: How the States Earned Their Grades

# Alabama

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Alabama Pollinators Week<sup>41</sup> = 1 point

# Alaska

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Alaska Pollinators Week with a recommendation that Alaskans consider planting gardens on their property to supply pollinators with nectar, pollen and habitat <sup>42</sup> = 2 points

# Arizona

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Arizona Pollinators Week<sup>43</sup> = 1 point

## Arkansas

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

- 2019 Proclamation of Arkansas Pollinators Week<sup>44</sup> = 1 point
- Designation of the honeybee as the state insect<sup>45</sup> = 0.5 points

# California

#### Points

Pesticide Regulation

- Freeze on new uses of neonicotinoids<sup>46</sup> = 4 points
   Habitat Protection
  - Designation of bee-friendly habitat
    - on public lands<sup>47,48</sup> = 6 points

#### Awareness & Research

- Creation of the California Apiary Research Committee<sup>49</sup> = 2 points
- 2019 Proclamation of California Pollinators Week<sup>50</sup> = 1 point

# Colorado

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Designation of bee-friendly habitat on public lands<sup>51</sup> = 6 points

Awareness & Research

- 2019 Proclamation of Colorado Pollinators Week<sup>52</sup> = 1 point
- Renaming of Interstate Highway 76 from Mile Marker 1-183 as the Colorado Pollinator Highway<sup>53</sup> = 0.5 points

# Connecticut

#### Points

Pesticide Regulation

 Ban on consumer sale of neonicotinoids<sup>54</sup> = 8 points

Habitat Protection

- Designation of bee-friendly habitat on public lands<sup>55</sup> = 6 points
- Awareness & Research
  - Creation of the Pollinator Advisory Committee<sup>56</sup> = 2 points
  - 2019 Proclamation of Connecticut Pollinators Week<sup>57</sup> = 1 point

# Delaware

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Delaware Pollinators Week<sup>58</sup> = 1 point

# Florida

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Florida Pollinators Week<sup>59</sup> = 1 point

# Georgia

#### Points

Pesticide Regulation

- No action on pesticide regulation = 0 points
- Habitat Protection
  - No action on habitat protection = 0 points

#### Awareness & Research

- 2019 Proclamation of Georgia Pollinators Week<sup>60</sup> = 1 point
- Designation of specialty license plate to promote pollinator conservation<sup>61</sup> = 1 point
- Designation of the honeybee as the state insect<sup>62</sup> = 0.5 points

# Hawaii

#### Points

Pesticide Regulation

- No action on pesticide regulation = 0 points
- Habitat Protection
  - No action on habitat protection = 0 points

#### Awareness & Research

- Direction that the Department of Land and Natural Resources and Department of Agriculture research measures to limit pollinator exposure to neonicotinoids<sup>63</sup> = 2 points
- 2019 Proclamation of Hawaii Pollinators Week<sup>64</sup> = 1 point

# ldaho

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Idaho Pollinators Week<sup>65</sup> = 1 point

# Illinois

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

- Designation of bee-friendly habitat on public lands<sup>66</sup> = **6 points**
- Creation of a system for identifying and commending bee-friendly solar sites<sup>67</sup> = 3 points

Awareness & Research

- 2019 Proclamation of Illinois Pollinators Week<sup>68</sup> = 1 point
- Designation of specialty license plate to promote pollinator conservation<sup>69</sup> = 1 point

## Indiana

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Indiana Pollinators Week<sup>70</sup> = 1 point

#### lowa

#### Points

Pesticide Regulation

- No action on pesticide regulation = 0 points
- Habitat Protection
  - No action on habitat protection = 0 points

#### Awareness & Research

- Creation of the Iowa Pollinator Conservation Working Group<sup>71</sup> = 2 points
- 2019 Proclamation of Iowa Pollinators Week<sup>72</sup> = 1 point
- Proclamation of Honey Bee Day<sup>73</sup> = 1 point

# Kansas

#### Points

Pesticide Regulation

- No action on pesticide regulation = 0 points
- Habitat Protection
  - No action on habitat protection = 0 points

Awareness & Research

- Direction that the Department of Agriculture research the effect of pesticide drift on pollinators<sup>74</sup> = 2 points
- 2019 Proclamation of Kansas Pollinators Week<sup>75</sup> = 1 point
- Designation of the honeybee as the state insect<sup>76</sup> = 0.5 points

# Kentucky

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

• Designation of bee-friendly habitat on public lands<sup>77,78</sup> = **6 points** 

#### Awareness & Research

- 2019 Proclamation of Kentucky Pollinators Week<sup>79</sup> = 1 point
- Recognition of Clarkson as the Honey Bee Capitol of Kentucky<sup>80</sup> = 0.5 points
- Designation of the honeybee as the official state agricultural insect of Kentucky<sup>81</sup> = 0.5 points

# Louisiana

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

- 2019 Proclamation of Louisiana Pollinators Week<sup>82</sup> = 1 point
- Designation of specialty license plate to promote pollinator conservation<sup>83</sup> = 1 point
- Designation of the honeybee as the state insect<sup>84</sup> = 0.5 points

### Maine

#### Points

Pesticide Regulation

- No action on pesticide regulation = 0 points
- Habitat Protection
  - No action on habitat protection = 0 points

#### Awareness & Research

- 2019 Proclamation of Maine Pollinators Week with recommendation that constituents demonstrate sustainable practices in support of pollinator health and habitat<sup>85</sup> = 2 points
- Designation of the honeybee as the state insect<sup>86</sup> = 0.5 points

# Maryland

#### Points

Pesticide Regulation

 Ban on consumer sale of neonicotinoids<sup>87</sup> = 8 points

Habitat Protection

- Designation of bee-friendly habitat on public lands<sup>88</sup> = 6 points
- Creation of a system for identifying and commending bee-friendly solar sites<sup>89</sup> = 3 points

Awareness & Research

 2019 Proclamation of Maryland Pollinators Week<sup>90</sup> = 1 point

# Massachusetts

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

#### Awareness & Research

- Direction that the University of Massachusetts Cranberry Station in Wareham research the relationship between pesticide use and pollinator health<sup>91</sup> = 2 points
- 2019 Proclamation of Massachusetts Pollinators Week<sup>92</sup> = 1 point

# Michigan

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Michigan Pollinators Week<sup>93</sup> = 1 point

# Minnesota

#### Points

Pesticide Regulation

 Requirement of a verification of need prior to application of neonicotinoids<sup>94</sup> = 4 points

Habitat Protection

- Designation of bee-friendly habitat on public lands<sup>95</sup> = 6 points
- Creation of a system for identifying and commending bee-friendly solar sites<sup>96</sup> = 3 points

Awareness & Research

- Creation of the Interagency Pollinator Protection Team and the Governor's Committee on Pollinator Protection<sup>97</sup> = 2 points
- 2019 Proclamation of Minnesota Pollinators Week<sup>98</sup> = 1 point

# Mississippi

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- 2019 Proclamation of Mississippi Pollinators Week<sup>99</sup> = **1 point**
- Designation of the honeybee as the state insect<sup>100</sup> = 0.5 points

# Missouri

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- 2019 Proclamation of Missouri Pollinators Week<sup>101</sup> = 1 point
- Designation of the honeybee as the state insect<sup>102</sup> = **0.5 points**

## Montana

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Montana Pollinators Week with recommendation that constituents participate in pollinator protection activities in their daily lives<sup>103</sup> = 2 points

# Nebraska

#### Points

Pesticide Regulation

- No action on pesticide regulation = 0 points
- Habitat Protection
  - No action on habitat protection = 0 points

#### Awareness & Research

- 2019 Proclamation of Nebraska Pollinators Week<sup>104</sup> = 1 point
- Designation of the honeybee as the state insect<sup>105</sup> = 0.5 points

## Nevada

#### Points

Pesticide Regulation

 Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees<sup>106</sup> = 2 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

• No action on awareness and research = **0** points

## **New Hampshire**

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

#### Awareness & Research

 2019 Proclamation of New Hampshire Pollinators Week<sup>107</sup> = 1 point

# **New Jersey**

#### Points

Pesticide Regulation

 Requirement that pesticide applicators notify beekeepers prior to applying a pesticide that might be toxic to bees<sup>108</sup> = 2 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- 2019 Proclamation of New Jersey Pollinators Week<sup>109</sup> = **1 point**
- Recommendation that constituents plant native plants to support honeybee populations<sup>110</sup> = 1 point
- Designation of the honeybee as the state insect<sup>111</sup> = 0.5 points

# **New Mexico**

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

• Designation of bee-friendly habitat on public lands<sup>112,113</sup> = 6 points

- Direction that the Department of Agriculture research commercial bee populations<sup>114</sup> = 2 points
- 2019 Proclamation of New Mexico Pollinators Week<sup>115</sup> = **1 point**
- Designation of specialty license plates to promote pollinator conservation<sup>116</sup> = 1 point
- Proclamation of Bee Aware Day<sup>117</sup> = 1 point

# **New York**

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Creation of a system for identifying and commending bee-friendly solar sites<sup>118</sup> = 3 points

Awareness & Research

- Collaboration with New York universities to study pollinator diversity and the impact of neonicotinoids<sup>119</sup> = 2 points
- 2019 Proclamation of New York
  Pollinators Week<sup>120</sup> = 1 point

# North Carolina

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 2019 Designation of bee-friendly habitat on public lands<sup>121</sup> = 6 points

#### Awareness & Research

- Collaboration with North Carolina State University researchers to develop best practices for supporting pollinator habitat<sup>122</sup> = 2 points
- 2019 Proclamation of North Carolina Pollinators Week<sup>123</sup> = 1 point
- Announcement of Pollinator Field Day<sup>124</sup> = 1 point
- Designation of the honeybee as the state insect<sup>125</sup> = 0.5 points

# North Dakota

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Designation of bee-friendly habitat on public lands<sup>126</sup> = 6 points

Awareness & Research

 2019 Proclamation of North Dakota Pollinators Week<sup>127</sup> = 1 point

# Ohio

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Designation of bee-friendly habitat on public lands<sup>128</sup> = 6 points

Awareness & Research

 2019 Proclamation of Ohio Pollinators Week<sup>129</sup> = 1 point

# Oklahoma

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

- 2019 Proclamation of Oklahoma Pollinators Week<sup>130</sup> = 1 point
- Designation of the honeybee as the state insect<sup>131</sup> = **0.5 points**

# Oregon

#### Points

Pesticide Regulation

 Prohibition on the use of neonicotinoids on linden trees, basswood or any other Tilia species<sup>132</sup> = 4 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- Direction that Oregon State University research best practices for avoiding adverse effects of pesticides on pollinators<sup>133</sup>= 2 points
- 2019 Proclamation of Oregon Pollinators Week<sup>134</sup> = 1 point

# Pennsylvania

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Pennsylvania Pollinators Week with recommendation that constituents protect and encourage pollinator habitat<sup>135</sup> = 2 points

# **Rhode Island**

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

- No action on habitat protection = 0 points
- Awareness & Research
  - 2019 Proclamation of Rhode Island Pollinators Weekt<sup>136</sup> = 1 point

# South Carolina

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Creation of a system for identifying and commending bee-friendly solar sites<sup>137</sup> = 3 points

Awareness & Research

 2019 Proclamation of South Carolina Pollinators Week<sup>138</sup> = 1 point

# South Dakota

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Designation of bee-friendly habitat on public lands<sup>139</sup> = 6 point

- 2019 Proclamation of South Dakota Pollinators Week<sup>140</sup> = 1 point
- Designation of the honeybee as the state insect<sup>141</sup> = 0.5 points

# Tennessee

#### Points

Pesticide Regulation

- No action on pesticide regulation = 0 points
- Habitat Protection
  - No action on habitat protection = 0 points

#### Awareness & Research

- 2019 Proclamation of Tennessee Pollinators Week<sup>142</sup> = 1 point
- Designation of the honeybee as the state insect<sup>143</sup> = 0.5 points

## Texas

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

#### Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- 2019 Proclamation of Texas Pollinators Week<sup>144</sup> = 1 point
- Announcement of Texas Pollinator BioBlitz<sup>145</sup> = 1 point
- Designation of the western honeybee as the state pollinator<sup>146</sup> = 0.5 points

# Utah

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- 2019 Proclamation of Utah Pollinators Week<sup>147</sup> = 1 point
- Designation of the honeybee as the state insect<sup>148</sup> = **0.5 points**

# Vermont

#### Points

Pesticide Regulation

• Ban on consumer sale of neonicotinoids<sup>149</sup> = 8 points

Habitat Protection

 Creation of a system for identifying and commending bee-friendly solar sites<sup>150</sup> = 3 points

- Creation of the Pollinator Protection Committee<sup>151</sup> = 2 points
- 2019 Proclamation of Vermont Pollinators Week<sup>152</sup> = 1 point
- Designation of the honeybee as the state insect<sup>153</sup> = 0.5 points

# Virginia

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Designation of bee-friendly habitat on public lands<sup>154</sup> = 6 points

#### Awareness & Research

- Creation of the Virginia Pollinator Protection Strategy<sup>155</sup> = 2 points
- 2019 Proclamation of Virginia Pollinators Week<sup>156</sup> = 1 point
- Designation of specialty license plates to promote pollinator conservation<sup>157</sup> = 1 point
- Commendation of the Virginia State Beekeepers Association<sup>158</sup> = 0.5 points

# Washington

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 Designation of bee-friendly habitat on public lands<sup>159</sup> = 6 points

Awareness & Research

- Direction that the Department of Agriculture create and chair a pollinator task force<sup>160</sup> = 2 points
- 2019 Proclamation of Washington Pollinators Week<sup>161</sup> = 1 point

# West Virginia

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- 2019 Proclamation of West Virginia Pollinators Week<sup>162</sup> = 1 point
- Designation of specialty license plates to promote pollinator conservation<sup>163</sup>= 1 point

# Wisconsin

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

- 2019 Proclamation of Wisconsin Pollinators Week<sup>164</sup> = 1 point
- Designation of the honeybee as the state insect<sup>165</sup> = 0.5 points

# Wyoming

#### Points

Pesticide Regulation

 No action on pesticide regulation = 0 points

Habitat Protection

 No action on habitat protection = 0 points

Awareness & Research

 2019 Proclamation of Wyoming Pollinators Week<sup>166</sup> = 1 point

# **Appendix B: State Responses**

o ensure accurate representation of each state's efforts to address widespread colony collapse, we mailed letters to every governor's offices with a summary of our findings, initial grade and request for response. We asked for any information that the office believed would or should impact our findings. The states that responded included:

Indiana Michigan Nevada New York North Carolina North Dakota South Dakota West Virginia

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