



REPORT ON THE DEVELOPMENT
AND MAINTENANCE OF THE
VIRGINIA POLLINATOR PROTECTION STRATEGY

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Commissioner

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**Interim Report on the Development and Maintenance of the
Virginia Pollinator Protection Strategy**

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Legislative Mandate

Va. Code § 3.2-108.1

Executive Summary

The 2016 Session of the Virginia General Assembly enacted the Virginia Pollinator Protection Strategy (Strategy) (VA Code § 3.2-108.1), which requires the Virginia Department of Agriculture and Consumer Services (VDACS) to establish and maintain a Virginia Pollinator Protection Strategy to promote the health of and mitigate the risks to all pollinator species and ensure a robust agriculture economy and apiary industry for honey bees and other managed pollinators. The Strategy is to include a plan for the protection of managed pollinators that provides voluntary best management practices for pesticide users, beekeepers, landowners, and agricultural producers.

BACKGROUND AND OVERVIEW

Pollinators contribute substantially to food production and the economy in the United States. Pollination adds value to the nation's agricultural output and pollinators are vital for the development of many of Virginia's crops such as apples, pumpkins, watermelons, cucumbers, squash and berries.

In recent years, there has been a significant loss of pollinators, including honey bees, native bees, birds, bats, and butterflies. The continued loss of commercial honey bee colonies poses a threat to the economic stability of commercial beekeeping and pollination operations in the United States and could have profound implications for agriculture and food production. Scientists believe that bee losses are likely caused by a combination of stressors, including poor bee nutrition, loss of forage lands, parasites, pathogens, lack of genetic diversity, and exposure to pesticides.

On June 20, 2014, a Presidential Memorandum was issued entitled "Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators." The memorandum resulted in the creation of the Pollinator Health Task Force which in turn developed the National Pollinator Health Strategy. As a result of the Presidential Memorandum and the National Pollinator Health Strategy, the Virginia Department of Agriculture and Consumer Services developed *Virginia's Voluntary Plan to Mitigate the Risk of Pesticides to Managed Pollinators* which focuses on communication between beekeepers and pesticide applicators and the use of best management practices to reduce the exposure of bees and other pollinators to pesticides.

In 2016, the Virginia General Assembly enacted the Virginia Pollinator Protection Strategy (Strategy) (VA Code § 3.2-108.1 et seq.), which provides a basis for the protection of pollinators in Virginia through the use of best management practices by pesticide users, beekeepers, landowners and agricultural producers.

ADVISORY COMMITTEE

In developing the Strategy, VA Code § 3.2-108.1 et seq. requires VDACS to solicit assistance from state agencies and other stakeholders. VDACS established an advisory committee which consists of representatives from:

- Ashland Berry Farm
- Beekeepers of Northern Shenandoah
- Fort A.P. Hill
- Responsible Industry for a Sound Environment (RISE)
- United States Department of Agriculture, Natural Resources Conservation Service
- Virginia Agribusiness Council
- Virginia Crop Production Association
- Virginia Department of Environmental Quality
- Virginia Department of Conservation and Recreation
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Transportation
- Virginia Department of Forestry
- Virginia Farm Bureau
- Virginia Nursery & Landscape Association
- Virginia State Beekeepers Association
- Virginia Tech, Department of Entomology
- Virginia Tech Extension
- Virginia Turfgrass Council

PROTECTION OF MANAGED POLLINATORS

Section 3.2-108.1 of the Strategy requires that VDACS provide for the protection of managed pollinators, through the development of best management practices for pesticide users, beekeepers, landowners and agricultural producers. The Strategy shall contain a plan to support: 1) communication between beekeepers and applicators; 2) reduction of the risk to pollinators from pesticides; 3) increases in pollinator habitat; 4) maintenance of existing compliance with state pesticide use requirements; 5) identification of needs for further research to promote robust agriculture and apiary industries; and 6) identification of additional opportunities for education and outreach on pollinators.

1. Communication between beekeepers and applicators

Communication between beekeepers and applicators will enable beekeepers to receive advance notification regarding upcoming pesticide applications that may impact their honey bees. VDACS' recently completed *Virginia's Voluntary Plan to Mitigate the Risk of Pesticides to Managed Pollinators* (Plan), provides voluntary steps to establish communication between beekeepers and pesticide applicators. The Plan encourages beekeepers to provide pesticide applicators with information regarding locations of honey bee hives so that applicators can then provide advance notification to beekeepers of upcoming pesticide applications. Advance notification will enable beekeepers to take measures to prevent the unintended exposure of honey bees to pesticides. The Plan encourages the use of an online communication tool which will be administered by VDACS and used by beekeepers and applicators to enhance this communication. The online communication tool consists of an online mapping system which will allow beekeepers to designate the location of their honey bee hives along with their contact information. Pesticide applicators will be able to use the mapping system to find honey bee hives in close proximity to a planned treatment site so that advance notification to the beekeeper can be provided.

The Plan can be found on VDACS' pollinator protection webpage at <http://www.vdacs.virginia.gov/plant-industry-services-pollinator-protection-plan.shtml>.

2. Reduction of the risk to pollinators from pesticides

Virginia's Voluntary Plan to Mitigate the Risk of Pesticides to Managed Pollinators includes general guidelines for protecting pollinators. In addition, the Plan includes specific Best Management Practices (BMPs) which were developed by stakeholders and can be used by applicators and beekeepers to protect pollinators. It is anticipated that the BMPs will not only reduce the risk of exposure of honey bees to pesticides, but all pollinators as well. As an example, one of the BMPs recommends the application of pesticides in the late afternoon when pollinators are less likely to be foraging. Late afternoon pesticide applications will benefit not only honey bees, but other pollinators as well.

General guidelines for protecting pollinators (pages 11 – 13 of the Plan) and the BMPs can be found on VDACS' pollinator protection webpage at <http://www.vdacs.virginia.gov/plant-industry-services-pollinator-protection-plan.shtml>.

3. Increases in pollinator habitat

Adequate pollinator habitat ensures food and nesting sites are available for pollinators. Increasing pollinator habitat is one of the primary ways in which pollinator populations can be improved.

The habitat necessary for survival of pollinators is being lost to suburban development. In addition, many of Virginia's agricultural crops are not a primary food source for pollinators. In forested areas, Tulip Poplar, Black Locust, Holly, and Sourwood trees are good nectar producing trees for honey bees, however many of Virginia's forested areas are being replanted in pine, which has minimal benefit for pollinators.

The advisory committee identified numerous opportunities within Virginia for the improvement of pollinator habitat. Gardens which include pollinator-friendly plants could be established on private land, state land, federally-owned land, locality-owned property, agricultural areas, utility easements, homeowner association (HOA) lands and other open areas. Specific opportunities for increasing pollinator habitat include:

- State land
 - State parks
 - VDOT property
 - University lands
 - Locality-owned property - City/County parks
- Federally-owned lands
 - USDA Forest Service
 - National Park Service
- Easement areas (electric, oil and gas line right-of-ways)
- Agricultural buffer areas
- Pasture and fallow land
- HOA common areas
- Trail areas: Virginia Capital Trail, The Washington & Old Dominion Trail, Old Canal Trail, etc.

One of the more widely recognized methods of increasing pollinator habitat is through the use of pollinator gardens. Pollinator gardens can vary in size and can be located in both urban and rural settings. Landowners can plant pollinator gardens which focus on specific pollinators (honey bee, Monarch butterfly, etc.) or the pollinator garden can be beneficial to a wide variety of pollinator species. One example of the movement to establish pollinator gardens on private property is the Million Pollinator Garden Challenge© which was launched by The National

Pollinator Garden Network to address the decline in pollinator populations by asking all Americans to plant for pollinators. The Million Pollinator Garden Challenge is a nationwide program to preserve and create gardens and landscapes that help revive the health of bees, butterflies, birds, bats and other pollinators. More information on the Million Pollinator Garden Challenge can be found at <http://millionpollinatorgardens.org/about/>.

In an effort to take advantage of state-owned property to increase pollinator habitat, several agencies have planted pollinator gardens. Currently, the Virginia Department of Game and Inland Fisheries, Virginia Department of Transportation and Virginia Department of Forestry have established pollinator gardens on some of their properties. Listed below are examples of pollinator habitat which has been established:

Virginia Department of Transportation (VDOT): The VDOT Pollinator Habitat Program began in 2014, with pollinator gardens planted at three Park and Rides and one at a Safety Rest Area on southbound Interstate 95 near Dale City. A large meadow was added to the northbound side in 2015. Area medians and roadsides in the Bristol District were seeded with native pollinator and grass species in the fall of 2015 and 2016. Funding for the pollinator gardens comes from Protect Pollinators and Wildflower license plate fees. For more information go to VDOT's website at: http://www.virginiadot.org/programs/pollinator_habitat_program.asp.

Virginia Department of Game and Inland Fisheries (DGIF): In the spring of 2017, DGIF began development of patches of pollinator habitats at three DGIF fish hatcheries (Brookneal, Montebello, and Coursey Springs). It is anticipated that these pollinator habitats will be completed in 2018. DGIF is also working with the Town of Culpeper to install a pollinator garden at Yowell Meadow Park in September, 2017, with additional pollinator plantings planned for the spring of 2018.

Virginia Department of Forestry (DOF): DGIF and DOF collaborated in 2015 in the planting of five acres of pollinator plantings on the Cumberland State Forest.

While it is recognized that pollinator gardens can be beneficial, they can also be difficult to develop and maintain, expensive to establish and take several years to become self-seeding. Promoting the use of pollinator gardens is important to increasing the number of pollinators. Opportunities for assistance in planting pollinator plants can be obtained from the National Wildlife Federation, Virginia Conservation Network and their affiliates, and USDA Natural Resources Conservation Services (NRCS). Financial assistance may be available to landowners through USDA Natural Resources Conservation Service.

USDA Natural Resources Conservation Services (NRCS): Program that provides assistance for agricultural producers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, protect environmentally sensitive land, decrease erosion, restore wildlife habitat and safeguard ground and surface water. Plantings can focus on pollinator habitat.

Department of Game and Inland Fisheries: In collaboration with the NRCS, DGIF employs five Private Lands Wildlife Biologists (PLWB); these biologists work with private landowners on projects that support and contribute to the implementation of Virginia's Quail Action Plan. To date, the PLWB have written habitat plans for over 6,000 acres of private lands to support a diversity of species including pollinators. DGIF recognizes that native bees and other pollinators have declined with the loss of quail habitat.

Pollinator gardens or planting large pollinator habitat in agricultural or rural areas can prove beneficial and steps are necessary to make resources available that can be used by individuals, landowners, farmers, government agencies, and other organizations. Resources such as financial assistance and technical information (BMPs, plant species, pollinator information, etc.) is needed to increase pollinator habitat.

4. Maintenance of existing compliance with state pesticide use requirements

VDACS is the state agency responsible for pesticide regulation in Virginia. Under authority of the Virginia Pesticide Control Act (Act) (VA Code § 3.2-3900 et seq.) and pesticide regulations established pursuant to the Act, VDACS' Office of Pesticide Services (OPS) certifies pesticide applicators, registers pesticide products, issues pesticide business licenses, and educates pesticide users and the public about the benefits and risks of pesticide products. In addition, OPS staff conduct routine inspections and investigate complaints to determine if pesticides have been misused. Through these activities, OPS protects consumers and the environment while permitting the safe and effective control of pests that adversely affect crops, structures, health, and domestic animals.

During FY 2016, OPS certified 6,768 private applicators, 7,585 commercial applicators, and 8,036 registered technicians to apply pesticides in the Commonwealth. OPS also licensed 2,947 pesticide businesses and registered 15,133 pesticide products. Field staff conducted 3,305 routine inspections and related activities and initiated 77 investigations, including complaints, incidents, accidents, and related activities at 1,476 individual sites throughout

Virginia. OPS staff also conducted 201 marketplace registration inspections, checking the registration status of over 3,000 products.

5. Identification of needs for further research to promote robust agriculture and apiary industries

Ensuring that the apiary industry can thrive while providing for a robust agriculture industry requires research to determine the causes of the decline in honey bee and other pollinator populations, methods for increasing pollinator populations, and ensuring agriculture continues to thrive in Virginia. The advisory committee recommends that research focus on honey bees, general pollinators and pollinator-friendly plants.

Research specific to honey bees should:

- Focus on ways to improve the health of Virginia colonies so that diseased honey bees from other states are not imported into Virginia;
- Provide for a more sustainable honey bee in Virginia;
- Establish best management practices for beekeepers to increase survival rates;
- Determine sub-lethal impact of pesticides to honey bees.

Research on pollinators should:

- Determine why pollinator populations are experiencing decline;
- Determine the species of pollinators which are in the largest decline;
- Determine which pollinator species are currently in Virginia;
- Many crops, such as squash, sunflower, pepper, and tomato, benefit from native bee pollination. Knowledge of bee distributions, including bumble bees, needs to be improved. For example, information is needed regarding the distribution and health of mason bees, leaf cutter bees, carpenter bees, sunflower bees, sweat bees, or other bee populations that may be important to agricultural producers. Efforts to document bee distributions would be a useful first step in developing a more robust understanding of Virginia's wild pollinators.

Research on selecting plants for pollinators:

- Determine those pollinator-friendly plants which are best for the nursery industry and which are most marketable to homeowners:
 - Include plants that are attractive (colorful) in the garden and not appear to be weeds;
 - Focus on those plants that have a high demand and can be easily supplied;
- Establish a list of plants for various pollinator species;
- Determine plants which will benefit those pollinators which are in the largest decline;

- Develop plant list for agricultural producers:
 - Include plants which are not invasive and will not conflict with business operations. The list of plants should include those that will minimally affect crop production and take into consideration weed management;
 - Develop list of plants that could be planted in pasture lands;
 - Develop benefits of planting pollinator-friendly plants as cover crops and in buffer areas;
 - Develop benefits for landowners who plant pollinator-friendly plants.
- Development of best management practices and education are needed for forest industry;
- Develop a list of pollinator-friendly plants for the urban environment;
- Develop pollinator best management practices for the urban environment;
- Develop best management practices for planting pollinator gardens;
- Develop a list of East Coast plants that will help pollinators.

Current Research:

- Virginia Tech has recently invested in pollinator research which includes:
 - Research on the “dancing bees,” working with pollinator sounds and other research to find out how to help pollinators and reduce the population decline;
 - Determining habitats best suited for honey bees;
 - Evaluating cover crops and buffer zones to determine the impacts to all pollinators;
- Department of Conservation and Recreation’s development of the Virginia Native Plant Finder web tool to assist in identifying and planting native plants. See: <http://www.dcr.virginia.gov/natural-heritage/np>
- The Department of Conservation and Recreation is increasing research conducted on pollinators.

6. Identification of additional opportunities for education and outreach on pollinators.

Outreach and education was identified as a critical requirement for the protection of pollinators. Landowners, agricultural producers, government agencies, urban developers and citizens need accurate and readily accessible information regarding pollinators and pollinator protection in order to take steps which will be successful in improving pollinator populations.

Outreach can involve providing information at retail locations, internet, schools, government agencies (state and local), etc.

Virginia Tech Cooperative Extension (VCE): VCE is focusing efforts on promoting literacy of integrated pest management and pollinator protection to both producers and

beekeepers. Future efforts will address education focusing on the establishment and maintenance of pollinator forage and habitat, based on scientifically and regionally relevant information. VCE will work extensively with Virginia Tech to incorporate research findings and advancements into current programs.

Department of Environmental Quality/Coastal Zone Management (CZM). The CZM is a voluntary program which serves as the basis for protecting, restoring, and responsibly developing our nation's diverse coastal communities and resources. The Virginia CZM program developed reference material on native plants for specific geographical areas and includes information on the native plants' benefit to pollinators.

While there are resources available regarding pollinators and selecting plants for pollinators, the information needs to be readily accessible. Educational information at retail locations should be available and visible so consumers can get information and select pollinator friendly plants. It is anticipated that consumers will purchase pollinator friendly plants, but many are uninformed and want access to accurate and readily available information. Consideration should be given to using the Garden Club of Virginia, Virginia Master Naturalists and Virginia Master Gardeners for both education and outreach activities.

Current Activities

- Virginia Tech is investigating the implementation of more apiary and extension opportunities across the state and increased educational opportunities through online programs.

Suggested Activities

- Tree wells – great for planting as an education opportunity, urban planting and outreach;
- Information regarding pollinators provided to HOAs, which can then be provided to homeowners;
- Information regarding pollinators provided to consumers so that they can easily see the benefits of purchasing pollinator friendly plants;
- Information provided to agricultural producers regarding plants that are pollinator-friendly and can be beneficial in other ways;
- Information regarding pollinators provided to landowners so pollinator friendly-plants can be used during the replanting that occurs at pipeline and power line sites.

Resources on pollinators and pollinator plants:

- Virginia Department of Conservation and Recreation (Native plants)
<http://www.dcr.virginia.gov/natural-heritage/nativeplants>
- Virginia Department of Transportation
http://www.virginiadot.org/programs/pollinator_habitat_program.asp
- Virginia Department of Agriculture and Consumer Services (Pollinator Protection web page)
<http://www.vdacs.virginia.gov/plant-industry-services-pollinator-protection-plan.shtml>
- Plant Virginia Natives
www.plantvirginiannatives.org
- Virginia Tech (Pesticides and Pollinators)
<http://vtpp.ext.vt.edu/pesticide-safety-education-program/honeybees-and-pesticides/sensitivity-to-pesticides>
- USDA Forest Service
<https://www.fs.fed.us/wildflowers/pollinators/index.shtm>
- National Park Service
<https://www.nps.gov/subjects/pollinators/index.htm>
- USDA Natural Resources Conservation Service
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/pollinate/help/>

FUTURE ACTIONS

The Pollinator Protection Strategy Advisory Committee will continue to work toward developing those strategies that will provide protection for pollinators, increase pollinator habitat and ensure a robust agriculture industry. State and federal agencies have already taken steps toward increasing pollinator populations and increasing pollinator habitat and the advisory committee will further evaluate those steps to determine the methods that will provide the most benefit to pollinators.

Coordination of future efforts by government agencies, individuals and organizations is vital to prevent duplication of research and allow for information sharing. The goal of future meetings of the advisory committee will involve expanding current activities and focus on new and innovative ways in which pollinator habitat can be increased, outreach and education can be improved and research needs can be identified.