



**Agriculture
and Markets**

POLLINATOR PROTECTION PLAN UPDATE

2022

DIVISION OF PLANT INDUSTRY



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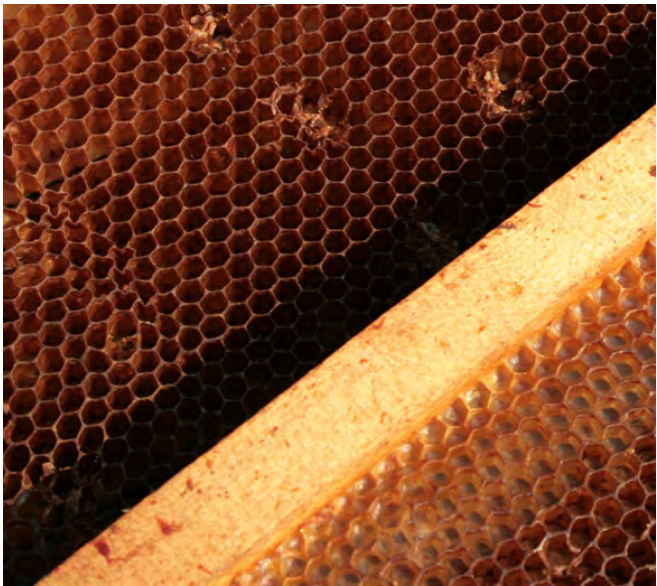
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NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS

Apiary Inspection Program

The primary purpose of the Apiary Inspection Program at the New York State Department of Agriculture and Markets (NYS AGM) is to prevent the introduction, spread, and dissemination of contagious or infectious diseases, or parasites into New York's managed honey bee population.

On December 23, 2021, changes to the New York State Agriculture and Markets Law, Article 15 Bee Diseases took effect, requiring beekeepers to annually report honey bee colonies by county. Additionally, beekeepers who are producing nucleus colonies for sale within the state are required to have an annual inspection to ensure colony health.

The apiary inspection season begins in April and continues through October.

2021

Three apiary inspectors covered all counties within New York State. The following are the activities and accomplishments for this period:

- Visited 591 apiary yards and inspected 10,577 colonies.
- Issued 87 certificates for the sale of 4,362 nucleus colonies, 24,235 queens and 65 full-sized colonies produced in New York.
- Identified and abated 42 colonies infected with American foulbrood in 10 beekeeping operations.
- Issued 72 Interstate Certificates for movement of 49,271 colonies and 7,300 nucleus colonies to permit entrance into destination states.
- Participated for the second year, in the multi-state, non-native wasp survey, by trapping for invasive wasps in three high-risk locations within New York.

2022

The Department added an additional apiary inspector to assist with covering the state. At the close of 2022, inspectors have:

- Visited 715 apiary yards and inspected 11,273 colonies.
- Issued 129 certificates for the sale for 4,815 nucleus colonies, 30,554 queens and 58 full sized colonies produced in New York.
- Identified and abated 18 colonies infected with American foulbrood in five beekeeping operations.
- Issued 63 Interstate Certificates for the movement of 48,840 colonies and 7,190 nucleus colonies to permit entrance into destination states.
- Continued participation in the multi-state, non-native wasp survey.

National Honey Bee Survey

The goals of the National Honey Bee Survey are to identify potentially invasive pests, develop a baseline of colony health within the United States, and identify risk factors and protective factors that predict colony health and operational success over time.

In 2021, NYS AGM was one of 41 states/territories that participated in the National Honey Bee Survey with 19 beekeepers who were inspected and sampled either one or two times. NYS AGM inspectors collected bees and bee bread from eight colonies in each yard. The samples were analyzed for Varroa mite (*Varroa destructor*) and *Nosema spp.* levels, ten different viruses, and 204 different pesticides broken out as insecticides, herbicides, fungicides and varroacides. The returned samples showed a clear correlation between beekeepers who migrated and pollinated multiple crops and increased pesticide and viral loads compared to stationary beekeepers who were not involved in pollination services and had lower levels of pesticides and viruses. The average number of pesticides found in the 10 samples analyzed was 4.8 with a high of 11 different pesticides contained in a sample to a low of one. NYS AGM participating in the survey again in 2022, sampling from May through September.

Honey Bee Health

NYS AGM was awarded funds for a multi-state (seven states and three universities) effort to collect frames of American foulbrood and render them safe through irradiation of the bacterium. These irradiated frames will then be shared among the participants to be used in outreach and education. Although there were cases of American foulbrood found in 2021, the frames were not of high enough quality to be used for educational purposes; the project was extended into 2022.





National Pollinator Task Force

The goals of the National Pollinator Task Force are to coordinate with other federal agencies to develop a mechanism from which a national native bee monitoring program can be developed. Although the task force is in its earliest stages, the collaborators have established common goals to work towards:

- Determine bee species distributions across the United States and gather reliable baseline information on bee species ranges.
- Establish standardized systematic sampling scheme, with tiers or modules for supplementary information.
- Understand native bee life history
 - Nesting (highest priority)
 - Survival
 - Foraging
- Monitor floral associations along with bee abundance.
- Share gathered data in an open, centralized database. Develop core set of data standards across agencies. Keep common species common, prevent new listings.
- Centralize databases and make data publicly accessible.
- Continue improving communication and coordination of bee monitoring efforts within and across agencies.
- Strengthen taxonomic infrastructure. Invest in training and supporting additional taxonomists. Support community science, cultivate public interest to gather bee monitoring data.
- Encourage strategic partnerships with federal and non-federal entities, and work toward a complementary approach to a national native bee monitoring scheme.

NEW YORK STATE OFFICE OF GENERAL SERVICES

Green NY

The New York State Office of General Services (OGS) hosts the GreenNY website (<https://ogs.ny.gov/greenny>) that went live in April 2017. A portion of the website is dedicated to pollinator information and links (<https://ogs.ny.gov/greenny/conserving-natural-resources>). It provides information on sustainable landscaping and pollinator protection, and includes resources such as the Pollinator Protection Plan, the Pollinator Protection Plan update, federal pollinator guidance, information on invasive species, and a list of Native Plants for Pollinators.

Executive Order 22 established the Interagency Committee on Sustainability and Green Procurement, which is co-chaired by the OGS and Department of Environmental Conservation Commissioners. This Interagency Committee is responsible for the creation of green procurement lists and specifications for commodities, services, and technology to be used by state agencies and authorities during their procurements. Currently, four of these specifications consider the impact on pollinators: Sustainable Landscaping, Pest Management for Outdoor Spaces, Turf and Ornamental Management, and Mulch. Additionally, the Interagency Committee is continuing to identify relevant commodities, services, and technology to create new specifications that can be adopted to protect pollinators.

The website information and the Executive Order 22 Specifications continue to provide guidance to assist with plant selection and source considerations across the state. State agencies and authorities are required to purchase commodities, services, and technology that meet the approved green procurement specifications, providing standards for plantings, site restoration, and the use of landscaping practices that promote the use of native species for pollinator protection.

The Executive Order 22 Interagency Committee is also tasked with drafting progress reports regarding, among other things, the adoption of sustainable practices and operations by state government. During the fiscal years 2015-2016, 2016-2017, 2017-2018, and 2018-2019, 2019-2020, and 2020-2021, pursuant to the Pollinator Task Force recommendation, several pollinator-related questions were added to the annual survey that is completed by state agencies and authorities for the progress report. The responses to these survey questions help to give a clearer picture of what state agencies are currently doing to protect pollinators throughout the state. On an annual basis, reporting agencies are taking and reporting additional pollinator protection actions.

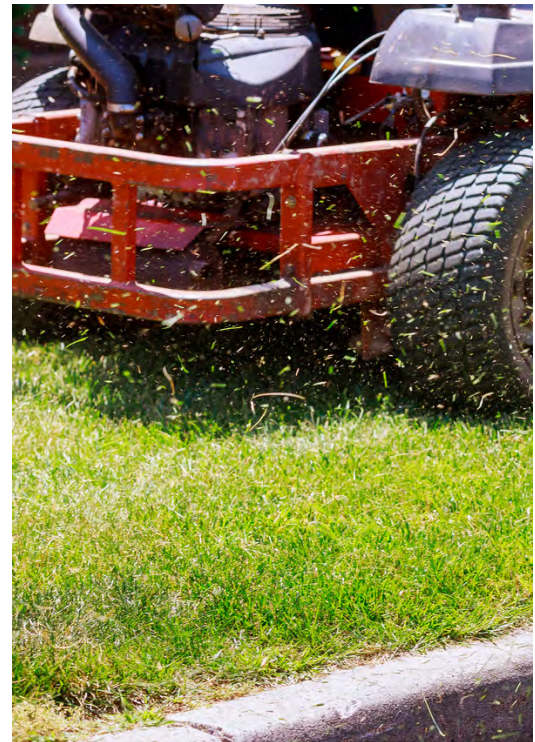
NEW YORK STATE OFFICE OF GENERAL SERVICES

Timed Mowing and Pollinator Plantings

OGS has increased the use of the “timed mowing” technique, to maintain turf, control invasive species, use less fossil fuels, and protect pollinators as part of its landscape management practices.

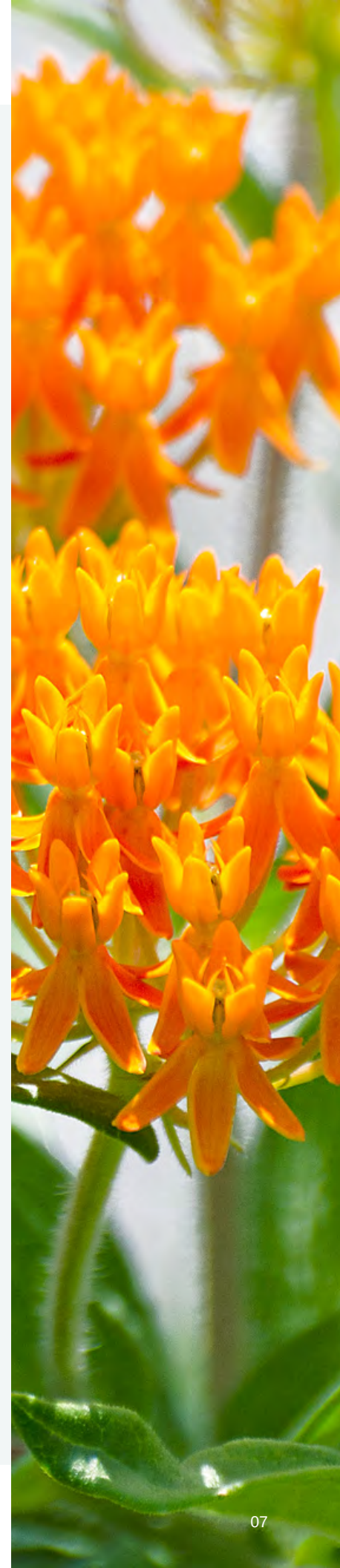
OGS real property and facilities management considers planting pollinator friendly environments that contain native vegetation at state-owned and managed buildings and facilities when plantings occur.

OGS continues to maintain the Empire State Plaza without the use of chemical pesticides. The limitation of pesticides helps enhance the habitat of native and managed pollinators. The agency continues to assess the most viable and beneficial sites for pollinator friendly environments at all state facilities.



OGS has taken these measures at state facilities to improve landscape management and provide pollinator habitat.

- **Binghamton State Office Building:** Increased the number of pollinator friendly plantings, surrounding the building and on the second-floor plaza level.
- **Mahoney State Office Building:** Eliminated invasive species, planted native plant species throughout the property, eliminated the use of pesticides and managed weed growth with organic liquid. Additionally, added 180 square feet of pollinator friendly vegetation around the facility.
- **Henderson-Smith State Office Building (Hornell):** Replaced shrubs and bushes with native pollinator friendly plantings and increased the annual flower plantings throughout the property.
- **Homer Folks State Office Building (Oneonta):** Planted numerous shrubs, bushes and other plantings to promote pollinator habitat.
- **Oriskany State Property:** New construction and remodeling of the facility has allowed for new pollinator friendly plantings, including trees, shrubs, and perennials. The facility also added four retention pond areas that contain pollinator friendly aquatic plants.
- **Senator Hughes State Office Building (Syracuse):** Added over 20 native tree plantings to promote pollinators to the existing landscape that already includes native tree, shrub, and flower plantings.
- **Utica State Office Building:** A new plaza project allowed for additional plantings of perennials, bushes, landscaping grasses, and native trees. Increased flower plantings that were grown at the Mohawk Correctional Facility greenhouse throughout the complex.
- **Dulles State Office Building (Watertown):** Increased the number of perennial and annual flower plantings throughout the complex.



NEW YORK STATE DEPARTMENT OF TRANSPORTATION

The New York State Department of Transportation (DOT) has continued to increase acreage that is maintained with reduced or altered mowing practices. Current mowing guidelines encourage Maintenance Residencies across the state to seek opportunities to reduce and alter mowing where possible. This helps to avoid disruptions to pollinator life cycles, provide late-season forage and aid in wildflower seed dispersal and these practices benefit monarch butterflies, honeybees, and other pollinators. Although mowing widths and locations are determined by safety needs, the entire width of right-of-way (ROW) areas rarely need to be mowed. Modified mowing, by exploiting the presence of favorable vegetation, can also save on the cost of new plantings while controlling the spread of non-desirable vegetation.

- Altered mowing has occurred in Rochester, Buffalo, Utica and Poughkeepsie, and is on the increase.
- DOT continues to maintain the award-winning Region 4 pilot project on Interstate 390, south of Rochester. This successful effort, targeting the preservation of existing milkweed to support Monarch butterflies, is described at: <https://www.dot.ny.gov/regional-offices/region4/other-topics/pollinator-project>.

DOT has continued to maintain pollinator gardens established at two rest areas on Interstate 390. DOT's Region 1 office worked in partnership with Greene County Soil and Water Conservation District and Green County to establish a Pollinator Garden on Route 23 in the Town of Jewett. Gardens were tilled and seeded with Adirondack Upland Wildflower mix and mowing takes place very two years in late fall. Plantings included ninebark, bayberry, silky dogwood, purple coneflower, bluebells, lupine, bergamot, butterfly weed, buttonbush, penstemon, milkweed, mountain mint, Dutchman's breeches. A bumble bee conservation sign installed as the gardens resulted from the observation of a native American bumble bee by an off-duty NYS employee with a passion for bees.



DOT continues their program of Integrated Pest Management (IPM) including:

- Increased management to encourage native flora and fauna, including pollinators.
- Increased awareness of pests, invasive species, and pollinator needs.
- Improved housekeeping and expanded use of biological controls.
- Minimized, targeted pesticide and herbicide application.

DOT has completed new Vegetation Management Guidelines, to be released in 2023, that:

- Formally incorporate Integrated Vegetation Management (IVM) principles including control methods other than mowing.
- Include monarch Candidate Conservation Agreements with Assurances (CCAA) management practices and conservation measures in the management guidelines.

DOT Guidance Documents: Highway Design Manual's Chapter 28 on Landscape Architecture, the Environmental Handbook for Transportation Operations, and the Adirondacks Transportation Corridor Unit Management Plan, incorporate management and best practices recommendations related to pollinators.

Technical Working Groups: DOT Adirondack regional offices and main office staff have developed soil management and seeding guidance for the Adirondack Park with the goal of protecting and preserving native soils and seed banks, minimizing disturbance, reusing of existing soils instead of importing topsoil, harvesting local seeds and native planting restoration.

Partnerships for Regional Invasive Species Management (PRISMs): We collaborate with PRISMS through the NY Invasive Species Council and contacts in individual DOT Regions, to improve natural habitats through invasive species awareness and control.

Scenic Byways Program: we share information and encourage our Byways contacts and stakeholders to consider pollinator habitat in their outreach, management, and tourism efforts.

Web Tools Development: DOT's Environmental Viewer, used by all Regions to screen projects for environmental concerns has a layer incorporating statewide invasive species information from iMapInvasives. A statewide vegetation management application is in development that will enable us to track management actions and locations such as wildflower seeding areas, altered mowing and dedicated conservation management areas.

Habitat Enhancement Efforts

- DOT's landscape architects and environmental specialists:
- Follow the DOT policy to give priority to native species in all restoration and habitat enhancement projects.
- Include a diversity of trees and shrubs into planting choices, in addition to herbaceous plants, to support a variety of pollinator habitat needs.
- Factor time of bloom for shrubs and trees into planting plans, with the goal of providing a continuous food source for pollinators throughout the season.
- Prioritize planting in areas which provide the most benefit to pollinators such as adjacent to large, undeveloped tracts of land.
- Incorporate features such as bird nesting boxes into projects to support vertebrate pollinators in addition on invertebrate pollinators.
- Work with engineers to limit habitat loss and preserve continuity on projects and actions, to the extent possible.
- Use a special specification in place since 2015 that has allowed DOT to test custom native seed mixes on Regional projects by a special note. This has shown sufficient positive results in that it will be made into a standard specification in 2023. To support the use of this specification and broaden options for native area restoration and pollinator habitat, the Office of Environment has compiled master list of all seed species used by Regions in the special specification to date.



Research and Monitoring

DOT continues to actively manage several research projects, using federal State Planning and Research (SPR) funds, of benefit to pollinators. Each of these research efforts will result in both professional publication and practical application, include a training component, and will have wider applicability to other DOT agencies and land managing entities.

- SPR C-16-02 Soils to support Pollinators: The Principal Investigator (PI), Cornell Waste Management Institute, has analyzed the characteristics of native soils currently supporting pollinator-friendly vegetation in all major state ecoregions. This data has been used to draft manufactured topsoil specifications to better enable the DOT to mimic natural conditions when restoring areas where topsoil has been lost or diminished. The PI has identified potential topsoil suppliers in all ecoregions and is working with them to ensure the soil specifications are feasible and economical for them to produce.
- SPR C-17-12 Effects of a Modified Mowing Regime in DOT ROWs on Pollinators and Vegetation: Evaluation has continued in this 5-year study of the effect of standard and altered mowing practices on presence and quantity of pollinator and wildflower species in 30 paired test sites across the state. The analysis will strengthen roadside vegetation managers' ability to determine the benefits and costs of altering mowing practices for safety/operational concerns and pollinator insects.
- SPR C-18-01 Swallow-wort Biocontrol: Field trials continued in this 5-year development of potential biocontrols for the invasive plant Swallow-wort that, in addition to overtaking native vegetation and reducing diversity, can attract monarch butterflies, but kill the larvae that hatch.

DOT also works closely with other agencies and partners for mutual sharing and support of research and knowledge. For example, discussions with the Xerces Society and the Federal Plant Conservation Alliance have informed our efforts to develop seed mixes that can withstand roadside stressors, with minimal ground preparation.



Development of Outreach and Education

- DOT has included sessions on managing for pollinators, control of invasive species, related Geographic Information Systems (GIS) applications, and use of native seed and plants in its monthly Environmental/ Landscape Architecture Training Series (ELATS), as well as in annual meetings for Design, Construction and Operations.
- Staff have presented at, or otherwise participated in, statewide, national, and international conferences that have included pollinator research and management best practices. Among these are: The International Conference on Ecology and Transportation (ICOET), Northeast Transportation and Wildlife Conference (NETWC) North American Invasive Species Management Association (NAISMA), and annual meetings of various Transportation Research Board's (TRB) committees.
- DOT has partnered since 2016 with the Seneca Park Zoo Society's Butterfly Beltway program and Green Thumb Environmental Beautification, Inc., and has maintained two interpretive gardens at Mount Morris and Geneseo Rest Area where DOT Region 4 initiated altered mowing practices. Rest area visitors, thanks to educational signs provided by the Zoo Society can learn more about the plight of pollinators and how they can practice conservation measures at home. The Society also harvests milkweed seeds from DOT's ROW for use in local conservation programs.
- The science behind the Region 4 pilot mowing program has also been shared across DOT via training targeting residency personnel and Maintenance Environmental Coordinators. If the workers doing the mowing understand the logic behind the change, they are more likely to help preserve the effort.
- The Federal Highway Administration (FHWA) has included DOT's experience on their Pollinator website.
- DOT has responded to numerous public inquiries about general practices as well as suggestions for improvements such as plantings or altered mowing at specific locations. For the latter, DOT referred the parties to local Maintenance Residencies to meet and discuss options and possibilities.
- DOT has encouraged, supported and/or incorporated pollinator considerations into federally funded locally led projects and programs we manage such as:
 - Permits to outside entities working on DOT ROW.
 - Scenic Byways Comprehensive Management Plans.

NEW YORK STATE THRUWAY AUTHORITY

Rochester Institute of Technology (RIT) Research

The New York State Thruway Authority (NYSTA) is participating in a pollinator research study being led by the New York State Department of Transportation (DOT). The research is being undertaken by the Rochester Institute of Technology (RIT) and is designed to identify the impacts of a modified mowing regime on pollinators. A mix of study sites were selected across DOT's system based on climate zone, surrounding land cover, ecological communities, road size, and traffic density. Three locations on the Thruway were included in the study: two locations between Interchange 39 and 40; and one location at the Warners Service area. The study began in 2019 and will continue through 2023. (Note, the original study was funded for three years. RIT secured funding for an additional two years to extend the study to 2023.) NYSTA maintenance staff have implemented the modified mowing regime prescribed by the study, and RIT researchers are monitoring the sites to measure, compare, and evaluate the abundance and types of pollinators present under the different mowing regimes. While there are no official results from the study yet, RIT's researchers indicated an encouraging number of pollinators were found at the end of the 2021 field season at each of the NYSTA locations. Results of the study are anticipated in 2024.



Division Wildflower Plantings

Buffalo

Maintenance staff have planted more than 10 acres of wildflowers in the following general locations:

- Corning, Interchange 46 east bound on I-90
- Batavia, Interchange 48 on I-90
- Depew, Interchange 49 on I-90
- Buffalo Airport, Interchange 51 eastbound and westbound on I-90

Several projects in the following areas have included pollinator plantings during construction:

- Westfield to Pennsylvania, planting of lilac shrubs as part of a living snow fence installation
- I-390 to Victor on I-90, planting of specialty seed wildflower mixes as part of the slope flattening work
- Buffalo Airport, Route 33 on I-90, planting wildflower seed mixes to restore the right of way after construction activities

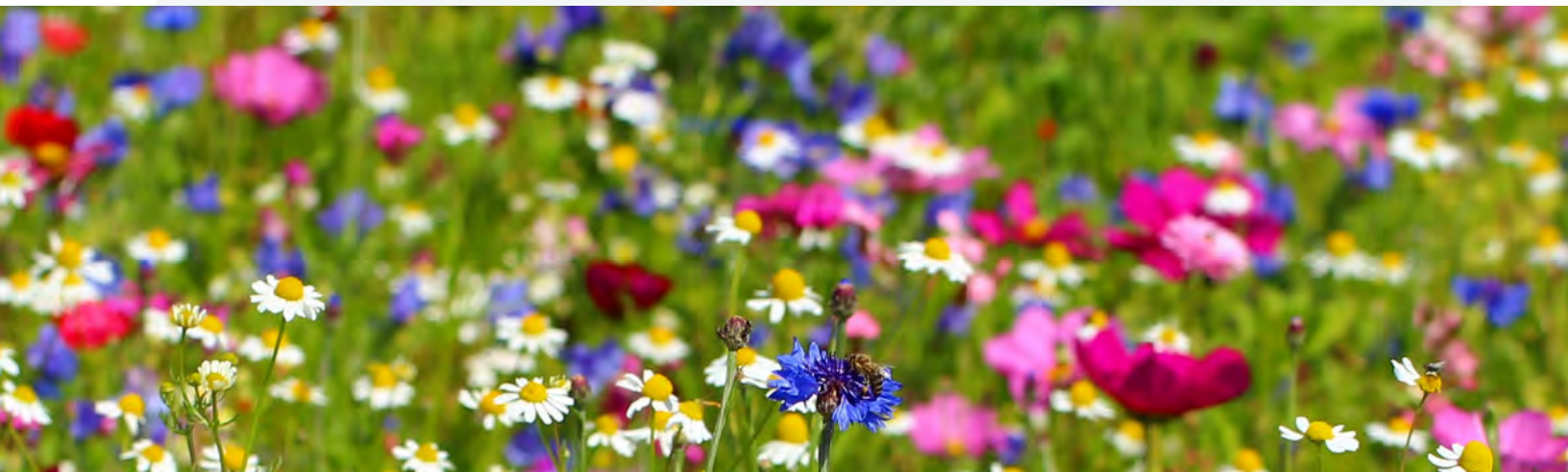


The pilots were very successful and these locations have been over seeded to promote additional growth.

Syracuse

In 2016, two areas were utilized to pilot planting wildflowers. The locations include a rest area and a portion of Interchange 34A. More than five additional areas have been planted with wildflowers, including:

- Verona, Interchange Exit 33 on I-90
- Herkimer, Interchange 31 on I-90
- Syracuse, Interchange 34 A on I-90
- Warners Service Area on I-90
- Manchester Interchange vicinity on I-90



Flowering shrubs have been planted with willow species in living snow fences at these general locations:

- Herkimer, Interchange 32 on I-90
- Rome, Interchange 33 on I-90
- Syracuse, Interchange 34A on I-90
- Liverpool, Interchange 38 on I-90
- Weedsport Area, Interchange 41 ramp areas



Albany

The Albany Division has increased its wildflower seeding areas by 23%. Special attention was given to ensuring that seed mixes used support Monarch butterflies. NYSTA continues to look for opportunities to increase meadows where wildflowers can be colonized through natural succession.

New York

Division field staff are evaluating locations to reduce mowing and to create meadows with the colonization of wildflowers through natural succession that are beneficial to pollinators.



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The State Department of Environmental Conservation (DEC) is undertaking a wide range of initiatives to protect and support New York's pollinators, including restricting use of certain pesticides, continued outreach and education on the critical role of pollinators and managing plantings and habitats to support pollinators.

Neonic Product Reclassification Information

The intent to reclassify pesticide products is an important step in protecting New York's environmental resources, including pollinators. In 2022, DEC announced its intent to reclassify certain neonicotinoid (neonic) pesticide products as "restricted use" effective January 1, 2023. Products containing the active ingredients imidacloprid, acetamiprid, and thiamethoxam that are labeled for foliar and/or widespread outdoor use and/or seed treatment will be reclassified as restricted use. The reclassification will ensure proper use by trained applicators and require sales and use data to be reported to DEC annually in accordance with the Pesticide Reporting Law. Annual reporting will provide a practical mechanism for obtaining information on use, location and amounts for products currently registered as "general use" in New York State, which can be used by the general public. Products containing these active ingredients and labeled for direct application to tree bark and/or the ground around trees and plants are not included in this reclassification. The neonic product reclassification information can be found on DEC's website at <https://www.dec.ny.gov/chemical/298.html>. This reclassification will result in allowing only certified pesticide applicators to purchase and possess these pesticide products.

In addition, certified applicators, and in certain situations, people working under certified applicators' direct supervision will be allowed to use and apply these pesticide products. Uncertified individuals, including residential users, will not be permitted to purchase, possess and apply these pesticide products. However, under certain circumstances uncertified users may apply to the DEC for a pesticide purchase permit. If a purchase permit is provided, the applicator will be permitted to purchase, possess, use and apply the permitted pesticide product. The agricultural purchase permit form can be found on the DEC's website at: https://www.dec.ny.gov/docs/materials_minerals_pdf/agpurchase.pdf.

Pollinator Outreach

To ensure New Yorkers, particularly the regulated community and key stakeholders, are aware of DEC's actions to protect pollinators, DEC undertook the following outreach activities:

- DEC distributed email messages to tens of thousands of subscribers to GovDelivery email messages, with multiple messages during Pollinator Week.
 - 02/03/2022, Get the Newest Buzz on the DEC's Action to Protect Honeybees and Other Pollinators.
 - 06/24/2021, National Pollinator Week is June 21-27.
- DEC's pesticides program staff continue to distribute the Pollinator Protection Plan during inspections and at outreach events.
- DEC's Pollinator Protection webpage is updated routinely with new information and links to other pollinator websites. DEC's webpage includes a variety of information on the topic, including how to recognize and report pollinator incidents, and links to sites highlighting Best Management Practices for golf courses and turf care, Cornell's Pollinator Network site and other reliable sources of information on pollinator protection.
- DEC and partners provide direct education at Reinstein Woods Environmental Education Center, including:
 - Five virtual and one in-person pollinator program for the public attended by 61 people.
 - Youth programs: Watershed STEM in the Schoolyard- 23 students educated on pollinators and received plants for pollinators to plant at their school or home. Twelve campership students planted two pollinator gardens.
 - At least four teachers installed pollinator gardens in 2020-2021 as a result of training and plants provided by Reinstein Woods.
 - 2019-2021 school programs related to pollinators: 20 programs for 297 participants, including planting pollinator gardens at two Buffalo Public School District high schools.
- Certification training courses: DEC approves an average of 10 training courses each year that address pollinator protection issues. Pesticide applicators attending these courses receive recertification credits.
- Pollinator investigations: DEC received and investigated two complaints this past year related to pollinators. Connections to specific pesticide applications could not be made in either case and the investigations were concluded.

DEC Plantings

Across the State, DEC has recently built or initiated dozens of projects to support pollinators at facilities, lands, and sites across the state. These initiatives demonstrate DEC's commitment to supporting pollinator habitat, as well as serving as public education opportunities.

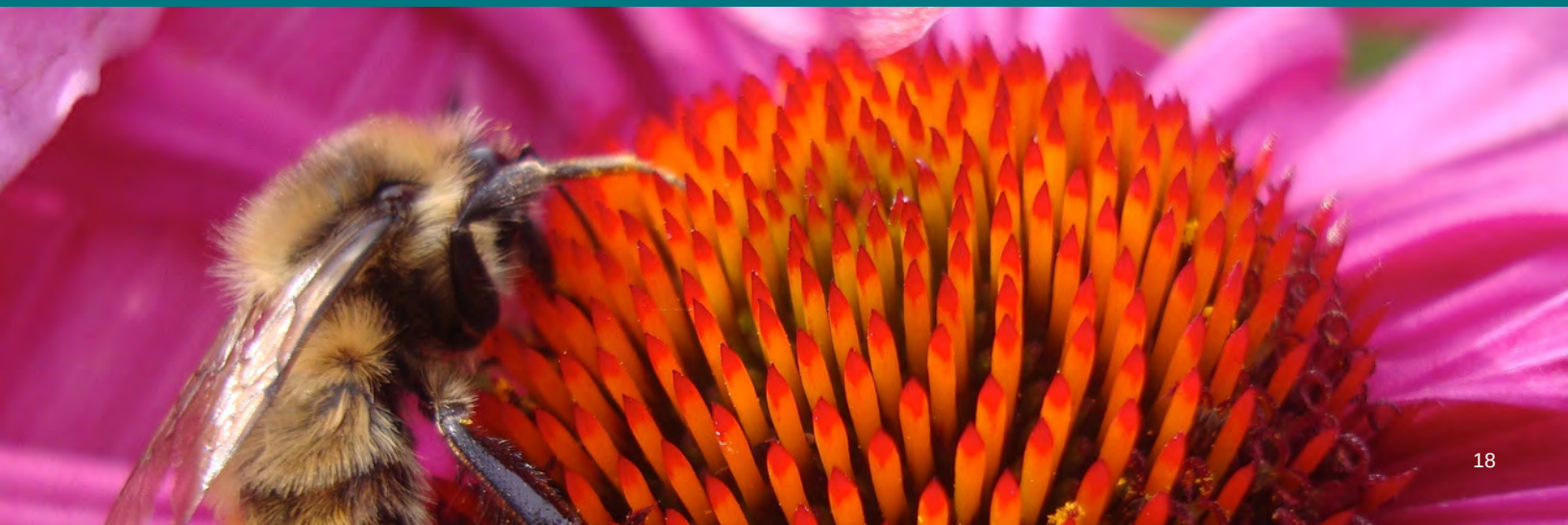
Completed

- **Region 1 Office**
 - Installed a new pollinator garden and eliminated 1,500 square feet of mowed area in 2021 and 2022.

- **Region 3 Office**
 - Planted pollinator- friendly plants around holding ponds and the berm around the parking lot in 2020.

- **Region 8 Office**
 - Established two pollinator gardens totaling one-quarter acre.
- Reinstein Woods Environmental Education Center has pollinator gardens around the Education Center.
 - Reinstein Woods Pollinator programs 2020-2021:
 - Installed 170 native plants on a four-acre site as part of a long-term Phragmites control and restoration project.
- Plantings and habitat management on the Wildlife Management Area System:

- **Region 4:**
 - Charles Flood Wildlife Management Area (WMA) at the Empire Brickyard, Columbia County: Two acres of wildflowers and nutrient-rich vegetation are being established. Working with the Ruffed Grouse Society, three additional acres are being planted to benefit upland game birds; these include nectar sources for pollinators.



- **Region 5:**

- Carter's Pond WMA, Washington County: 500 feet of the boundary were planted with native flowering shrubs. Twenty acres of fields were planted with pollinator seed mixes provided by the National Wild Turkey Federation; an additional 20 acres are being restored to provide pollinator habitat.
- East Bay WMA, Washington County: Fields are being planted with wildflower seed mixes to benefit pollinators.
- Washington County WMA: One of DEC's significant grasslands and known for its overwintering raptors, this location provides nearly 500 acres of grasses and pollinator habitat. This area is mowed late to allow grassland birds to complete their reproductive cycle, providing nectar opportunities throughout spring, summer, and into the early fall.
- Saratoga Sand Plains WMA is home to the Karner Blue Butterfly. At this site, DEC manages habitat for the wild blue lupine, which is the only food source for butterfly larvae. Other wildflowers, including milkweeds, goldenrods, and coneflowers abound. Seeds of wild blue lupine, orange milkweed, and New Jersey tea are collected annually, providing a major source for habitat restoration throughout the WMA.

- **Region 6:**

- Ashland Flats WMA, Jefferson County: The area around the recently completed observation tower was planted with a pollinator seed mix. In addition, the region's WMAs boast thousands of acres of grasslands, alvars, and wet meadows managed for grassland birds and pollinating invertebrates every year.

- **Region 7:**

- Three Rivers WMA, Onondaga County: More than 27 acres of fields with a mix of sorghums, millets, buckwheat, and sunflowers at Three Rivers WMA.

- **Region 8:**

- Tonawanda WMA, Orleans, Erie, and Niagara counties: Staff collect wild blue lupine seeds to plant elsewhere on the WMA and make seed available for the Iroquois National Wildlife Refuge and for other WMAs. The region also has extensive grasslands managed for grassland birds which provide ample benefits for pollinators.

Planned

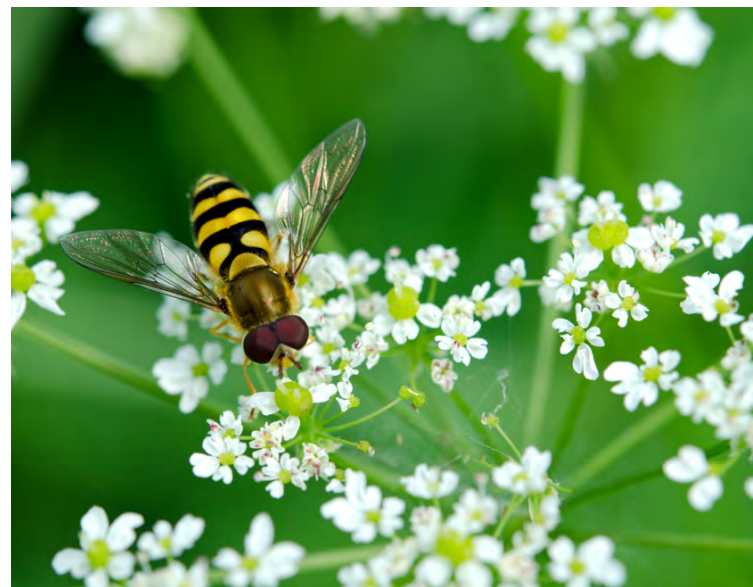
- Cove Road Boat Launch (Lake George, Region 5)
 - Pollinator plantings will be incorporated at the boat launch, especially in the storm water retention and upland areas.
 - Construction begins this summer.
- Horseshoe Pond (Tupper Lake, Region 6): Native species that attract pollinators were approved by APA and will be planted as part of a wetland restoration project.
- Reinstein Woods is supplying DEC's Region 9 Allegany office with plants grown from local seed for a planned pollinator garden.

Pollinator Survey

The Empire State Pollinator Survey has been conducted since 2016 by the Natural Heritage Program, with oversight from DEC's Division of Fish and Wildlife. The pollinator survey will establish a comprehensive benchmark of the state's native invertebrate pollinators. The survey documented some 36,545 records and received more than 21,000 observations for over 1,400 species from almost 600 citizen scientists.

DEC Policy

DEC is considering how to incorporate pollinator-friendly plantings in all landscape projects, including sites ranging from boat launches and campgrounds to dams, bridges, and environmental education centers.



CORNELL UNIVERSITY EXTENSION AND OUTREACH

NYS Beekeeper Tech Team



NYS AGM contracts with Cornell University to support a Tech Team consisting of an interdisciplinary group of professionals that provides colony inspection, parasite analysis, pesticide testing, and business development services to hobbyist, sidliner, and commercial beekeepers in New York State.

The team works with between 25 and 30 beekeepers each year to sample between 250 to 300 colonies each June and September. Participants can stay enrolled in the program for three years. Tech Team services are available to beekeepers who maintain colonies in New York State and who generate at least \$1,000 in annual revenue from beekeeping.

The Tech Team aims for one third of participants to be commercial beekeepers (who manage 200 colonies or more). Since 2020, priority has also been given to beekeepers who are seeking help to overcome disease and parasite issues in their operation.

Each beekeeper receives the following services:

- Spring and fall colony inspections each year for three years. During these inspections, technicians also take Varroa, Nosema, and pesticide samples and provide timely colony health reports, which include a breakdown of their inspection results and parasite levels for all colonies inspected, a summary of how their colony metrics and parasite levels compare to other beekeepers sampled during the same period, and recommendations tailored to their operation.
- Annual Tech Team report. This report summarizes overall industry trends and new research results from working with the Tech Team participants. This report is publicly available.
- One-on-one meetings. Beekeepers meet with the team individually for a two-hour meeting in late winter/early spring to discuss the year's data collected from their operation, their major successes and challenges, and to provide recommendations for the upcoming year. Together, the beekeeper and team develop a realistic management plan for the operation moving forward.

- Financial Analysis and Business Benchmarking services. Participants have the option to work with the team’s agricultural economist to understand the financial position of their beekeeping business, compare their business’ performance to industry benchmarks, and can seek advice about how to work toward their goals. Participants receive annual inventories of business assets and liabilities, a report of financial performance, and individualized analysis and recommendations. The annual Financial Analysis and Business Benchmarking Reports summarize the information from all participants and are publicly available.



2022 marks the seventh year of the NYS Beekeeper Tech Team program. To date, the team has worked with a total of 65 beekeepers who manage 47,604 colonies in New York State, representing approximately 60% of the state’s estimated 80,000 colonies. This includes 23 commercial, 23 sideliner, and 19 hobby beekeepers. The team has sampled 1,634 unique colonies from 148 apiaries in 34 different counties. It is evident that beekeepers make important contributions to New York’s agricultural economy. Beekeepers participating in the Tech Team have reported generating a total of \$7.5 million in hive products and services during their time in the program.

All NYS Beekeeper Tech Team reports can be accessed at:

<https://cals.cornell.edu/pollinator-network/beekeeping-resources/beekeeping-businesses/new-york-state-beekeeper-tech-team>.

Opening of Cornell's pesticide residue testing facility to the public

Many beekeepers, farmers, and other stakeholders are interested to know the levels of pesticides in their hives, plants, soils, and other agriculturally or environmentally relevant matrices. To fill this gap, in 2020, the Cornell Chemical Ecology Core Facility (CCECF) (<https://blogs.cornell.edu/ccecf/>) opened its multi-residue pesticide analysis to the public. Since June 2020, the facility has processed 2,575 samples on an ad hoc basis for beekeepers, farmers, researchers, and the public. In the past two years, the facility has processed samples for 18 academic institutions, six non-profit organizations, five government agencies, and more than 200 individual beekeepers, farmers, and other members of the public.



Pollinator Health: Extension of Information to the Public

Many stakeholders are interested in bees and other pollinators but lack up-to-date information on how to promote pollinator health. Since June 2020, Cornell faculty and staff have given 37 talks reaching an estimated 2,700 people on how to reduce pesticide risk to pollinators, most effectively manage pests and diseases, and promote pollinator-friendly habitat. Cornell researchers have provided public testimony to the NYS Assembly Committee on Environmental Conservation and formal scientific advice to 12 New York State Senate and Assembly members, the New York Farm Bureau, New York Corn & Soybean Growers Association, Empire State Honey Producers Association, New York State Apiary Industry Advisory Council, Apiary Inspectors of America, American Honey Producers Association, American Beekeeping Federation, Honey Bee Health Coalition (Keystone Group), and numerous environmental groups regarding risk to pollinators from neonicotinoid insecticides. In addition, Cornell researchers have provided scientific advice to two Senate and Assembly members regarding best practices for promoting pollinators on roadsides.

Veterinarian Continuing Education and Vet School Curriculum for Honey Bees

Most veterinarians in the US are not familiar with honey bees because they're not included in veterinary curriculum, but the 2017 FDA Veterinary Feed Directive requires that antibiotic prescriptions for honey bees be issued by a veterinarian. To remedy this situation, Cornell faculty work with instructors in the Cornell Vet School to teach new curriculum, and coordinate and teach continuing education workshops for current veterinarians in New York. Cornell faculty also wrote a chapter for the first US-relevant book on this topic.

- Summer 2022: Four, one-day workshops for veterinarians in July and August in northern, eastern, central, and western New York.
- August 2021: Honey Bee Health and Conservation course.
- January 2021: "Parasite transmission between hives and spillover to non-Apis pollinators".
- September 2020: Veterinary Conservation Medicine.
- July 2020: Honey Bee Health and Conservation course.



FUTURE RECOMMENDATIONS

The Pollinator Protection Plan has achieved many of the State's goals to protect its pollinator populations, including passing legislation for the Honey Bee Health Improvement program, creating habitat enhancements to protect and revive populations of native and managed pollinators; supporting research projects to better manage and conserve pollinators, and surveying pollinator populations to get good baseline data to monitor the health and scope of the pollinator population.

Looking to the future, the State's partners in pollinator protection should continue to build on the actions taken and identify new initiatives to protect and quantify New York's pollinators.

Beekeeper Initiatives

- Register Apiaries for Best Management Practices (BMPs) Implementation and Improved Disease Control
 - With legislation adopted for the Cooperative Honey Bee Health Improvement Plan continue outreach efforts to encourage beekeepers to register apiaries. Use this information to communicate BMPs and pest and disease incidence.
- Expand the Reach of the New York State Beekeeper Tech Team
 - Continue efforts to recruit new participants to the NYS Beekeeper Tech Team program with a focus on an expanded geographic range. Provide components of the Tech Team program in a virtual platform and with web-based learning.
- BMP Development and Implementation
 - Continue to improve existing BMPs for all pollinator stakeholders and develop and implement new BMPs based upon the latest research.

Habitat Enhancement Efforts

- State and Private Lands
 - State agencies should continue their efforts to research and implement pollinator habitat enhancements in public spaces and encourage stewards of private spaces to maintain and enhance pollinator habitat.



Continued Research

- Research and implement integrated pest management (IPM) strategies that beekeepers and growers can employ to lower risk of exposure and provide effective alternatives for disease, weed and insect management.

Research should include the availability, cost, efficacy, and application method/equipment of potential alternatives as well as their risk to pollinators, environment and human health.

- Continue to monitor pollinator communities to identify stressors other than the Varroa mite.
- Explore IPM alternatives to seed treatments and develop models to predict when seed treatments are necessary.
- Replicate Cornell University on-farm research related to pesticide spray practices and pesticide residues (pollen, wax) conducted on strawberry and apple farms to additional New York cropping systems and commodities.

Vulnerable Native Pollinator Communities

- Use Natural Heritage baseline data on pollinators to monitor key pollinator species for New York and correlate with key agricultural land use patterns.

Ongoing Education

- Host educational workshop led by Cornell University on honey bee health for New York's veterinarian community and maintain the current honey bee curriculum in place at Cornell's School of Veterinary Medicine.





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