



2022 Annual Report

New Jersey Pinelands Commission



Protecting the New Jersey Pinelands

The New Jersey Pinelands Commission is an independent state agency whose mission is to preserve, protect, and enhance the natural and cultural resources of the Pinelands National Reserve, and to encourage compatible economic and other human activities consistent with that purpose.

The Commission was created by the passage of the Pinelands Protection Act in 1979.

To accomplish its mission, the Commission implements a comprehensive plan that guides land use, development and natural resource protection programs in the 938,000-acre Pinelands Area of southern New Jersey. The Commission's 15-member board consists of state, county and federal appointees who volunteer their time and expertise. The panel meets monthly and receives guidance from its Executive Director and staff.



Above: The Pinelands is home to vast forests, farms and towns that cover portions of seven counties in southern New Jersey. This photo was taken in Belleplain State Forest in 2022.

Photo/Paul Leakan

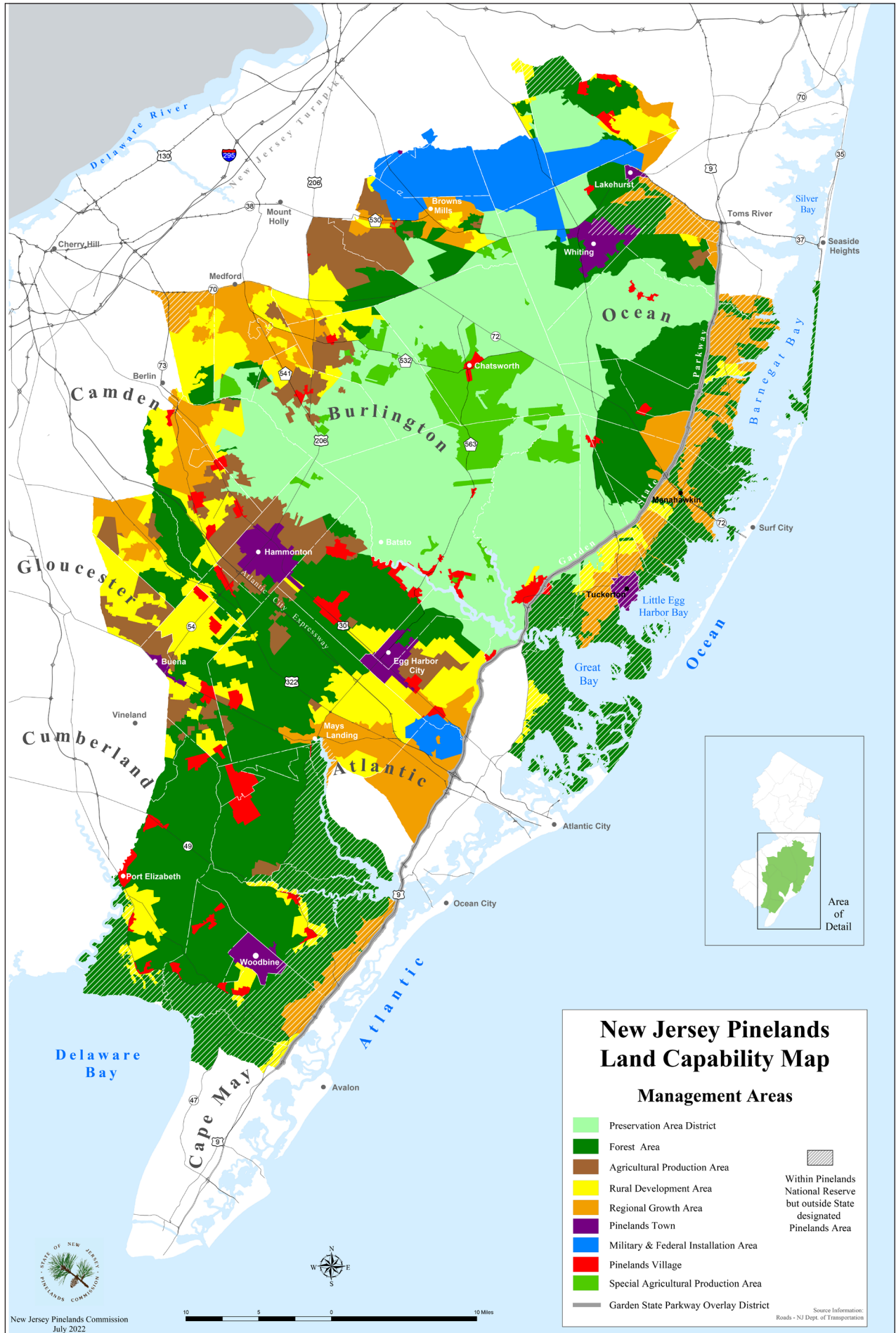
Commissioners:

Laura E. Matos, Chair
Alan W. Avery, Jr., Vice Chairman
Daniel Christy
Shannon Higginbotham (January - April 2022)
John Holroyd, Jr. (February - Current)
Jerome H. Irick
Jane Jannarone (January - December 1, 2022)
Theresa Lettman
Edward Lloyd
Mark S. Lohbauer
Mark Mauriello (November - Current)
Davon McCurry
Jonathan Meade
William Pikolycky
Gary Quinn (January - November 2022)
Doug Wallner (August - Current)

Susan R. Grogan, Executive Director

Pinelands Commission
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Executive Director's Message

Editor's Note: Susan R. Grogan was appointed as the Pinelands Commission's Executive Director on February 10, 2023.

New Jerseyans are proud of the Pinelands, and for good reason. The Pinelands Commission has an extraordinary responsibility to safeguard this million-acre treasure for current and future generations.

In 2022, the Commission took great strides in advancing its mission to protect the region's resources and plan for the challenges posed by a changing climate, thanks to the work of our partners, our staff and our board, which gained six new members.

The Commission began implementing new rules that better protect Pinelands resources by requiring the use of green infrastructure and other more stringent standards to manage stormwater. It also proposed new rules to strengthen the protection of the Kirkwood-Cohansey aquifer, which contains an estimated 17 trillion gallons of water in the Pinelands. The Commission also focused on climate change and resilience, launching a new Climate Change webpage and setting a course for future rule amendments pertaining to climate change. The agency also undertook several projects aimed at reducing the agency's carbon footprint, including the installation of a rain garden at its headquarters and the completion of an energy audit of its four facilities. Meanwhile, the Commission launched a new permanent land protection database that is available to the public, and it continued to administer the Pinelands Development Credit Program, through which 365 acres of land were permanently preserved in 2022. Staff also conducted an archaeological excavation at the former Brotherton Indian Reservation in Shamong. The Commission's regulatory staff worked diligently to review and ensure compliance with Pinelands regulations in 2022, while seeing increased application activity related to cannabis cultivation, solar energy facilities, landfill closure and the development of warehouses. Commission scientists conducted numerous research projects, including studies of snake fungal disease, rare snakes, endocrine disruption, microorganisms, box turtles, and the use of environmental DNA to detect reptiles. Last but not least, the Commission educated thousands of people about the Pinelands through special events, webinars, in-class education presentations, videos and hundreds of social media posts.

The public can be heartened by the Commission's accomplishments in 2022 and rest assured that we will continue our efforts to preserve, protect and enhance the Pinelands in the years ahead.



Above: More than 51% (or 481,000 acres) of the Pinelands has been permanently preserved, including this 1,128-acre cranberry farm that was preserved through the severance of 32.25 Pinelands Development Credits in December 2021. Photo/Paul Leakan

Susan R. Grogan
Executive Director

Commission Gains Six New Members in 2022

The Pinelands Commission gained six new members on its 15-member board in 2022, including a new Chair.

Theresa Lettman, Laura E. Matos, and Davon McCurry were sworn in as new gubernatorial appointees on January 14, 2022, and Douglas Wallner took the oath of office as Burlington County's new representative on September 9, 2022. Meanwhile, Jonathan D. Meade, who was appointed as the U.S. Secretary of the Interior's representative on the Commission in December 2021, attended his first meeting in January 2022. John Holroyd, Jr. was sworn in as Camden County's representative on the Commission on February 11, 2022.

New Jersey Governor Phil Murphy nominated Lettman, Matos and McCurry to serve as Commissioners, and their appointments were approved by New Jersey State Senate in early January 2022. Governor Murphy also designed Ms. Matos as the Commission's new Chair.

Ms. Matos replaced a seat on the Commission that was held by Richard Prickett, who joined the Commission in January 2012 and had served as the board's Chairman since May 2019.

Ms. Matos is a native of the Pinelands, having grown up in Medford Lakes, and is a seasoned professional with an extensive career in government, public affairs, and strategic communications. Ms. Matos is a Partner at MAD Global Strategy Group, a national public affairs consulting firm. She maintains an in-depth understanding of government processes and their intersections with the private sector, along with the importance of public education and advocacy efforts in affecting policy change. For a decade before joining MAD, Ms. Matos was New Jersey General Manager and Managing Director of a national public affairs firm. She worked in the New Jersey Governor's Office for eight years for Governors McGreevey, Codey, and Corzine, working in Operations, Legislative Affairs, Cabinet Affairs and as an Assistant Chief of Staff. In these roles, she oversaw a vast array of public policy issues across all areas of the Executive Branch. Ms. Matos also served as director of business development and communications at a top New Jersey law firm. She has also served on numerous boards for Governor Phil Murphy, including the 2017 Transportation and Infrastructure Transition Advisory Committee, the Governor's Restart and Recovery Advisory Council and the New Jersey Complete Count Commission. Ms. Matos serves on the Board of Latina Civic Action and as President of the Board of Latina Civic PAC and previously served on the board of PlanSmartNJ. She attended Rutgers University and lives in Belmar, NJ.

Ms. Lettman fills a seat on the Commission that has been vacant since the passing of Candace McKee Ashmun on May 22, 2020. Ms. Ashmun had served on the Commission from its inception in 1979. Ms. Lettman has been a resident of Ocean County for 52 years and currently lives in Manchester Township. She monitored activities in the New Jersey Pinelands while working for the Pinelands Preservation Alliance (PPA), a non-profit organization, for 26 years. She retired from PPA in 2016. Ms. Lettman has been a Board Member and Secretary



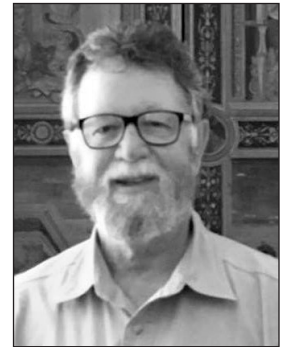
Matos



Lettman



McCurry



Wallner



Holroyd Jr.

for the New Jersey Natural Lands Trust since 1995. She has been a member of the Ocean County Solid Waste Advisory Council since 1990. Ms. Lettman is a former member of the Manchester Township Council and the Ocean County Natural Lands Trust Advisory Committee.

Mr. McCurry was appointed to a seat on the Commission that was previously held by D’Arcy Rohan Green, who joined the Commission in July 2011. In his role at Ørsted, Mr. McCurry helps to develop and implement strategies to ensure the successful advancement of Ørsted’s existing New Jersey offshore wind projects and shape Ørsted’s position and standing in the state. Additionally, he is specifically responsible for the company’s stakeholder relationships in Atlantic City. He previously served as Director of Legislative Affairs at the New Jersey Department of Environmental Protection. As Director, Mr. McCurry served on the Commissioner’s senior leadership team, managing the Department’s intergovernmental relations with the state Legislature and New Jersey’s congressional delegation. Mr. McCurry is a graduate of Rutgers University–New Brunswick. As a resident of Willingboro, he serves as a member of the Willingboro Zoning Board and the Willingboro Environmental Commission. He previously served as a member of the Burlington Township Planning Board. In 2014, Mr. McCurry was one of the recipients of the Burlington County Times’ 40 under 40 award.

Mr. Wallner filled a seat that became vacant when Shannon Higginbotham resigned on April 9, 2022. He has lived in Evesham Township within the Pinelands National Reserve since 1990. Mr. Wallner studied Biology with an Ecological Emphasis at the University of California at Berkeley with graduate studies in Environmental Biology at California State University, East Bay. He retired from the National Park Service in 2012, having served for 34 years in a variety of natural resource and fire management positions. He worked in both small and large parks before ending his career in the Philadelphia regional office as the Regional Fire Management Officer. As such, he provided leadership for agency fire programs in the 13 northeastern states. He worked closely with state fire programs and departments of environmental protection, including the New Jersey State Fire Warden and others. Since retiring, Mr. Wallner has been active in the NestWatch Program since its inception in 2015 at the Black Run Preserve and currently serves as its Co-Chair. He has served as a Trustee for the Friends of the Black Run Preserve. He has been an active member of the Evesham Township Environmental Commission since 2018.

U.S. Secretary of the Interior Deb Haaland designated Mr. Meade as the Commission’s federal representative in early December 2021. Mr. Meade has served as the Associate Regional Director for Resource Stewardship and Science for the National Park Service’s (NPS) Northeast Region in Philadelphia since January 2018. Prior to his current post, he had served as the Deputy Regional Director for the NPS Northeast Regional Office since 2014. In his current role, he leads NPS’ efforts to manage natural and cultural resources and oversee planning and compliance activities across a 13-state region. Prior to his current work at the National Park Service, Mr. Meade served as the Director of Watershed Programs for the Pennsylvania Environmental Council, and as the Executive Director of the Pennsylvania Organization for Watersheds and Rivers, as well as the Executive Director of the four-state Highlands Coalition and the Vice President of Planning for the Heritage Conservancy. He also worked in the National Park Service’s Washington, D.C. headquarters, leading their business management group. Mr. Meade holds a bachelor’s degree in ecology from the University of Richmond and a master’s degree from Yale University’s School of Forestry and Environmental Studies. He was a Fulbright Scholar at the University of Alberta.

Mr. Holroyd was appointed to serve as Camden County’s representative on the Commission in January 2022. He has lived in Winslow Township since 1985. Mr. Holroyd was an electrician for 17 years, and he attended classes at Atlantic, Camden and Gloucester County Colleges. He has been a licensed inspector for electric, fire, plumbing, buildings, and multi-family dwellings, and a construction official in several New Jersey municipalities for more than 20 years. He is a member of Winslow Township’s Planning Board, Environmental Commission and Green Team. He also serves as Winslow’s representative on the Pinelands Municipal Council and is a member of Berlin Township’s Planning Board. Mr. Holroyd filled a seat on the Pinelands Commission that

became open after Jordan P. Howell resigned on August 13, 2021. Mr. Howell had served as Camden County's representative on the Commission since January 18, 2018.

The Commission adopted separate resolutions thanking Mr. Prickett, Ms. Rohan Green and Ms. Higginbotham for their service.

The Commission's 15-member board consists of seven members who are appointed by the New Jersey Governor, one member appointed by each of the seven Pinelands counties, and one member appointed by the U.S. Secretary of the Interior. The gubernatorial appointees are subject to the review and consent of the New Jersey Senate.

Honoring the Late Governor James J. Florio

The Commission named its library in honor of the late Governor James J. Florio in 2022, while recognizing his vital efforts to protect the region.

During its meeting on October 14, 2022, the Commission adopted a resolution officially designating the James J. Florio Pinelands Library at its headquarters on Springfield Road in Pemberton Township. The library is adjacent to interactive, educational exhibits in the agency's Richard J. Sullivan Center for Environmental Policy, and it is filled with Pinelands-related books, Pinelands-themed artwork, and professional, framed photos that showcase the beauty of the Pinelands. The library also serves as an important meeting space for Commission staff and the public.

Governor Florio passed away on September 25, 2022, and the Commission's resolution details his life of public service and his extraordinary vision, wisdom and determination to protect the environment, especially the Pinelands in southern New Jersey. Governor Florio served in the U.S. Navy, as a State Assemblyman from 1969 to 1974, as a member of the U.S. Congress from 1975 to 1990, as the Governor of the State of New Jersey from 1990 to 1994, and as the Chairman of New Jersey Pinelands Commission



Above: A photo of the late Governor James J. Florio was projected on a television during the dedication of the library that is located in the Commission's headquarters and now bears his name. Photo/Paul Leakan

from November 8, 2002 to June 28, 2005. He was a strong proponent of Pinelands protection, helping to craft and steer passage of the National Parks and Recreation Act of 1978, which established the 1.1-million-acre Pinelands National Reserve. The federal act created a planning process to preserve the resources in the Pinelands and set the stage for the adoption of the New Jersey Pinelands Protection Act.

During his tenure as Chairman of the Pinelands Commission, the Commission launched a \$5.5 million study of the Kirkwood-Cohansey aquifer

system, amended the Pinelands Comprehensive Management Plan to expand the list of protected plant species, successfully halted the construction of a proposed waste-transfer station in the Pinelands, launched an in-depth review of forestry policies in the Pinelands, created a task force to assess housing opportunities in Regional Growth Areas, completed smart growth planning projects in several Pinelands municipalities, instituted innovative conservation measures that protected thousands of acres in the Toms River, Oyster Creek and Waretown Creek watersheds, and established the Pinelands Conservation Fund, which has since helped to fund numerous scientific studies, planning initiatives, the construction of the Candace



Above: The Commission adopted a resolution designating the James J. Florio Pinelands Library on October 14, 2022. The resolution also highlights Governor Florio's contributions to the Pinelands protection effort, including his service as the agency's Chairman.

Photo/Paul Leakan

McKee Ashmun Pinelands Education Exhibit, and the permanent preservation of nearly 9,000 acres of land in the state Pinelands Area.

Planning Activities

Amendments to the Pinelands Comprehensive Management Plan

In 2022, new rules took effect that will better protect Pinelands resources by requiring the use of green infrastructure and other more stringent standards to manage stormwater.

The Commission voted to adopt the new rules via amendments to the Pinelands Comprehensive Management Plan (CMP), the rules that govern land-use, development and resource protection in the state Pinelands Area, in December 2021.

The rules integrate the stormwater management standards previously adopted by the New Jersey Department of Environmental Protection (NJDEP) and incorporate additional standards in order to provide enhanced protection to the Pinelands environment. For the first time, the Commission's rules will require stormwater management for all residential development, including projects involving only one new housing unit. The new rules also include stricter standards for nitrogen removal that will apply to larger projects in the Pinelands Area. The new rules are intended to reduce the volume of stormwater runoff, lower the potential for localized flooding and help to maintain water levels in the Kirkwood-Cohansey aquifer, which underlies the Pinelands, provides fresh drinking water and supports the region's special ecosystem. Much of 2022 was spent preparing for implementation of the new rules by drafting model ordinances for our 53 Pinelands municipalities and

advising applicants to prepare for the date on which the new rules will be applied (January 18, 2023) to all public and private development applications.

Meanwhile, after decades of intensive study, the Commission proposed rules in 2022 to strengthen protections to the Kirkwood-Cohansey aquifer and the Pinelands ecology as a whole, while ensuring sufficient water supply for authorized development in the growth-oriented portions of the Pinelands Area.

The Kirkwood-Cohansey is a freshwater reservoir underlying the Pinelands and containing an estimated 17 trillion gallons of water. Withdrawals from the aquifer can negatively impact the essential character of the Pinelands environment; therefore, the Commission proposed clear, quantifiable standards to address potential adverse local and regional impacts. Comments received during the public comment period resulted in the need to revise the proposed rules to recognize the nonconsumptive use of water by the resource extraction industry in the Pinelands Area. A Notice of Substantial Change Upon Adoption will be published in April 2023.

Climate resilience

The Commission continued to focus on climate change and resilience, while taking direct steps to reduce the agency's environmental impacts.

In February 2022, the Commission launched a new Climate Change webpage that charts the work of the Commission's Climate Committee and contains information about other climate resiliency initiatives. The Climate Committee met five times in 2022, and staff and Committee members discussed a series of potential CMP amendments pertaining to climate change. Going forward, the Committee plans to review changes to Pinelands regulations for solar energy facilities, including agrivoltaics and other siting opportunities. The Committee will also begin a comprehensive review of Pinelands management area boundaries designated for growth and development by the Pinelands CMP that are vulnerable to climate change.

The Commission also participated in the Interagency Council on Climate Resilience in 2022. Formed in 2019 via Governor Murphy's Executive Order 89, the Council is charged with developing the state's Climate Change Resilience Strategy, which was released in late 2021, and coordinating state agency implementation of the priorities and recommendations in that plan.

Meanwhile, the Commission undertook several projects aimed at reducing the agency's carbon footprint.

In June 2022, the Commission installed a 340-square foot rain garden at its headquarters in Pemberton Township. Designed in coordination with the Rutgers Cooperative Extension Water Resources Program, the garden captures and filters stormwater generated by our main office building while providing habitat for wildlife and helping to mitigate climate change impacts such as flooding. The garden is designed to collect, treat and infiltrate an estimated 53,287 gallons of



Above Top: Contractors installed bioretention soil at the site of the Commission's rain garden.

Above Bottom: The rain garden features native Pinelands plants that bloom for months.

Photos/Paul Leakan

stormwater onsite each year. It features 100% native Pinelands plants and a new interpretive sign that includes a list of the plant species used. Following completion of the rain garden, the Commission launched a new web page containing its final engineering, design and planting plan as well as links to assist others interested in purchasing native plants and installing their own rain gardens. The project was funded by the Kathleen M. Lynch-Van de Sande Fund for the Reforestation of the New Jersey Pinelands. The fund was established in memory of Ms. Lynch-van de Sande, a Pinelands Commission Environmental Specialist who died in a car accident in June 1989.

In 2022, the Commission applied and was granted approval for an energy audit of the four facilities that house the Commission's staff. The audit was conducted through the Local Government Energy Audit (LGEA) Program, an energy efficiency program sponsored by New Jersey's Clean Energy Program (NJCEP). The reports are available on the Commission's website (<https://www.nj.gov/pinelands/about/business/#7>). In 2023, the Commission will pursue the installation of an electric vehicle charging station, purchase of electric vehicles, and retention of a solar energy facility consultant to evaluate the potential for renewable energy facilities at its offices.

Excavation at the former Brotherton Reservation

In 2022, the Commission completed a significant project funded by its annual grant from the National Park Service: excavation of the former Brotherton Indian Reservation (1758-1802) which once encompassed portions of present-day Indian Mills, Shamong Township. A ground penetrating radar survey conducted in 2018 suggested that subsurface features potentially associated with Reservation residents might be present within the eastern portion of an approximately 27-acre agricultural field. Archaeological trenching was conducted in April 2022 to identify possible archaeological signatures of the former Brotherton Indian Reservation. This involved use of a backhoe by a local farmer, shallow excavations, shovel scraping of trench floors and mapping, photographing and recording the GPS locations of all identified features. On the local level, documentation of the structures and any associated deposits has the potential to provide valuable information on the settlement and domestic consumption patterns of Brotherton's original inhabitants. On a broader scale, work at this site can shed new light on the tragic exodus of the Lenape from their ancestral lands in the aftermath of both the French and Indian and Revolutionary Wars. Public education efforts included a visit by approximately twenty students from



Above: Tony McNichol, a Cultural Resource Planner with the Commission at the time of the project, explained the excavation to students at the Indian Mills Middle School. Photo/Paul Leakan

the nearby Indian Mills Middle School during the excavation. The students met with the Commission's archaeologist, who provided them with a historical background for the Brotherton Reservation, gave an overview of archaeological methods and discussed how archaeology is used to help us recreate the past. Excavations and activities at the site were also photo-documented by Commission staff, and a reporter came to the site to do a story on the excavations. The story aired on a major regional media outlet multiple times the week of the dig. Additional video footage was obtained through the use of the Commission's new drone.

Pinelands Development Credit Program

The Pinelands Development Credit Program is a regional transfer of development rights program that preserves important agricultural and ecological land. Pinelands Development Credits (PDCs) are allocated by the Commission to landowners in the Preservation, Agricultural Production and Special Agricultural Production Areas, which are the sending areas. PDCs can be purchased by property owners and developers who are interested in developing land in Regional Growth Areas, which serve as the receiving areas.

Once PDCs are “severed” from a sending area property, the property is permanently protected by a conservation or agricultural deed restriction and the PDCs allocated to that property can be sold on the private market.

During 2022, 15.19 PDCs were allocated by the Commission to 14 sending area properties. A total of 16.25 PDCs were severed, protecting 365.39 acres of land in the Agricultural Production Area in Franklin, Hamilton, Monroe, Mullica and Shamong townships.

Since 1982, 57,512.48 acres in the Pinelands Area have been permanently preserved through the PDC



Above: This 67.95-acre property in Franklin Township, Gloucester County, was permanently preserved through the severance of 3.25 Pinelands Development Credits in August 2021. Photo/Paul Leakan

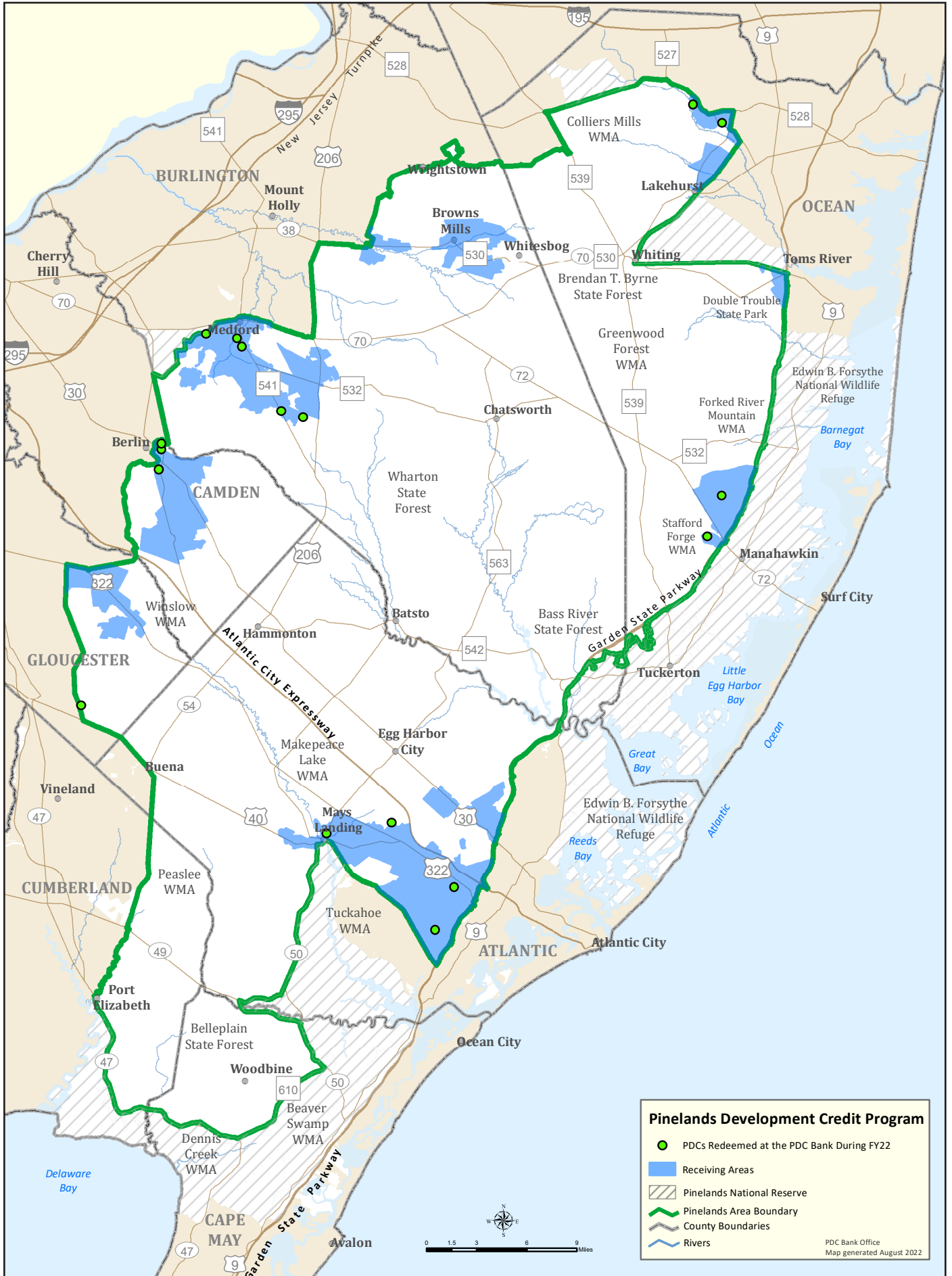
Program. In 2022, a total of 44.50 PDCs were sold, with an average sales price of \$75,371 per PDC.

A total of 9.25 PDCs were redeemed for 14 residential projects and three non-residential projects in Barnegat, Berlin, Egg Harbor, Galloway, Hamilton, Lacey, Medford, Monroe, Shamong, Stafford, Weymouth and Winslow townships in 2022.

Please see page 11 for a map that illustrates all PDC redemptions that occurred during Fiscal Year 2022.



Above: This 94-unit, single-family housing development in Winslow Township, Camden County, was built with the use of 6 Pinelands Development Credits (PDCs), including 3.25 PDCs that were redeemed in February 2022. Photo/Paul Leakan



Reviewing Municipal Ordinances

The master plans and land use ordinances of all Pinelands municipalities and counties must be consistent with the Pinelands CMP. Consistency is ensured through the conformance process, by which municipalities and counties submit their master plans, ordinances and amendments to the Commission for review and certification.

The Commission received and reviewed 137 municipal master plan and ordinance amendments in 2022. The Commission approved significant master plan and zoning updates from Evesham Township, Winslow Township and Woodbine

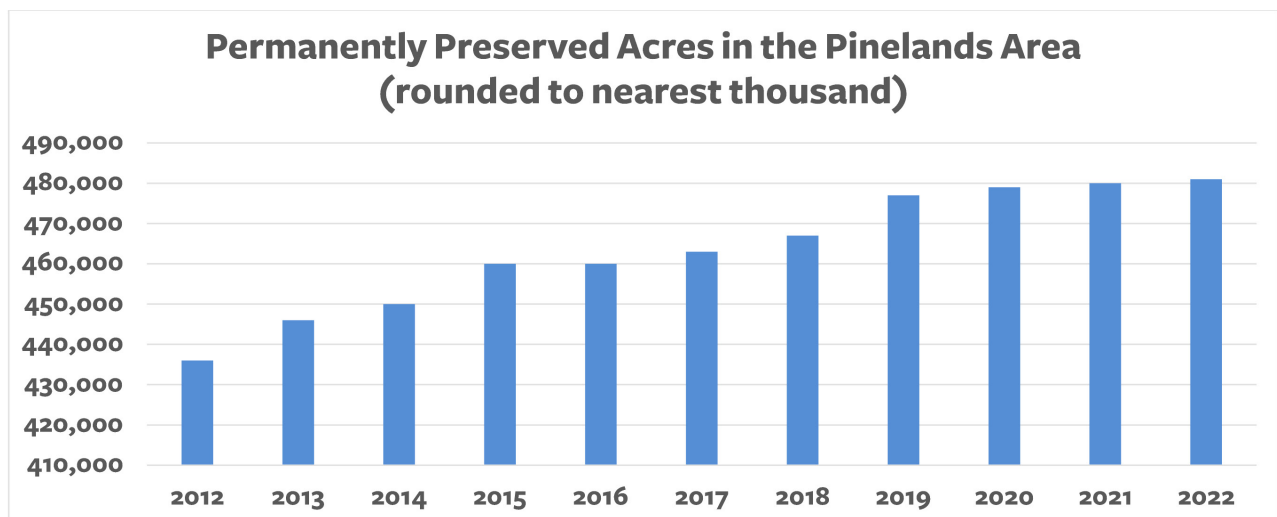
Borough. The Commission continued to see a trend of municipalities adopting redevelopment plans regulating land uses in areas designated in need of redevelopment. In 2022, the Commission received 27 ordinances either adopting or amending redevelopment plans. These redevelopment plans sought to advance a variety of local planning objectives, including the development of solar energy facilities on closed landfills and resource extraction sites, affordable housing and senior housing, warehouses, cannabis-related land uses and the redevelopment of aging shopping centers.

Annual Permanent Land Protection Update

The Pinelands Commission's staff delivered its annual update on permanent land protection in the Pinelands on October 14, 2022.

A total of 2,007 acres of land were preserved in the Pinelands Area from June 2021 to June 2022. Of that total, 282 acres were preserved through Pinelands programs, along with 1,317 acres through the Pinelands Development Credit Program.

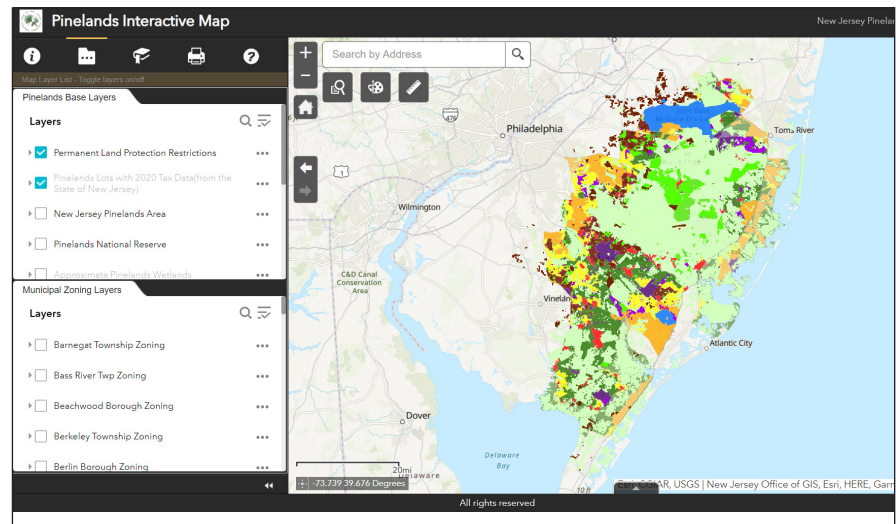
As of June 2022, 51% (481,000 acres) of the state Pinelands Area has been permanently preserved through a variety of programs. Of that total, 94% of the land is located in Pinelands Management Areas that are designated for conservation, including the Preservation Area District, the Forest Area, the Special Agricultural Production Area, and the Agricultural Production Area. The Commission anticipates launching another round of land acquisition funding through the Pinelands Conservation Fund in 2023.



Commission Completes a New Permanent Land Protection Database

In 2022, the Commission completed a multi-year project aimed at integrating data on permanently preserved land in the Pinelands Area from disparate sources and developing a user interface of the data and the mapping for Pinelands staff.

After intensive efforts by the development team to bring in old and new data, run quality control procedures, create reports, create the geodatabase/mapping interface, and test all facets of the system, a new interface was launched to staff in June 2022. It allows staff to search for preserved lands based on municipal block and lot numbers, date of preservation, Pinelands application number and other attributes. In addition, staff may also use Geographic Information System (GIS) mapping to visualize permanent land preservation data, review a limited set of attributes and access copies of recorded deeds. The new system greatly simplifies accessibility to the information, clarifies the



reasons for the preservation, collects historical land preservation records in one location, and simplifies reporting on the status of land preservation in the Pinelands Area. Shortly after making the system available to staff, the Commission launched a new layer to the interactive map available on our website to make certain features of the permanent land protection database available to the public. The interactive mapping is expected to assist realtors, assessors and land preservation partners in identifying preserved lands and targeting lands for future acquisition and preservation.

Commission Wins Second Place in State Mapping Contest

The Pinelands Commission's Pine Barrens Byway StoryMap won second place in a statewide mapping contest held by the NJDEP on April 7, 2022.

The StoryMap features a fully searchable, interactive map of the entire 130-mile Byway route, along with miniature maps, detailed descriptions, links, and 36 photos of nine featured destinations on the Byway. The StoryMap can be accessed via the Pine Barrens Byway section of the Commission's website (<https://www.nj.gov/pinelands/landuse/current/byway/>).

Commission staff members created the StoryMap to enable the public to better plan their trips on the Byway. The Commission also included a QR code link to the StoryMap in the official brochure for the Byway. The brochures are available at various Byway locations.



Above: The mapping award included certificates for the three Commission staff members who worked on the Byway StoryMap and a mapping journal.

Photo/Paul Leakan

Regulatory Activities

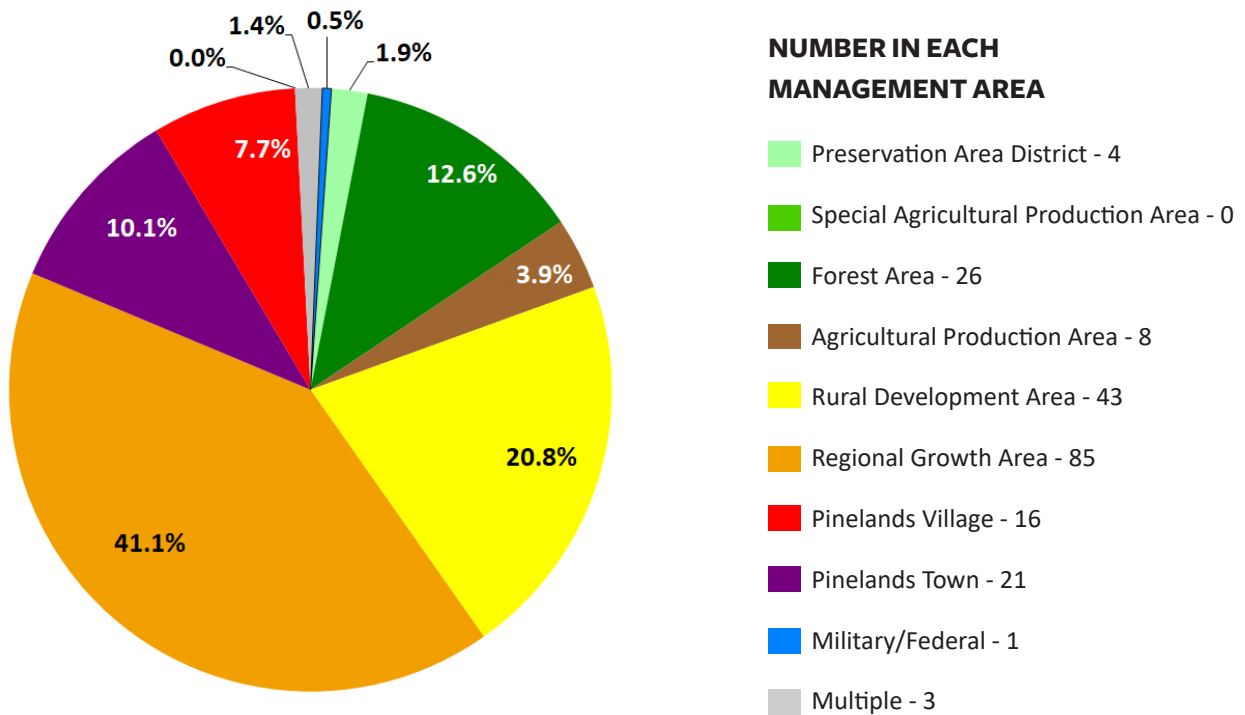
Applications

The Pinelands Commission reviews applications for development by evaluating proposals to ensure that they meet the regulations contained in the Pinelands Comprehensive Management Plan. Development proposals must meet a series of environmental standards, including those that protect water quality, wetlands and threatened and endangered species.

The Commission’s development approval process varies, depending on whether the application is submitted by a public agency or a private landowner. The Commission’s staff reviews private development proposals, such as single-family dwellings, subdivisions and commercial projects. After applicants provide all of the necessary information, the Commission issues a Certificate of Filing (or CF), signifying completion of an application and allowing an applicant to seek all municipal and county approvals for the proposed development. Other completeness documents include Preliminary Zoning Permits (PZPs) and Notices of Filing, which are issued under alternative permitting programs in accordance with the CMP (N.J.A.C. 7:50-3.81). These documents certify completeness of development applications and are equivalent to CFs. A total of 207 Completeness Documents were issued in 2022, including CFs, PZPs and Notices of Filing.

Most Completeness Documents (85) were for proposed development in Regional Growth Areas (as shown in the chart below). There are 24 municipalities with Regional Growth Areas, or RGAs, in the 938,000-acre state Pinelands Area. RGAs make up 8% of the land in the Pinelands Area and are generally located on the fringes of the Pinelands boundary. The RGAs include areas of existing development and adjacent lands that have the infrastructure such as sewers, roads and other utilities needed to accommodate new development while protecting the essential character and environment of the Pinelands. The Pinelands CMP encourages future growth in the RGAs as a way to prevent scattered and piecemeal development in other more sensitive portions

Completeness Documents Issued in 2022 by Management Area



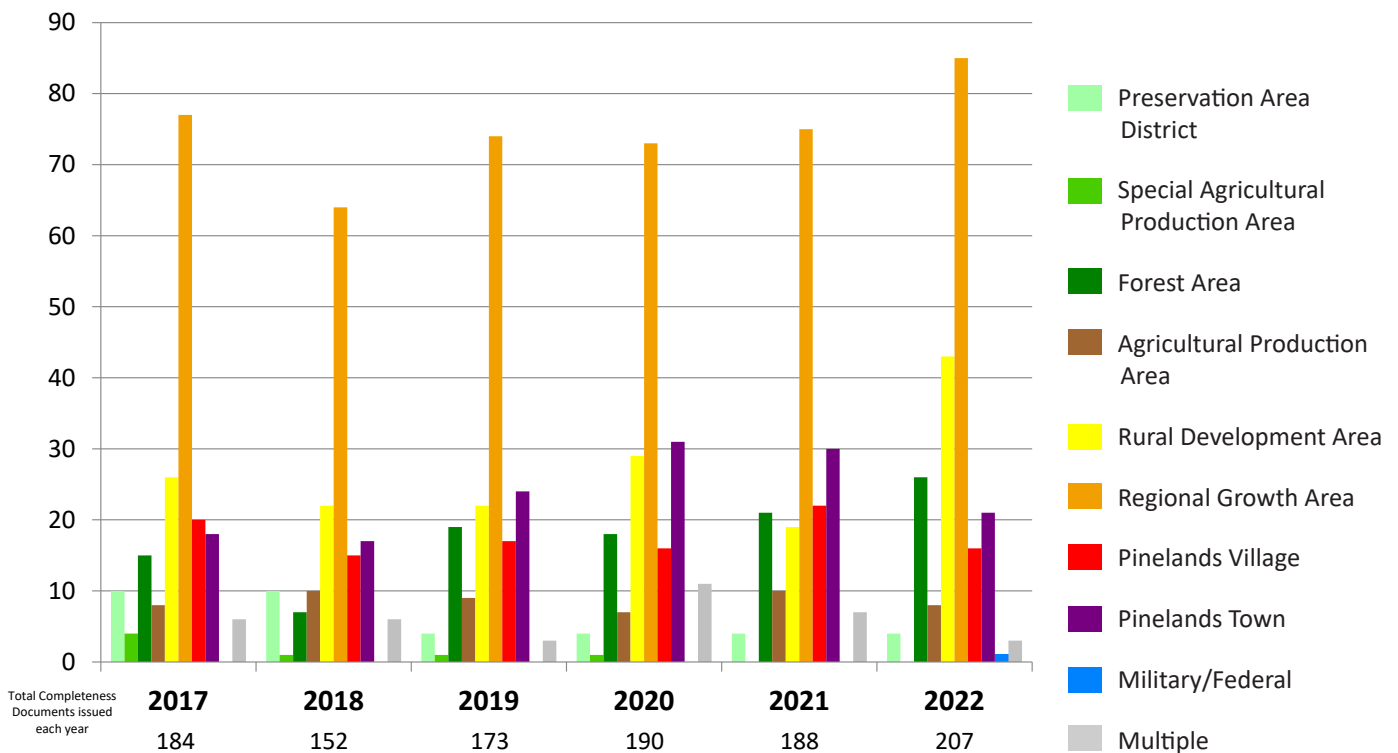
Completeness Documents Issued in 2022 by Management Area and Type of Development

Management Areas	Commercial	Infrastructure	Institutional	Recreation	Residential	Resource Extraction	Total
Preservation Area District	1	1			1	1	4
Special Agricultural Production Area							0
Forest Area	3	2			15	6	26
Agricultural Production Area	2				6		8
Rural Development Area	11	2			29	1	43
Regional Growth Area	22	2	2		59		85
Pinelands Village	4				12		16
Pinelands Town	9				12		21
Military/Federal	1						1
Multiple	2	1					3
Totals	55	8	2	0	134	8	207

of the Pinelands Area.

Of the 207 Completeness Documents that were issued in 2022, most involved proposals for residential development, followed by commercial development (as shown in the table above). The Commission issued similar numbers of Completeness Documents from 2017 to 2022, with the majority of the proposals for development located in RGAs (as shown on the bar graph below).

Completeness Documents by Management Area (2017-2022)



The Pinelands Commission is also responsible for reviewing and approving development applications that are submitted by public entities, such as a municipality, county or a State agency. The full, 15-member Commission votes on whether to approve these applications during its monthly meetings. The Commission approved a total of 32 applications for public development in 2022, including improvements to the Lake Lenape Dam in Hamilton Township, installation of a 4,372-square-foot geothermal well field for the heating and cooling of the Batsto Mansion in Washington Township, construction of a 17,811-square-foot fire station in Monroe Township, installation of 2,200 linear feet of water main Manchester Township, construction of a 4,000-square-foot emergency services building and associated site improvements in Stafford Township, installation of a public sanitary sewer main within the White Horse Pike and Mannheim Avenue rights-of-way in Galloway Township, establishment of a 102.6-acre grassland conservation and management area at the Atlantic City International Airport in Hamilton Township, three school projects in Buena Vista Township, and forestry activities at Bass River State Forest in Little Egg Harbor Township.



Above: The Pinelands Commission approved 32 applications for public development in 2022, including the installation of a geothermal well field for the heating and cooling of the historic Batsto Mansion.

Photo/Paul Leakan

Some applications may not meet all of the Commission’s land use or environmental standards. In these instances, applicants may elect to apply for a “Waiver of Strict Compliance.” The Commission acted on four waivers in 2022, each of which allowed for the development of one single-family home.

Recreation Permits

In 2022, the Commission issued nine Recreation Permits for organized, off-road vehicle events in the Pinelands Area. In order to receive a Recreation Permit, groups must submit a completed “Off-Road Vehicle Event Application” for each proposed event. In addition to the application form, the group must submit the course route in electronic format, an application review fee, proof of insurance, property owner permission and proof that the township and New Jersey State Police have been notified. Commission staff reviews the course route to determine if there are any issues with wetlands, threatened and endangered species, deed-restricted land and private and public ownership. Any portions of the route that have potential issues are inspected by a member of the Commission’s staff. If any route changes are necessary, a revised route is required and must again be submitted for review.

Development Application Trends in 2022

The Commission’s Regulatory Programs staff reviews a wide variety of development applications ranging from single-family dwellings and small-scale commercial site improvements (e.g. minor parking lot improvements) to large residential subdivisions, forestry operations and large-scale commercial development (e.g. shopping centers

and entertainment complexes).

In the 2021 Annual Report, the Commission reported an increased interest and activity in development inquiries and applications for cannabis-related facilities, community solar facilities on existing landfills and large warehouses. That trend continued into 2022.

In 2022, Commission staff continued to receive inquiries and development applications regarding cannabis-related cultivation, processing/manufacturing, sale and distribution for both recreational and medical cannabis uses. This activity was in response to the 2021 the New Jersey Cannabis Regulatory, Enforcement Assistance, and Marketplace Modernization Act (P.L. 2021, c. 16). Based on the Commission's rules, the growing of cannabis is permitted throughout the Pinelands Area, except in the Preservation Area District or a Special Agricultural Production Area where agricultural uses are limited to berry agriculture and native Pinelands horticulture. The submission of an application to the Commission for a cultivation facility is not required. However, the establishment of a facility to process, sell or distribute cannabis does require application to the Commission.

The Commission also saw continued interest in proposed solar energy facilities in 2022. These inquiries and application submissions included applications for floating solar energy facilities accessory to resource extraction operations and additional joint proposals from municipalities and solar energy providers to formally close existing landfills and install solar energy facilities on the closed landfills.

Additionally, of note in 2022, the Commission received inquiries and applications proposing the development of large warehouses and large residential subdivisions (100-600 units) in the Regional Growth Area (RGA). Both types of development proposals were primarily located in the RGA. As indicated above, the Pinelands CMP encourages future growth in the RGAs as a way to prevent scattered and piecemeal development in other more sensitive portions of the Pinelands Area. Municipalities have the ability to determine the types of nonresidential uses permitted within the RGA. All development within the RGA must still meet all CMP environmental standards.

Science & Research Activities

Long-term Environmental Monitoring Program

Snake Fungal Disease: In 2018, Commission scientists began collaborating with Dr. Joanna Burger and her colleagues at Rutgers University, Robert Zappalorti of Herpetological Associates, and Dr. Jeffrey Lorch of the United States Geological Survey (USGS) to conduct research on snake fungal disease in the Pinelands. Snake fungal disease is an emerging disease found in populations of captive and wild snakes and has been found to infect snakes in North America, parts of Europe, and Australia. Laboratory analyses have demonstrated that the fungus *Ophidiomyces ophiodiicola* is consistently associated with snake fungal disease, but often additional fungi are also found. Although snakes can show signs of fungal disease just after spring emergence from hibernation, it was previously unknown if *O. ophiodiicola* was present inside the hibernacula.



Above: The soft and crusty brown blotches on this northern pine snake indicate potential snake fungal disease infection.

Photo/John Bunnell

Dr. Burger and Mr. Zappalorti have been excavating a group of northern pine snake hibernacula, or winter dens, annually for the past 36 years. Their long-term study

provides a unique opportunity to sample inside snake dens to determine if the fungus is present in the soil or on the hibernating snakes. Excavating the dens during hibernation also allows the sampling of a number of individual snakes from a population at one time. A passive integrated transponder (PIT) tag is inserted into each new snake found during the excavations. A PIT tag is a tiny, glass-coated microchip commonly used in wildlife research that allows for the permanent identification of an animal through the use of a special scanner that reads the unique tag number.

To determine if *O. ophiodiicola* was present in the dens or on hibernating snakes, initial sampling was completed in 2018 during den excavations at three locations. Because the initial sampling indicated that *O. ophiodiicola* was present on snakes and in the soil inside the dens, in 2019 – 2021, all hibernating snakes were swabbed to document changes in fungal infection for individual snakes over time and investigate changes in snake fungal disease among dens. Results assessing the presence of *O. ophiodiicola* in dens versus adjacent soils and examining factors associated with the growth of the fungus were recently published in the Journal of Fungi (Campbell, L.J.; Burger, J.; Zappalorti, R.T.; Bunnell, J.F.; Winzeler, M.E.; Taylor, D.R.; Lorch, J.M. Soil reservoir dynamics of *Ophidiomyces ophiodiicola*, the causative agent of snake fungal disease. Journal of Fungi 2021, 7, 461). In 2022, hibernating snakes were sampled again for fungal infections. A manuscript that describes fungal prevalence among individual snakes and the soils in contact with them during hibernation was submitted for publication in a scientific journal.

Rare Snake Monitoring: Aside from the long-term artificial den excavations mentioned in the Snake Fungal Disease Monitoring component, no long-term data exist to assess rare snake population trends in the Pinelands. Therefore, the Commission is establishing a network of natural snake dens, shed areas, and nest sites to monitor long-term changes in several species of rare snakes. As part of ongoing snake studies that were initiated in late 2016, numerous winter dens have been identified for corn snakes and pine snakes. The Commission is attempting to identify more natural pine snake dens and natural dens for other rare snake species. From 2018 - 2021, corrals were built around most dens to capture snakes as they enter hibernation in the fall and emerge from hibernation in the spring. The den corrals offer an effective, non-invasive method to census snakes each fall and spring without physically disturbing dens or hibernating snakes.

From 2016 to 2022, 1826 new snakes representing 13 species were found. These include 990 corn snakes, 441 pine snakes, 187 kingsnakes, 109 black racers, 55 hognose snakes and 44 snakes of several other species. All snakes were weighed, measured, and PIT tagged. A total of 293 of these processed snakes were recaptured at least once during this time period.

Other 2022 environmental monitoring activities included surveying calling frogs and toads at a group of ponds that are surveyed annually, measuring bimonthly water quality at 47 stream sites, recording monthly water levels at 35 forest plots and 30 ponds, and maintaining continuous water-level recorders installed in seven other ponds and in a shallow observation well installed within a pine lowland forest.

Long-term environmental monitoring research is being funded by the National Park Service.

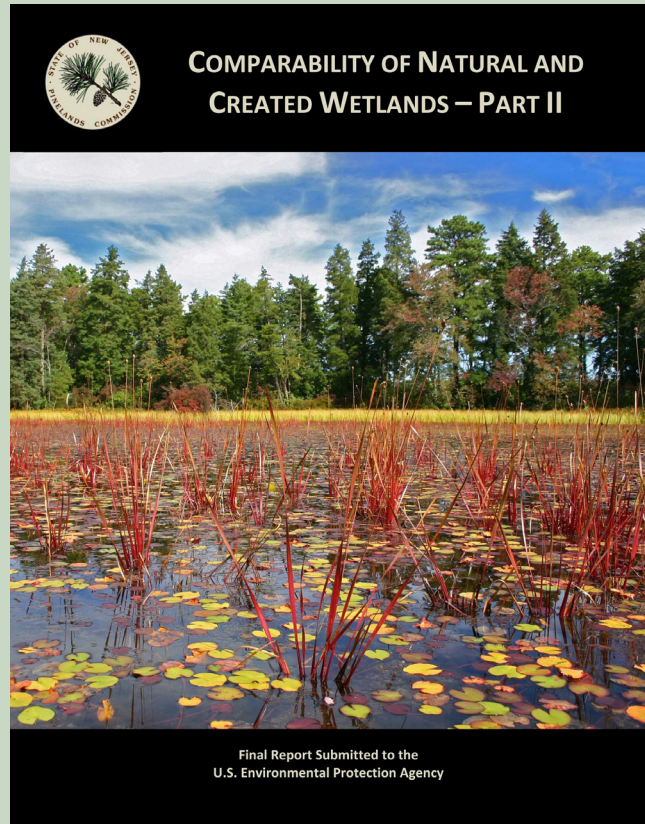


Above: Located in Brendan T. Byrne State Forest, Burnt Pond has a continuous water level recorder installed to automatically collect water-level data. Photo/John Bunnell

Microorganism Study

In 2017, the Commission was awarded funding to study the effects of land use on water quality and microorganisms in 60 natural ponds, excavated ponds, and stormwater basin study sites. The goals of the Microorganism Study are to assess the relationship between surrounding land use and various water-quality and biological attributes and to compare the plants and animals from these natural and created wetlands. Over a three-year period, from 2018 to 2020, field work was conducted at the 60 wetlands. Commission scientists and collaborators with the N.J. Department of Environmental Protection (NJDEP) and U.S. Geological Survey (USGS) sampled surface water for nutrients, metals, pesticides, and chlorophyll-a (an indirect measure of algal plant growth) and collected samples of diatoms (single-celled algae), phytoplankton (free-floating algae in the water), zooplankton (tiny animals that swim or drift in the water), and benthic macroinvertebrates (primarily aquatic larval insects). In 2021, taxonomic consultants completed the identification of zooplankton, algae, diatoms, and macroinvertebrates that were collected from the study sites.

In 2022, project scientists completed data analysis and prepared the final report. Differences in the various water-quality and aquatic assemblage attributes were most pronounced between stormwater basins and natural and excavated ponds. This finding was similar to results from the Commission's previous study, which compared water quality and vegetation, fish, and frog and toad assemblages among the three wetland types. Both



studies indicated that the natural and excavated ponds generally exhibited characteristic Pinelands water quality and similar aquatic assemblages. The stormwater basins that were sampled displayed more degraded water quality conditions, supported different aquatic plant and animal assemblages, and contained more nonnative and invasive species.

This research was funded by a grant from the U.S. EPA and a match by the Commission through the Pinelands Conservation Fund.

Endocrine Disruption Study

The endocrine system is a collection of tissues in animals that produce hormones to regulate essential life processes, such as metabolism, tissue function, reproduction, and development. A large group of natural and synthetic chemicals are known to disrupt endocrine function. Examples include plant hormones, plastic components, flame retardants, surfactants, fragrances, pesticides, etc. Endocrine disrupting chemicals, or EDCs, are a global environmental problem and have been linked to reproductive and developmental abnormalities in a variety of animal species, especially fish and amphibians.

Commission and U.S. Geological Survey scientists initiated a study to sample water chemistry and fish above and below two municipal wastewater treatment plants, which represent direct point sources of EDCs, and water

chemistry and frogs at ponds and stormwater basins, which may receive indirect non-point sources of EDCs from runoff and the Kirkwood-Cohansey aquifer. Results from these sites will be compared to those from appropriate, minimally impacted reference sites.

In 2017, 2018, and 2019, green frogs were collected from ponds and stormwater basins for histological analysis and water chemistry was sampled at the sites on multiple occasions. In 2019 and 2020, fish were collected from stream sites above and below sewage treatment plants for histological analysis by USGS scientists. Although field work for the project was completed in 2020, factors related to the pandemic caused significant delays in laboratory processing. In 2021, data collected in the study were published by the USGS (Breitmeyer, S.E., Walsh, H.L., Smalling, K.L., Blazer, V.S., Boetsma, A.C., Carper, L.G., Cohl, J.A., Dietze, J.E., Iwanowicz, L.R., Lane, R.F., Raines, C.D., Schreiner, M.L., Tush, D.L., Wilson, M.C., Sperry, A.J., Bunnell, J.F., Burritt, P.M., and Dragon, J., 2021, Organic and inorganic constituents in surface water and native and non-native fish and frog health data collected from streams, impoundments and wetlands in the New Jersey Pinelands, 2017-2020: U.S. Geological Survey data release, <https://doi.org/10.5066/P93VW8GX>).



Above: Non-native black crappie was one of the fish species sampled for evidence of endocrine disrupting chemicals at lakes upstream and downstream of a sewage treatment plant.

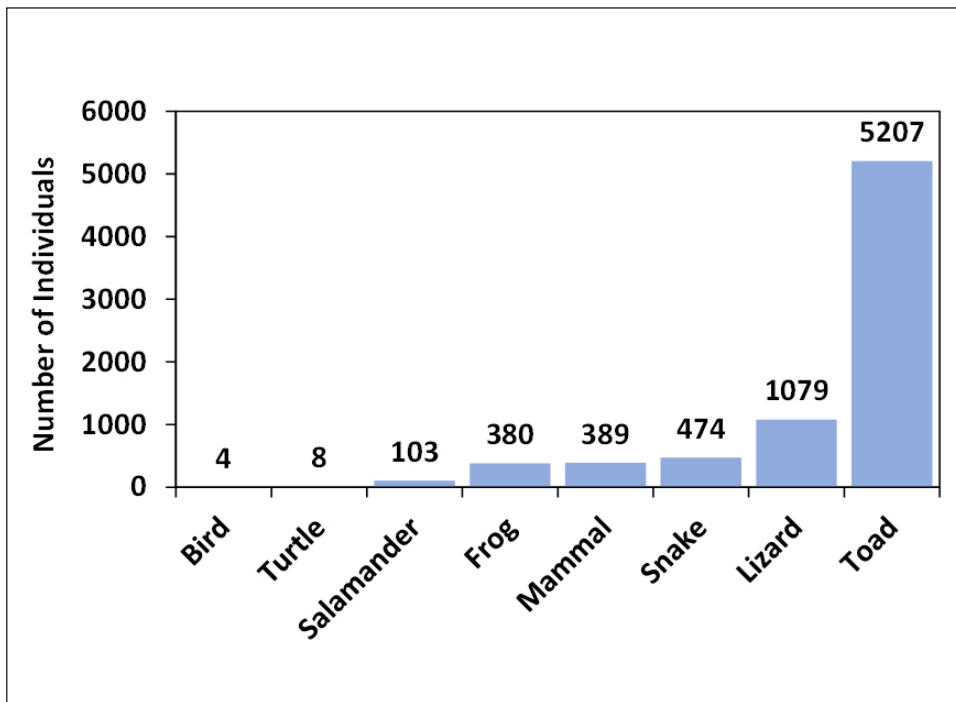
Photo/John Bunnell

In 2022, USGS and Commission researchers published the research in a scientific journal: Breitmeyer, S. E., H. L. Walsh, V. S. Blazer, J. F. Bunnell, P. M. Burritt, J. Dragon, M. L. Hladik, P. M. Bradley, K. M. Romanok, and K. L. Smalling. 2022. Potential health effects of contaminant mixtures from point and nonpoint sources on fish and frogs in the New Jersey Pinelands. *Science of the Total Environment* 851 (2022) 158205. <https://doi.org/10.1016/j.scitotenv.2022.158205>. The results of the study showed that upland agriculture and developed land were the primary drivers of contaminant concentrations rather than municipal wastewater. Municipal wastewater mostly contributed personal care products. Intersex, or the presence of egg cells in males, varied by fish species and was extremely low in frogs. The prevalence of parasites in animals was site and species dependent.

The study was funded by a grant from the William Penn Foundation through the Delaware Watershed Research Fund administered by the Academy of Natural Sciences of Drexel University, a match by the Pinelands Commission, and a match by the USGS.

Joint Corn Snake Radio Tracking and Drift Fence Study

In 2016, Commission scientists began to collaborate with Dr. Howard Reinert of The College of New Jersey, Mr. Robert Zappalorti of Herpetological Associates, and the NJDEP Endangered and Nongame Species Program staff to conduct an intensive research project on the corn snake in the Pinelands. The corn snake is a colorful, secretive species of rat snake that reaches the northern limit of its range in the New Jersey Pine Barrens. Also called the red rat snake, the corn snake is listed as an endangered species by the NJDEP. The goals of the corn snake research are to better understand the habitat requirements and life history of this



Above: The number of individuals from various animal groups captured from 2016-2019 during the drift fence study.

secretive serpent to develop meaningful conservation management programs for the species and ensure its continued survival in the Pinelands.

The research includes two components: radio-telemetry and headstarting, which is a conservation technique where vulnerable young animals are raised in captivity until they attain a larger size and then released into the wild. For the telemetry aspect, researchers surgically implant small radio-transmitters in adult corn snakes and locate the snakes on a regular basis to collect data on their activity

range; types of habitats used; and the locations for nesting, shedding, and hibernation. In 2019, scientists completed radio tracking of 29 corn snakes, which concluded the telemetry component of the study. Corn snake telemetry data will be analyzed by research collaborators at The College of New Jersey.

For the headstarting component of the study, researchers collect corn snake eggs from nest areas and transport them to a laboratory for incubation and hatching. All of the hatchlings are microchipped and one-half of them are released back to the primary nest area as cold-released snakes. The other group of hatchlings are kept in the laboratory over the winter and released the following spring as headstarted snakes. The goal is to recapture as many of these snakes as possible to assess growth and survivorship of the cold-released and headstarted hatchlings over time.

From 2016 – 2019, a total of 182 corn snake hatchlings were PIT tagged and released. The 182 hatchlings included 96 cold-released and 86 headstarted hatchlings. In 2019, a drift fence array was established at the primary nest area to help recapture corn snake hatchlings to assess the survival of headstarted and cold-released hatchlings and to compare the effectiveness of using a drift fence outfitted with box traps and artificial wood and metal cover to detect corn snakes and other species of snakes. From 2019 - 2022, the drift fence and artificial cover placed at this study area and other study areas resulted in the capture of 7 (7%) cold-released and 15 (22%) headstarted hatchlings, for a total of 22 (12%) hatchlings recaptured. During this same period, a total of 7,644 animals were found along the drift fence, under the artificial cover associated with the fence, or in the box traps. These 7,644 animals included 15 species of snakes and 22 species of toads, frogs, salamanders, lizards, turtles, mammals, and birds. The drift fence was removed from the area at the end of 2022. Scientists will continue to monitor corrals and strategically placed cover in this study area and other nearby areas for new and previously pit tagged snakes.

This Joint Corn Snake Study is being funded by the Pinelands Commission and the NJDEP.

Eastern Kingsnake Study

In 2019, the Commission was awarded funding for a grant proposal, titled “Activity range, habitat use, shedding, denning, and nesting of the wetland-dependent eastern kingsnake.” The eastern kingsnake is listed as a species of special concern in New Jersey because it is vulnerable to multiple threats, is potentially declining, and its distribution and population status are not known. Although kingsnakes are a wetland-dependent species that use wetlands for overwintering, the specific wetland habitat types needed for hibernation and the amount and type of associated upland habitats used for foraging, shedding, and nesting have not been documented.

Commission scientists are collaborating with Mr. Robert Zappalorti of Herpetological Associates and Dr. Howard Reinert of The College of New Jersey on this four-year study. Scientists are using radio telemetry to determine the activity range; upland and wetland habitat use; and timing of shedding, denning, and nesting of the eastern king snake.

From 2019 – 2022, scientists radio-tracked 47 kingsnakes, including 23 females and 24 males. Of the 47 kingsnakes, 22 snakes are hibernating, 20 are dead, 4 have been released, and 1 is missing. Radio-tracking was completed in 2022. The study snakes will be collected after they emerge from dens, transmitters will be removed, and the snakes will be released.

This research is being funded by a grant from the U.S. EPA and a match by the Commission through the Pinelands Conservation Fund.

Ground Skink eDNA Study

In 2020, the Commission began to collaborate with Dr. Julie Lockwood and Kathleen Kyle of Rutgers University. Dr. Lockwood and Ms. Kyle were interested in sampling the wood and metal cover placed along the drift fence array (see Drift Fence Study above) to determine whether they could detect environmental DNA of a small common lizard called the ground skink. Environmental DNA (eDNA) is nuclear or mitochondrial deoxyribonucleic acid (DNA) shed by organisms into their surroundings as they move, grow, breed, and decompose. Compared to terrestrial habitats, the use of eDNA is more advanced in aquatic habitats because of the ease of drawing water from the habitat through a filter and analyzing the filter for eDNA. Detection of eDNA from dry surfaces and soil is a new field of research. The use of eDNA has the potential to revolutionize traditional survey and monitoring programs that rely on visual detection by an observer, especially for secretive or rare species, such as many species of reptiles.

In late-2020 and early 2021, Ms. Kyle sampled the underside of the wood and metal cover the Commission placed along the drift fence array and the soil beneath the artificial cover and analyzed the samples for ground



Above: Field work was completed on a four-year study of the wetland-dependent eastern kingsnake.

Photo/John Bunnell

skink eDNA. The results indicated that detection probabilities were 4 – 16 times greater than visual detection. Ground skink eDNA was detected under cover objects up to two weeks after the last visual detection and at some cover objects where skinks had not been visually observed in prior months. These results suggest that combining eDNA with traditional cover object surveys can greatly increase the power of detecting reptiles during surveys.

In 2022, the study was completed and published in a scientific journal: Kyle, K. E., M. C. Allen, J. Dragon, J. F. Bunnell, H. K. Reinert, R. Zappalorti, B. D. Jaffe, J. C. Angle, and J. L. Lockwood. 2022. Combining surface and soil environmental DNA with artificial cover objects to improve terrestrial reptile survey detection. *Conservation Biology* 36 e13939. <https://doi.org/10.1111/cobi.13939>.

The ground skink research was funded by Rutgers University and the Commission through the Pinelands Conservation Fund.

Eastern Box Turtle Study

In 2021, the Commission began to radio-track eastern box turtles. This species is listed by the NJDEP as a species of special concern because it is vulnerable to multiple threats, its distribution and population status in the state are not well understood, and it is potentially declining throughout its range. One goal of this research on box turtles is to gather data on turtle behavior, habitat use, movement, and use of nest sites and hibernacula in the Pinelands. Another goal is to monitor turtles in burned and unburned areas to better understand the relationship between turtles and prescribed fire. In 2021, a total of 20 box turtles were captured and outfitted with external transmitters and radio-tracked about once each week. The turtles were tracked to their winter hibernation areas.



Above: A female box turtle currently being radio-tracked as part of the study.
Photo/John Bunnell

In 2022, staff frequently checked the box turtles in spring to detect when they emerged from hibernation burrows. The timing of emergence is important information for assessing the potential impact of conducting prescribed fires in the vicinity of box turtles that are on the ground surface. Science staff captured, processed, and began tracking additional turtles. Currently, 36 box turtles are being radio-tracked as part of the study. In November, the turtles were tracked to hibernation burrows and geographic coordinates were collected at these locations.

Science staff also assisted turtle researchers from the MidAtlantic Center for Herpetology and Conservation to conduct box turtle surveys in the Pinelands. Genetic samples were collected from four box turtles and shipped out for analysis as part of a larger box turtle study being conducted across the geographic range for this species. Commission staff are working with NJDEP staff to obtain funding for future box turtle research.

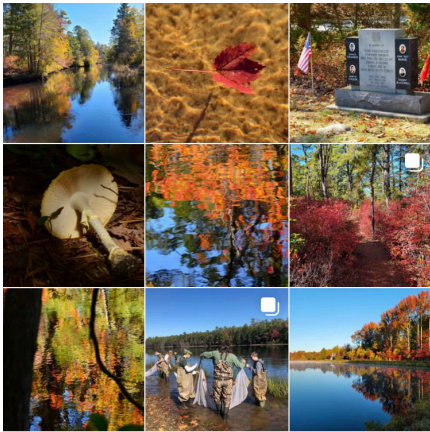
Public Information, Education & Outreach

Raising Awareness, Fostering Stewardship

The Commission continued to raise awareness and appreciation of the Pinelands in 2022, educating thousands about the region's resources.

The Commission cosponsored and carried out the 33rd annual Pinelands Short Course at Stockton University's main campus in Galloway Township on March 12, 2022. More than 400 people attended the event, which featured 31 educational presentations, including 15 new programs. Three Commission staff members delivered presentations, and the event also included four field trips and three live musical performances.

Commission staff educated 100 students about water quality and the importance of protecting the Pinelands at Batsto Lake on June 2, 2022. Students slipped on waders and used



Above: The Commission's Instagram site has more than 3,000 followers.

nets to catch fish, while learning about the native and non-native species that can be found in Batsto Lake.

Approximately 75 people attended the 6th annual Pinelands Summer Short Course on July 21, 2022. The daylong, educational event was held at Stockton University's Kramer Hall in downtown

Hammonton. The event featured five classroom programs and four field trips. Event and course evaluations were overwhelmingly positive for both Short Course events.

Staff members delivered three presentations during the annual Pinelands Orientation for Newly Elected Officials on July 26, 2022. The event was held at the Commission's headquarters and was livestreamed and archived on YouTube.

The Commission also organized and hosted 10 educational presentations that were livestreamed and are available on the Commission's YouTube Channel. The presentations covered winter breeding in birds of prey, the Commission's new

By the Numbers:

In 2022, the Commission's staff:

- Responded to more than 600 public inquiries about recreation, general information about the Pinelands and the Commission, and other non-development application questions;
- Organized and carried out the 33rd annual Pinelands Short Course, the 6th Pinelands Summer Short Course, a spring and fall edition of the annual, Pinelands-themed World Water Monitoring Challenge events, and the annual Pinelands Orientation for Newly Elected Officials. The events educated a total of more than 750 people;
- Organized, hosted, promoted and recorded 10 educational presentations that were livestreamed and archived on YouTube. The presentations have been viewed more than 1,500 times;
- Took and shared 928 photos on the agency's Instagram site and shared 375 Tweets on Twitter;
- Created and shared 16 videos that raise awareness of the Pinelands on the Commission's YouTube Channel;
- Organized and carried out the second Archaeology and Anthropology Symposium at the Commission's headquarters. The event attracted more than 60 people; and
- Maintained, updated and enhanced the Pinelands Commission's website, including the creation of two new webpages (the Climate Change webpage and Rain Garden webpage).

stormwater rules, the spongy moth caterpillar, communication among amphibians, insects and mammals, a live musical performance by local musician Pat Seiler, communication among plants and birds, fungal biodiversity in the Pinelands, and invasive species threats, identification and control.

Staff educated more than 130 students about the Pinelands during the fall version of the World Water Monitoring Challenge at Batsto Lake on October 21, 2022. The event is co-organized and staffed by the Commission, NJDEP, New Jersey Division of Parks & Forestry, the Jacques Cousteau National Estuarine Research Reserve, and Americorps Ambassadors.

The Commission also held its first-ever Moth Night on October 6, 2022. The evening began with an indoor presentation that focused on the attributes and beneficial features of moths. Following the presentation, more than 20 attendees went outside to identify and photograph moths at two stations with screens and powerful lighting.

Commission staff also organized and hosted the second Archaeology and Anthropology Symposium at



Above: More than 400 people attended the 33rd annual Pinelands Short Course, which included a presentation with live snakes. The presentation was delivered by Commission Research Scientist Jeff Dragon. Photo/Paul Leakan

the agency's headquarters on November 18, 2022. The symposium was held in honor of renowned Pinelands archaeologist Budd Wilson, and it included seven presentations on a wide variety of topics related to Pinelands archaeology and history. (Please see a photo from the event on page 26.)

Last but not least, the Commission shared hundreds of posts, dozens of videos, nearly 1,000 photographs, and numerous polls and Pinelands-themed trivia contests on its social media sites (Instagram, Twitter and YouTube).



Above: About 20 members of the public ventured outside to search for moths during the Commission's first-ever Moth Night on October 6, 2022. Photo/Paul Leakan

Pinelands National Reserve Calendar

The Pinelands Commission issued its seventh edition of the Pinelands National Reserve wall calendar in early December 2022.

The calendar features a theme of State Parks and Forests and includes 38 stunning photos that were captured at Bass River State Forest, Batsto Village, Belleplain State Forest, Brendan T. Byrne State Forest, Double Trouble State Park, Whitesbog Village and Wharton State Forest.

The Commission worked with Rowan College at Burlington County to design and print the calendar.

All of the photos were taken by members of the Commission's staff.

Aside from the photos of the region's resources, the calendar includes State holidays, dates of Pinelands Commission meetings and important dates in Pinelands history.

A total of 800 copies of the calendar were printed and distributed free of charge at the Bass River



Above: The front cover of the 2023 Pinelands National Reserve wall calendar features a photo of fall foliage flanking a hiking trail at Double Trouble State Park.

State Forest, Batsto Visitor Center, Belleplain State Forest, Brendan T. Byrne State Forest, the General Store at historic Whitesbog Village, and at the Pinelands Commission's headquarters.

The project was funded through the Education and Outreach component of the Commission's Pinelands Conservation Fund.



Above: More than 60 people attended the Commission's second Archaeology and Anthropology Symposium on November 18, 2022. The event was held in the Richard J. Sullivan Center for Environmental Policy & Education. Photo/Paul Leakan

Finances

Fiscal & Budget

The Commission's Operating Budget for Fiscal Year 2022 totaled \$5,966,202. Of this, \$4,932,889, or 82.68% percent, was budgeted for personnel expenses.

Budgeted revenue sources included \$618,000 in federal grants, a \$3,249,000 State appropriation, \$688,000 in State grants and other State funding, \$500,000 in application fees and \$911,202 from the Commission's fund balance and reserves.

The budget for the Pinelands Conservation Fund was \$1,043,632. The Kathleen M. Lynch-van de Sande ("Katie") Fund for the Reforestation of the New Jersey Pinelands had a budget for \$20,000, which funded the installation of a rain garden at the Commission's headquarters in June 2022.

The Commission's Audit Report for Fiscal Year 2021, which ended June 30, 2021, will be completed later this year. The Fiscal Year 2020 Audit Report is available at <https://pub.njleg.state.nj.us/publications/auditor/2021/03002221.pdf>.

Pinelands Application Fees

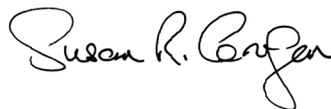
Since April 2004, the Pinelands Commission has received application fees to partially underwrite the direct costs associated with reviewing development applications in the Pinelands Area. During Fiscal Year 2022, unaudited application fee revenues actually collected totaled \$1,113,432.35 (\$470,003.39 more than Fiscal Year 2021).

Refurbishing Fenwick Manor

In 2022, the Commission applied for and received an historic site management grant from the New Jersey Historic Trust. The grant will allow the Commission to complete a Preservation Plan for its historic office building, known as Fenwick Manor. The structure was built in the early 1820s and is listed on the State and National Registers of Historic Places. Elizabeth C. White helped to cultivate the highbush blueberry while living in Fenwick Manor. The Commission signed a contract with its selected consultant in late November 2022, and the preparation of the plan is underway. The Commission also received a special \$500,000 state appropriation specifically for stabilization, improvement and long-term maintenance of the building.

Certification

As required by State Executive Order #37, all State authorities are required to certify that during the preceding year the authority has, to the best of its knowledge, followed all of the authority's standards, procedures, and internal controls. I hereby certify to the best of my knowledge that, during the 2022 calendar year, all of the Commission's standards, procedures, and internal controls were followed.



Susan R. Grogan
Executive Director

Scenes around the Pinelands in 2022



Above: New Jersey is among the top growers of blueberries in the U.S., with most of the production occurring in the Pinelands. The NJ Division of Travel & Tourism featured this photo on Instagram.



Above: Native pink lady's slipper orchids can be seen blooming in the Pinelands from early to mid-May. They are among approximately 27 wild orchid species in the Pinelands.



Above: Hikers can see brilliant fall foliage in Double Trouble State Park in the Pinelands. Located in Ocean County, the park is over 8,000 acres and offers more than eight miles of official, blazed trails.



Above: Great blue herons are a common but beautiful sight along Wildlife Drive at the Edwin B. Forsythe National Wildlife Refuge in the Pinelands National Reserve.

**Photos by Paul Leakan
NJ Pinelands Commission**



Cover image: Layers of fall foliage in Wharton State Forest in the New Jersey Pinelands.

Photo/John Bunnell