

EVERGREEN

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**Exploring New Jersey's
Pine Barrens Forest:
Its History, Culture
and People.**



Active, science-based forest management is key to the health and growth of forests in New Jersey's Pine Barrens. These photos illustrate this truth. [Top left] Atlantic White Cedar killed by rising sea levels and hurricane storm surges. *Julia Petersen*. [Top right] Eastern Towhee among healthy White Cedar saplings on

Haines Pine Island Cranberry Company land near Chatsworth. *John Parke*. [Bottom] Fall color in a White Cedar watershed that once provided water to a long-gone cranberry bog. This is the 11,379-acre Franklin Parker Preserve in the Pine Barrens near Chatsworth. *Richard Lewis*

In This Issue

In this special edition of Evergreen we tour the fabled Pine Barrens of New Jersey, the only forested state in the United States I had never visited.

To my great surprise, I saw some of the best forestry I have seen in the nearly 40 years that we've been publishing our magazine, all of it courtesy of Bob Williams, a New Jersey native and easily the most respected forester in the state.

My Albertson grandmother was born in Newark in 1894, the state's largest city, population 304,960 in the latest census. She remembered walking from her home to long-gone dairy farms.

Today, 10,841,764 people live within 17 miles of Newark. But it takes more than an hour to drive from Manhattan to Newark. The traffic on the four-to-six lane New Jersey Turnpike is bumper to bumper for miles. Blessedly, there are hundreds of municipal parks and miles of walking trails – complete with interpretive signs – in all but the most rural communities.

Minutes south Philadelphia International Airport, Julia and I crossed the Delaware River within eyesight of where George Washington's Continental Army crossed in darkness on Christmas night in 1776. Hessian troops fighting for England were taken completely by surprise at Trenton in a pivotal Revolutionary War battle.

Eleven years later, New Jersey became the first state to ratify the Bill of Rights and the third to ratify the Constitution. Two years later, General Washington became our first President.

At five million acres, New Jersey is America's fifth smallest state. But on a per acre basis, it is the most populous. You would never know it once you get south of Elizabeth, population 135,829. By the time you reach Bob's Pine Creek Forestry office in Clementon, population 5,344, you are entering forestry and farming country punctuated by small rural towns interconnected by a vast urban-rural road network. The map on the facing page traces the narrow paved and unpaved roads we traveled with Bob at the wheel from October 3-10.

The Swedes and Dutch landed near here in the early 1600s. On the Lee Brothers forestry and cranberry farming operation near Speedwell we passed a sign marking the location of Eagle Tavern. It welcomed thirsty travelers on their journey from Philadelphia to Tuckerton

Seaport, where three-masted schooners were constructed from Atlantic White Cedar.

Atlantic White Cedar is one of the main reasons we are here. The others include pitch pine, shortleaf pine, Virginia pine and some hybrids. Bob's knowledge of the ecology of these trees is encyclopedic.



The transition from forest to farm can occur in the blink of an eye. Farmers grow blueberries, cranberries, carrots, corn, potatoes, peaches, tomatoes, bell peppers, eggplant, cucumbers, apples, spinach, squash, asparagus and turf farms that grow sod for NFL teams. No wonder New Jersey is called "The Garden State."

New Jersey was once an industrial hub in the Northeast. Shipbuilding, iron, steel, textiles, paper, distilleries, tanneries and lumber – especially Atlantic White Cedar for rooftops and siding in Philadelphia – were the main industries before and during the Industrial Revolution. Today, perhaps a dozen cedar mills remain, none larger than the footprint of a three-bedroom house. Bob trucks most of his client's logs to South Carolina for processing.

During our early research, Bob told us that most of the Pine Barrens would have been "paved over" years ago had it not been for the work of conservation groups worried about rapid urbanization. Developers proposed construction of a 32,500 acre supersonic jetport and a 10,800-acre city for 250,000 new inhabitants. At 43,300 acres, it would have been more than eight times larger than John F. Kennedy Airport, which serves 65 million travelers annually.

Enter the 1979 New Jersey Pinelands Protection Act. Bob concedes it displaced much of the Pinelands historic rural economy – especially its small cedar mills – but "It was the right thing to do if we were to have forests and forestry of any size or shape."

In this issue, we describe the issues and events that have unfolded since 1979. Bob has navigated a sea change with exceptional grace and dignity.

He recently sold Pine Creek Forestry and now devotes his time to showing anyone who expresses interest – including skeptical environmentalists – the ecological, biological and cultural benefits of the kind of forestry he practiced for years.

"I do what I do now for the people of New Jersey," he says quietly. "That's all."

Among the benefits Bob's brand of forestry provides: an abundance of bird, reptile, fish and wildlife habitat and thousands of acres of well managed pine and Atlantic White Cedar forests that keep the area's cultural and environmental history alive. Bob works almost exclusively on private land but his brand definitely has a bright future in New Jersey's state forests.

Thanks to the 20-some people we interviewed personally or by phone: Cranberry farmer, Steve Lee, who served on the Pinelands Commission for 27 years, Marty McHugh, a lawyer with the New Jersey Department of Ecology for 25 years who when asked said, "God bless Bob Williams and his work," and Susan Wallner, a Pennsylvania film producer who orchestrated a marvelous and exceptionally well-balanced report on the Pine Barrens for PBS.

A special thank you to the "pineys," cultural icons who continue to mill Atlantic White Cedar for myriad customers including duck decoy carvers, boat builders, lumber retailers and homebuilders who prefer white cedar siding, decking and roofing.

Among them "Spike" Wells, who has lived and worked on the same land his father and grandfather worked, and Paul Schairer, who employs six in a cedar mill his grandfather and father built from scratch. Now in his 60s, Paul has never worked anywhere else.

As is our custom, we use QR codes that lead to additional background information and scientific research. You will find these codes on Page 19.

Our report will soon be posted on our website www.evergreenmagazine.com and Bob and his wife, Sarae will be guests at the annual Forestry Forum at the Coeur d'Alene Resort, about 15 minutes from our Dalton Gardens, Idaho home, February 5-7. Bob is one of the speakers. His contributions to forestry and its story are unrivaled.

*Onward we go,
Jim and Julia Petersen*



Spike Wells rather likes the idea that he is billed as "the last of the old pineys." He probably is given the fact that he's lived next to his cedar mill his entire life. *Bob Williams archives*

Spike Wells: Last of the Old “Pineys”

Seventy-three year-old Spike Wells is a page out of history. The last of the “old Pineys.”

His cedar mill on Route 206 in Burlington County New Jersey occupies a space the size of the footprint of a three-bedroom house.

His long-dead father built the mill in 1944. His grandfather and great grandfather had mills nearby long before Spike was born.

“I live here on the property,” he said on the sunny Saturday morning we visited with him. “I’ve never worked anywhere else.”

Wells is part of a culture that seems to be gathering steam. There are young entrepreneurs living nearby who he has helped get started in a business with cultural roots that run deep in rural New Jersey. “Pineys” have been milling Atlantic White Cedar logs for at least 300 years, longer if you count those who fallen white cedar trees from peat bogs in the 1700s.

In a good year, Spike will process two or three truckloads of white cedar logs. A pittance compared to what dies or old age or is killed by salt water captured in beaver dams.

He’d like to have four or five truckloads because there is a strong customer demand for the lumber. It was a staple in the shipbuilding industry that prospered in New Jersey for hundreds of years. The boats were mostly three-masted schooners that delivered goods up and down the eastern seaboard.

“The wood is strong, easy to cut and beautiful,” he explains. “I can cut a white cedar log in the same size and shape every time. Hardwood is too difficult to cut with the circle saw blades that we use. We can do it but you go through blades pretty quickly. Then you have to sharpen them. I’d rather be sawing than sharpening.”

Wells gets around his mill and its small log yard on a used golf cart. He built a box behind the cab to carry his tools and spare parts. God only knows how many miles he’s put on it. Probably hundreds since he bought it.

“I’m a one-man band here since my brother passed on a few years ago,” he says, gazing at a small nearby log deck. “On a good day, I might cut one log or part of it. Our circle saws blades aren’t fast like band mills. I saw logs by eye and I don’t waste anything. Because white cedar floats very well, I occasionally sell the smallest pieces to duck decoy carvers.”

Sawing by eye – and not red laser light beams projected on logs from above – is almost a lost art. Those who do it swear that they get better log quality by eyeballing a log face opened by the first pass through the saw. Some

There is a turf farm spanning several hundred acres down the road from Spike’s mill. It belongs to the Betts family. Their customers are NFL teams in the Northeast. We’ve met them but didn’t have time to stop to say “hello.” They own a summer house on the Kootenai River in western Montana that we’ve rented several times.

It would be an understatement to say that Spike Wells admires Bob Williams.

“He’s our ambassador,” Wells says of his long-time forester friend.

Actually, Williams is more than an ambassador. He is the architect of a nearby 2,200 acre white cedar forest restoration project on land owned by the State of New Jersey. Over time, it will provide some logs for area cedar mills. In Spike’s case, probably enough timber to keep him in business for the rest of his life.

“We need to keep the pineys going,” Williams explains. “They have lived on this land and provided markets for cedar that needs to be harvested for hundreds of years. Harvesting is the only way we can replenish our state’s cedar forests. White cedar is a prolific natural re-seeder. Five thousand seedlings to the acre is not uncommon.”

School kids occasionally visit Spike’s mill. He enjoys having them and they enjoy peppering him with questions that he gladly answers. He hopes they learn something about his culture and its long history. Boy Scout troops also stop by and he happily provides lumber for their projects. In a 2019 interview he told Shamong News reporter, Krystal Nurse, that he enjoys “helping them get a head start, as he did the two daughters that he and his wife, Michele, raised.

Krystal wrote a very interesting story about Spike and his mill. He must have given her the same tour he gave us. “Pineys” old and new treat everyone like family. We met one who offered to cut whatever we wanted to take home with us. When we told him we were flying he smiled and said, “Maybe next time.” Yes, maybe next time.

*“On a good day
I might cut one log
or part of it.”*

—Spike Wells

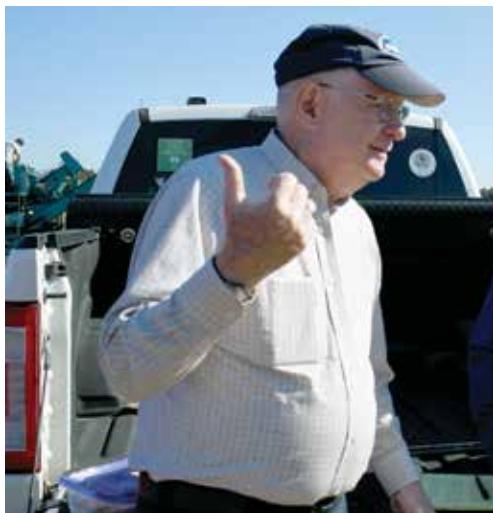
undoubtedly do by reading log grain and repositioning the logs for what is called “best open face.”

We didn’t ask Spike if he had heard this term but he volunteered that sawing by eye is part of a “piney” culture in which speed doesn’t count for much. Customer satisfaction is what matters most. There aren’t any millionaires in the cedar mill world. Waste not, want not.

Wells even holds on to slabs that bark clings to because he knows some homeowners like to use the slabs as siding or on interior walls because it’s very attractive.

Siding and shingles cut from Atlantic White Cedar lasts for hundreds of years. An old oyster processing plant and museum at Port Norris features a building sided in white cedar planks and shingles. There is a marina nearby that uses white cedar stakes as the markers for mooring slips for small fishing boats. The stakes are removed in the Fall and repositioned the following Spring.

The Pathfinders: Conserving New Jersey's Pinelands



Steve Lee: New Jersey Pinelands Commissions for 27 years

"The State has ignored the Pineland Commission's concerns about conserving the culture and history of rural Pineland's communities. There has always been some contention between the Commission and the State Department of Environmental Protection. We wanted to be sure forestry and agriculture were well served.

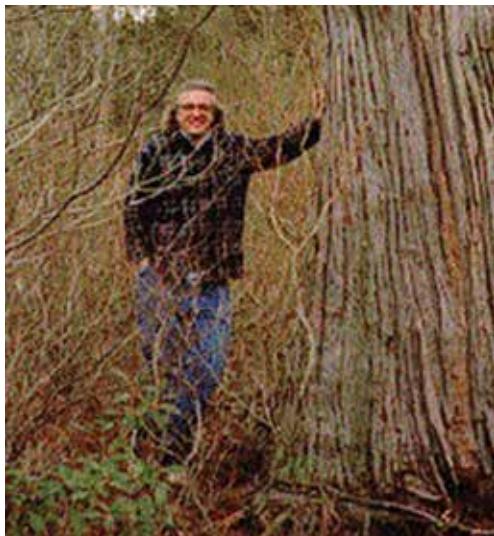
We are cranberry farmers but we own forestland adjacent to our bogs. Everything we do is heavily regulated by State and Federal agencies. Bob Williams manages our forests. Our goal is a healthy forest that provides a wide variety of wildlife habitat. As an environmental steward, Bob definitely has his act together. No one in New Jersey has done more for forest conservation than he has.



Troy Ettel: President and Executive, Turner Foundation; former Director of Conservation and Stewardship, New Jersey Audubon Society

"When I was with New Jersey Audubon we publicly attacked the forestry work Bob Williams was doing in the Pinelands because we thought it was based on Southern Pine plantations. It hurt his feelings but he spent an entire day showing us how his work was very different. It was basically thinning and prescribed burning. Active forest management.

"We ended up hiring Bob to develop a forest plan for our Audubon-owned forests. We were looking for more open conditions in mid-age forests. The State told us what he was proposing wouldn't work, but it did. The results were spectacular. Bob did a fantastic job and we became friends and vocal supporters of his brand of forestry."



George Zimmermann: PhD: Emeritus Professor of Environmental Studies, 38 years at Stockton University, Galloway, New Jersey and author and co-author of several reports concerning the ecology and management of "Atlantic White Cedar including Atlantic White Cedar: Ecology and Best Management Practices.' Recipient of the 2016 Governor's Healthy Ecosystems Environmental Excellence Award.

"Our Atlantic White Cedar best management practices manual includes everything most people would ever want to know about New Jersey trees. "A Rutgers graduate student Kristin Mylecraine (now PhD with Audubon) wrote the AWC BMP manual with assistance in photos and suggestions from me and the then New Jersey AWC Initiative Steering Committee. She also did the definitive range-wide genetic analysis of AWC which is crucial to the long term conservation of the AWC genome"

There are lots of photographs, maps and charts that help explain the science of white cedar restoration. The tree and its ecosystems are fairly complex but restoration is definitely doable if you know what you're doing.

Bob Williams was on our steering committee. He's a doer. If it were not for him, nothing would be happening on the white cedar restoration front. The hill he climbs is very steep because the general public is easily manipulated by scare tactics used by those who don't understand these ecosystems fully and how no management can actually be more detrimental to white-cedar's continued existence."

The Pathfinders: Conserving New Jersey's Pinelands

Marty McHugh: *Director, Regulatory Affairs, GES [Groundwater and Environmental Services] Wall Township, New Jersey, and former in-house counsel and Director of the New Jersey Department of Environmental Protection. More than 25 years with the Department. Senior Fellow, Gifford Pinchot Institute, Grey Towers, Milford, Pennsylvania.*

"The Pine Barrens is a unique ecosystem. There is nothing like it anywhere else. What we have today is the last of it. Clearly, we need to conserve it. That's what Bob Williams is doing.

I met Bob in 2000. I was then Assistant Director of Fish and Wildlife. He gave us a tour of the Atlantic White Cedar habitats he is creating. It was eye-opening. I recommended that the State invest \$20 million in a 10,000-acre white cedar forest restoration project Bob is supervising. To succeed, we need a cottage industry composed of more small cedar mills and skilled loggers.

This story begs to be told. Pine Barrens residents love their forests but don't know much about their history or the culture they fostered. Bob has lived it for decades."



John Parke: *Former Stewardship Director, New Jersey Audubon Society, 2005-2022; now Ecologist, Merrill Creek Reservoir, Warren County, New Jersey, a 650-acre reservoir owned by seven utility companies with nuclear power plants that release water into the Delaware River during low flow periods.*

"During my 17 years with New Jersey Audubon, we were the only conservation group doing projects, advocating for forest management and helping Bob Williams spread his message. He knows his stuff very well.

At privately-owned Merrill Creek it's much easier than working on state land where the focus on preservation and public misunderstanding has stopped progress.

Barbara Bromley, a retired Rutgers Extension Horticulturist and Master Gardener, said it best when she said, 'Biodiversity begins with a chain saw.' Mix prescribed fire with forest thinning and you have a time-tested recipe for maximizing biological diversity and mitigating possible undesired changes from many threats including wildfire, invasive and harmful plants, diseases and climate change.

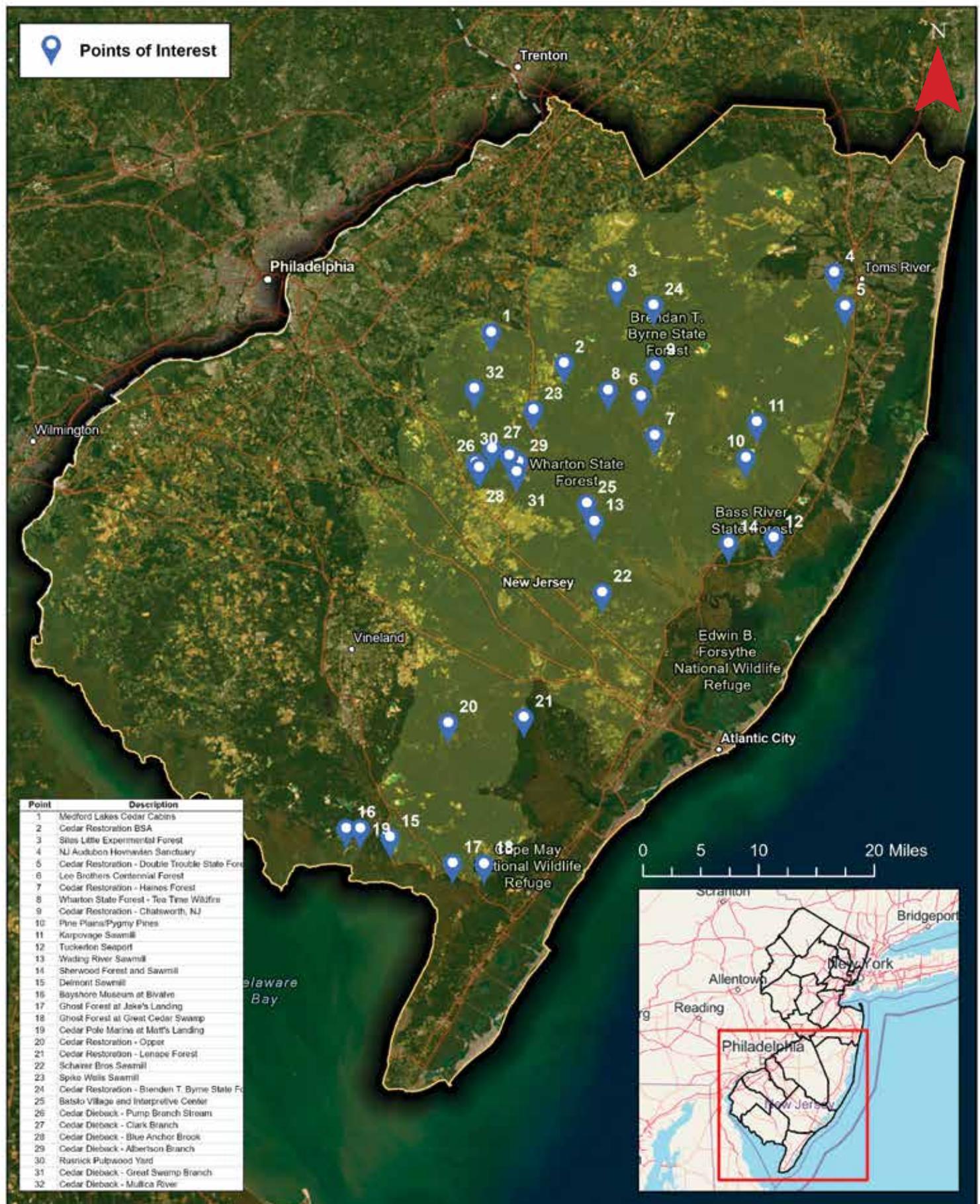


Bernard Isaacson: *PhD, Forest Ecology, Rutgers, U.S. Forest Service, Southern Research Station, Knoxville, Tennessee, specializing in remote sensing and large language models that link Forest Inventory and Analysis [FIA] survey plot data to describe state-by-state forest conditions; lives in New Jersey, formerly with the New Jersey Forest Service.*

"Forests in New Jersey were once less dense than they are today. They have definitely moved beyond what forest ecologists call the range of natural variability. People become accustomed to what they see in forests and think it's natural. What we have in New Jersey isn't natural. Fire and insects are growing problems. We are in uncharted territory. If we expect the same ecosystem services going forward the 'don't touch it, leave it to nature' approach won't work. Our wildfires will grow from a few thousand acres to a few hundred thousand acres."



Some Locations of the Evergreen Tour



A Week In The Pine Barrens with Conservationist Bob Williams

By Jim Petersen, Founder, The non-profit Evergreen Foundation

Bob Williams is the conscience of New Jersey forestry's faintly beating heart.

Eric Hinesley said it best when I interviewed him in September.

"Bob is like John the Baptist. He's the lone voice that never goes away.

Hinesley should know. He is a retired Professor of Horticultural Science and Forestry in the College of Natural Resources at North Carolina State University in Chapel Hill. He has known Bob Williams for decades.

I met Bob four years ago when we were working on several wildfire presentations for the annual EarthX Conference in Dallas, Texas. EarthX was founded by Trammel S. Crow Jr. His late father was once the largest real estate owner in the nation: Dallas Market Center, Peachtree Center, Atlanta and Embarcadero Center in San Francisco.

Bob and I were among several who were invited to make presentations at the Kay Bailey Hutchison Conference Center in downtown Dallas conference. We were interviewed for a wildfire film that Trammel S. Jr. funded.

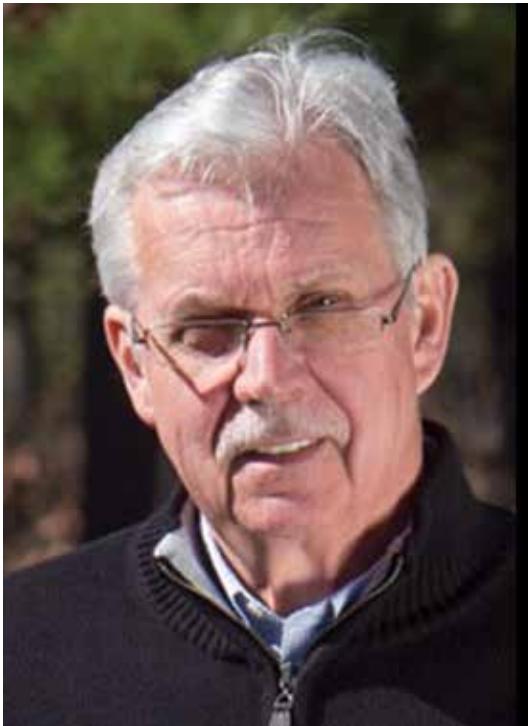
Bob is the antithesis of the table pounders that roam the rural West. He is a cordial quiet man who seems almost hesitant to say what he is really thinking, yet through his perseverance he has staked out new and very fertile ground in the often contentious world of forestry.

In the months that followed our chance meeting in Dallas something wonderful and completely unexpected happened. Following our appearances at a second Dallas event, Bob asked me to help him assemble the story of his 50-plus years in forestry in New Jersey.

I jumped at the chance – in part because New Jersey was the only forested state in the nation that I have never visited. Now I would get to see it!

And see it we did – the "we" being my wife, Julia, and me. Believe me, you haven't seen the New Jersey Pine Barrens until you see it from the front right seat of Bob's F150 Ford pickup.

If you love people and forestry as much as Julia and I do you would happily pay a lot of money to ride around for seven days with Bob.



Bob Williams, New Jersey's "John the Baptist" Pine Creek Forestry photo

"It's the people," Bob said quietly from his driver's seat. "They are what make New Jersey what it is today. So what we have here is a people story, not a forestry story."

Bob is correct, but most foresters become foresters because they prefer the company of trees to the company of

"Tell me what I'm doing wrong. Show me where I'm doing it wrong. Anyone. Show me."

Bob Williams, Pine Creek Forestry, Tuesday, October 8, 2024, Day five of our seven-day tour of New Jersey's Pine Barrens.

people. Not Bob. Trees are great, but they don't make the decisions in Trenton or Washington, D.C. People do.

"We cannot ignore the good things that environmentalists have done in New Jersey," Bob advises. "But they've gone too far. We need jobs, products and services here, just like every state. So why are we trading with China, the biggest polluter on Earth? We should be using our own natural resources here at home."

Bob nails it again. But when shoppers need things they buy what's on the shelf without thinking much about its country of origin. "Buy American" doesn't matter as much as it did to the World War II and Korean War generations. Convenience has trumped culture – the shop keeper down the street whose family has been there for generations.

New Jersey's cultural roots in farming, forestry and wood products manufacturing were very much on the minds of the all-volunteer Pinelands Commission that oversaw the regulatory maze that was created in 1979 under the aegis of the 1978 National Parks and Recreation Act. At 1.1 million acres, the National Pinelands Reserve was the nation's first National Reserve.

Steve Lee, a cranberry farmer who served on the Commission for 27 years, told us that New Jersey's land management goals have drifted from conservation to preservation, making it increasingly difficult for landowners to profitably care for their farms and forests.

Bob hopes to thread the needle that leads back to conservation. Rural westerners who have been trying to do this since 1990: take note. This road map will take you from Preservation Prison to the thriving Village of Conservation.

- Select a charismatic species – in Bob's case Atlantic White Cedar
- Learn a new language – Bob speaks "White Cedar Restoration"
- Enlist the help and support of people who speak your language
- Take lots of "before" and "after" pictures for social media
- Host tours; learn to narrate while driving

Bob gave us a list of more than 25 people – botanists, biologists, farmers, filmmakers, artisans, academics and cedar mill owners that he thought might be willing to visit with Julia and me about Bob and his work. Not one of them had a bad word to say about him. In my 60-some years as a working journalist I've never found 25 people willing to speak so highly of anyone.

"The nation needs a renaissance in conservation or it will fail," Bob observed while driving gingerly down a deeply rut-



Richard Lewis
PHOTOGRAPHY

New Jersey's most valuable natural resource is its water. Without it, the Garden State's forests and farmlands would shrivel and die. These photographs capture this truth as only pictures can: the lush green of an Atlantic White Cedar swamp by Richard Lewis, easily New Jersey's finest landscape photographer [richardlewisphotography.com] and Julia Petersen's photograph of crystal clear water flowing into a Lee Brothers Cranberry bog near Chatsworth on a sunny harvest morning, October 9, 2024 [julia@evergreenmagazine.com]



ted trail that made it nearly impossible for me to write. He is very good at pulling good conversations out of thin air.

"Gifford Pinchot had it right," he said of the legendary boat rocker, friend of Teddy Roosevelt and First Chief of the U.S. Forest Service.

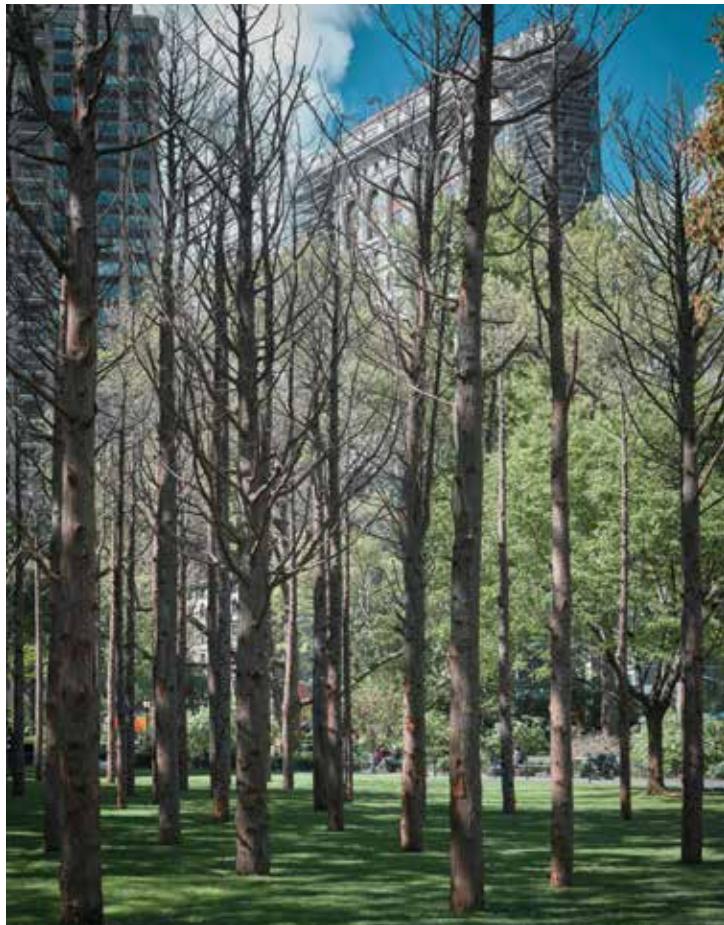
In *Breaking New Ground*, his autobiography, first published in 1947 by Harcourt, Brace and Company Pinchot wrote, "Without natural resources, life itself is impossible. From birth to death, natural resources, transformed for human use, feed, clothe, shelter and transport us. Upon them we are dependent for every material necessity, comfort, convenience and protection in our lives. Without natural resources, prosperity is impossible."

Bob would never want anyone to compare him to Gifford Pinchot, but he does remind me of others who have tried to jump-start the forestry story on more favorable ground than it occupied in the late 1960s and 1970s.

We have at least 20 books in our office library that chronicle congressional hearings and testimony that focused on the evils of clearcutting in Montana's, Bitterroot National Forest, West Virginia's Monongahela National Forest and Alaska's Tongass National Forest. Hundreds of rules that regulate forestry on federal, state, tribal and private forestland in the U.S. today are rooted in the clearcutting mess.

Bob has zero interest in overturning federal, state or county rules and regulations – or in criticizing preservationist groups. His interest lies in reshaping the regulatory framework so that it works more favorably for the public and landowners. He has invested thousands of hours of his own time in people who ask him to help them complete forestry-related projects in which he sees great public value:

Maya Lin's Atlantic White Cedar "Ghost Forest" exhibit in Manhattan's Madison Square Park is but one example. Yes, that Maya Lin. The one who designed the Vietnam Wall when she was a 21-year-old undergraduate architecture student at Yale.



Maya Lin's 2021 Ghost Forest exhibit in Manhattan's Madison Square Park featured 49 dead Atlantic White Cedar trees that Bob Williams selected and trucked from New Jersey. In a subsequent interview with the Madison Square Conservancy's Tom Reidy, Williams talked about why he jumped at the chance to help Lin with her project. Here's what he said:

"Our Atlantic White Cedar forests have suffered many centuries of exploitation and abuse. It is our obligation to use the known forest science to begin the restoration of these and other forests across the nation. I hope visitors who see this exhibit will get curious and begin to understand the true meaning of conservation.

A healthy cedar forest is more than just a stand of cedar trees. There are a variety of vegetative associations within white cedar forests...This is a unique forest type that provides thermal cover in the winter and cooling cover in the hot summer months for a wide range of bird and animal species.

Existing science allows us to manage these forests and build resiliency into forest ecosystems, allowing cedar not only to sustain itself over time but also begin to allow cedar to recapture areas that it historically occupied."

Bob toured Lin through several white cedar swamps in the Pine Barrens, helped her select 49 dead cedars from a clients property and then had them trucked to New York City. Once there, a crane was used to stand the trees in deep holes in the park lawn. Millions of New Yorkers and tourists walked beneath them from May 10 until November 14, 2021.

Lin saw the dead cedars as symbols of the destructive power of climate change. But Bob saw the exhibit as a venue – a way to explain that Atlantic White Cedar could be managed in ways that minimized climate change risk.

"It's not a difficult problem to solve once you understand what's killing white cedar," Williams told us. "It's a combination of beaver dams and invasive vegetation in riparian zones that allows deadly salt water to enter cedar bogs. Get rid of the dams and invasive plants and fresh water flows back into the bogs." [Deleted "It isn't climate change."]

Williams saw similar promise in Susan Wallner's

Keeping the Pinelands, a

"State of the Arts" documentary she produced for the PBS in 2023. Wallner also produced a documentary focused on Lin's Madison Square Park exhibit, so she had some familiarity with Bob's work, but it wasn't until he took her – film crew and all – into an active white cedar logging job that she began to understand the importance of Bob's work. [See Wallner interview on Page 18]

Bob also saw great value in the hundreds of hours he devoted to a Pinelands Commission voluntary advisory board.

"I supported the Commission and the Act that created the Reserve," he said. "It's true that some landowners lost the ability to use their property as they had originally intended but if the Reserve had not been created, much of the Pinelands we see today would have been paved over – developed in ways that were detrimental to our forests, farmlands and thousands of habitat niches that our fish, wildlife, birds and reptiles need."

Bob manages about 150,000 acres in the Pinelands for his clients. They

come from all walks of life and include major corporations, small family-owned farms and forests and "pineys," those intrepid souls who own Atlantic White Cedar mills. Most of these mills are one-man affairs run by the sons, grandsons and great grandsons of their founders. They are often called "the last of the pineys" because they are all that remains of New Jersey's once thriving shipbuilding, charcoal and bog iron manufacturing industries.

"Pineys" hold a special place in Bob's heart, so he does his best to push Atlantic White Cedar logs their direction. In a good year, a "piney" will mill two or three truckloads of logs. Maybe four if the white cedar market is hot.

"They are the keepers of much of New Jersey's early history and culture," Williams tells us. "Founding Pinelands Commissioners expressed great interest promoting their culture but then preservation took center stage. Now conservationists are pushing back and there is renewed interest within the New Jersey Department of Environmental Protection."

The Department owns about 25,000 acres of Atlantic White Cedar – not much compared to the 500,000 acres that once grew from New Jersey south into Virginia and North Carolina but what grows in the Pinelands today is the largest remaining white cedar stand in the world.

Williams is contracted with the Department to help develop management plans for about 10,000 acres of white cedar that the State hopes to restore over the next 10 years. If it happens it will be because Bob has also found new talent willing to invest in the almost lost art of milling white cedar. We met two of them during our New Jersey tour.

Cedar mills are not like the portable sawmills that are manufactured by Norwood, Frontier or Wood-Mizer USA. You have to buy the bits and pieces of junked out mills and reassemble them. Most are run by old farm tractor motors and those who run these mills today inventory parts in



This beautiful Atlantic White Cedar forest is at Estell Manor in Atlantic County. The land is owned by one of Bob Williams' earliest clients – 30-plus years ago. He had difficulty obtaining harvesting permits because state regulators did not believe it was possible to restore white cedar. PBS later featured the project in one of its films. *Bob Williams archives*

their yards – some 100 or more years old.

If you show great promise and proper respect, one of the "old pineys" will help you get started and Bob Williams will help you find white cedar logs. He is both the ambassador and market for white cedar. As such, he stands on the top of a sagging ladder that needs serious work. New investment capital will only flow to white cedar if entrepreneurs see a white cedar market vibrant enough to sustain long term growth and a suitable return on their investment.

If white cedar mills gain a new foothold in New Jersey's Pine Barrens it will be because of William's influence and his belief in the fine art of sharing ideas, comparing notes and applying the best of what works. Some see him as a "glass half empty" guy, which is fine because healthy skepticism is an asset, but no one knows the Garden State landscape better than he does.

You don't have to travel the backroads of New Jersey very far before you realize that Bob rarely consults maps. And the navigation system in his pickup isn't any good in cell phone dead spots. We began to suspect that every road in the state is connected to neurons in his brain – even the roads that you can't see because they are covered with brush.

New Jersey residents already know this, but Julia and I were startled by how

quickly metropolitan Philadelphia disappears into the rear view mirror, not just graphically but also culturally – all of it defined by momentary transitions from city to urban to suburban to rural.

It's very jarring for those of us who are accustomed to driving all night on a two-lane highway in Montana without ever seeing a set of oncoming headlights. It is never completely dark in New Jersey. There is always some "light pollution" on the horizon. Out here, if you stop on a country road on a clear night, you can see light that left

distant stars about 13 billion years ago.

Bob's narration never stops, so we have about three legal pads filled with squiggly notes. We thus learn that one of his clients owns a forest that holds fossilized proof that dinosaurs were wiped out by a meteor. The landowner is constructing the first all wood net-zero emissions building in New Jersey – a museum that will display his fossil collection. He expects 250,000 visitors annually. Great for carbon capture but not so much for the night sky.

Of all the jarring moments we experienced in our road days with Bob, none offered a more instructive contrast between the paralyzing forces of nature and the healing hand of man than New Jersey's Double Trouble State Park, an 8,000 acre reserve that was added to the National Register of Historic Places in 1978.

Indians occupied the area for eons before Anthony Sharp, the first white settler, claimed land in the late 1600s. Ginder Creek – so named for the Atlantic White Cedar forest that dominated the area – divides Double Trouble in half east to west below Mill Pond Reservoir. It provided water power for a mill that persisted here from 1765 until 1964.

By the 1860s, most of the white cedar swampland had been cleared. Civil War Captain Ralph Gowdy planted its first cranberries in 1863. Edward Crabbe

incorporated his Double Trouble Company in 1909, selling cranberries, blue berries and lumber. His old cedar mill is now one of many restored artifacts on what became Double Trouble State Park in 1978.

"The State spent more than \$1 million on the mill," Bob Williams says as he wheels into a parking spot next to the park's museum office. There is also a restored schoolhouse, general store and several houses that were part of Crabbe's Double Trouble operation.

But we aren't here to see the museum – though we grabbed several brochures from a rack. Nor are we here to walk the park's paths, canoe or kayak Cedar Creek. We are here to see what happens when people pick up the pieces of natural disaster and put them back together again.

On Monday, October 29, 2012, the remnants of Superstorm Sandy struck New Jersey from the south. In minutes, cyclonic wind gusts in the 100-mile-an-hour range reduced Double Trouble's white cedar forest into a moonscape. The storm was the deadliest in New Jersey history: 38 dead, 346,000 homes damaged or destroyed and \$30 billion in economic losses.

Bob had nothing to do with the white cedar restoration work that followed at Double Trouble but he wanted us to see it anyway. He walked Julia and I down the dyke that intersects Sandy's pathway. Peering through brush and dead saplings on our right we could see remnants of the wooden "corduroy" roads that woodcutter Colin McLaughlin built so that his mechanical harvesting machines would not sink into the soggy morass. It was impressive.

It is 64 miles from Double Trouble to Sea Isle City. We catch glimpses of the Atlantic Ocean as we drive south but white cedar and pine hide most of the views. Sea Isle is our jumping off point for more of what Bob wants us to see and it will be Julia's only chance to swim in the Atlantic Ocean.

From a seawall at Sea Isle City we can see Atlantic City 31 miles to our north. It is as close as I want to get. Tourism there is a cacophony of casinos and VRBO's, but the noise vanishes before it reaches us. We look out on miles and miles of beach front condominiums and gift shops shaded by Atlantic White Cedar trees and flowering shrubs.

While Julia frolics in the Atlantic, Bob tells us that sportfishing is a big deal around here. Google will take you to at least Sea Isle charter listing. And the fish: Yellowfin



Artisans bring public attention to the beauty and value of New Jersey's Atlantic White Cedar but they use very little compared to cedar mills that cut roof and siding shingles, boat builders or building contractors that restore historic buildings. Here, a beautiful door made by former woodcutter, Steve Frazee.
Bob Williams photo

and bluefin tuna, sharks, bonito, swordfish, flounder, king mackerel, sea bass and striped bass.

While we seated on a stone wall overlooking Atlantic waves breaking on the sand, Bob reports that there is a concerted effort underway to restore nearby oyster beds that were wiped out by a virus in the 1960s.

Oyster harvesting was once a big industry here and along nearby rivers that dump into the Atlantic, so it's good news that Stockton University and Parsons Seafood are among many that have partnered in oyster restoration projects at Egg Harbor.

Oyster reefs filter water and provide habitat for fish and shell fish. And because the Atlantic Ocean on the Jersey shore isn't as nasty as the Pacific on the rocky Oregon coast, its sandy beaches team with swimmers and sunbathers during the long summer months.

But on the day that my wife bravely insisted that the Atlantic was warm enough for swimming, she raced headlong into the breakers. I have pictures to prove it. There are also pictures of Bob and me in our windbreakers.

It is 27 miles east from Sea Isle City to Port Norris., once upon a time the "Oyster Capital of the World." We'll see it tomorrow.

As we depart Sea Isle City, I ask Bob if there is a tree species growing in New Jersey that he cannot identify.

"Probably not," he replies.

"And how many is that," I ask.

"I don't know, but it's a lot," he says. Julia and I had agreed the prior evening that there had been white cedar along every road we'd traveled thus far.

"That's true," Bob affirms when we ask. "And white cedar isn't endangered as some people suggest. The large contiguous forests that were once here have been broken up by subdivisions and shopping malls, but the state still owns lots of white cedar, including the parcels that I'm working on right now. I'll be dead and gone before it's all restored. I've restored lots of white cedar on private land but the political will needed to do it on New Jersey state land has been lacking until recently."

There are no federally owned National Forests in New Jersey, so there has never been a timber sale program that replicates the program the Truman Administration established in western national forests following World War II.

New Jersey has a firewood sale program that allows homeowners to cut stove wood for their personal use in designated areas in state parks, but there is no commercial timber sale program. This seems strange given New Jersey's increasingly serious forest health and wildfire problem.

Pinelands Commission regulations permit – indeed encourage - the kind of forest thinning and restoration work that is needed but, until recently, state agencies have been unable to agree on where or how the work should be done.

Now they have Bob Williams under contract to help them develop a series of Atlantic White Cedar projects. We have several research papers that underscore a history of timber management in southern New Jersey that stretches back five generations. Enormous quantities of Atlantic White Cedar were used as roofing and siding in Philadelphia and New York City. So much that even Ben Franklin fretted about overcutting in New Jersey forests.

Kirkbride's New Jersey Business Directory for 1850-1851 lists 281 sawmills. All but 14 were powered by waterwheels in streams. They ground flour and cut lumber. John Owens built the first such mill in Elizabethtown in 1666.

By the mid-1700's water and steam-powered mills were cutting 50,000-70,000 board feet annually. No wonder Ben Franklin was worried!

"I don't know anyone – me included – who believes we should be thinking about such an ambitious undertaking," Williams told us when we asked about Kirkbride's Directory and Peter Kalm's Travels in North America, published in 1770. "My goal is to restore as much white cedar as I can in my lifetime. But historians and diarists have given us generation's of incentive to roll up our sleeves and get to work restoring state-owned forests in the Pine Barrens."

There are 115 Superfund sites in New Jersey – the most of any state in the nation. As we drove slowly past the Vineland Chemical Company site in Cumberland County, New Jersey, Bob told us that the Army Corps of Engineers sought his advice on its plan to plant Atlantic White Cedar seedlings on part of Vineland site.

"The Corps and EPA faced a monumental challenge," he said. "The company manufactured herbicides and fungicides at Cumberland for more than 30 years but it made little effort to dispose of residual arsenic salts that eventually leached into the groundwater."

According to its New Jersey website, the EPA added Vineland to its Superfund National Priorities List in 1984, six years before the company's owner died. Actual cleanup began in 1992. More than 400,000 tons of arsenic-contaminated soil and sediment were scrubbed clean over a 22-year period.

The Corps planted more than 10,000 white cedar seedlings along the Blackwater



The new and the old: Bob Williams rows his grand-nephew, Blaise DiLeonardo, in an Atlantic White Cedar pram on Taunton Lake in the Pine Barrens. Below, wood cutter Jim Simpkins stands beside a massive White Cedar in the Great Swamp in Washington Township New Jersey. These giants were once in such high demand that wood gatherers dug their sunken remains from cedar swamps. *Sarae Williams photo of Blaise.*

Branch from the Vineland site to the Blackwater's confluence with the Maurice River, a popular striped and largemouth bass fishery. Slow moving blackwater streams are so named because tannins and humates from decaying vegetation stain the water black or brown. Remarkably,

the Blackwater Branch also holds numerous fish species. And, yes, you can eat them.

"I have some pictures of the white cedar planting," Bob said. "I'll send them to you. It's amazing what nature can do when we help."

It is seven miles from the Vineland site to Millville, yet another bucolic treat on our Day 5 travel route. It is named for the numerous lumber mills erected along the Maurice River in the 1700s. David Wood, co-owner of the Smith and Wood Iron Factory, dammed the river at Sharp Street in the heart of town in 1869 because he needed more power for Millville Manufacturing. In its heyday, it employed 1,200 workers.

Beyond Millville's Art's District, there is no evidence of the town's heritage in lumber, glassmaking and iron. But you can visit the Millville Army Airfield Museum, dubbed "America's First Defense Airport. Its 24 buildings and two hangars housed and trained P-47 Thunderbolt pilots and crews.

A plague on Sharp Street – one of 22 in Cumberland County – tells us that the 50-mile-long Maurice [pronounced MAW-ris] River was added to the federal government's list of "Wild and Scenic" rivers in 1993. It is the second longest river in New Jersey.

It's upper branches rise in Gloucester and Salem counties but merge near Union Lake before eventually flowing into Delaware Bay. The river and Union Lake are a birdwatcher's paradise, most likely because the Atlantic Flyway passes overhead.

There are no natural lakes in southern New Jersey, but there are close to 30 man-made lakes behind dams, Union Lake Dam being one. It holds back an 898-acre lake that boasts a spectacular warm water fishery: bass, pickerel, crappie, sunfish, perch and catfish.

Union Lake is part of a 5,200-acre state designated Wildlife Management Unit that includes both Millville and neighboring Vineland, so named by Charles Landis in 1861. He envisioned a utopian, alcohol-free agricultural community on the 30,000 acres he purchased.

After confirming that the soil could grow grapes – hence the name Vineland – Landis began advertising for Italian winemakers. Enter Thomas Bramwell Welch, a Methodist minister who discovered that pasteurization prevented wine from fermenting. Hence, grape juice and Welch's Grape Juice.

Welch was a staunch prohibitionist,



Bob Williams' first load of Atlantic White Cedar [top photo] cut in 1990 at Wilson Lake Memorial Park by Barry Warren, Warren's Cedar Mill, Pitts Grove, New Jersey. The truck is a 1955 GMC logging truck that he restored. Contrast the GMC with the bottom photo of Clif Frazee, loading his war surplus six-by-six with White Cedar, circa 1950. Out West, Warren and Frazee would have been called "loggers" but the term never caught on in the Pine Barrens. *Bob Williams archives*

so he easily embraced Landis' vision. He opened a dental practice in Vineland in 1895 and lived there until his death in 1903.

"You are driving through history," Bob said as he drove into a parking spot at Dino's Seaville Diner. It was 1:45 in the afternoon and we were starving. But we had seen a lot of living history since he picked us up at 8:45 in the morning.

It is 27 mostly rural miles from Millville to Seaville, a small town that fronts on the Atlantic Ocean. Enroute, we pass through a Nature Conservancy reserve filled with loblolly pine. It looks nothing like the Atlantic White Cedar forests Bob

manages for his clients.

We pass by a U.S. Silica sand mining operation but then – in the blink of an eye – we enter another wildlife reserve. "I cut a lot of white cedar around here years ago," Bob says. "We'll be in Port Norris in a few minutes. Not development there because people don't want it."

But there is Port Norris Marina and the Bayshore Center at Bivalve, home of the A.J. Meerwald, a beautifully restored three-masted schooner that harvest oysters for processing plants along the river. The boat was built in 1928 using white oak, white cedar and Douglas-fir masts. Most

of the harbor's old buildings feature white cedar siding and shingles but the men's and women's bathrooms at the museum are in a remodeled New Jersey Central freight car. Pretty clever.

Next stop: Peter Boyce's mill. "He is a hermit, a jokester and a mechanical genius," Bob says Boyce, who he hasn't seen in years. But still custom cuts yellow pine flooring but he is mostly a very skillful man with severe physical limitations.

He built electrically operated lifts on a crane he bought off Facebook to lift himself up to a greenhouse that sits on stilts at least 10 feet off the ground next to his mill. It is the smallest mill we saw in our seven-day tour, but Boyce still managed to cut some white oak for the A.J. Meerwald.

"It's what I do when I am able," he said.

"And what are you going to do with the old bus parked over there," I ask of the London Double Decker not unlike those that haul millions of tourists through the streets of Manhattan.

"I don't know yet," he replies. "But something."

Moments later we arrived in Cape May. Mostly summer homes, -manicured lawns and flower gardens. Some of the homes are gated. Wealthy people live here, some year round, some only in the summer. Nearby clusters of banks, drug stores, fine restaurants and car dealerships cater to the Haute couture crowd.

It is a jarring transition from Peter Boyce's vine covered bus.

We are rescued from this discomfort by another Atlantic White Cedar ghost forest. Thousands of acres killed by seawater. Now habitat for insects and the birds that eat them.

"The carbon release underway here is enormous," Bob observes. "It certainly counters the climate change story we keep hearing. If this carbon release is fine why isn't managing the Pine Barrens and Atlantic White Cedar not fine? Why let these trees die when there is a huge market for them and we know how to manage them?"

We all know the three-word answer: Tiresome preservationist hypocrisy. We don't care to discuss it because we're having fun seeing what works well in the white cedar forests Bob manages for his clients between Millville and Cape May.

"The state forest fire folks deserve a lot of credit for the job they done around here," Williams says. "They use prescribed fire where it's safe to keep the brush down and it's not safe, they put out the wildfires as quickly as possible. It's a delicate balance."

After lunch at Dinos we head for the Jersey Shore so Julia can swim in the Atlantic. She says it's "warm." Neither Bob nor

I believe her, but there are some beautiful white cedar fences here in Sea Isle City.

"Next, I want to show you where Jerry Franklin admitted that he supported the kinds of forestry I practice on client land."

If it is possible for a smile and a voice to appear as one – especially in Bob – they do here.

"This I have to see," I tell myself.

Jerry Franklin and I have had our moments over the last 40 years. He is a PhD emeritus Professor of Ecosystem Analysis in the College of Forest Resources at Seattle's University of Washington. Now 87, he still loves the klieg lights and relishes the opportunity to discuss his leadership role in fashioning the Clinton Administration's Northwest Forest Plan.

I will spare you the disparaging opinions of many who know Franklin. But I will tell you that New Jersey's preservationist crowd invited him to come East to inspect Bob's work.

Bob took Franklin to a 600-acre tract that he's been managing for 33 years without ever meeting the owner. It is a mixed southern pine and oak forest. Bob has burned it at least three times and mechanically thinned it several times. But he always leaves the best trees standing for the genetically superior seeds they provide for the next forest.

As they walked the forest, Bob explained to Franklin that he prefers mechanical thinning to ground skidding because dragging logs behind big skidders [ground skidding] promotes too much pine regeneration. Mechanical harvesters are accompanied by small trailers that carry logs on bunks, so there is much less soil disturbance.

"We have removed thousands of trees here," he told us as we walked through the same forest Franklin toured. We did this while also increasing structural and age-class diversity."

Music to the ears of a Professor of Ecosystem Analysis who knows that structural diversity and age-class diversity are the most important components in ecosystem diversity – the range of natural variability in forests. The holy grail for foresters.

So, was Jerry Franklin willing to publicly criticize Bob Williams' brand of forestry – as his preservationist hosts had hoped?

Didn't happen. Not even close.

Here's what Franklin said after spending a few hours in the woods with Williams.

"You have only one problem, Bob. You are having too much fun doing the right thing." Quote. End quote. Jerry Franklin.

And Bob's reply?

"We are perpetuating this forest, allowing it to reach its full biological potential."



Box turtle John Parke photo



Timber rattler John Parke photo



Prairie warbler John Parke photo



Corn snake John Parke photo



Science-based forestry is key to the health of an amazing array of species found in New Jersey's Pinelands National Reserve: 39 different mammal species, 299 birds, 91 fish, 59 reptiles and more than 800 plant species. The great egret photograph was taken by Julia Petersen on the edge of a white cedar swamp.

The preservationist crowd that paid for Franklin's airline ticket must have been furious.

Bob makes one more stop on our way back to home base. It is a 5,000 acre tract that once belonged to a gun club. Gypsy moths killed the white oak, so Bob convinced the owners to try his plan, essentially islands of fire adapted pine that they had repeatedly thinned and burned for nearly 50 years.

"It's doing exceptionally well," he says as we drive slowly past a beautiful forest that stretches as far as we can see in every direction. "It's time to thin it again."

It is hard to believe that much of this tract served as an Army munitions dump during World War I. The State has aerial photos from the 1930s. It was all sand and scrubland. No trees.

"Give trees some growing space and they'll do the rest," Bob says. "Forget all that West Coast stuff about mean annual increments and rotation ages. Follow the natural range of variability and nature will give you many management options."

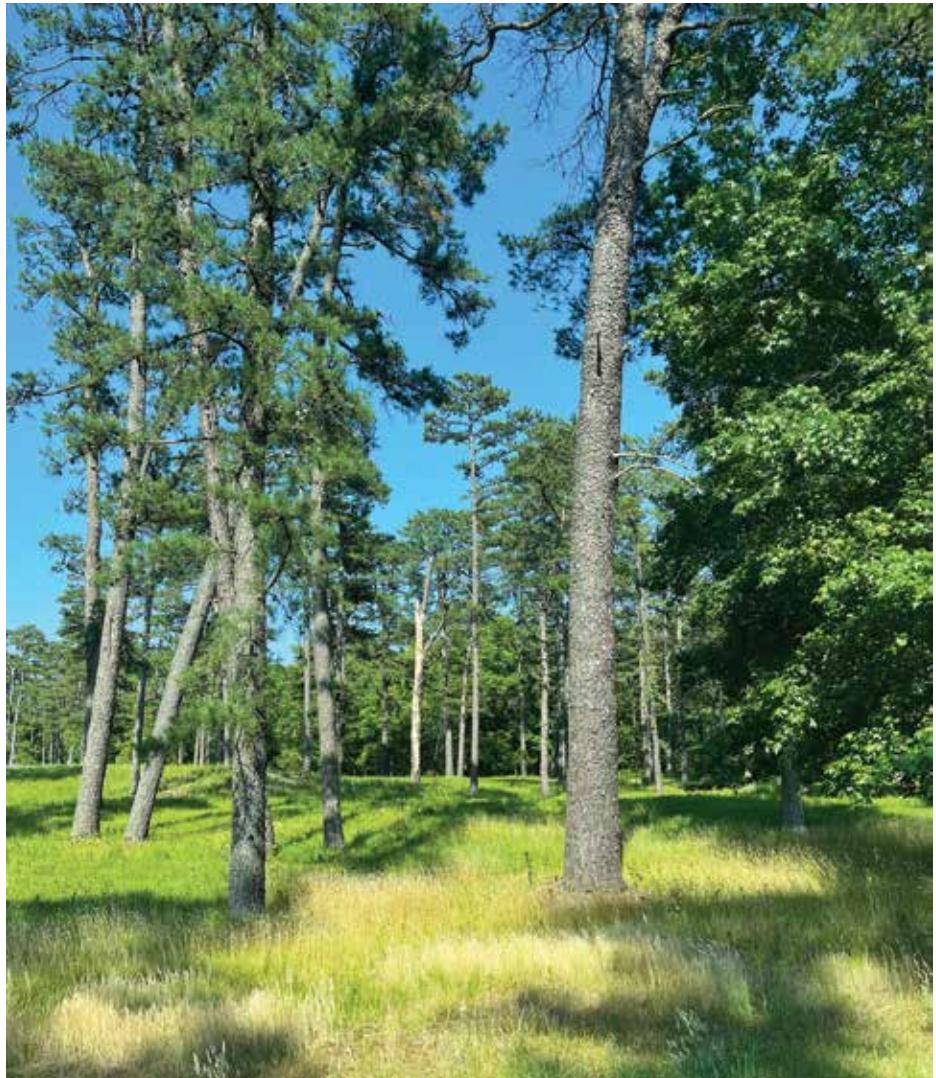
Day 6 begins early. We have lots to see between now and tomorrow's 5 p.m. departure from Philadelphia International. We are again headed into history. The Lee Brothers cranberry farm near Speedwell, about 30 miles southeast of Bob's office has been in the Lee family since the 1700s. During our visit, we travel for a few miles on a dusty old wagon road that connected Philadelphia with the Jersey coast in the 1700s.

Cranberry farming and forestry go hand in hand. Trees protect the water table and water quality for cranberry bogs that, when flooded, require enormous amounts of water. Bob has been burning and thinning Lee Brothers short leaf pine and black oak forests for years.

"I call it conservation stewardship," Bob explains as we drive slowly through Lee-owned forests. "It's all natural. We don't even fertilize so this is what it probably looked like 300 years ago."

Co-owner Steve Lee served on the Pineland Commission for 27 years. This morning he is in the middle of harvesting a cranberry bog but graciously takes time to visit with us about what his small crew is doing. They are waste deep in the bog, sweeping berries into a suction system that delivers them to a conveyor that loads them into trucks. Lee Brothers sells its berries through Ocean Spray, a grower-owned cooperative that markets cranberries for its 700 members.

Lee's main worry is prolonged drought. New Jersey rainfall was 25 percent of normal this year. "We are seriously behind," he said. "Our second well saved



Bob Williams laid out this short leaf pine restoration for another long term client – a New York City woman who bought the land as a retreat and to help New Jersey Audubon create more bird habitat. Colin McLaughlin did the thinning. Red-headed woodpeckers now call it home. The site is located on the 129 miles of the Egg Harbor River that were designated National Wild and Scenic in 1992. *Bob Williams archives.*

our cranberry harvest. We can't risk what comes next so we're drilling another well."

The "what comes next part" includes the very real possibility that the wildfires that burned through the Pine Barrens will re-emerge from root wads next spring.

"We call those turf fires." Williams tells us later. "The land gets so dry that it's relatively easy for a wildfire to eat its way through turf into tree roots. It stays there undetected all winter, then starts up again in the spring."

Bernard "Bernie" Isaacson is with us this morning but we don't have time to talk until we leave Lee and his cranberry crew. Bernie is a post-doctoral researcher with the U.S. Forest Service's research station at Knoxville, Tennessee. He has known Bob for years, so we're delighted to have his perspectives on Pine Barrens

management. We are familiar with the agency's six research stations and know several scientists that work with Bernie. Our time is short so we agreed to talk by phone the following week. [See *Pathfinders*, Pages 6-7 and 36]

With Bernie in tow, Bob drives us to a Bill and Nadine Haines 14,000-acre farm and forestry operation about 45 miles east of Philadelphia. It is the largest privately managed forest in New Jersey. Bob has thinned and burned it several times and is continuing an Atlantic White Cedar restoration project.

"Here, look at this," Bernie says, displaying hundreds of tiny white cedar seeds in the palm of his hand. "This is what they look like and there are millions of them on the ground here."

White cedar is so-named because the



Whoever said a picture is worth a thousand words must have had this photograph in mind. The grey area was historically occupied by an Atlantic White Cedar stand but is now dominated by red maple and black gum – a result of poor past harvesting practices. Red maple continues to expand across the entire range while white cedar continues its long term decline. *Bob Williams archives.*

wood is white or blonde. But the seeds are black and so small that they are easily carried on winds. It isn't unusual to see 5,000 seedlings growing on a single acre. Pretty tight for a tree that needs lots of fresh water to grow. Bob's solution has been to thin and burn to increase growing space between trees and keep invasive hardwoods from gaining a foothold.

It's easy to see why Bob loves this place. The Haines family has owned and managed this land for 130 years. Bill's great grandfather, Martin, started growing cranberries and blueberries here in 1890. Today, cranberry bogs cover 1,500 acres and reservoir water another 1,500 acres.

Bernie reminds us that the sandy soil in which white cedar thrives also filters the water that floods the bogs. This is the symbiotic forest-cranberry relationship Steve Lee described.

Little was another Atlantic White Cedar legend who also led the development of a fast growing pitch pine-loblolly pine hybrid that many private landowners in Canada, Korea, France and the U.S. now plant. There is a 25-acre tract near us that was planted in an abandoned cotton field

in 1975. One 25-acre tract in New Jersey is at least 80 feet tall and shelters great horned owls. Sadly, pitch-loblolly is no longer permitted in New Jersey because it is a non-native species.

We say goodbye to Bernie and head for lunch at Lucille's Luncheonette on Route 539 in Warren Grove about 45 miles south of Trenton. Lucille's was one of 10 restaurants that New Jersey native and globe-trotting chef, Anthony Bourdain, featured on CNN's *Anthony Bourdain: Parts Unknown* before his death. I had breakfast for lunch. It was fabulous.

"We are not a footnote in history," Bob says of our earlier conversation with Steve Lee, who told us the State is ignoring the Pineland Commission's founding concern for preserving New Jersey's history and culture.

"It's all politics today," Williams adds. "Decisions are made in Trenton on the basis of value judgements that deny our history and future."

Several others we interviewed shared the same concerns about what is happening and not happening in Pine Barrens forests.

It seems fitting that on Day 7 – our last day in the Pine Barrens – we were privileged to spend a couple of hours with 61-year-old Paul Schairer, a third-generation 'piney' at Egg Harbor City who will custom anything you want that his aging equipment can mill.

Bob Williams has known him for years. We feature him on Pages 34 and 35 of this report, but there is something else we want to say about Paul in the fewest words possible.

Our world needs many more like Paul Schairer. He is a humble and unpretentious man – a quiet and tireless craftsman with a firm handshake. He has been working in the cedar mill his father and grandfather built since he was 13 years old. This is a school of hard knocks like no other.

Some people exude shininess but can't look you in the eye for more than a milli-second. Paul's shininess is in his soul. You can see it in his eyes and hear it in his voice. Its steadfastness never goes away. I don't know where Paul got this but he reminds me of the father I lost in 1986 and the grandfather I lost in 1961. Our weary world needs more like them. Where are they?

Pine Barrens Library



This QR code will take you to Evergreen's Pine Barrens Resource page. You will find additional content on a variety of subjects related to the New Jersey Pine Barrens. Enjoy!

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The fire watch tower in this stunning *Richard Lewis* photograph overlooks a white cedar and pine ecosystem.

The Pinelands Paradox: Fire Changes Forests, Fire Changes Lives

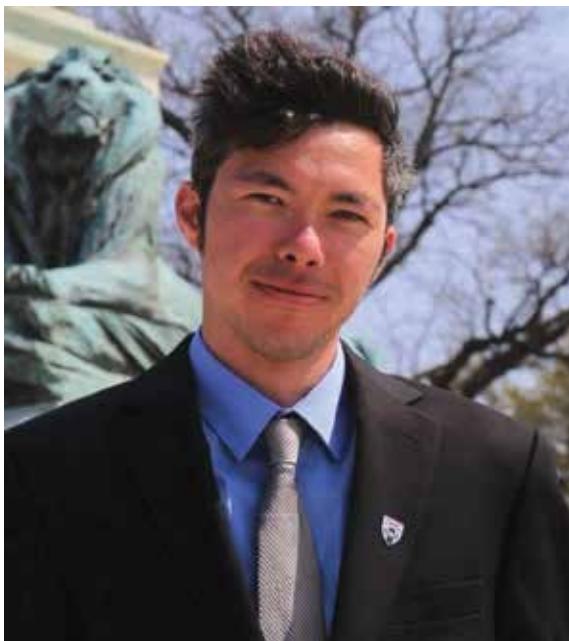
By Vinh Lang, Forestry Consultant
Pine Creek Forestry
Contact: vinh@pinecreekforestry.com

It is the 60th anniversary of the Black Saturday Fire – April 20th, 1963. A day when a fury of 127 fires blotted out the sun across the South Jersey sky, destroyed 183,000 acres of property, and took seven lives according to historic accounts.

As a forester, the 60th anniversary is especially significant. On average, 60 years is about the amount of time for a forest in South Jersey to mature/recover from a stand replacing fire, clearing, or other disturbances which might reset its trajectory. Like the forests that were burned in the Black Saturday fire, our current forests are similar, older even, and with higher fuels today as well as houses and developments. With changing climatic conditions and about 3 million more ignition sources (most fires are started by people according to the New Jersey Forest Fire Service [NJFFS]) we are primed to repeat a similar tragedy. Climate change coupled with other human induced stressors is increasing the probability of another firestorm.

The recipe for fire is conceptually simple: heat, oxygen, and fuel. However, wildland fire control takes generations to master. To affect wildland fire behavior, we consider three legs of the fire behavior triangle: fuels, weather, and topography. We have ample fuels and ignition sources. Depending on the weather, we have potential for extreme fires like the Black Saturday Fire.

Our firefighters in the NJFFS are highly skilled at manipulating fire behavior. It takes a certain type of hero to leave the comfort of their families and homes, push themselves physically and mentally harder than you can imagine,



Pinelands native, Vinh Lang, is President of Pine Creek Forestry, Clementon, New Jersey. He earned his undergraduate degree in forestry from Stockton University and his graduate degree from the Yale School of Forestry and Environmental Sciences. In this essay, he summarizes the risks associated with a repeat of the Black Saturday Fire that scorched 183,000 acres in 1963. New Jersey forestry officials have long debated the best approaches to reducing wildfire risks in state forests. Here, the aftermath of a fire in the Wharton State Forest. *Bob Williams archives*

and face “a wall of fire 200 feet high” (John Cecil, NJFS) in the middle of the night to save your property and home. Let us be thankful, forward thinking, and ask ourselves what level of risk we can ethically ask our firefighters to take on. Especially, considering that we can plan and make decisions to affect fire behavior before it happens.

In March 2023, a Pinelands commissioner suggested reviewing the comprehensive management plan as to assess whether a 200-foot fuel break is necessary in high or extreme fire hazard areas – with particular emphasis on the preservation of trees rather than human lives. A fuel break is a natural or man-made change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled. In practice, these areas ensure protection of resources, property and people and can also be safe zones for wildland fire logistics and personnel. Similarly focused land management strategies have been proposed by the legislature, including Senator Smith and participants of the NJ Forest Task Force which elevate carbon storage without meaningful consideration for other ecological or social values.

John McPhee said it best, “Whatever else they do, men in the Pine Barrens are firefighters throughout their lives.” It is time to internalize the past and do better for our natural resources and our citizens today and in the future. We can draft a plan for our public natural resources that accounts for multiple values/tradeoffs, and consider the dignity of our citizens, especially our firefighters. To me, we have a responsibility to the young people risking their lives on the fire line. My hope is conservationists of the future do not have to read about tragic fires that did not have to happen.



The Pinelands National Reserve spans 1.1 million very crowded acres. About 700,000 people live here. Homes, condos, malls, forests and farms all lay within minutes of one another. The state's fire cadre is skilled and well-equipped and its leaders are strong advocates for science-based forestry, which they see as the best tool for minimizing fire risks. *New Jersey Department of Environmental Protection photos.*

SUSAN WALLNER

When Pennsylvania film producer Susan Wallner started work on *Keeping the Pinelands*, a PBS documentary, she had no idea what she would learn.

Then she toured the Pinelands with New Jersey forester, Bob Williams, who had also hosted Maya Lin when she was working on her Atlantic White Cedar Ghost Forest exhibit that stood in Manhattan's Madison Square Park from May 10 to November 14, 2021. Williams provided the dead cedars that were trucked to the park.

Wallner had also produced a film showcasing Linn's Madison Square Park exhibit. Serendipity.

"Bob took me and my crew on a tour of South Jersey's cedar and pine forests," she wrote in a PBS essay introducing the film.

Williams showed her everything she wanted to see, "from devastated and dying stands to areas with mature hundred-year-old trees to restored sites thick with young saplings."

"While we were in the field, talking about the ecosystem and our responsibility to help maintain it, I was inspired to pursue an old idea of mine: a documentary about the roles played by people and fire in our nation's pine forests. It was a film that a college friend of mine and I had wanted to make, many years before I started working at State of the Arts. It didn't happen then – but it has now, with the focus on the Pinelands of South Jersey."

Wallner's college pal is Jean Huffman, a PhD researcher at Tall Timbers, a non-profit based in Tal-



Film Producer, Keeping the Pinelands, a PBS State of the Arts Documentary

lahassee, Florida. Its website <https://talltimbers.org/about-us/> explains that its goal is to "foster exemplary land stewardship through research, conservation and education."

Dendrochronology is the study of prehistoric tree rings that reveal and date events and environmental conditions. Using soil samples, burnt stumps and petrified wood researchers can identify these events - including wildfire, insects and drought - that have influenced forest growth, mortality and recovery for thousands of years.

No wonder Wallner mentioned her in the PBS essay she wrote in June 2023 that explains why she sought out Williams. His work in the 1.1 million acre Pinelands Reserve – the largest open space remaining on the East Coast between Boston and Richmond, Virginia – is a perfect example of the "exemplary land stew-

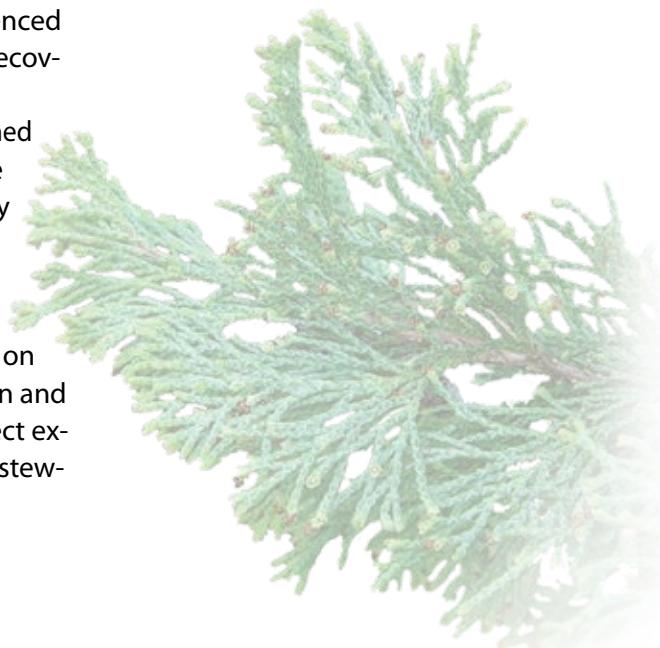
ardship" Tall Timbers promotes.

"The main message in *Keeping the Pinelands* is that natural areas no longer exist," she said in our long telephone interview. "They're gone."

We need to help these forests by supporting or recreate conditions that sustain them. "That's what Bob Williams is doing."

Wallner noted that humans – beginning with Indians who arrived in South Jersey not long after Polar ice retreated some 10,000 years ago - have always interacted with nature.

"Natural disturbance, mainly fire, has sustained the states' forests for eons, but the current notion that we should never cut a tree is wrong," she said. "They are meant to burn and that's what Williams is doing in conjunction with a thinning program that has produced millions of Atlantic White Cedar saplings. We can't let these forests burn naturally in an uncontrolled environment today because it's too dangerous. But the thinning and burning work that Bob is doing is creating the next forest."



MARTY McHUGH

"The Pine Barrens is a unique ecosystem," Marty McHugh told us over lunch at the Eagle Diner in Whiting, New Jersey. "There is nothing like it anywhere else in the world. What we have today is the last of it. Clearly, we need to conserve it."

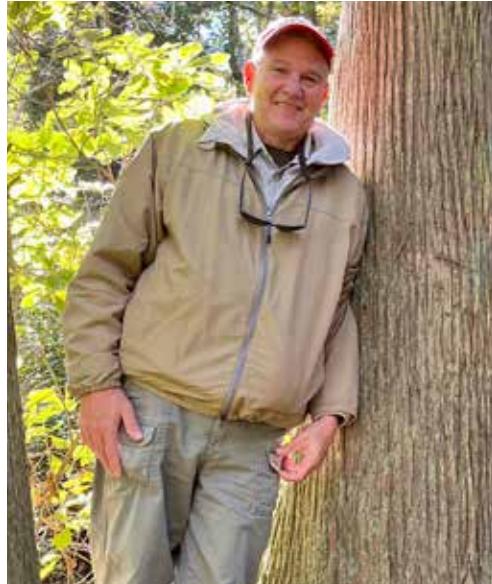
McHugh is a lawyer by profession. He was in-house legal counsel for the New Jersey Department of Environmental Protection for some 25 years. Now he is Director of Regulatory Affairs for Groundwater and Environmental Services [GES] based in Wall Township, New Jersey.

At 7,353 square miles, New Jersey is the fifth smallest state in the United States. It would fit inside Idaho's Panhandle – where we live – with 553 square miles to spare. But measured by population density per mile, it is the largest state. There are 2.8 million registered vehicles on its roads – one million more than there are in Idaho, which spans 83,569 square miles.

Even so, the forests and farmlands of urban and rural New Jersey are beautiful. And yes, New Jersey has trees – 152 million of them covering 44 percent of the state's land area.

"The story you are telling begs to be told," McHugh said as he picked up our lunch tab. "New Jersey residents love their forests but don't know much about them. That's very unfortunate because the state regulators have been headed in the wrong direction for some time now."

McHugh met Bob Williams



Director, Regulatory Affairs, Groundwater and Environmental Services [GES] Wall Township, New Jersey and former in-house legal counsel and Director of the New Jersey Department of Environmental Protection; Senior Fellow, the Gifford Pinchot Institute, Grey Towers, Milford, Pennsylvania.

when he was Assistant Director of New Jersey Fish and Wildlife, a position he loved, partly because he loves hunting and fishing.

"Bob took us on a tour of the Atlantic White Cedar habitats he is creating. It was eye-opening. I subsequently recommended that the State invest \$30 million in a 10,000-acre collaboratively developed Atlantic White Cedar forest restoration project he is developing. I'm thrilled for him and New Jersey."

Over his long career with the Department of Environmental Protection and its Fish and Wildlife agency, McHugh supervised dozens of projects: oil spill cleanups in harbors and habitats for fish, wildlife and reptiles that live in the state's

public and privately-owned forests and its rivers, streams and harbors – projects similar to what he does now for GES.

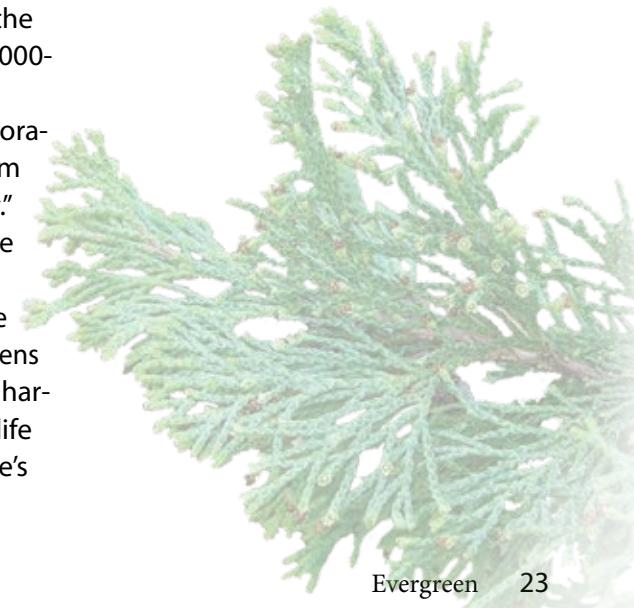
New Jersey's success in conserving its pine and Atlantic White Cedar forests depends heavily on its ability to resurrect the cottage industries it once had that were composed of small white cedar mills and skilled wood gatherers," he told us. "This is why Bob's thinning and burning techniques are vital and why your Evergreen story is both timely and very important."



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DAVE KARPOVAGE

When we interviewed sixty-six year-old Dave Karpovage by telephone, the first thing he said to us was, "Karpovage is Russian. My family came here in the early 1900s but I've never been there and don't speak the language. When I was a detective, I worked the pawn shops and casinos in Atlantic City. There were lots of Russians around and they often asked me about my name."

Now retired, Karpovage spends most of his time milling Atlantic White Cedar. He recently purchased some five-quarter and half-inch clear wood that he is using to build Adirondack chairs and picnic tables but he plans to save some wood for boat builders and duck decoy carvers that live near him.

Karpovage's circle saw is powered by an old Ford motor. He confesses he "knew nothing" about building a mill when he started in 1985. Friends helped him build it.

"Lots of "backyard engineering here," he explained in a very New Jersey voice.

"There are many of us in the Pine Barrens who do this," he says of his circle saw."

The ones we saw during our October tour would easily fit within the footprint of a three bedroom house.

By contrast, most western sawmills span at least 100 acres. Their owners mill high quality, uniformly sized logs using computerized high speed band saws guided by laser lights. The list of finished products they produce includes engineered wood products - four-by-eight foot panels, trusses, flooring and framing lumber that builders use in commercial buildings and residential home construction.

"We don't do anything like that here," he says. "We cut white cedar gathered mostly from wind falls for artisan market. It's composed of other guys like me who enjoy making the small boats you see in our harbors and inlets, carving wood, building furniture and making shakes, shingles and boards."

The biggest job Karpovage has ever



Retired from 25 years in law employment, lives in Warren Grove, New Jersey and runs a one-man white cedar mill and says he knew nothing about until he built one in his own yard with the help of friends. He is a long-time forest firefighter.

done was one he did for himself – a cabin in Maine that he cut from small diameter Atlantic White Cedar that had blown down in a windstorm. He did everything, including the blue prints. When he finished, he trucked it to Maine when reassembled it on two forested acres he owns. Some pine, mostly aspen and maple.

"It took me four years to finish it because I was still working," he said. "It's 1,100 square feet with two bedrooms, a kitchen, loft and a bathroom plus four outbuildings including a garage, tool shed, wood shed, snow shed and a 600 gallon cistern under the house."

It cost Karpovage \$17,000 to build, but when he finished it appraised for \$160,000. "Homeowner's insurance," he said.

The last time we talked he was getting ready for his fall deer hunting trip to Maine. He hunts with a .35 caliber rifle and rarely shoots beyond 60 yards. Trees limit his visibility.

"I was 15 when I first went there," he recalled. "We slept in wall tents heated by wood stoves. It was fun but I

wouldn't want to do it now. Cabin life has spoiled me."

Karpovage has known Bob Williams for many years and describes him as "a first-rate forester and a good friend."

"Detectives don't know much of anything about forestry but like most people living in the Pine Barrens we know and appreciate good forestry when we see it. Bob has done some very good work around here. Thanks to him, we have lots of white cedar for our cedar mills."

We asked Karpovage how he thought we ought to approach what is definitely a very complex story driven by research scientists with lots of alphabet soup behind their names; men and women who have been studying New Jersey forests for decades.

"Write for the man on the street," he advised. "Sell the sizzle, not the steak. The beautiful things we all enjoy all year long – forests and farmlands, clean air and water and lots of places to hunt and fish or just get out for a nice weekend walk in the woods."

It is a laundry list we've heard many times during our years on the road including our 10 days traveling the "backwoods" of New Jersey with Bob Williams.

Among the items sizzling in Karpovage's pot is a maple tree that shades his home. He will never cut it down because a barred owl raises new owlets in it every spring. Williams sent us pictures of a wide-eyed brood peeking out of a hollowed-out spot on the trunk.

"They tell me New Jersey barred owls need 500 acres of mature, undisturbed forest with old trees and cavities," Williams wrote in a subsequent email. "Dave's owls are happy 50 feet from his sawmill."

"They" also told us nesting spotted owls needed 2,200 acres of old growth. A log truck driver famously photographed one sitting on his truck's cab guard – in a coastal parking lot.

ERIC HINESLEY

"Bob Williams is like John the Baptist," declares 75-year-old Eric Hinesley, a retired North Carolina State University College of Natural Resources professor of Horticultural Science and Forestry. "He is the lone voice that never goes away, the choir speaking to the choir."

North Carolina State hired Hinesley to develop a Christmas tree research program that was later expanded to include Atlantic White Cedar about 20 years ago. He retired in 2022 having never taught a single class.

"It was all research" he said. "Lots of papers written and co-written concerning the physiology, germination, fertilization, grafting, rooting stem cuttings, peat bogs and Atlantic White Cedar and propagating white cedar stem cuttings. Pretty boring for most people but lots of 'how to' information if you are in the business of growing or managing white cedar or Fraser fir."

In our telephone interview, we asked him why he thinks white cedar will "outlast a tombstone."

"Its mechanical and chemical properties are almost identical to what we find in western red cedar trees that grow in the West," he explained. "Before preservatives were invented, those who used white or red cedar relied on its natural resistance to decay and insects."

Hinesley and George Zimmerman are good friends and co-authors. "George wasn't much for referred journals," Hinesley said. "But if you want to learn more about the impacts of saltwater on white cedar,



Professor Emeritus, University of North Carolina, Chapel Hill, a leading authority on the germination and physiology of Atlantic White Cedar and Fraser fir, research published in more than 40 science journals, has known Bob Williams and his forestry work for many years and says that white cedar will "outlast a tombstone."

read his best management practices manual."

Salt water kills white cedar – as we explain in our Zimmerman interview. His pioneering work in Stockton University's research forest is widely respected. He taught at the Galloway, New Jersey school for 38 years.

Hinesley laments the fact that New Jersey's "old timers and their knowledge are leaving us."

"Forestry doesn't get much respect today and it's partly our fault" he said. "We need more young people entering the field. We haven't been strong public advocates for science-based management. We relied on Bob Williams to do it for us when we should have been standing with him. Preservation will be a disaster."



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MIKE MANGUM

"You can't manage land if you don't know its' history," Mike Mangum told us when we interviewed him by telephone in October. "The history of Ocean County's park runs deep. John D. Rockefeller was a relative newcomer when he built his summer home here."

It was originally the Ocean County Hunt and Club – now the Lakewood Country club – and was owned by George J. Gould, a financier who followed in his father's unscrupulous footsteps. Jay Gould was a mining and railroad baron and, at one time, the richest man in the nation. George J. lacked his father's daring and never made as much money.

Rockefeller bought all of it in 1903 and renamed it "The Casmements." It was one of several summer estates he owned. After he died in 1937 his family gave the property to Ocean County.

Today, Ocean County Park holds dozens of tree species including spruce and hemlock that Rockefeller had planted on the property. The county maintains a list of the park's oldest trees, including a 335 year-old chestnut oak and a 302 year-old Sycamore.

During Mangum's years the park – including the trees round the golf course – were closely watched and maintained by Bob Williams. Williams also wrote the stewardship plans for the old Rockefeller estate and 900-acre Wells Mills, the largest park Ocean County.

"I've known Bob for years," Mangum told us by phone. "We've even co-authored some articles.



Director, New Jersey's 4,000-acre Ocean County Park, originally part of John D. Rockefeller's summer estate. Mangum retired in early 2024 after 20 years as department head

He's very detail-oriented and has a keen sense of the cultural and natural history of New Jersey forests. We have lots of habitat for such a small state. It's only 175 miles driving distance North to South on our thoroughfares. We have to protect and conserve what we have."

Mangum reminds us that New Jersey was once tundra. It developed as glacial ice retreated some 10,000 years ago. The Lenapes – today's Delaware Tribe – soon followed. They used fire to keep their forests thinned, probably for agricultural and hunting purposes.

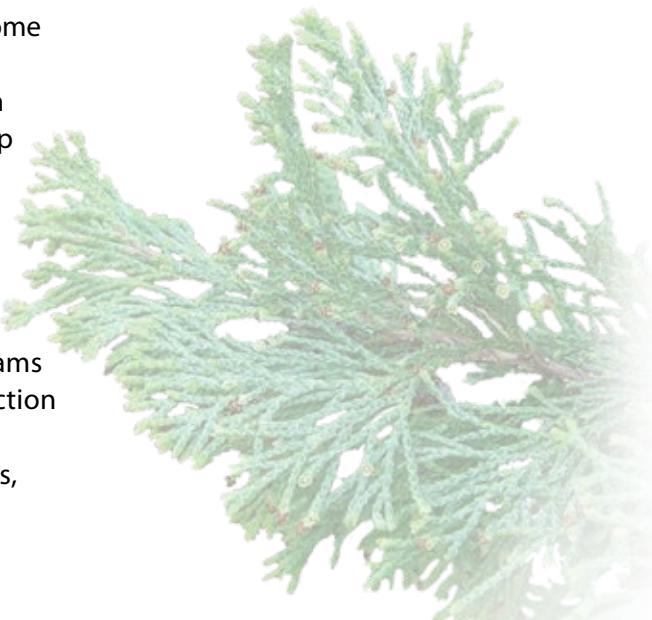
Many credit them with creating New Jersey's forested landscapes. Today, Williams uses prescribed fire in conjunction with his thinning techniques for several of the same reasons,

despite the vocal objections of preservationist groups.

"The Pine Barrens that Bob manages today hold many times more trees than they did even a century ago," Mangum explains. "The threat of wildfire is significant, especially in our Wildland-Urban Interface. We have thousands of homes surrounded by trees."

Mangum thus hopes New Jersey residents will get behind Williams' forest restoration program.

"We need to increase the amount of thinning and burning we are doing or we will lose our forests, including most of our state's county park system. Preservationists are clueless. Forest change is constant. If we don't modify what we see nature will and we won't like the result."



STEVE MAURER

Steve Maurer isn't the least bit shy about criticizing the political and economic events that are overtaking every available inch of New Jersey south of Trenton, near where he lives.

"We are ruining what's left of the landscape," he warns when his forester instincts leap from their University of Georgia roots. "If it weren't for the 1978 National Parks and Recreation Act and the Pine Commission, the Pinelands would be paved over."

It's a popular sentiment among those we interviewed during our New Jersey visit last October. South of Philadelphia International Airport and the Delaware River, there are huge flat-roofed buildings everywhere. Tall neon signs interrupt the night sky near restaurants, fast food joints, hotels, shopping centers, warehouses, business plazas and massage parlors. If you can't find what you're looking for here, it doesn't exist.

"It's a mess," Maurer said in a telephone interview. "Half-million to one million square foot warehouses stand where forests once stood. The truck traffic that serves them runs 24-7. Our farmlands and forestlands are disappearing."

Our host, forester Bob Williams, drove us past the loading docks behind a sprawling Walmart Superstore. Across the blacktop and past the dumpsters stood the decaying remnants of an Atlantic White Cedar giant that he estimated to be 350 years old.

"That tree witnessed the beginnings of our nation," he said quietly. "But I'll bet you no one here sees it or knows what it is."

He's probably right. There isn't even a sign memorializing its long



Retired Assistant State Forest Firewarden, 41 years with the New Jersey Forest Fire Service. Forestry graduate of the University of Georgia. "It's a mess," he says of the urban and industrial sprawl that is paving over the Garden State's once forested landscape.

history but it was surely taking its place in a long gone forest when the Declaration of Independence was signed a few minutes north. If it had ears it would have heard Ben Franklin warning that the white cedar shakes that covered the roofs of most Philadelphia buildings was being cut too quickly.

Things quiet down in suburban areas further south. Eventually, you reach forests and farmlands interspersed with more rural communities and hundreds of homes. Many of them have white cedar siding and roofs.

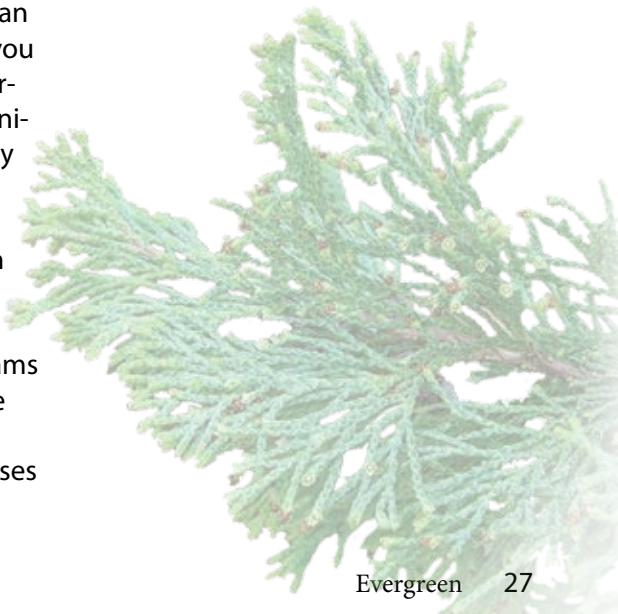
Maurer and Williams are both correct when they say that the Pinelands Reserve saved what is left of New Jersey's forests. Williams watched it happen, and while he feels badly about the inevitable loss of wood processing businesses

– wood cutters and small cedar mills – he knows it was the only way to curb seemingly unstoppable industrial expansion south of Trenton.

"Saving the Pinelands for future generations was necessary," he told us. "But few realized that preservationists would attempt to block our subsequent efforts to restore these forests from natural forces that only proper forest management can alleviate."

Maurer – a wildland firefighter for four decades – isn't as diplomatic in his assessment.

"Preservationists want to save everything," he declares. "It's the right idea but the wrong approach. Only conservation can save our forests, especially white cedar. Preservation will destroy it. The political fires burning in our state are the reason we have literal fire. But you can't just spring forest management on the public and expect their support. It needs lots of explaining and that's what Bob Williams is doing with his public presentations and woods tours."



TOM HIRSHBLOND

Sixty-eight year-old Tom Hirshblond credits his Boy Scout training in the Pine Barrens near Tom's River, New Jersey with his decision to enroll at Paul Smith's College in the early 1970s. For years, it offered only a two year Associates Degree, but by the time Hirshblond enrolled its' curriculum included a Master of Science degree in forestry. So Hirshblond earned one.

"We learned how to manage forests," he told us in a telephone interview. "It was great. The campus is in the Adirondacks, so it's surrounded by more than 14,000 acres of forest, which makes it one of the largest campuses in the world."

After he graduated in 1976, Hirshblond went to work in a sawmill – a typical transition for most Paul Smith's forestry graduates. They are in high demand in companies that manufacture paper and wood products. Also public agencies and private forest management companies.

Hirshblond is well acquainted with New Jersey's Atlantic White Cedar forests because he has worked with Bob Williams many times.

"No one was managing white cedar before Bob came along," he told us. "Nothing happened after the Pinelands Reserve until he got rolling. The pace and scale necessary to encourage new investments in wood gathering and processing infrastructure has yet to materialize. I'm not sure it ever will, but Bob will never give up."

Hirshblond describes the current malaise as "the perfect storm."

"It's falling apart," he explained.



Graduated from Paul Smith's College in upstate New York with Associate, Bachelor and Master's degrees in forestry. He is not optimistic about the future of New Jersey's forests or the fate of Atlantic White Cedar mills that are on life support. He has worked with Bob Williams many times. They hunt together near Hirshblond's home in Tupper Lake, New York.

"Unexpectedly for those who believed managing the Pine Reserve would stimulate a resurgence in small cedar mills. Maple, Sweet Gum and brush are everywhere and that's not a promising sign."

The biggest problem – apart from bad forest policy – is that shade is preventing white cedar from reestablishing itself. White cedar seedlings grow quickly by the millions in sunlight but they struggle mightily to regenerate and grow in the shade.

"It's sad, Hirshblond says.

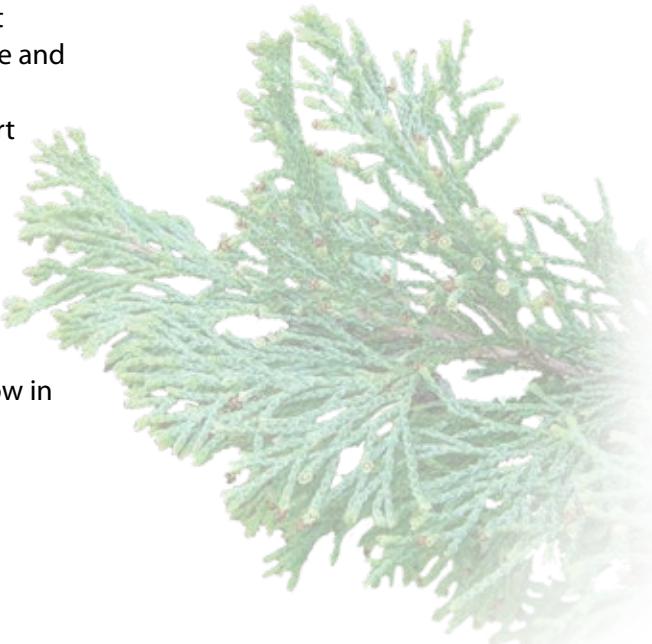
"Preservationists who say 'no' for a living are killing small cedar mills despite the fact that there is high market demand for the wood. The 'no' crowd continues to impede Bob's efforts to keep cedar mills alive until his new restoration projects are ready."

Today, Hirshblond lives at Tupper Lake, New York, 20 miles south of Paul Smith's College. There are two thriving sawmills nearby. He hikes, fishes, hunts, snowshoes, skis, kayaks and canoes.

"The country around here is very similar to the Boundary Waters Canoe Area Wilderness in northern Minnesota," he told us.

Hirshblond mows lawns and banks sand traps at a nearby golf course.

"They hired me," he said with some amazement in his voice. "Imagine that!"



MICHAEL CATANIA

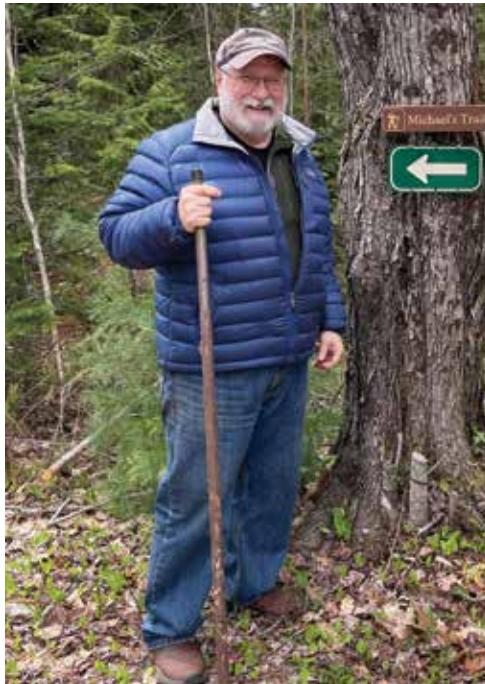
New Jersey residents can thank Michael Catania for the presence of the 1.1 million acre Pinelands Reserve. It was he who wrote the legislation that governs land use activity within it. The Reserve spans 22 percent of the state's land area, including parts of Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Ocean counties plus all or parts of 56 municipalities.

It is now an International Biosphere Reserve [designated in 1983] and home to dozens of rare plants and animals as well as the Kirkwood-Kohansey aquifer system which holds 17 trillion gallons of water essential to homes, businesses, forests and farmland.

"The Reserve was actually established by Congress in 1979," Catania explained when we interviewed him by phone last October. "What we did was write the rules and regulations that govern land use within the counties included in the Reserve."

Catania was a good choice to lead the development of the rules and regulations. He is the former Deputy Commissioner of New Jersey's Department of Environmental Protection, former Executive Director of the New Jersey and Executive Director, Duke Farms, a non-profit that owns 2,700-plus acres in Somerset County and promotes ecological restoration.

When asked if he and Bob Williams had ever crossed paths, he said, "Bob and I go way back. "We were both members of the Pinelands Advisory Committee in the early 2000s. Our charge was to



Former Deputy Commissioner, New Jersey Department of Environmental Protection, a lawyer by profession, wrote the legislation that created the New Jersey Pinelands Reserve, former member of the Pinelands Advisory Committee as was Bob Williams. Retired and living in Maine.

preserve ecological forestry as a niche industry."

Preserving the culture and niche industries in the Pine Barrens was much of the minds of the entire advisory committee, especially as it concerned forest restoration and agriculture, two niches that are interconnected because forests and farmlands abut one another. Indeed, many farmers own forestland.

"Bob was able to do cutting edge work because he sees forests as organic wholes. He's a real visionary when it comes to making forests work the way they are supposed to work," Catania

explained. "That's very rare and very important in the Pinelands."

Catania chose to move to Maine when retired. He is Chairman of the Board of Trustees of the Maine Audubon Society. There are only about 1.4 million people living in the state and it is 88 percent forested. New Jersey has about eight times as many people and is 40 percent forested, so it was a good choice for someone looking for more peaceful surroundings.

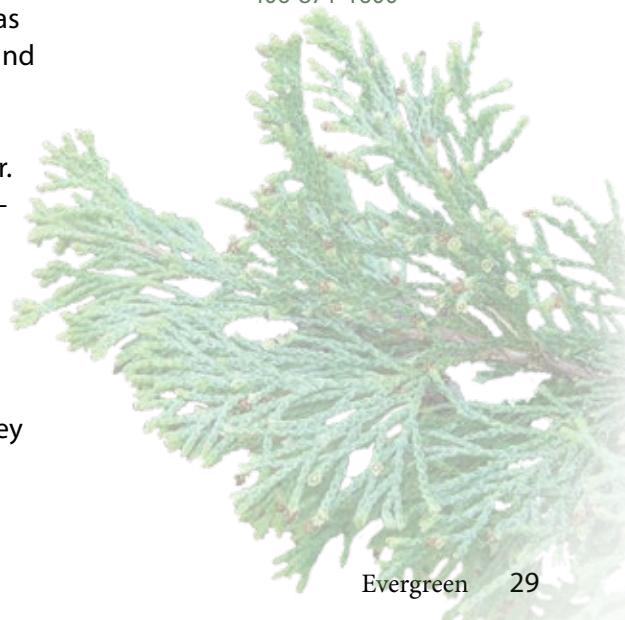
But there was more to it in Catania's case. "It's very different here," he said. "Maine's environmentalists see forestry as a valuable tool, not the evil empire. Restoring forest resiliency and biological diversity requires periodic thinning. That's what Bob is doing."



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TIM HESSE Jr.: First of the “New Pineys”

Tim Hesse Jr. is a modern day “Piney,” a high-energy 34 year-old family man with no sawmilling history in his family, yet he is rapidly taking his place on the centuries old cedar mill stage in the Pinelands. He is polite, intelligent and over-the-top excited about the new world he is entering.

How he found the time to construct an impressive cedar mill from scratch in his front yard is its own mystery. But he did it and there is more to come.

Save for the plastic fencing that hides grassy lawn and play area for his children, Hesse’s entire property doubles as a well-organized parts storage area. All of the bits and pieces of his “new” cedar mill were salvaged from old mills he purchased in several states.

Who would have guessed that a lineman would have the slightest interest in cedar mills? This one sits on concrete pillars that run several feet into the ground. They support steel beams and cross members that are topped by heavy planks. He literally vibrates with excitement when he gets the chance to show his mill to someone who hasn’t seen it before.

On the Sunday morning we stopped to see him – Day 3 of our tour with Bob Williams, - we soon learned that this mill is Hesse’s passion. It sits on heavy steel beams and cross timbers that keep the mill from vibrating when it is running – a key to sawing accurately.

Small steel wheels easily roll a carriage Hesse built that sits on narrow gauge rails that route the long carriage beneath an overhead laser light that assures pinpoint precision as he steers logs or timbers through the whirling saw blade.

“Do you want me to start it up for you,” he asked hopefully while standing next to a control box wired into an old Allis Chalmers tractor engine.

“Sure,” I said. I had not listened to the joyful cadence of an old Chalmers engine since I worked on my grandfather’s ranch in the 1950s. This one looked like a Model B four-cylinder. They were built between 1938 and 1943 in West Allis, Wisconsin. About 121,000 were built in West Allis and an assembly plant in Totton, England that imported its parts from West Allis. The Model B’s were designed to plow row crops and sold for \$1,500.

Today, John Deere manufactures a similar model. Used, it will set you back from \$110,000 to \$140,000 dollars. No wonder Hesse spends many weekends on the road looking for used parts, especially engines. A spare sits nearby – just in case.

Beneath a roof that looks like it could carry a freight train, Hesse will soon be



Tim Hesse Jr. and Bob Williams, left. Jim Petersen photo

cutting Atlantic White Cedar for anyone who needs it. At the far end of the carriage that guides logs and timbers through his saw sits an old shingle mill he bought in Vermont. It also runs perfectly. Shingles that first repelled rainwater from Philadelphia rooftops in the 1700s are still used today.

Nearby sits the outline for a re-saw building Hesse will finish this winter. It will allow him to manufacture finished lumber from timbers he cuts with his Allis Chalmers. There will also be room to inventory lumber. Outside, there is a log deck that holds several truckloads.

“What do you do for fun,” I asked. “Other than deer hunting, this is it” he said as he pulled a cellphone from his pocket to show us a series of progress photos and videos – after which he said, “Let’s jump on my four-wheeler and I’ll show you the rest of the place.”

Once we passed the fenced yard, we were back in spare parts - the well-organized fruits of countless scavenger hunts in every state within driving distance.

Russ Fenton, a career wildland firefighter in New Jersey, is helping him. So are other “pineys” whose parts yards look much the same. The old-new “piney” fraternity is a closed society. It is understood that few in New Jersey understand their century’s old culture. Fenton does. It is part of the reason he quit the Fire Service after more than 37 years.

Fenton worked many years with Steve Mauer, a retired Assistant State Forest Firewarden who we also interviewed for this report.

“Steve is right,” Fenton said. “New Jersey’s state-owned forests are a mess. “Tim’s cedar mill is one of several that sit in the middle of it. These are neighborhoods. You can’t safely manage a wildfire here the same way the U.S.

Forest Service is attempting to do out West. You have to put the damned thing out quickly or you are likely to lose hundreds of homes and lives.”

Hesse’s neighbors apparently share Fenton and Mauer’s concerns about wildfire because when I asked Hesse what his neighbors thought about having a noisy mill next door all they all told him they were very supportive of his venture.

Hess’s company – Amatol Mill Works – takes its name from a long-gone town that, in turn, took its name from Amatol, a chemical added to TNT that was manufactured near Hammonton, New Jersey during World War I. The munitions plant was built on a 6,000 acre site in 1918 and the town of Amatol was built two miles from the plant.

The federal government estimated it would need between 10,000 and 20,000 workers, so it built a town that included homes, dormitories, schools, churches, a bowling alley, tennis courts, YMCA and a movie theater. The Amatol Railroad carried workers between the plant and town.

Five years later, the government tore down the town and plant and sold the site to Charles Schwab. He built a 1.5 mile banked oval speedway from wooden planks. It must have been a marvel because the same drivers that raced on bricks at Indianapolis raced on Schwab’s track wooden history. 80,000 cheered Harry Hartz to victory in the first race in 1926.

Schwab soon lost interest. He torn down his oval in 1933 and sold its lumber. Today, the oval is lost in deep forest but you can still see its outline on drone photos. Hess’s property is adjacent to the old town site and the Amatol name lives again in his front yard.

COLIN McLAUGHLIN

New Jersey wood cutter who says many view him – and Bob Williams – as “evil” because they “cut down trees.” After Hurricane Sandy, McLaughlin won a State contract to remove a blown down Atlantic Cedar stand in Ocean County’s Double Trouble State Park. The cedar was milled in North Carolina and shipped to Colonial Williamsburg for use in the repair and restoration of historic buildings.

Fifty-two year-old Colin McLaughlin says that he and Bob Williams have been on “quite a ride” over the years they’ve worked together. “Preservationists are brainwashing our school kids. They say that anyone who cuts down a tree is evil.”

He laments “the loss of civility” and the fact that “the old guard” is dead and gone.

“Those were the people who knew and respected New Jersey’s culture and its long history of wood use,” he said in a telephone interview.

“It’s all about politics and preservation now. If you’re a wood cutter as I am many believe you are evil. Never mind that wood and paper products are essential to everyday life.”

Save for Williams, no one we spoke to in our 10 days in the Pinelands was as candid defense of his career as a wood cutter as McLaughlin.

“Preservationists want to erase the long history of wood cutting and use in New Jersey,” he said. “I’m happy to talk with anyone about what I do or show them my work.”

McLaughlin’s candor is a trait he shares with Williams, who spent a week driving us through his many projects in the Pine Barrens. He also showed us Colin’s Double Trouble project, in which he was not involved, because he wanted to emphasize the significance of McLaughlin’s contribution to science-based forestry in New Jersey.

“Without Colin’s use of a state-of-the-art cut-to-length harvesting machine, little meaningful Atlantic White Cedar restoration work would have occurred over the last 16 years,” Williams said. “His expertise and hard work are the reason guys like Spike



Colin McLaughlin. *Bob Williams archives*

Wells and Paul Schairer are still in business. Without talented and dedicated producers like Spike, Paul and Colin the future for landowners who want to restore and regenerate their cedar swamps is in doubt.”

Everyone we interviewed – in person or by phone – told us that they believe the key to sustaining the ecological integrity of the Pine Barrens rests on replacing the preservation/no management mindset with a conservation/management mindset. Doing so will also insure that “new pineys” will be here to provide markets for white cedar

and pine that needs to be thinned from forests in the National Pinelands Reserve.

Again, Colin McLaughlin: “I had to truck the white cedar I salvaged after Hurricane Sandy hit Double Trouble to North Carolina to get it milled because there weren’t any mills here that could handle it. How ridiculous is that?” Interestingly, the lumber milled in North Carolina was purchased by the non-profit outfit that owns Colonial Williamsburg. It was used to repair and restore buildings originally built with white cedar, some dating from the 1600s.

"Bob Williams has better story," declared Troy Ettel, President of the non-profit Turner Foundation, founded by media mogul, Ted Turner. "But forest management remains as difficult to sell in New Jersey as it was when I was there because the same old "don't do that, leave it to nature" crowd dominates the conversation. It's a broken record and not helpful."

When he worked for New Jersey Audubon, Ettel innovative streak led him to develop the widely popular "Made with New Jersey Grown Wood," an enterprise that built bird houses and bird feeders manufactured by New Jersey Audubon and sold through several retailers.

Ettel's innovative bent first kicked in when he was managing The Nature Conservancy's Longleaf Pine Initiative in seven Southeastern states. "Longleaf was the king of the South's forests," he explained to an interviewer. "It covered 92 million acres and harbored a lot of endemism in plants and animals – rare species."

Today, Longleaf covers about five million acres, a result of the loss of frequent fires that kept brush from impeding the tree's natural and prolific growth and re-growth. When New Jersey Audubon hired him, he soon discovered the same problem. It led him to embrace Bob Williams' innovative work in the Pine Barrens, especially in Atlantic White Cedar.

"It's basically thinning and prescribed burning in poorly developed forests," he said during our telephone interview. "That's why we hired Bob to develop New Jersey



President and Executive, Turner Foundation; former Director of Conservation and Stewardship, New Jersey Audubon Society

Audubon's forest plan for creating more open conditions in our mid-age forests. We faced lots of opposition from the "you can't do that, leave it to nature crowd but what Bob did worked very well."

The "Made in New Jersey Grown Wood" program he started built bird houses and bird feeders using small pieces of white cedar gathered from Audubon forests. The Society marketed them through an impressive network of local retailers: Whole Earth Center in Princeton, Ideal Farms in Lafayette, Greenland Landscaping in Paramus and Wild Birds Unlimited in Toms River, Red Bank, Cherry Hill and Sewell.

"Consumers who see the 'Made with Jersey Grown Wood' logo on products will immediately

know they are supporting New Jersey businesses," said Douglas Fisher, the state's Secretary of Agriculture. "We're pleased to partner with New Jersey Audubon in expanding this program."

Although Ettel now runs the widely admired Turner Foundation, he remains adamant about the need for more wood-related cottage industries in New Jersey.

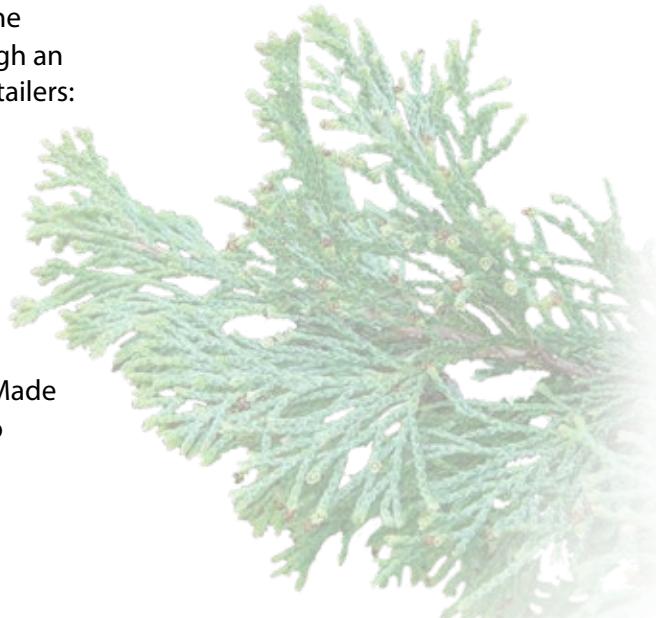
"Without a culture that includes cedar mills and wood gathers the state's pine and white cedar forests cannot be sustained in a way that conserves the species they hold. Critics still say Bob is ruining New Jersey's forest legacy. Actually, he's conserving it."



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MATT OLSON

Matt Olson is a New Jersey native, PhD Forest Ecologist and an Assistant Professor of Environmental Science at Stockton University. Stockton is the namesake of Richard Stockton, a prominent New Jersey landowner and signer of the Declaration of Independence.

Olson grew up near Atlantic City - on the edge of the Pine Barrens - and developed an interest in forests and forestry when he was exploring career options.

Olson's undergraduate degrees are from Paul Smith's College in New York State and the University of Maine in Orono. His Master's Degree is from the University of Tennessee in Knoxville. He returned to Maine for his PhD. His dissertation combined several Central Maine research projects including a U.S. Forest Service study in the Penobscot Experimental Forest that had been active for nearly 70 years.

In graduate school curriculum guides Olson's PhD is listed as Dendrology. It is the study of trees and their proper identification, regeneration processes, spatial [space] and temporal [time] patterns in regeneration and the design of sustainable and alternative harvesting systems.

"Broadly speaking, correct tree identification is fundamental to appropriately and sustainably managing a forest," he told a Stockton University interviewer who asked about a tree species identification booklet he had written.

"My hope is that this guide will help students correctly identify trees in our outdoor classes at Stockton and enrich their general understanding and appreciation of trees and forests."

Many forestry students took Dendrology two or three times before they passed it, though



Matt is a PhD Forest Ecologist. He teaches at Stockton University in Galloway, New Jersey and grew up on the edge of the Pinelands. He developed an interest in forests when he was young. He has known and worked with Bob Williams for 10 years.

some say it wasn't as difficult as Mensuration – the measurement of tree height, diameter, board foot volume, form and growth. Mensurators quantify forest characteristics that must be defined and measured before a management plan can be developed and implemented.

Field foresters, hired by lawyers in trespassing cases, use mensuration to calculate growth and yield in reverse – often by measuring stump diameters and root wads - to determine monetary damages in cases involving loggers who illegally harvest timber. Typically, these cases involve poorly delineated property lines. Not outright theft.

Olson teaches both Dendrology and Mensuration at Stockton. Bob Williams has turned the two disciplines into fine arts. He wrote the first forest plan for the school's

1,600-acre experimental forest, so when he walked us through the forest he was able to easily identify the borders that separated the harvesting experiments George Zimmermann completed when he was still teaching at Stockton.

Williams also went to considerable length to explain how and why Zimmermann's experiments differed. Some parcels included a combination of thinning and prescribed fire while others relied solely on fire or thinning.

Olson replaced Zimmermann when he retired in 2019. He teaches six classes and has known Williams for 10 years. Where forestry is concerned, they share many of the same points of view.

"Bob lays things out the way they should be," Olson told us in a telephone interview. "My students really enjoy him."

Despite his heavy teaching load, Olson finds time for some field work. He hopes to continue Zimmermann's research in Atlantic White Cedar in Stockton's experimental forest. It is a picture perfect example of what Williams does for all of his clients and what New Jersey should be doing in its state-owned forests.

"George is white cedar's brain trust," Olson said. "He's still very passionate about it. We have the funding to continue his work but we face some opposition from people who don't realize that we are working in the sixth generation of forests in the Pine Barrens. They were brutalized long before the Reserve was created in 1978 but what we are doing at Stockton and what Bob is doing for the State and his private clients is definitely sustainable."

HORACE SOMES

Horrace Somes and his brother, Frank, own a Christmas Tree Farm at Wading River, New Jersey. He holds a Master of Forestry degree from Duke University but, no matter where he searched, he was unable to find a forestry job to his liking.

"Sheer luck" led him to a job fighting wildland fire in his native New Jersey.

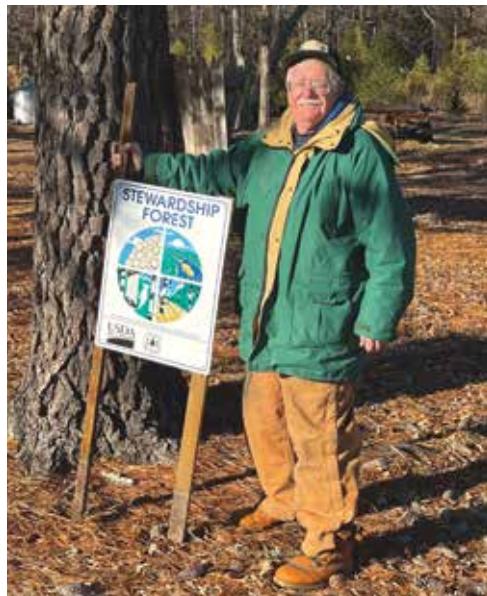
"Most who live here are clueless to the danger we face if we don't actively manage our forests," he told us in a telephone interview. "Excessive State regulation is the reason we no longer have the skill sets and cedar mill capacity we need to be more effective. This is our Achilles heel."

Everyone we interviewed by phone or in person said much the same thing. Regulation in the name of conservation has given way to by regulation for the sake of preservation – and it was Somes' worry about preservation's excesses that led him to write *Lightning, Forest Fires and People*, a 71-page book filled with photographs, charts and illustrations.

The book doubles as a "how to" manual for New Jersey residents who want to know what steps the State would need to take to reverse its current policy choices in the fire prone Pinelands. His source list is more than three pages long and concludes with a full page illustration of Smokey Bear and a caption that reads, "Thanks for listening."

Fortunately, some are, but not enough to move the needle in Trenton, the state's capital. Somes is hopeful – but worried.

"When I was a Boy Scout I witnessed the 1963 fire," he recalled. "It looked very similar to pictures I've



Retired Special District Firewarden with the New Jersey Fire Service, New Jersey native and author of "Lightning, Forest Fires and People," a widely regarded historian who has written widely about wildfire in the Pine Barrens.

seen of the Japanese attack on Pearl Harbor in 1941."

The wind-driven 1963 conflagration included seven fires that burned across five townships in the midst of an April drought. It was never given an official name but Larry Teitelbaum dubbed it "1963 Blaze-a-Nightmare" in an hour-by-hour chronology he assembled for the April 20, 1980 edition of the Burlington County Times.

Teitelbaum called April 20 "Black Saturday." Possibly because fleeing motorists drove through heavy smoke with their headlights on. Seven people were killed including Burlington City's Fire Chief, Frank Jacoby and a family of three that died while attempting to rescue their dog.

"I remember Frank Jacoby

because I stepped over him," firefighter Wesley Lorincz told Teitelbaum. Jacoby slipped from a fire truck's running board and was crushed.

Teitelbaum reported that 400 structures were lost in the fires. Damage topped \$8.5 million. More than \$11 million in today's money – not counting forest losses approaching 183,000 acres.

"A similar fire is on our visible horizon," Somes predicted "This time thousands more living in homes in the Pine Barrens will be in harm's way. We have two closely related problems: A growing population and increasing forest density."

Bob Williams helps manage the Tree Farm that Somes and his brother own. He feels fortunate to have all of Bob's insights and experience.

"He uses prescribed burning and thinning to help defuse the ticking time bomb in our forests," Somes says of William's forest restoration work in the Pine Barrens. "We need to rebalance the forestry scales in a way that favors conservation. Preservation is a prescription for disaster."



PAUL SCHAIRER

Sixty-one year-old Paul Schairer looks much older than his age. Hard labor does that over time. He went to work in the Schairer Brothers mill his grandfather built in the 1930s when he was 13 years old and has never worked anywhere else. His home sits in a grove of trees next to the mill near Egg Harbor City.

He is a resourceful man so he's has always been able to find the Atlantic White Cedar logs he needs to keep going. Some come from land that he owns across the road from his house. He scrounges the rest from other private landowners in the area.

Schairer cuts his white cedar logs by himself by eye – no fancy laser lights here – because he thinks he can do it more accurately by eye than a computer guided light can do it. We suspect that he can because laser lights can't spot defects or judge log quality or grades..

Schairer Brothers custom cuts a wide variety of products for its customers: fence rails, posts, poles, roofing shingles, timbers and siding. All of it from Atlantic White Cedar logs.

There are several lumber storage sheds next to Schairer's mill. They hold everything from rails and posts to structural timbers.

Behind the sheds, he stores logs that he will custom cut anytime for a customer or when he needs to rebuild his inventory. He keeps his lumber inventory in his head and he measures it by eye, just as



Paul Schairer owns the last large cedar mill at Egg Harbor City in New Jersey's Cape May County, one of the southern-most counties within the Pinelands Reserve. He jokes that fact that many of the 70-80 year-old machines in the mill are "dinosaurs." They're so old that he has to sharpen every tooth on every blade by hand. When Schairer's father and uncle ran the mill they employed 30-40 men. Now he employs six but being a glass-half full guy he believes he will work here until he dies or is physically unable to work.

he does when he cuts a log.. It's easy when you've been doing it for almost 50 years.

When Barbare Dreyfuss, a writer who wrote *"Cedar in the Pine Barrens"* for *toney Cape May Magazine* five years ago, he recalled that the first job his father assigned to him was cutting white cedar fence posts and rails.

"I was working 12-hour days making white cedar fences," Schairer told her.

"As one of the few sources for building materials made from New Jersey's indigenous Atlantic White Cedar, Schairer Brothers has been an important resource in preserving Cape May City's National Historic Landmark status." Dreyfuss wrote.

Building codes and local ordinances require that only white cedar be used.

"It's rewarding when people show me a picture of siding or shingles," Schairer told Dreyfuss. I know it will be there 30 years or more. You know you produced something that has value."

When Paul Gamble was restoring a 19th century Victorian home in Cape May, he turned to Schairer Brothers for matching half-inch siding boards that needed to be replaced. "The good thing about them is that they will mill anything in any size," he told Dreyfuss. "Paul never says no. They are sweethearts there."

Other homeowners told similar stories.

Bob Williams wrote the management plan for Schairer for the white cedar forest that he owns not far from his mill. He provides the same services for most private forestland owners in the Pine Barrens.

"The uninformed get crazy when we cut a tree," Williams told Dreyfuss. "But in the case of white cedar it's the only way to regenerate it. We need to open up the forest. Now we are at the tipping point. We need to cut some trees to save the forest."

Schairer readily agreed. *"If you just cut cedar and leave the maple, you end up with a maple swamp and the white cedar will be gone. What my grandfather cut in the 1930s was recut by my father in the 1960s. Now we need to cut it again."*

BERNARD “BERNIE” ISAACSON

Over the last 40 years, I have interviewed dozens of PhD forest scientists, but none as friendly or engaging as Bernie Isaacson. We quickly discovered that our careers – his in forest ecology and mine in journalism – have been greatly influenced by four of the same Rutgers University forestry wizards:

- George Zimmermann, Emeritus Professor of Environmental Studies at Stockton University in Galloway, widely considered to be the world's leading authority on Atlantic White Cedar ecosystems.
- The late Ben Stout of Harvard, Rutgers and University of Montana fame.
- Ed Greene, Professor of Forest Biometrics and Program Director, Spatial Statistics
- Bob Williams, our Pine Barrens host and easily the most respected forester in the Garden State; Bachelor of Science, Forestry, Rutgers/ New Brunswick, New Jersey, 1975.

“We are standing on the shoulders of giants,” Isaacson said of our discovery.

We were for sure – a certainty strengthened by my discovery that one of Ben Stout's Rutgers students had been George Zimmermann.

“Ben was phenomenal,” Zimmerman recalled. “He got me hooked on statistics.”

We live in a pass-it-along world – the latest exhibit being Isaacson's undergraduate and PhD years at Rutgers. Years in which he had ample opportunity to immerse himself in Zimmerman's 30-plus years of thinning and prescribed fire research in the university's experimental forest.

Although he still lives in New Jersey, Isaacson is remotely tethered to the U.S. Forest Service's Knoxville, Tennessee research station. His work in data-heavy remote sensing and inventory systems takes him to many U.S. states.

“My mother was a librarian so I've been around data organization for many years,” Bernie said. “What distinguishes this age from earlier eras is integration of data. Large language models are very valuable because



Bernie Isaacson is a PhD post-doctoral research ecologist with the U.S. Forest Service in Knoxville, Tennessee, the agency's southernmost research station. Before transferring to Knoxville in 2022, he worked for the New Jersey Forest Service. He is a New Jersey native and lives with his family near Trenton.

anyone can ask it a question on their computer or cell phone and it will find an answer.”

He is less sanguine about single tree inventory systems that rely on high-resolution photographs and laser detection systems. “It's very challenging across broad spatial areas because there is a tradeoff between seeing fine details and covering large areas frequently,” he explained. “We have work to do to increase accuracy.”

Because Isaacson earned his PhD in Ecology at Rutgers and worked for the New Jersey Forest Service before joining the U.S. Forest Service, we asked him what he believes should be done to improve forest conditions in the Pine Barrens.

“There is huge public interest in forest policy in New Jersey, which is why accuracy is everything” he said. “We all have our roles to play, our strengths

and weaknesses. What is not well understood is that ‘no management’ is a choice. It is not neutral. There are tradeoffs and costs associated with every choice.”

Most of Isaacson's current research is focused on sequestration, forest density, thinning, wildfire, water conservation and wildlife habitat, topics of great interest to most New Jersey residents. Because few people put these topics in any historical context, Isaacson sent us a six page report he assembled that includes narratives developed between 1609 and 1689 that were prepared by the earliest observers who traveled through New Jersey and Pennsylvania.

“These are forests that have been lived in by peoples who have had different and often competing goals,” Isaacson explained. “I think the message you should try to convey is that our actions are in contention with every good.”

Forest density, particularly in southern New Jersey, has moved beyond what Isaacson and his colleagues call the “natural range of variability.”

What's next, we ask.

“New Jersey's forests are poised to undergo major compositional shifts away from what we've known,” he replied. “Insects, diseases and wildfire are significant problems. We are in uncharted territory. I know people become accustomed to the forests they see and enjoy, but if we expect the same ecosystem services in the future we need to be deliberate about our management choices, because the ‘don't touch it’ scenario won't deliver them.”

We ask the most obvious follow-up question.

“What about Bob Williams' forest restoration work in the Pine Barrens?”

“I believe Bob Williams preaches conservation,” Isaacson replied. “I personally think what he is doing will yield the ecological and social benefits New Jersey residents have expressed that they want. No management is a choice that isn't likely to yield those benefits.”

BOB ZAPPALORTI

If it has anything to do with snakes or reptiles – including timber rattle-snakes, turtles, salamanders or tree frogs that live in the Pine Barrens, Bob Zappalorti is your guy. He is a walking encyclopedia where amphibians and reptiles are concerned. If he can't give you a quick answer to your question, one of his seven scientists probably can.

Among them: Quillyn Bickley, Pennsylvania Regional Manager; David Burkett, Herpetologist and Wildlife Biologist; Zachary Hulmes, Herpetologist and Wildlife Biologist, Victoria Tagliaferro, Herpetologist, James Danch, Herpetologist, Aidan Lawyer, Wildlife Biologist, Raymond Farrell, Regional Manager, New York; Ted Gordon, Senior Staff Botanist; David Schneider, Regional Manager, New Jersey; and Robert Zappalorti Jr., technology and telecommunications specialist.

The firm's website - <http://herpetologicalassociates.com/home.htm> - is a sight to behold. If you have a youngster in a science class, tell them to log on and be as amazed as we were. It's a great source for term papers and essays on topics ranging from habitat studies to conservation and habitat mitigation planning.

New Jersey has 80 species of amphibians and reptiles throughout the state and in upland and lowland Pine-land forests, so it should come as no surprise that he and Bob Williams have known one another for many years.

"We see each other mostly at conferences or at the Lee Brothers Farm," Zappalorti told us during our telephone interview. "At one of those long ago meetings Bob asked if we could work together. I soon learned that if I offered a suggestion, he took it. That's how we got to know and trust one another."

Most herpetological species in the Pinelands live in Atlantic White Cedar swamps. These areas are losing ground in habitats that have been overtaken by brush and exotic plant species that suck up water that connects the swamps to one another through a network of small streams.

"There is a direct correlation



Owner, Herpetological Associates, offices in Pemberton, New Jersey and Wyomissing, Pennsylvania. Specializes in the conservation and ecology of threatened and endangered amphibians and reptiles. Seven research scientists work from his Pemberton office. He has written three books and over 50 peer reviewed papers focusing on herpetological species. Zappalorti started his company in June 1977.

between reptiles, amphibians and Atlantic White Cedar swamps," Zappalorti explains. "The only way to reduce pressure on these species is to remove competing hardwood species, especially maple, but also white-tailed deer that feed on white cedar sprouts and saplings. Bob has a very good handle on this. Good for him and good for people living in New Jersey who share our concern."

Zappalorti and Williams are both very concerned about New Jersey's prolonged drought. Williams' big concern is wildfire but Zappalorti's worries are more complex.

"We had a wet spring but now there is little drinking water," "It keeps many amphibians and reptiles from moving around. Snakes trying to migrate to their winter dens would be killed by a big fire. Box turtles would suffer the same fate."

Most New Jersey hardwoods lost their leaves early because of the drought, exposing amphibians and reptiles to hawks that can more easily spot them.

Zappalorti and Associates are currently under a three-year contract with New Jersey Audubon Society to study endangered and threatened species on their sanctuary. In May of 2024 two state-endangered corn snakes were returned to their natural habitat in the Pine Barrens. Before release, the snakes were measured, weighed, injected with a small ID tag, and evaluated for overall health.

"The snakes were captured on the same property," Zappalorti said.

"My company has been working with New Jersey Audubon's Stewardship staff to manage and restore their land. Their research is showing that proper forest management can support a wide range of threatened and endangered species, including the Corn and Northern Pine Snakes, across the New Jersey landscape."

Many of New Jersey's NGO [non-government agency] preservation groups are interested in various forest management techniques for their lands. Zappalorti believes most residents understand that the state's forests need some hands-on help aimed at habitat recovery and protection from rapidly increasing wildfire risk.

"We lean Left in New Jersey, but I think the time is right for a solid educational program that explains the differences between preservation and conservation, and smart habitat management," Zappalorti observed "Bob is leading that effort."

MARK RAE

"We still have a faint heartbeat," Mark Rae says of his struggling heritage in sawmilling in the Pine Barrens. The Doughty side of his family built their mill on the southern branch of Absecon Creek in Galloway, about six miles northwest of Egg Harbor City, a town built from Atlantic White Cedar by settlers who arrived from Europe in the 1600s.

"Yeah, we've been around here for quite a while," says Rae, a burly man who is physically capable of wrestling most logs in the cedar mill behind his home. "Lots of history around here."

There is indeed. The original Doughty mill included a sawmill on the left side of Absecon Creek and a grist mill on the right. We know this courtesy of photos and a narrative written by the Atlantic County Historical Society.

Both mills were powered by falling water that turned a wheel connected to the mills by a steel shaft that powered a saw and a grist grinding wheel. Manpower did the rest. Workers lived in the Village of Doughty, which boasted a train station.

Some of the white cedar Rae cuts is salvaged from his home remodeling jobs. The rest comes from land developers who need to clear white cedar from building sites. He has another mill nearby and he occasionally cuts logs for Spike Wells.

He and new "Piney" Tim Hesse have been friends for many years. They are the embodiment of the past, present and future of cedar mills: Energetic, intelligent and willing to show anyone what cedar



New Jersey native and home remodeler who volunteers his weekends at shows, fairs and historic events in several states. Rae is a third generation "Piney." His maternal family roots in white cedar sawmilling date from the early 1800s – perhaps further than any other cedar mill family in New Jersey.

milling entails and how they do it.

We met Rae on Sunday, October 6. He was scheduled to conduct a mill demonstration the following Sunday at Batsto Village at the Wharton State Forest Museum three miles from his home. The village and its 123,000-acre forest are all that remains of a settlement located at the mouth of the Batsto River in built during the Revolutionary War by Charles Read. The site included an iron foundry and glass manufacturing business.

Quaker steel and mining industrialist, Joseph Wharton, bought the village and is forestland from Read in 1876, then renovated Read's 32-room mansion. Wharton founded the Wharton

School at Penn State University in 1855 and co-founded Bethlehem Steel in 1857 and Swarthmore College in 1864 – all of them in Pennsylvania.

"Should be fun, don't you think," Rae said of his Wharton venture. Hesse nodded his approval.

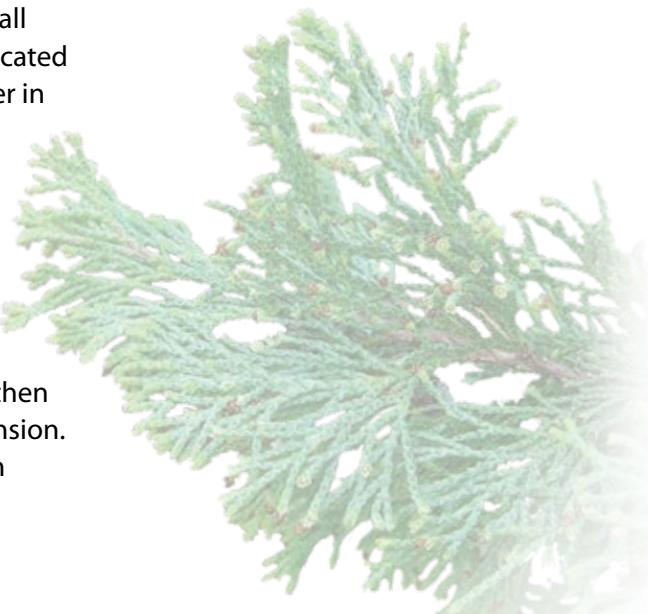
Rae had never met Bob Williams before we stopped by his cedar mill. Once Hesse told him who he was our short visit quickly evolved into a two-hour conversation in which Williams briefed Rae on his nearby State-funded white cedar restoration project. Manna from Heaven.



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Bob Williams from the Back Seat

Julia Petersen

I am used to riding in the back seat when we are out on a project. Jim rides shotgun and records volumes – pen to paper – while our subjects share. My vantage point gives me the opportunity to be observer and analyst - with the occasional query that turns into a deep dive.

Riding through the pines and cedar bogs with Bob Williams did not disappoint when it came to deep dives.

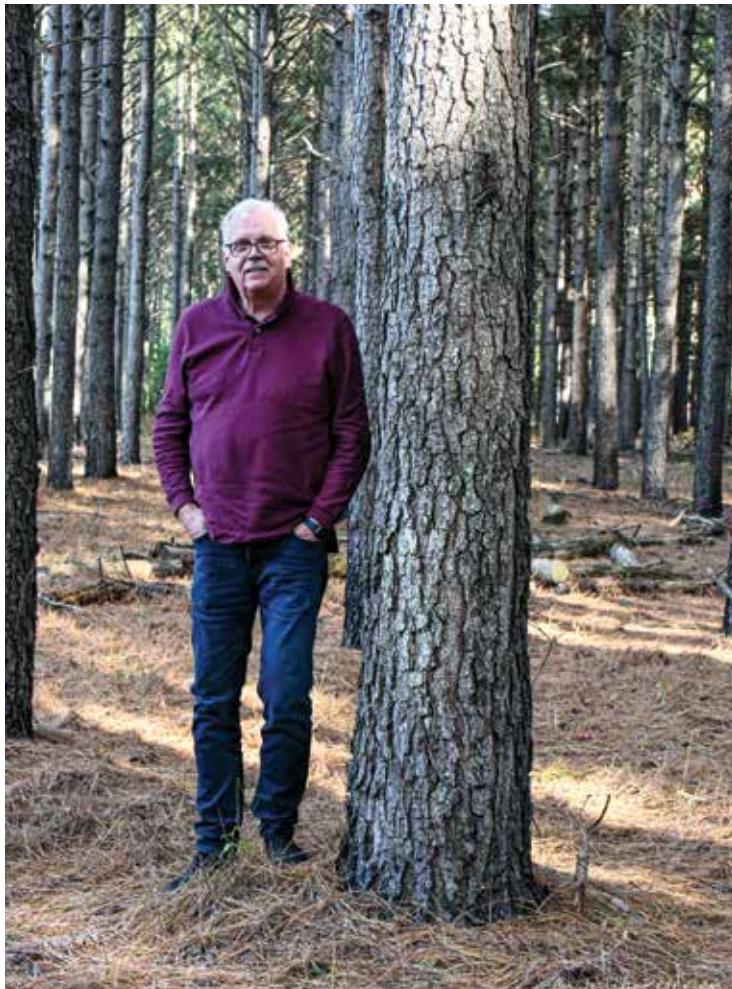
Bob exudes a passion for his work and the land – a passion backed by a brilliant mind and driven by a kind heart. It doesn't take long to feel his love for the land, the people, and communities he has served for over 50 years.

It is a personality and ethic I am comfortable with – very similar to my father. What do you know for sure? Science matters, words mean things, people are a part of the forest, every landscape is unique, trees grow and trees die, keep the objective, do the right thing...

The familiar questions arose quickly in our conversations. Where is the active stewardship? What are we waiting for? Why aren't more of us doing the things that will help our forests?

Things like maintaining the mosaic, cultivating the human aspect of forests, preserving indigenous practices and systems, taking action to preserve unique forest landscapes, working directly with the communities that live in these beautiful places.

Bob's principled frustration at the general lack of awareness –



Julia Petersen photo

when he can identify, and problem solve with ease – is evident – and shared by many.

There is a lot to do, and we have the tools supported by science. Why is it so hard to move the needle? So much time, so many resources wasted - while the land languishes from neglect and agenda driven machinations - or is eaten up by development.

Maybe it is simply that not many can do what Bob Williams does.

This man moves through the landscapes of his native New Jersey with ease. He knows every square foot of his forests and communities. Every forest, every community has a story – and he will recall with pride the history

– the good, the bad, the hope. I suspect he has singlehandedly shifted the forest health of his state for the better.

Bob makes it a point to know people. He believes in relationships built on trust and goodwill. This beloved forester grows his circle at every opportunity.

His disarming nature casts a wide net - colleagues, scientists, tradesmen, craftsmen, historical societies, influencers and decision makers, clients from all walks of life, local farmers, foresters and landowners and their families, local businesses...

The connector – the lightning rod – the object lesson in what it takes to build a network for forest-

to-community health.

The world needs more Bob Williams types – people that take the time to work a problem all the way through for healthy, sustainable solutions. Individuals that know the value of local relationships and inclusion. Passionate types that aren't afraid to do the right thing – even when it isn't popular – and it often isn't.

I hope New Jersey knows the gem it has in the work and contributions of Bob Williams.

What a gift.



Batsto Village and Evergreen

Jim Petersen

New Jerseyans are very fortunate to have Batsto Village. It is easily one of the finest and most comprehensive interpretive centers we've ever visited. Were we history or science instructors Batsto would be at the top of our list of places to take our students. Its' Interpretive Center, complete with dioramas, does an excellent job of tracing the advancing history of human habitation and economic development in the Garden State.

The region's first inhabitants were the Lenapes. Indians who called their homeland Lenapehoking. It spanned parts of New Jersey, Pennsylvania, Connecticut, Delaware and the Hudson River Valley in New York State.

Lenapes greeted the Dutch and Swedes who came ashore in the early 1600s. Batsto is a Swedish word meaning "bathing place." The Batsto River flows out of man-made Batsto Lake behind the Village. The restored settlement includes 30-some buildings, most of them

constructed from Atlantic White Cedar.

Italian explorer John Cabot was the first European to step ashore in what is now New Jersey. He claimed it for England in 1498. Charles Read founded the Batsto Ironworks on the Batsto River in 1766. The company made cooking pots, kettles, ammunition and armaments for General George Washington's Continental Army.

Boats traveled man-made Batsto Lake to deliver "bog iron" to Read's Batsto furnace. Nature makes bog iron by mixing decaying vegetation in wetlands with iron-rich groundwater beneath New Jersey's outer coastal plain. It was mined and smelted from 1760 to 1860.

The ever expanding Batsto settlement had several owners before Penn-



The historic Batsto Village sawmill is powered by waterwheel that draws water from the Batsto River. Clad in Atlantic White Cedar, it caught the eye of Richard Lewis, New Jersey's finest landscape photographer. The nearby Batsto Village Interpretive Center has done a spectacular job of capturing the state's economic, cultural and environmental history in a series of interactive exhibits, beginning with the Lenape tribes that inhabited the region for thousands of years before European settlement began in the early 1600's. *Richard Lewis photo.*

sylvania industrialist Joseph Wharton bought the town in 1876 and added a sawmill near the dam that still holds back Batsto Lake.

The Wharton State Forest bears Wharton's name as does the Wharton School at the University of Pennsylvania. He founded Wharton in 1881, co-founded Bethlehem Steel in 1857 and helped fund Swarthmore College's startup in 1864.

Batsto Village's Interpretive Center pulls the history of the original settlement together in walk-through exhibits that demonstrate the resiliency and creativity of people who have been colonizing New Jersey's Pine Barrens for more than a thousand years.

It will take you at least two hours to walk through the indoor exhibits and

another two hours to walk Batsto's well-signed interpretive trails, so bring your lunch and make a day of it. Maybe you will rent a canoe and fish for bass, bluegill, crappie or pickerel in Batsto Lake.

It's all located eight miles east of Hammonton on Route 542 amid the Wharton State Forest, which was the main reason Bob Williams wanted us to see it.

New Jersey taxpayers purchased the Joseph Wharton estate in 1954 and 1955, creating the Wharton State Forest. At 123,000 acres, it is the largest single tract of land without the state's park system. It also provides its own set of teachable moments when laid side-by-side with the more hopeful forest restoration work Williams has been doing for his clients for decades.

Bob is diplomatic in his assessment of State forest management. "I'm encouraged," he said of New Jersey Department of Environmental Protection plans to begin work in an Atlantic White

Cedar thickets near Batsto next year. We hope to return to watch the project unfold – and to see what new exhibits have been added to Batsto Village.

It seems appropriate for us to leave you with the wisdom of Alan Houston, a PhD wildlife biologist we met at the Ames Plantation in Grand Junction, Tennessee some 27 years ago. We were walking with Alan on the Cumberland Plateau on sunny Saturday morning in October 1997 when he turned to us and said something so remarkable that we can quote it from memory:

When we leave forests to nature, as so many people today seem to want to do, we get whatever nature serves up, which can be devastating at times, but with forestry we have options and a degree of predictability not found in nature.