
Committee Meeting

of

ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE
ASSEMBLY AGRICULTURE AND NATURAL RESOURCES COMMITTEE

“The Committees will receive testimony from invited guests focusing on restoring the health of the New Jersey Pinelands and surrounding areas to ensure public safety and maximum ecological benefit through measures to prevent wildfires”

LOCATION: Committee Room 11
State House Annex
Trenton, New Jersey

DATE: March 14, 2019
1:00 p.m.

MEMBERS OF COMMITTEES PRESENT:

Assemblyman Eric Houghtaling, Chair
Assemblyman Adam J. Taliaferro, Vice Chair
Assemblywoman Nancy J. Pinkin, Chair
Assemblyman Yvonne Lopez, Vice Chair
Assemblyman John P. Armato
Assemblyman Ronald S. Dancer



ALSO PRESENT:

Carrie Anne Calvo-Hahn
Lucinda Tiajoloff
Office of Legislative Services
Committee Aides

Bianca Jerez
Martin Sumners
Assembly Majority
Committee Aides

Thea Sheridan
Assembly Republican
Committee Aide

Meeting Recorded and Transcribed by
The Office of Legislative Services, Public Information Office,
Hearing Unit, State House Annex, PO 068, Trenton, New Jersey



NANCY J. PINKIN
Chair

YVONNE LOPEZ
Vice-Chair

JOHN F. McKEON
LISA SWAIN
KEVIN J. ROONEY
DAVID W. WOLFE

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New Jersey State Legislature
ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE
STATE HOUSE ANNEX
PO BOX 068
TRENTON NJ 08625-0068

COMMITTEE NOTICE

TO: MEMBERS OF THE ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE

FROM: ASSEMBLYWOMAN NANCY J. PINKIN, CHAIR

SUBJECT: COMMITTEE MEETING - MARCH 14, 2019

The public may address comments and questions to Carrie Anne Calvo-Hahn, Committee Aide, or make bill status and scheduling inquiries to Christine L. Hamilton, Secretary, at (609)847-3855, fax (609)292-0561, or e-mail: OLSAideAEN@njleg.org. Written and electronic comments, questions and testimony submitted to the committee by the public, as well as recordings and transcripts, if any, of oral testimony, are government records and will be available to the public upon request.

The Assembly Environment and Solid Waste Committee and the Assembly Agriculture and Natural Resources Committee will meet jointly on Thursday, March 14, 2019 at 1:00 PM in Committee Room 11, 4th Floor, State House Annex, Trenton, New Jersey.

The committees will receive testimony from invited guests focusing on restoring the health of the New Jersey Pinelands and surrounding areas to ensure public safety and maximum ecological benefit through measures to prevent wildfires.

Issued 3/8/19

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Vice-Chairman

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New Jersey State Legislature
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COMMITTEE NOTICE

TO: MEMBERS OF THE ASSEMBLY AGRICULTURE AND NATURAL RESOURCES COMMITTEE

FROM: ASSEMBLYMAN ERIC HOUGHTALING, CHAIRMAN

SUBJECT: COMMITTEE MEETING - MARCH 14, 2019

The public may address comments and questions to Lucinda Tiajolloff, Neha Mehta Patel, Committee Aides, or make bill status and scheduling inquiries to Stephanie Cenneno, Secretary, at (609)847-3855, fax (609)292-0561, or e-mail: OLSAideAAN@njleg.org. Written and electronic comments, questions and testimony submitted to the committee by the public, as well as recordings and transcripts, if any, of oral testimony, are government records and will be available to the public upon request.

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ASSEMBLYMAN ERIC HOUGHTALING (Chair):

Welcome, everybody.

If you could all please stand for the Pledge of Allegiance. (all recite the Pledge of Allegiance)

I'd like to thank everybody for coming out today for our joint meeting with the Environmental Committee -- the Agricultural and Environment Committees. And we know it's something that is a very serious situation that we could be facing in our Pine Barrens, which is a huge body of land that we have in our state, that is very, very precious to us.

So we're glad that we are going to be able to have testimony today to hear some of the things that could happen, and some of the things we can do to prevent any kind of a natural disaster.

So Assemblywoman Pinkin, would you like to say a few words?

ASSEMBLYWOMAN NANCY J. PINKIN (Chair): Thank you, Chairman.

Well, you know, the Pinelands is a really precious asset that we have. And it's not just the Pinelands -- but whether it's the Highlands or any of our forests, New Jersey is the Garden State. We often don't think of it that way but, you know, in light of the fires that happened in California, we have to think about how we're-- Are we doing everything we can to protect our areas?

We have many people who live in those areas, and they have to -- you know, they're concerned about their safety.

We recently had an issue in the Pine Barrens with changing the fire towers, and upgrading them, and making sure we have -- are we going to

have the latest technology. How are we going to address the fires that have happened? And over the years, we've had many fires. So the question of whether you have burning, whether you don't have burning, is always one that we've struggled with.

So that's the purpose of the hearing today.

I want to point out, also, under the Pine Barrens we have one of the largest pure aquifers of water; so it's not just the Pine Barrens, but the land underneath that is a very precious resource.

So we appreciate everybody's time to be here today to discuss this issue.

Thank you.

ASSEMBLYMAN HOUGHTALING: And before we start, if any of our Committee members today would like to say a few words. (no response)

ASSEMBLYWOMAN PINKIN: Okay.

ASSEMBLYMAN HOUGHTALING: Okay.

ASSEMBLYWOMAN PINKIN: Do you have--

ASSEMBLYMAN HOUGHTALING: Assemblyman Dancer.

ASSEMBLYWOMAN PINKIN: Sorry; go ahead.

ASSEMBLYMAN DANCER: Thank you, Chairman.

Yes, Herb Conaway and I had sponsored the prescribed burn bill. So now we're looking forward to hearing from you as we implement that law and, obviously, look at the plan.

So I am looking forward to the hearing.

ASSEMBLYMAN HOUGHTALING: Thank you, Assemblyman.

So we have quite a few people here to testify; and our first one is the Pine Creek Forestry, Bob Williams and Tom Hirshblond.

R O B E R T R. W I L L I A M S: First, I'd like to thank you for having this hearing. It's a really important hearing to have.

Not many folks think about forest fires, or really understand the potential for what these fires are going to do to Southern New Jersey.

I am a forester; I've been a forester for 40 years, and have had extensive experience with fire throughout that career. I began my career as a firefighter, jumping out of helicopters, on initial attack crews; and I did that for two years.

And through the years, through forest management, fire has always been part of our agenda, either protecting the trees or intentionally burning forests.

At this very moment, we are burning the campus of Stockton University. I would urge you to pay attention to that; I would urge you to talk to the folks at Stockton. It's a wonderful example of a State entity working with foresters and academia, and understanding the role that fire needs to play.

I'm not going to mince too many words here. We are going to have fires that will be comparable to what destroyed Paradise, California. That's going to happen. Now, you may have folks come up and debate that, or whatever; but there are many, many national experts who have been there, here, and have agreed with me.

So what does that mean? Do we sit around and wait for which one of our towns gets to be our Paradise? Because it's going to happen, so I can't get any more serious than that.

Having said that, I'll say something that may really sound off-beat to you. We need more fires. Fire is not our enemy; fire is the life blood of this forest ecosystem. What we need to start determining is how do we want these fires to behave. Where do we want them? Where can they be; where can't they be? And when can we set fires?

Today, we don't know that; we have some good ideas. There are a lot of good things going on; people are doing some burning. I'm burning the college today. But if you look on the landscape, it's a pittance of what needs to be done. If you don't believe me, get in your car and spend three or four hours driving around Southern New Jersey and show me where all the forest management burning is going on; because you can't. We need to ramp this up in a significant way.

I have participated in this whole hearing before; we did this in 2002, I think with Herb Conaway. A great hearing; you can read the testimony in there. And here I am again; and people will say, "Well, you know, it didn't happen."

There's a big difference between our Eastern forest, our Southeastern forest, and the Western forest. Those forests are subject to severe dry, drought conditions, much more often than our forests. So these catastrophic fires are less frequent here, but they have been going on here for millennia. It's going to happen again. The forest is built to burn; we need to come to terms with that.

It's not a technical problem. We know what things work; we know what we could be doing. I think the DEP has the staff and people who know what to do. We have a political-social problem; the inability of

people to come together, and start agreeing on things, and working together. It's this group against that group. "I don't want you to cut a tree." "I don't want them to do this." "We should buy that land; we should do that." But there's no cohesive plan.

A policy for this forest -- the Pinelands -- a Comprehensive Management Plan does not provide for that. It provides for a master plan of development, and it's one of the most wonderful documents in North America. It actually preserved the land, the forest; that's what its purpose was. Where it has fallen short is, there's no provision -- "Okay, we preserved the land. What are we going to do with it? What is our responsibility to the biodiversity that we love?" And that's why we kept it.

The Pinelands Comprehensive Management Plan itself says it will be essential to perpetuate severe disturbances. It doesn't say preserve it, put it under a bowl of a glass and look at it, and protect it. The intent was that human beings were always a part of it, since settlement, and they're supposed to continue to be a part of it. And we're not; we're not doing the things that need to be done.

I would encourage you to begin to talk to some of your legislative friends in California. They have gone through this process; they're coming out the other side. They are very restrictive on forest management -- cutting of trees, management of the forest. That's changing; that is changing quickly, because over 88 people lost their lives.

So, where do we go? What do we do? People ask me, "Well, I can't change the government." Been there, tried that; I'm here again. It is the Legislative Branch that needs to get together with the Executive Branch and start to talk about where are we going. We can spend hundreds of

millions of dollars on buying land, and putting little signs on it, and locking it up; and we can't spend any money taking care of it? There's something wrong here; something desperately wrong.

I've worked with the staff of the DEP. No one has worked with the staff of the Pinelands Commission more than me. I've got more forestry projects approved through them than all the foresters in New Jersey combined. They are not the problem. It's this bureaucratic, political-social culture that we have developed here in New Jersey that doesn't let productivity happen; free-thinking doesn't happen.

I could go on and on about all kinds of technical things; and I've done this, and we could-- But I'm just trying to get a point across; I don't know that I am. But we've done a wonderful job of keeping New Jersey green; no doubt about that. I think New Jersey, on the percentage basis, is probably one of the leading states in the United States that has spent money to keep land green -- whether that's a farm, or a forest, or a pond, or whatever. And now we're blowing it, because you know what's going to happen if this fire happens. The Legislature will cut every tree from Camden to Barnegat. "We're not going to have this again; we're not going to let our--"

I myself -- if I could take a drink here -- was in California one year before this event; not far from it. And I was there on a forestry training session, and I can recall going out with the foresters -- CAL Fire; that is the state agency out there that's responsible for fires -- and talking to some of those folks about how we were trying to burn our forests. And they were envious that we actually still have a burning culture in South Jersey.

We burn the forest. You know, they were like, “Wow, we can’t start a fire here.”

But we all looked at the land; and I was like, “You know what’s going to happen here?” And they were, like, “Yes, we do. But we have this regulation about, you know -- we can’t thin at this time of the year; we can’t--” Boom; one year later, I’m sitting there, watching TV with my wife, and I’m saying, “Suray (phonetic spelling), that’s where I was. Look at this thing.”

I’m telling you, it’s going to happen here. And I think that the government has a responsibility.

Now, I’m not here for anything; and I think I’m here more as a citizen than as a professional forester. Because I love this place; I still love my state. I became a forester because I loved that forest, from the time I was big enough to walk around.

I don’t want anything from you. The private sector forestry wants to be a partner. The government is never going to have the kind of money it’s going to take to do some of these things. It makes perfect sense to start thinking about innovative public-private partnerships; and I’ll tell you a little bit about that.

ASSEMBLYWOMAN PINKIN: Sir, can I just interrupt you for just one second.

If you could please-- We should have asked this in the beginning, but we didn’t.

If you could just state your name and your title, for the record -- where you’re from.

MR. WILLIAMS: I will.

My name is Bob Williams; I am the President and owner of Pine Creek Forestry, which is a forestry management company that primarily assists private landowners, throughout New Jersey, taking care of their forests.

However, we do -- we work for county governments; we work for the State Forester; we're doing some consulting for them. And I've been a forester -- a graduate of Rutgers in 1974, and started fighting fires in the summer of 1974. That's my background. We are a small business; there are three foresters, and we do a lot of forestry. And we're open to take anybody out, anytime, to see extensive results of forest management.

You want to go see what these things result in, we'll take and show you. It's a tiny scale of what we need, but people can see. "Hey, this stuff is working."

There is a tremendous amount of existing data, research, science on these forests. We don't need to start a pilot project, and try something, and start figuring out what to do. We need to get going now, because we do know what to do.

And all this is based upon protecting the ecological integrity of that forest. It is not based upon cutting trees to cut them up for lumber. The fact that we take trees and then are able to use them for that is a good thing. But they're removed for the ecological integrity of the forest, and the protection of life and property. That's a major difference in how forestry works. Traditional forestry -- you all know and have a perception of loggers. Loggers want the trees; they'll do anything. They cut them all down. And the United States certainly has a history of that. I'm not talking about that; I'm talking about doing the right thing for the right reasons.

And it is the government that now has to step up, because you're impeding what we do. We can't function when we're out taking care of a piece of property and we're surrounded by 30,000 acres of abandoned, neglected land; and all the beetles and fires are coming out of there and destroying our land. We're in it together; it's one forest. It's not a private forest; it's not a Wildlife Management Area, and then a State Forest. It's all one forest, and the government needs to start looking at it like that. There is nothing wrong with having different objectives.

ASSEMBLYMAN HOUGHTALING: Mr. Williams, I appreciate your testimony.

And a matter of fact, yesterday-- You were talking about being at Stockton -- burning at Stockton College.

MR. WILLIAMS: Yes.

ASSEMBLYMAN HOUGHTALING: So I was down there, and I saw the sign that they had, that said, "Don't call that fire in," because I guess they were overwhelmed with the amount of people calling in.

MR. WILLIAMS: Right.

ASSEMBLYMAN HOUGHTALING: Well, I appreciate your testimony.

Thank you.

Tom.

T O M H I R S H B L O N D: Yes, good afternoon.

Tom Hirshblond; I'm from Toms River, New Jersey.

And I went to Paul Smith's at night; got out in 1976, as a Forest Technician. I've spent, probably, most of my career working in the Pinelands region, actually doing the work of thinning. And I ran a sawmill,

so I've pretty much done it all; as well as I have had extensive experience with the New Jersey Forest Fire Service.

What I would add to what Bob says -- I was thinking about it on my way here. And as a matter of fact, my background -- I might be giving you testimony later -- it has a picture of what I would like to bring to your attention.

Dove-tailing to what Bob said, with my experience-- In 1995, there was a very bad fire, that started about 12:30 in the afternoon, down in the Whiting area. And it started in what was the Lebanon State Forest then.

I was out cutting channel marker poles for the State of New Jersey, for the Navigation Bureau in the Plains area, when the call came in on the radio from the towers that picked up a smoke column. And I traveled immediately up there; ran into the Section Warden, at that time, on Route 72. I followed him back in there. By the time we got in there, that fire was probably, you know, 400 or 500 acres by the time we even were able to get near it. The sustained winds that day were 35 miles an hour, and the gusts were 65 miles an hour. It was April 5, I believe it was.

By the time we could get out to Route 539, the area on 539 -- Route 539 had been prescribed burned about a month previous to that. We could not backfire the 539 because all the fuel had been burned out in the prescribed burn. And if you will -- again, Mike has a picture of this; which we all, in the Fire Service, who were there that day, pretty much have -- of the fire. It traveled clear through the crowns of the trees, because of the intensity of wind, right over top of the prescribed burn; hit the other side of 539 and kept right on going. It was headed, at that point, directly

for the -- I believe, it's Wynwood; I can't remember the name of the development there -- but it was pretty much headed right for that development. I was in one of the trucks, driving the Section Warden's truck at that time. I traveled up there, and there was just no hope they were going to save any of the homes. The fire was traveling much too quickly for what the fuel load was. And if it hadn't been for the Lord shifting the wind about 30 degrees -- a front came through, just at that moment, and shifted the head fire off and sent it off into the back of Forked River Mountain and down into Waretown. Eventually it wound up there; and I believe the fire was somewhere, almost, just short of 20,000 acres by the time we were done.

And actually, we didn't do a whole lot to protect the homes, because the Lord did that through the wind shift.

But what I would mention is this. The State land borders that-- That was one of the areas -- as I grew up in Section 7, at that time -- that was one of the areas we always worried about, because you could sit up on a little hill out there called Half Moon Hill, and you could look and see the white rooftops among the pine trees. And we thought, "If this ever gets to going on the wrong day, we're never going to do anything with it. All those homes are going to be gone." It's going to be, like Bob was saying, Paradise, California.

Fortunately, that day, that didn't happen.

My concern is, if you're going to do, for example, prescribed burning, that's very, very good. But what needs to happen in an intense area like that -- and I'm just using Whiting because of my experience that day as an example -- the area west of the development, primarily in the

Pinelands region, really needs to be heavily thinned and burned, both. Because if you have high density of crowns, like you did that day, and you have a severe day like that, you're going to have to combine much more intensive techniques to protect that development.

So if people-- Again, this idea that Bob was relating to, about cutting trees-- We're going to have to do more intensive management in those areas. And the Forest Fire Service knows where those areas are. You know, people like myself, who have been out there for 40 years doing the management -- we know where those areas are. And I would encourage you --when you hear testimony, for example, as Bob was just talking to you, about cutting trees -- that we have to do some of that. Because, again, my experience being -- standing there that day, looking at it, and not believing what I was seeing -- that it went right through the crowns of the trees. And we had nothing -- there was nothing we could do. The crowns were too close together, and it just carried the fire. So that, I would say.

The other thing I would say is you have, in the State of New Jersey -- you're very fortunate, in my opinion. I grew up around the Forest Fire Service. You have, probably, the very best Forest Fire Service anywhere in the world here; and the people, who are a team -- you should be proud of the fact that the history of this area -- through many of the people who grew up in the Pines, who understand how to fight the fires -- have passed those ideas down. They know what they're doing.

And I would encourage you never to allow the Federal government, or anybody, to tamper with the techniques that this Forest Fire Service uses, both in indirect attack and direct attack. It is tremendously unique; you know, having been around the country and seeing what we do.

We have to fight the fires the way we do; we cannot ever tamper with those techniques, because-- If anything, we need to pass -- more of the guys my age need to pass down more of what we know about how this needs to occur.

So that's all-- And I do work in conjunction with Bob. I do a lot of the thinning and the work for Bob Williams; that's my association with Bob. I'm actually in the field, doing a lot of the thinning and the technical forestry work, you know -- subcontracting for him.

But thank you for the opportunity to speak.

ASSEMBLYMAN HOUGHTALING: Thank you.

Any members have any questions?

Yes.

ASSEMBLYMAN ADAM J. TALIAFERRO (Vice Chair):

Thank you, Chairman, Chairwoman.

Thank you.

So just a quick question for Bob.

I know you spoke about spending some time out in California, prior to the Paradise incident; and that they do things well. Are there any states, or any programs in other states, that you could point to that are somewhat of the model that we could look to here in the State of New Jersey?

MR. WILLIAMS: I think lots, particularly in the Southeast. Florida, Georgia, all these southeastern states that have similar pine forests, have fairly aggressive management and burning programs. I would be surprised if our folks in DEP aren't friends with some of them. But I certainly, you know, on your side of things, I encourage, again-- There may

be some benefits to talking to some of the legislators there, who have had experience with, you know, dealing with the public and what they're willing to accept or not accept.

Make no mistake, fire is one problem; smoke is another problem. It's a big problem. You put smoke on the highway, people get killed. So it's a complex problem.

But the good news is, we have a lot here to work with within our agencies already; and there are lots of states -- Texas, eastern Texas is a big pine forest. And it's really on the top of the list, in terms of natural resources now, because of these devastating fires that are occurring.

Gatlinburg, Tennessee; Texas; Arizona -- name the place. And we're just-- You also have to understand this new age of fire -- they call them *mega-fires*; they can call them whatever they want. It's occurring after a hundred years of a really bad Federal fire policy. We went on a war against fire, and we excluded fire from our landscapes. That has allowed a hundred years of ingrowth; where normally, these landscapes -- particularly when Native Americans were in control -- Native Americans managed this entire landscape by setting fires. Because they knew it kept the forest healthy, it kept it open, it kept it to where their animals, that they hunted, were more vibrant because there was new renewal of, you know--

This has not just haphazardly happened. We have caused it; that is my view of it. And we have done that in New Jersey. The Forest Fire Service has to put these fires out; we can't take the chance that one's going to run. And they're really good at it.

So that's what I'm saying -- striking the balance of, we need fire, but we want the right kind of fire. And we have all the tools to do it. We need leadership.

ASSEMBLYWOMAN PINKIN: Assemblyman Dancer, you have a question?

ASSEMBLYMAN DANCER: Thank you, Chairwoman.

Yes; it seems to me, ironically, that the State of New Jersey requires private landowners who own woodlands-- In order to get woodland assessment, we require that landowner to submit a Woodland Management Plan by a certified forester. And it just seems reasonable to me that the State itself, owning a lot of this woodland, should do what it requires of others: have a Woodland Management Plan, where a forester comes in and determines what trees need to be thinned, as you say.

But we don't have that right now in the State of New Jersey; and I'm just curious, from either Bob or Tom, what your thoughts are.

MR. WILLIAMS: Well, I'm not too critical of the State Forest Service, because I think, number one, they're undermanned, you know; the amount of forest they have and the staff they have is pretty pathetic.

We've not had any meaningful management of our public lands, in my view, for 40 or 50 years. This is a problem; and it's coming home to roost. Whether or not it's fair, you know, it happens to me all the time. I'm inspecting private lands with a State Forester, and he's saying, "Bob, they didn't do this," or, you know, generally it's a pretty positive interface. But then you're looking across the street saying, "Wait a minute; there's 16,000 acres of trash here that you don't do anything." That's not his particular problem. You know, we have a law that we have to abide by.

Our feeling is, as I said before, how do we help you? You know, how do we put this together?

I'll go back to that public-private thing, because I do have a point to make. Bradley Campbell, who was the DEP Commissioner under Governor Corzine, in a meeting, "Oh, we need private partners to manage the forest," and he made the mistake of saying it to me. I made a proposal and gave it to him; and I think he almost fell out of his chair, like, "Oh, my God, we might have to do something."

So he called a meeting; I knew what was happening -- fluff, you know, "We'll talk to Mr. Williams." They never did a damn thing about it.

So I'm not going down that road again; but I do believe that concept is the way to get there; financially, technically, the whole nine yards. With the understanding -- it is the government, the State, that owns the land, that determines what is done. It isn't the contractor; the contractor's job is to present to the State, "Here's what we think would benefit Wharton State Forest," and then the State, and its stakeholders, come back to someone like myself in the private sector and says, "Here's your mission."

Other states are doing it; the Federal government is doing it. The Federal government is doing it with massive national forests because it's practical, you know; it's impractical to think Uncle Sam's going to send you millions of dollars to thin Wharton Forest. It's not going to happen.

ASSEMBLYMAN HOUGHTALING: Can I ask a question?

From the last time -- you said you testified in 2002?

MR. WILLIAMS: I think that's when it was.

ASSEMBLYMAN HOUGHTALING: Have you seen any changes, or anything--

MR. WILLIAMS: No.

ASSEMBLYMAN HOUGHTALING: Nothing's improved?

MR. HIRSHBLOND: The comment I would add-- The Farmland Assessment law -- I was talking to Bob about this on the way up here -- the Farmland Assessment law works very well on the private land. And that's where I make my living right now. The last couple days, I've been thinning forests for Bob; you know, when Atco -- which that man's house is probably going to be better off now, because we did eight acres around his house. The problem is, the State land that adjoins that-- In other words, we can take care of the private land; and then, again, the Farmland Assessment law is a great tool for (indiscernible) to use the private landowners. They're reinvesting their money back into the land, and accomplishing a lot of this. The biggest problem is that the State land, again, that it adjoins, is not being taken care of.

So while we can address-- The Farmland Assessment law will help us address private lands. The biggest problem is getting you to get the State lands under management the same way, so that we're all, again, like Bob says, working together so that all the land is one big forest. If I thin the eight acres up to the State line, and that's not taken care of, on a bad fire day it doesn't do us a whole lot of good. We need to extend that into the State land, and we need your help to do that.

ASSEMBLYMAN HOUGHTALING: Gentlemen, thank you very much for your testimony.

ASSEMBLYWOMAN PINKIN: Thank you.

MR. HIRSHBLOND: Thank you for letting us.

MR. WILLIAMS: Thank you.

ASSEMBLYWOMAN PINKIN: Next we have the American Cranberry Growers' Association, Stephen Lee IV.

Just please state your name for the record.

S T E P H E N V. L E E I V: Good afternoon.

My name is Stephen Lee IV; I am a -- I'm listed as an American Cranberry Growers' Association member, which is on your agenda. But I'll make it really simple; I'm a seventh generation cranberry grower, who grew up in the Pinelands. I currently serve as a Committeeman in my town of Tabernacle, of 6,000 people. I've been on the Town Council for nine years; I've been the Mayor three times, the Deputy Mayor twice. So I certainly have a vested interest in my community.

ASSEMBLYWOMAN PINKIN: And we thank you for your service.

MR. LEE: I want to thank the members, specifically, who came in here on their day off to hear about this issue.

Assemblyman Dancer, you had touched base on the prescribed burning bill. I can recall looking at numerous drafts of that, and trying to put a bill together to help us. And I can remember talking specifically to Herb Conaway about it, on our cranberry picker, during a tour to our farm that the Assembly Ag Committee had done. I want to thank you for your leadership on that.

I also need to emphasize that we are nowhere near done. And what's scary for me is to have our operation -- which is roughly 1,800 acres; 130 acres of it is cranberry acreage -- a multi-generational farm, next door to

my neighbor, who is Pine Island Cranberry, who has 10,000 acres; they're five generations. We have a substantial amount of land that is cranberry land; private landowners in the middle of the Pinelands, who are in a lot of trouble; because all of us, actively, are managing our forests.

We hooked up with Bob Williams roughly 15, 20 years ago, and put together a Forest Management Plan. It was a very aggressive plan; it was one that hadn't been seen in New Jersey ever. We actually managed the forest; we cut trees, we controlled burned, we thinned the trees.

This past week, we completed roughly 600 acres of prescribed burning. I can tell you that our forest -- which has been nationally recognized, and has been recognized by the DEP as being good stewards of the land -- is probably one of the healthiest forests in New Jersey. And that's not even mentioning my next door neighbor, Bill Haines, who's just to the south of us.

But what concerns me more than anything is that, although we were spending time, and energy, and money in managing our land -- which is roughly 1,800 acres -- it's not enough. The State land, which is around the perimeter of us, is not being managed, and it's to the detriment of our citizens that it's not being managed.

In 2016, Kyle Dickman wrote an article for *Rolling Stone* magazine; some of you may have seen this. If you're familiar with *Rolling Stone*, it was the issue that had Merle Haggard on the cover. I will leave this for consumption today (indicates). This is a -- this scrapes the surface about how bad things can be in New Jersey.

The other thing that concerns me is that we had an example on the West Coast, in the state of California. There isn't anybody in this room

who doesn't know what happened in California. But here's what I want to share with you today. This is the 2018 Strategic Fire Plan for California (indicates). Now, Adam had just asked a question regarding whether there are other states we can follow. Well, on August 22, the state of California produced a nice plan; 45 pages or so. It took a lot of paper for my printer, but that's okay. It's a good report. Well, guess what? Paradise happened on November 8; and we all know what happened in Paradise: 86 lives lost. That's the sad part; 86 lives lost. Do we want to have that happen here? Do I want to have that to happen in Tabernacle or Mays Landing? I'm not sure we want that on our hands, ladies and gentlemen. This is an opportunity to be able to manage this.

Executive Order N-05-19, which was issued on January 8, 2019. This is from the governor of California. This clearly indicated this was not enough; and I'll read an excerpt from it, very briefly.

“Whereas fuels reduction, which encompasses a range of forest management activities, including thinning, treating surface fuels with prescribed fire, mechanical methods, manual methods, and grazing, can reduce potential fire intensity--”

The governor of California gave a directive, and gave this commission 45 days to put together this report (indicates). This report is the *Community Wildfire Prevention and Mitigation Report*. This talks about a comprehensive approach to forestry; to the burning side, to the preservation side -- and it includes managing the fuel load. It's not just burning; Greg McLaughlin and his group do a phenomenal job in trying to do the best they can with what they have to work with, under the direction of their

bosses, to try to manage the State land; but it's not enough, it's clearly not enough.

My hope is that with the time you took in coming here today and the folks you'll hear from today, that we can finally have a proactive approach so we're not having to ask Governor Murphy to do his own declaration.

At this time, I'll take any questions.

ASSEMBLYMAN HOUGHTALING: Thank you.

Any members have a question? (no response)

Thank you very much.

MR. LEE: Thank you, folks.

ASSEMBLYMAN HOUGHTALING: Next we have, from the Ocean County Parks, Mike Mangum; and Freeholder and former Assemblywoman, Virginia Haines.

ASSEMBLYWOMAN PINKIN: Well, thank you for growing those cranberries, by the way. We appreciate that.

MR. LEE: Just eat them, please. (laughter)

F R E E H O L D E R V I R G I N I A E. H A I N E S: Good afternoon, everyone.

I'm Virginia Haines; as was said, I am a former Assemblywoman, representing the 10th Legislative District.

But presently, I am the Freeholder Director of Ocean County, which-- I'm just going to give a little history of Ocean County; what we have and what we've preserved. And then I will let our Director of Parks and Recreation go into more detail.

Ocean County, through its history, and through our Natural Lands Trust and Open Space, has -- just Ocean County -- preserved 36,000 acres of Farmland Preservation; also Natural Resources open space.

But if you add in the Federal, and the State, and the County, 60 percent of Ocean County is preserved. So this is 60 percent of woodland that has been preserved. And I think just hearing some of the testimony I've heard from some of the individuals before me, that you can see the devastation that would happen to Ocean County if we were to have a fire sweep right across Ocean County; what it would do.

I remember the fire of 1963 in Jackson Township; what it did. And I also remember the fire that he talked about in 1995 -- the devastation of what it did. I mean, we just have to make sure that we're going to do everything we possibly can to prevent this.

And our most recent -- one of our most recent purchases, just a couple of months ago, was Forked River Mountain. That's 8,000 acres of just woodland that's in Forked River. I mean, this is a very important purchase that we did; it's probably the largest purchase of land that's going to be preserved in the State of New Jersey. We take our responsibility of preserving land very, very seriously in Ocean County.

We want to make sure that we preserve the land; there's a lot of development going on Ocean County, we understand that. But we also understand the importance of preserving life for the future. We don't want to see every single piece of land being built on. We want to make sure that land is preserved for the people, so that they can enjoy walking through the woods; the Barnegat Branch Trail that we have; or just going to -- just camping through; whatever it may be. This is what we want to do.

And another area -- which Mike will probably talk on more -- is Roosevelt City, which is on the western side of Ocean County and Manchester Township. That is an area that we just purchased -- all the paper streets that were left around that -- to try and preserve that. Because that is an area that is heavily populated with individuals, and it has those specific pine trees -- which Mike would know a lot more about -- that are surrounding there, that could do the devastation of what happened in California.

So I just came here today to show support for the controlled burning; it is so important. And all the extra things that we're going to need to do, to make sure that we don't have something happen in New Jersey like what happened in Paradise, California.

And now I'll turn it over to Mike, who is head of our Parks and Recreation.

ASSEMBLYMAN HOUGHTALING: Thank you.

MICHAEL T. MANGUM: Thank you.

If you can bear with me, I'm fighting a cold here.

The property we're talking about, Roosevelt City--

ASSEMBLYWOMAN PINKIN: Mike, if you could just state your name for the record.

MR. MANGUM: Oh, I'm sorry.

I'm Michael T. Mangum, Director, Ocean County Parks.

The property we were talking about at Roosevelt City -- and Tom Hirshblond just talked about -- the County purchased about 1,700 acres in the last few years; and it actually rings this developed area. And if you were to look at the -- I think you have the packet in the mail, which I

forwarded to Martin -- if you look very closely, this development we're talking about has interspersed forest in it. There's not a lot the Forest Fire Service is going to be able to do to preserve it, without something else happening.

And this is a case in point. We need to thin the forest; we need to follow up with a prescribed burn program. And that's what we're doing; we have a plan that we're starting to put together and we'll be implementing; it's called the *Structural Management Plan*. And we'll be thinning the forest; we will be back in, as I said, with prescribed burning on a rotation. This is just one area, but I thought I might highlight this one, because this area is particularly vulnerable to severe wildfire. As Tom said, it was an act of God, in 1995, that this didn't burn; it was a true miracle. At the last second there was a wind shift that saved this community. And the fire burned in the open areas, where it burned into another fire that had happened in 1992.

And Ocean County has a long history of these types of wildfires. I think I included in your packet one interesting thing from 1895. In 1895, they reported Ocean County had very few wildfires. And the reason was, in 1895, basically the whole County had burned up. And these types of things can happen again. In 1963, we didn't have the development -- not even a fraction of the development we have now. So if 1963 was to happen again, it would be California, for sure; and on a big scale, maybe a bigger scale than California.

We have a million acres of Pinelands, roughly. We have a lot of it in Ocean County; and most of Ocean County is either High -- Extreme

or High, and maybe the northern part a Moderate, fire hazard. So we take our responsibility serious about managing our forests.

We know if we buy the forest we need to do something to improve forest health, mitigate wildfire hazard; and also, you know, there are secondary benefits like improving habitat for endangered species, wildlife, etc.

But in the long run, if we don't all work together, we're not going to accomplish much. Because we need to thin the forest on a larger scale to reduce these hazards, to make a healthier forest. We face things, like the southern pine beetle; we've had some infestations with that. In Ocean County, we've had a very severe infestation. Mercifully, it's been east of Route 9, not in the heart of the Pines. If the right conditions happen -- we already know we have it in these areas; it just hasn't exploded into a large devastation in there.

There was a fire in 1992. We had an infestation of something called *pine loopers*; it was a native insect. And periodically-- The last time I believe it happened was a hundred years before. And basically it came in, denuded the pines, like the Gypsy Moths denuded the oak trees. Well, it denuded the pine trees and extended the fire season. We had a very bad fire; it burned out of the Forked River Mountains, crossed the Garden State Parkway, into the nuclear power plant. And they did lose some buildings at that time; fortunately, nothing worse than that.

But that fire -- and ironically, it ended up stopping the 1995 fire.

So all these things tie in; and again, the only way we're going to accomplish anything is by working together -- the County with the State.

The Forest Fire Service is phenomenal; we are so fortunate to have the New Jersey Forest Fire Service here. Many states don't have an agency like that; and they do it with very limited resources. And we try to help them where we can; we definitely cooperate with them every time we can.

We meet with the Forest Fire Service once a year. We go over all our properties where they feel there are priorities where we need to do something; and we'll discuss our priorities. But we work closely together, and we couldn't do what we do without them.

And as we move forward, acquiring more land, we are going to look into managing more of properties now. Forked River Mountains, as the Freeholder said, we just acquired. We will be doing a management plan for those 8,000 acres -- but actually more. We own about 12,000 acres in that area right now; we've been working with Bob on a forest stewardship plan for Wells Mills, which is about 2,500 acres. That incorporates into something we've worked on with the Forest Fire Service previously -- the Pancoast Road fuel break. After the bombing range fire in 2007, the Forest Fire Service looked to do more than just prescribe burn -- develop fuel breaks to protect some of these vulnerable communities. Well, the Pancoast Road fuel break basically protects a large segment of developments in Barnegat Township. Well, the plan we had proposed for the Pinelands for Wells Mills will incorporate the fuel break into it; and enhancements have already been done. And we'll piggyback onto that with the rest of this property we've acquired in the Forked River Mountains.

ASSEMBLYMAN HOUGHTALING: Thank you.

Any questions?

ASSEMBLYWOMAN LOPEZ: I have a question.

Thank you; thank you very much.

So my daughter lives across the road from the Wharton State Forest park, which is the largest forest park in the State of New Jersey.

And there was a very serious fire about three or four years ago; and they had to evacuate their home.

And, you know they farm and have animals; and it was a very scary time for me, and for her and her family.

What are we doing to maintain that park, that forest park? It is 123,000 acres of forest land.

MR. MAGNUM: I would say that question probably should be reserved for the State Parks and Forests; I can't answer that.

ASSEMBLYWOMAN LOPEZ: And they're here today?

MR. MAGNUM: Yes.

ASSEMBLYWOMAN LOPEZ: Okay.

MR. MAGNUM: However, I would say -- one of the things we do-- You know, it's not just managing it; we need to educate the public. Because Ocean County -- I'm guessing, we probably had 50,000 or 60,000 people, when I was a kid, in the County. Now it's 600,000, and those people weren't born and raised in Ocean County; they came from other areas, mostly areas that the people are not really aware of what we face here in Ocean County.

So we do try to educate the public on the Wildland-Urban Interface; things you can do at your house to reduce the fire hazard.

Now, of course, if you live in a housing development, the houses are fairly close together. There's a limit to what you can do. But if

it's a person who lives in a more dispersed area, there are things that you can really do to help you.

ASSEMBLYMAN HOUGHTALING: Thank you.

Any other questions?

ASSEMBLYMAN DANCER: Yes, Chair.

ASSEMBLYMAN HOUGHTALING: Yes.

ASSEMBLYMAN DANCER: Chairwoman?

ASSEMBLYWOMAN PINKIN: No, go ahead.

ASSEMBLYMAN DANCER: First of all, I want to-- Assemblywoman Haines -- I want to congratulate her for being just, I believe, the second Director of a Freeholder Board in Ocean County.

FREEHOLDER HAINES: The second woman, yes.

ASSEMBLYMAN DANCER: Welcome back.

And then, also, thank you for your support for preservation.

But on preservation, and our Woodland Management, and so on and so forth, it comes down to dollars. And it occurs to me that whether we have State Green Acres Open Space, or each county -- as you have done in Ocean County -- many of the municipalities have adopted these Open Space and Preservation funds, trust funds.

My reading and recollection is that the language in both the State, the County, and the locals is that these dollars are for not only the acquisition and preservation, but the keyword is *maintenance*; also for the maintenance of our Open Space and Green Acres.

So here's a thought. Rather than-- You know, I know the issue about the dollars; but I believe that we could utilize the monies that we have in our Open Space trust funds -- at the county levels, the local levels,

and even the State bond issues -- for these initiatives. Because when the voters approved it, they approved not only just acquisition and preservation; they approved maintenance. And surely, if we're going to have the woodlands preserved, like we have done, we need to utilize, I believe, the money from those trust funds -- a certain portion of it, reasonably -- to maintain it. And whether it be through Woodland Management, and thinning measures and practices.

Your thoughts.

MR. MAGNUM: In Ocean County, we are doing that. That's where we're taking money for the Wells Mills forest stewardship plan. We're working on another place called Pulverizing property; about 900 acres. Forest fire will be a component of that.

The same with the structural management property that I was just talking about, where Roosevelt City is. So we are using some of that money for management.

ASSEMBLYMAN DANCER: Okay, thank you.

ASSEMBLYMAN HOUGHTALING: Thank you.

Any other questions?

Thank you for your testimony.

MR. MAGNUM: Thank you.

FREEHOLDER HAINES: Thank you very much.

ASSEMBLYWOMAN PINKIN: Next we'll call up the New Jersey Audubon Society, John Cecil.

Please just state your name for the record, John.

J O H N C E C I L: Sure.

Good afternoon.

My name is John Cecil; I'm the Vice President for Stewardship at New Jersey Audubon, where I oversee all of our on-the-ground stewardship work -- our habitat management, beneficial for wildlife, and water quality, and for people as well.

Thank you to the Committee Chairs and the Committee members for convening this hearing this afternoon. It's a real pleasure to join everyone to discuss the management of the Pinelands forests.

So we work with public and private landowners, land managers, foresters, and farmers throughout the State of New Jersey to implement best land stewardship and management practices. I personally have over 25 years of experience working in the wildlife management profession in a number of eastern states, and have been with New Jersey Audubon for the past seven years.

New Jersey Audubon is a private, nonprofit, statewide membership organization. And we do have a deep interest in the Pinelands, where we own seven wildlife sanctuaries.

We've been deliberately implementing a forest stewardship plan at our Hovnanian Sanctuary outside of Toms River -- a 500-acre property -- managing that through cutting trees and burning the property to enhance the habitat for wildlife; and also create a Wildlife-Urban Interface between our property and the adjacent Holiday Heights community. That's beneficial to our land and the wildlife that find homes there; but it's also a protective measure for that neighboring community.

Thanks to the New Jersey Forest Fire Service, we have been conducting prescribed burns there. This year, we burned 66 acres a couple of weeks ago; and it should be being burned today, given the good weather

conditions that we have. We have a goal of burning 334 acres there this year.

The risk that we face from catastrophic wildfires in New Jersey is, in large part, due to decades of fire suppression. Fire is a normal and necessary process in all of New Jersey's forests, particularly in the fire disturbance-dependent Pinelands. Prior to 1940, fire suppression in New Jersey began to take hold; before fire suppression really kicked in, it's estimated that about 50,000 acres of Pinelands forests burn annually.

After 1940, when we really kicked in fire suppression, that number dropped to, probably, 20,000 acres per year or less, at times.

Today, the New Jersey Forest Fire Service and private landowners utilize controlled burns, or prescribed fire -- we'll use those terms interchangeably -- to reduce hazardous fuel loads. But they're limited in their frequency due to several issues, including insufficient staffing and resources.

In recent years, it's my understanding that the Forest Fire Service has been limited to controlled burning on about 14,000 to 17,000 acres of State land, statewide. And in addition, you have private landowners burning probably about 5,000 acres throughout the state.

The State Forest Fire Service staff has indicated that given sufficient resources, staffing, and acceptable weather conditions -- that's a big part of this puzzle -- they could burn during the entire typical burning window, and still not complete the necessary amount of burning that they would like to do.

So there are a number of factors at play here in terms of when the Forest Fire Service can conduct burns, and how much resource they have to devote to those prescribed burning efforts.

Thanks to the efforts of these Committees here today, of you all -- the Legislature overall, and the Governor -- we do have a new prescribed burn Bill in place, which is going to help to increase that number. That Bill was just approved by the Governor, I guess, earlier this year, or late last year.

The New Jersey Forest Fire Service has estimated they might be able to double the number of acres that they're burning, getting us from about 15,000 to 30,000 acres. And maybe, with private landowners, we're probably burning 20,000 acres currently. So maybe we can get to 40,000 acres statewide. But I would contest that, still, we're probably a long way from where we need to be, in terms of managing the forest lands -- through the use of prescribed fire and mechanical thinning -- to maintain that forest in a healthy ecological condition for people, property, and wildlife.

And a big principle here, for me, as a wildlife biologist is, if we do right by wildlife and habitat, we're going to really protect a lot of people and a lot of property at the same time.

Fire is a natural ecological process, and has long been a feature of New Jersey's landscapes, especially in the Pinelands; but also in the Highlands and throughout New Jersey's forests. Consequently, unplanned wildfires are more likely to cause wildlife mortality and increased air pollution. So through prescribed fire, we can pick the days of the week that we do it; we can pick the weather conditions, to the extent that we understand the conditions of the weather; and put those burns on the land

on those days. With wildfire, it's out of our control; it will take off and go as it wishes. It will impact wildlife; it will impact water quality and air quality in ways that we won't have any management of.

So if we're deliberate, and thoughtful, and plan ahead, we can constrain those impacts from damaging wildfires.

In 2013, New Jersey Audubon partnered with Pine Island Cranberry -- Bill Haines and the Haines family, who you've heard referenced here today; as well as Bob Williams, who spoke first -- to start a novel project on the Pineland Cranberry property, which is about 17,000 acres in the heart of the Pinelands. There, we've been working with the Haines family, Bob, the University of Delaware, and other partners to bring a species of bird -- the northern bobwhite quail -- back to New Jersey. And we focused on that because the leading experts told us that if we bring quail to the Pinelands, we have a very good chance of re-establishing the species. This is a bird that occurs widely in the United States, but it has lost about 82 percent of its population over the last 40 to 60 years. That's due to a number of factors, habitat loss being one of them.

We have to keep in mind that the Pinelands is a disturbance-dependent system; in the absence of disturbance, that habitat changes. And when that habitat changes, the species that evolved with that disturbance-dependent system lose their habitat. So we feel strongly that quail -- which were plentiful in the Pinelands prior to the 1980s -- would come back and thrive if fire was a regular part of the landscape, and we didn't suppress it so much, or we reintroduced controlled burning at a scale that is necessary.

So we've been working on the bobwhite quail recovery project. We see that as a real means to stimulate a discussion around prescribed

burning and proper Pinelands management. Again, it's not just fire; we're going to have to do mechanical thinning. The forest is very dense; it's overstocked with trees because we have suppressed fire, and we haven't undertaken management. The timber industry has faded away over the years, in large part due to economic pressure, regulations -- all of these confounding factors.

So trying to put all the parts of this puzzle back together again is not necessarily a simple thing, but we do understand how to conduct prescribed burns; and we do understand how they develop forest stewardship plans, and implement those plans in a responsible way.

So we've been working on this recovery project of the northern bobwhite, given we have a deep interest in restoring this lost species. But we also want to foster a greater dialogue around forest management, Pinelands forest management, and do that in tandem with the private landowners and public land managers.

Building on the success that we've had with that project, we're now out talking and recruiting other private landowners in the Pinelands to properly manage their forest lands to make it optimal for quail, pine snakes, the Pine Barrens tree frog, and a whole suite of rare plants.

Given all of this experience, the experience we've had managing New Jersey Audubon's Hovnanian Sanctuary -- the one I had mentioned earlier, just outside of Toms River -- the experiences shared with us by the Haines family and other Pinelands cranberry farmers and landowners, we've identified several recommendations that, if acted on, would continue to help improve the health and condition of the Pinelands forests, all while reducing the threat of catastrophic fire.

So these recommendations include increasing prescribed burning in the Pinelands to, probably, 50,000 acres, or maybe even more, annually; and also to burn another 10,000 acres statewide.

To increase the funding and staffing that the State agencies and departments need to support a very robust prescribed fire program, and a robust forest management program. The agency folks are doing everything they can now with the resources they have, but it's just simply not enough.

We need to remove prescribed burn barriers by expanding the prescribed burning window to allow for burning during all seasons of the year; assuming the conditions are right, and appropriate, and safe to do.

We need to increase coordination and cooperation in the Pinelands between the Department of Environmental Protection, the Pinelands Commission, the U.S. Fish and Wildlife Service, and the Natural Resources Conservation Service, as well as private landowners.

There's a lot of complexity to working in the Pinelands. I know Bob spoke to his ability to do it; and that's fantastic. But we need more foresters and more landowners understanding how to navigate through the agency processes to develop and implement these forest stewardship plans.

We need to remove barriers to forest stewardship planning and implementation by evaluating the complex process and costs associated with forest stewardship plan approval in the Pinelands.

We need to include specific recognition in the Pinelands Comprehensive Management Plan that prescribed burning and forest management can be utilized for habitat restoration and enhancement. Currently, the requirements for burning and mechanical thinning are very

focused on tree planting, cultivation, and harvesting for the production of wood products -- firewood and forest health.

And so there are ways to navigate around that now, to create more optimal ecological conditions for wildlife and habitat. But we should just explicitly recognize that managing for wildlife and habitat is a good thing. It's beneficial to the land, it's beneficial to people.

And finally, why not step back and develop a region-wide Pinelands plan that specifically identifies areas, methods, and annual goals associated with specific properties; to plan and implement forest stewardship, timber harvesting, thinning, and prescribed burning for public safety, wildlife, and habitat benefits.

So I leave you with those recommendations. The testimony was provided; as well as a technical document that New Jersey Audubon developed with the Natural Resources Conservation Service, an arm of the U.S. Department of Agriculture, on "Why forest management is needed in the Pinelands;" you have that.

And I would thank you for the time and attention that you're devoting to this issue.

I'd be happy to take any questions.

ASSEMBLYMAN HOUGHTALING: Are there any questions?

ASSEMBLYMAN DANCER: Thank you, Chair.

You mentioned the bobwhite quail, and losing that species there in the Pinelands.

You mentioned one component -- of why. Just your own opinion, or if there are studies, what are some of the other components, or

reasons, that we lost the quail in the Pinelands? I'm just trying to see if there's a nexus here with the ecological forest floor, and so on and so forth.

MR. CECIL: Yes, sure.

So I don't think we have a true understanding of why the species was lost. There are a number of factors that are commonly identified as why quail have declined, range-wide. Habitat loss is a significant factor; predators -- overabundant predators, like raccoons, and possums, and house cats, in particular.

As the land has increasingly been fragmented, parcelized throughout the eastern United States, there have been these factors kind of confounding each other to make it harder for quail to survive.

Farming practices, in part, have played a role in that, as we've gone to more precise farming that doesn't leave shrubby edges, and abandoned fields, and those kinds of things.

Specifically, in the Pinelands, though, quail blinked out in about the 1980s. That's the last known nesting, successfully, for quail since we've started this project, and have kind of re-established -- at least, on a temporary basis -- quail on the Haines property.

But if you think about 1980 and 1940 -- when fire suppression really kicked in in the Pinelands -- 40 years of forest growth and development, the loss of young forest and early successional habitat -- because all of those trees grew up -- we suppressed disturbance, we suppressed fire. I would conjecture that that played a significant role -- that we've lost those openings, we've lost the shrubby edges that quail would really have thrived on in the past.

So the theory that we're operating on is, if we can get management and fire back at a scale, in the Pinelands, of true impact, we can restore that that species and bring that bird back to New Jersey.

ASSEMBLYMAN DANCER: Thank you.

ASSEMBLYMAN HOUGHTALING: Thank you.

MR. CECIL: Thank you very much.

ASSEMBLYMAN HOUGHTALING: Oh, another question.

ASSEMBLYMAN TALIAFERRO: Thank you for your testimony.

Just one quick question, I think, to piggyback on Assemblyman Dancer's question.

I think we all understand the primary benefit of forest management, with protecting our citizens and our property. But if we're out talking to the general public, what would you say would be the top three secondary benefits-- You know, I know we talked about quail, and I think we heard insect stuff. But if we were out just talking, what would be like, "Hey, these are the top three secondary benefits that you may not be aware of."

MR. CECIL: So I would say-- Well, for one thing, I think it's hard-- The public is largely disconnected from natural resource management. There's not a clear understanding, generally, in the public of the relationship between cutting trees and how that's beneficial, ultimately, for water quality and wildlife when done in a deliberate way that's based on ecological science and all of those factors.

So bearing that in mind, people love being outdoors because of the clean air; you know, the fresh air, the animals they interact with, the

vistas they see, the aesthetics that nature offers to them. So first and foremost, for me, is I think people want to go see birds, they want to see butterflies, they want to see big trees, they want to see unique environments and spaces.

When we step back and just protect land and don't actively manage it, and suppress disturbance, we start to lose those things. Because now we've disrupted the ecological system, and all the things that would interact within the forest environment to otherwise create the environments that the rare plants will thrive in, the butterflies will thrive in, and the birds will thrive in.

Talk to the cranberry farmers. They're deliberately managing their forests, through forestry and fire, in order to protect their watershed. Their watershed is critically important for them, so that they can grow and produce cranberries.

So I think there are some aesthetic things that people really want to see; people want to have clean air and clean water, which the environment is directly contributing to. And they want to have all those co-benefits of farm products, and hiking, and recreational experiences.

So I would take that whole suite of things.

ASSEMBLYMAN TALIAFERRO: Thank you.

ASSEMBLYMAN HOUGHTALING: Thank you; thank you for your testimony.

MR. CECIL: Thank you very much.

ASSEMBLYMAN HOUGHTALING: Next, we have New Jersey Forest Fire Service; Greg McLaughlin and John Sacco.

Welcome, gentlemen; and for the record, please state your name.

JOHN SACCO: Thank you.

Good afternoon.

I'm John Sacco; I'm the Assistant Director of Parks and Forestry, and the State Forester.

And we certainly appreciate the opportunity to come here today and add our remarks and our thoughts on this important issue.

GREGORY S. McLAUGHLIN: Good afternoon, and thank you for having us.

My name is Greg McLaughlin; I'm the Chief of the New Jersey Forest Fire Service.

MR. SACCO: So we're going to divide our remarks between the two of us, of course. I've kind of structured mine as an issue identification; and then the agency's response to the issues, in line with much of what you've heard today.

Conservation actions in New Jersey have long focused on protecting forests from development through land preservation, but have ignored the harm caused by the lack of stewardship.

The Pinelands are fire-prone, disturbance-dependent ecosystem. A history of fire suppression and lack of active forest management have caused excessive forest density that is unnatural, outside the range of steward variability, and is the root cause of many of the problems facing our forests today. Excessive forest density, particularly in the Pinelands, is making damaging wildfires and insect outbreaks more likely. This places

human lives, developments, and watersheds at risk; and is responsible for much of the decline in the rare and disturbance-dependent species.

Market forces and social trends inhibit corrective forest density management. For instance, removing small-diameter trees -- thinning -- is not economically viable; and a lack of an appreciable wood products industry in New Jersey inhibits timber harvesting in general.

Also, many members of the public hold very negative views of the forest industry, and tree cutting in general.

Stakeholders: Stakeholding with the public and interdisciplinary experts, building consensus based upon empirical data, and obtaining necessary permits and approvals from other resource agencies is essential in formulating effective forest management plans. This is very important to us, as an agency, as we aspire to put forth the best plans, and gain as much agency buy-in and public support as possible.

However, these activities are extremely time-intensive, complex, and require substantial staff resources.

So in response to those issues, we're developing a wildfire risk reduction component of our 2020 Statewide Forest Action Plan. The plan is currently in draft, and we're seeking stakeholder input. The Forest Action Plan is basically a strategic planning document; and in that document, specifically, we're developing measurable scientific approaches to identifying critical areas for forest management and prescribed fire in a Wildland-Urban Interface.

We're also, in that document, developing a measurable and scientific approach to identify and mitigate forest conditions exceeding 80

square feet per acre of basal area, which indicates that wildfire and forest health threats are likely.

The Forest Service and the New Jersey Forest Fire Service work closely together to locate, prioritize, and implement fire reduction activities on the landscape. This is critical -- given our limited resources -- that we develop priority lists.

Through our Stewardship and Farmland tax assessment programs, the Forest Service promotes the reduction of hazardous fuels with private woodland owners. It's been a very successful component of our activities in Forest Fire Service.

The New Jersey Forest Service continues to work with the Pinelands Commission, the Natural Heritage Program, and New Jersey Division of Fish and Wildlife to expedite permits and approvals for forest management activities.

Beginning in 2015, the Forest Service started a rigorous forest inventory and monitoring program. State-owned forests are inventoried at a rate of approximately 40,000 acres per year for management plan development. The Forest Service buys into the Federal Forest Inventory and Analysis Program for continuous forest inventory product at two times the national intensity, and at an accelerated collection time frame of five years. That means that one-fifth of all the forested land in New Jersey is measured annually, on both public and private forest lands.

Forest inventories inform not only the New Jersey Forest Service, but also public stakeholders, interdisciplinary experts, and regulators. We use these empiric data to drive consensus and develop our management plans.

The forest inventory for Penn State Forest is now complete; the inventory for Wharton will be completed this year. We aim to develop a Forest Management Plan for both Wharton and Penn next year.

A contract is in development to inventory Brendan T. Byrne State Forest, Bass River State Forest, Belleplain State Forest, and the Greenwood Wildlife Management Area.

Since 2014, the New Jersey Forest Service has conducted 29 silvicultural projects related to fire mitigation, totaling approximately 4,000 acres; more than had been done in the preceding 10 years. However, this is inadequate to deal with the problems of excessive density. We recognize this, and we recognize the need to do more.

Next I'd like to provide an example that's very illustrative of the situation we're in.

We recently initiated an 800-acre fuel break and forest thinning project along Washington Turnpike in Wharton State Forest. This was the first time a project of this size was attempted in recent decades. The project was initiated in the spring of 2014; it took about a year to get through the stakeholdering and regulatory process. It was bid, for the first time, with the goal of obtaining some wood utilization and some financial return to offset costs. We had prospective bidders, but none were interested in paying us for the thinned material.

We bid the job a second time, with the willingness to now pay for thinning services. The best bid we received came in higher than expected costs, utilizing our existing current term contract. Thus we rejected it, and utilized our term contract.

We did as much as we could afford -- \$360,000 -- and the work was suspended in 2018, halfway through the project, for lack of funding. We ended up getting about 400 acres completed.

This is not a sustainable way to deal with more than a million acres of publicly owned forest in the state. Clearly, we need another way.

To that end, the Forest Service continues to explore various forest management and density-reduction projects, including attempts to partner with private enterprise. We're hopeful to eventually realize, cost-effectively, our broader ecological management and fire safety goals.

We must execute broad-scale forest management that is both cost-effective and respectful of the natural resource concerns that drove the acquisition of so much public land in the first place.

We must explore and support options for commercial utilization of wood from fuel reduction activities, especially these low-quality, small-diameter materials.

We need to develop a new term contract for forest management that can provide for more equipment and technique options, so we can implement these less-economically viable projects.

We need to secure additional stable sources of funding for continued and improved forest inventory, forest monitoring, and management.

And we need to continue to promote our philosophy of managing the public's forests for ecological services such as watershed protection, wildlife habitat, plant diversity, carbon sequestration; as well as address the public's negative emotions about forest management activities through evidence and communication.

That concludes my remarks for now; I'd be happy to take any questions, or turn it over to Greg, if you wish.

ASSEMBLYMAN HOUGHTALING: Thank you.

MR. McLAUGHLIN: Again, good afternoon.

My name is Greg McLaughlin. I'm the Chief of the New Jersey Forest Fire Service.

I've been with the State government for 31 years. I have a degree in Forestry, a master's degree in Plant Biology. I've worked for Rutgers Cooperative Extension for approximately 10 years, and I've now been with the Forest Fire Service for 15 years. I've been the Chief for two years.

About 14 years ago, first came across my desk proposed legislation on prescribed burning. And I'd like to take a minute here, in the beginning, to thank everyone here today -- particularly Assemblyman Dancer -- for his continued, long support of that legislation, which was signed into law last year. That will provide us, as an agency, with profound opportunities to increase our ability to do work on State and private land to reduce fuels and protect the residents of the State of New Jersey.

Thank you.

John and I have discussed our testimony today, and we've prepared a written statement, and we will provide that for you as well.

What I'd like to do is take a minute or two to walk you through what I feel are some of the issues and concerns facing us in New Jersey, from the perspective of wildfire in the Pines; and give you an idea of my experiences and what I've seen, in terms of traveling around the country, and speaking to other people in my profession at the state and Federal level.

I'd also like to take this opportunity to comment on some of the testimony that has already been given today, before you, by the folks here in the room; and perhaps as well as some of that testimony to come.

We, from the Forest Fire Service's perspective, really wouldn't be able to accomplish all of the good things that we do accomplish -- and that had been brought out here today in a complimentary way -- if it were not for the very people in this room sitting behind me. Mr. Lee and his son Stephen have been great contributors, great supporters, on the local level and on the State level, of what we do.

Bob and I attended a meeting; it was an International Association fire meeting in Missoula, Montana, last spring. Bob was here testifying in 2002. This is something that Bob has worked on and championed for a very long time. We do, in my opinion, have a good public-private partnership. We are working together, and those relationships are helping us to succeed.

I think we should recognize that, and have this discussion in the context that we want to build on those relationships. We want to explore opportunities to find more relationships like that, because those relationships have been successful models of what can be done.

Mr. Cecil spoke from Audubon today. Certainly, Audubon has been around for a long time, and it has done great work in New Jersey. It's only recently that I've had an opportunity to work with them; and, you know, that, again, I see as a public-private partnership. It's a nonprofit entity, but we feel that working with any entity that's willing to work with us, that also has a significant wildfire risk--

And Mike Magnum and his staff at Ocean County, in some ways are an extension of what we do. We work very closely with them; and they really should be applauded for their aggressive actions to preserve and protect property. It may not have come out as significantly as I think Mike wanted it to -- Mike is very humble -- but I would like to take a moment. The structural management parcel that Mike referenced is 6,000 acres of heavy pine forest and fuels, sitting to the south and west of 3,600 homes in the Roosevelt City area; which collectively includes the Roosevelt City community, the Wynwood community, the Fox Hollow community, and the Timber Green community. We have been trapped between that community, and that heavy fuel loading in that 6,000 acres, numerous times in attempts to prevent fire from spreading into that community. That property was owned by a private individual, who resided outside of our state, and who was unwilling and uncooperative to work with us -- to allow us access to their property. And it was the great work of Ocean County's program to negotiate and take ownership of that property. And almost immediately upon closing, we were working with them to accomplish good things there.

We know -- I can confirm, and you'll hear testimony from other experts here today -- that there is a real potential for catastrophic wildfire in New Jersey Pinelands. The fuel type -- the pine, shrub oak, laurel, blueberry combination of plants are resinous. They grow densely; there's connectivity between the shrub layer and the canopy of the treetops, which allows fire to spread quickly. It allows for explosive fire growth. This fuel model, as I called it, is very similar to the fuel model and the fuel structure in California.

In the testimony that was given in 2002, I read comments made by my predecessor at the time. Those comments talked about the fuel loading in the Pinelands, and associated that fuel loading with risk.

I'd like to take a minute to talk about risk, and maybe correct that. That fuel is a hazard; it's when we place things we value in close association with that hazard that we've created a risk. We've placed a significant number of homes and people in harm's way, in and around the Pinelands of New Jersey.

That has taken what we know to be a hazard and created a tremendous risk; a risk to firefighters, a risk to residents. There are numerous risks associated with this, beyond the obvious as well. One of my very first experiences with a large wildfire was the 2007 Warren Grove wildfire. The first task upon arriving at the scene was to enter into a community -- the Brighton development, on Route 72, on the line of Barnegat and Stafford. In this community, several homes were destroyed. This community was being evacuated; there was absolute chaos. People who lived and resided in the development most of their entire adult life had no bearing on how to exit the community.

Car accidents were happening; people were lost. People with special needs couldn't get out of their homes; people on oxygen-- There are many associated things that go on in a wildfire event beyond the obvious that, in effect, pull us away from our main responsibilities.

What it takes to have a fire is simple. You need fuels, you have topography, and you have weather. We know that we cannot control the weather; it's one of my banes growing up and being a farmer myself. We've given up on trying to control the weather. The topography remains

unchanged; it is what it is. But we can manipulate and modify the fuels; the fuels I'm referring to is the vegetation that exists now. It's something that would burn and fuel a fire. We can manipulate that vegetation; we can change that vegetation. We've heard today that we, as an agency, do that through our prescribed burning; we target areas. We strategically plan areas where we feel we can accomplish prescribed burning in a safe manner. Prescribed burning is a tool that this agency has used since 1928. We use it safely, we use it effectively.

The alternative is mechanical fuels treatments -- mowing or thinning. Prescribed burning, approximately, can be conducted at a cost of \$20 an acre. Mechanical methods for reducing fuels are pushing \$1,000 an acre. We get a lot of efficiency from our prescribed burning program. We treat a tremendous number of acres. We're accomplishing close to 20,000 acres annually, in treatment, using prescribed burning

The situation that's been described -- about the condition of our forests -- however, has made our jobs difficult in applying prescribed burning. If we take, for a moment, the picture that I hope I've painted clearly -- that we have numerous homes and people in close proximity to a hazard, a hazard that has accumulated over a long period of time, that's rich and dense in volatile fuels -- it becomes less and less likely that our confidence remains high that we can apply prescribed burning in those instances.

We must turn to some of the alternatives that have been discussed today -- and they are the things that John and I talk about constantly -- and those things are applying traditional forestry practices: thinning, mowing.

Because we say *forestry* doesn't mean -- as Mr. Williams pointed out -- we're planning to log the forest. We have no intentions of clearing the forest. We're not in the business of building developments. We're in the business of taking care of our natural resources that make our state great, and protecting our residents.

There are areas-- I'm surprised I've only heard the term twice today -- *Wildland-Urban Interface*. We refer to that as the WUI, the W-U-I. That's a term used throughout the country to describe the area where homes, people, and forest meet -- or intermix. This is the area where we have the most concern; it's also the area that has the most difficulty, from the standpoint of suppressing fires. Fire's happening -- we are entering these areas, and people are trying to leave.

I'd like to shift a little bit into some background about the agency; and I think, or I feel, that that's a--

ASSEMBLYMAN HOUGHTALING: If I could say, Mr. McLaughlin, is there, like, an end--

MR. McLAUGHLIN: Yes.

ASSEMBLYMAN HOUGHTALING: --an end period coming up?

MR. McLAUGHLIN: So, yes, sir; there's essentially three things that I wanted to present.

My position on our risk and our hazard -- and that is: That is real. And I've done that in the aforementioned, I think, thoroughly.

I'd like to give you a brief background about our agency and our capabilities; and then just offer some suggestions to you for what I see is some possible things that we could use to solve some of these issues today.

So moving into subject area number two -- the Forest Fire Service is a very old State agency. We've been in existence for over 110 years.

We're structured in three divisions; this is strategic, and this model is a military organization, in the sense that we're broken down into a tiered system that allows us to respond quickly. That system includes three divisions: a North Division, a Central Division, and the Southern Division. Within each of those divisions, there are what are called *Sections*; they are sub-units, each of about 100,000 acres. There are 29 subsections throughout the state; each one of those subsections has a full-time Fire Warden on staff 24 hours a day, 365 days a year, responsible for responding to wildfires.

We have 21 towers spread out throughout the state; fire towers are used for observation and detection. We also have nine aircraft; we have rotor aircraft and fixed-wing aircraft. This all goes to the system of fire suppression that you heard earlier -- that quick response; 75 percent of our fires are kept at 10 acres and smaller.

The system works for us, and we feel that we have had good success responding quickly.

I offer these suggestions.

I think it's important that we recognize and we look at the areas of highest risk, and we target those areas for treatment in an expeditious manner. We're in the process of developing a strategic plan, similar to the one California has.

We also seek and obtain significant Federal funding to support our program. Currently we're in the process of using that Federal funding

to support a Statewide Wildfire Risk Assessment that will help us to pinpoint the areas of highest risk and prioritize those areas for treatment.

It should also be mentioned that we are very active in working with local volunteer fire companies and communities to help those local residents be better prepared in the event of a wildfire.

I'd like to thank you again, and hope that we can work together to find solutions to common problems.

If there are any questions--

ASSEMBLYMAN HOUGHTALING: I have one question for John, if you don't mind.

MR. SACCO: Sure.

ASSEMBLYMAN HOUGHTALING: You were talking about a project that you had before, and you had to reduce it in scale because the price was too high?

MR. SACCO: Yes.

ASSEMBLYMAN HOUGHTALING: So if you hire a contractor, and you have to go in there and trim trees or cut trees out -- you were counting on that as value that wasn't--

MR. SACCO: Yes, we hoped to, you know, have that offset costs; where the contractor could come in and use that material, kind of, somewhat as a barter.

ASSEMBLYMAN HOUGHTALING: But it didn't work.

MR. SACCO: No, sir.

ASSEMBLYMAN HOUGHTALING: So they wanted the wood anyhow--

MR. SACCO: No; no, we just dropped it.

ASSEMBLYMAN HOUGHTALING: It just lays there?

MR. SACCO: Yes.

ASSEMBLYMAN HOUGHTALING: Okay; thank you.

Anybody have a question?

ASSEMBLYWOMAN PINKIN: Assemblyman Armato has a question.

ASSEMBLYMAN HOUGHTALING: Yes.

ASSEMBLYWOMAN PINKIN: Assemblyman.

ASSEMBLYMAN ARMATO: Chief, I just have to ask you -- I've been reading in the paper recently about one of your towers that has been eroded around with trees that are taller than the tower. Can you give me a little information about that?

MR. McLAUGHLIN: Sure.

Assemblyman Armato is referring to the Bass River Fire Tower in Bass River Township, New Jersey, which sits at the southeastern corner of the Pinelands area. This tower is very critical to our fire detection operations and, over time, our view there has become obstructed significantly by an in-growth of trees that were planted by the Civilian Conservation Corps in the 1930s, that were essentially non-native to the Pinelands. These are trees that are predominantly white pine, that have grown much taller than the native pitch pine. The tower is 82 feet tall, and the trees are -- some of them are 100 feet tall.

We identified this problem back in 1995. Work was done, and a permit was prepared -- to the New Jersey Pinelands Commission -- at that time, to cut trees. And honestly, I wasn't here at the time, but I know the

results were that four acres of trees were cut, out of what was originally proposed to be more.

We looked at this, and we talked about this internally, and this became an agency priority. We needed to have a functioning tower where we would have visibility. So we, again, working with John and his staff, put together a proposal to harvest 16.4 acres of trees that were directly obstructing our view from the Bass River Tower. That application went to the Pinelands Commission last summer, and was subsequently retracted by us to expand upon the scope and make some revisions, based on the public comments and questions from the Commission.

Last Friday, the application was read into the public record at the Pinelands meeting; and next month the Commission -- the Pinelands Commission will vote as to whether they will approve our application.

ASSEMBLYMAN ARMATO: How many acres does that tower look at?

MR. McLAUGHLIN: Just a moment, please.

Jeremy.

J E R E M Y W E B B E R: (off mike) There are multiple townships. You can see 10 miles around, on a good day. The actual acreage--

So, I'm Jeremy Webber with the New Jersey Forest Fire Service.

I believe the area that that fire tower covers is approximately 200 square miles.

ASSEMBLYMAN HOUGHTALING: Any other questions?

Yes.

ASSEMBLYMAN DANCER: Thank you; thank you, Chair.

As you know, we're going to have our Budget hearings. And Chief, I heard you mention about prioritizing, and that you have the highest risk assessment study or project.

If you have this highest risk completed -- the study -- what are the resources needed by your department to implement, or at least to begin, maybe incrementally, each year-- I'm just trying to get a handle on the amount of resources needed to prioritize the highest risk assessments in state.

MR. McLAUGHLIN: Yes, thank you for your question, Assemblyman Dancer.

When you asked if I could clarify, are you referring to number of people, in my estimation?

ASSEMBLYMAN DANCER: Total -- in order to implement--

MR. McLAUGHLIN: When you say *resources*, you're referring to people?

ASSEMBLYMAN DANCER: Yes; but the dollar amounts that you would need from the State to implement your highest risk assessment recommendations.

MR. McLAUGHLIN: I believe the honest answer is, it's a complex answer. It would take numerous factors into consideration. Certainly, I can answer it like this confidently, that with staffing being considerably low at the present time, we must focus on the immediate priorities; and there's essentially not enough time or staffing to go around to conduct these activities.

In terms of dollars, our budget has remained somewhat flat for a long period of time. And so I honestly can't give you the exact number of personnel or funds that would be necessary.

It would essentially-- And what I'm hoping to get back from this assessment is recommendations.

ASSEMBLYMAN DANCER: Chairman, just one quick follow-up.

You know, we've been talking about the public-private partnerships, which I think we all advocate.

So just in lieu of adding staffing -- if you were to enter into a partnership, a public-private, with these private -- we've heard testimony today -- with these private companies, that will provide-- They go in and do the thinning and other items, so that you wouldn't necessarily have to hire staff yourself.

So I'm not asking for a number now; but maybe, in the future, if you could get it to the Committee, through the Chair, that information, I think that would be helpful.

But I do think there are savings, cost savings, in working as a public-private partnership, instead of, maybe, increasing total staff.

Thank you.

MR. SACCO: Mr. Chairman, just if I could -- just to add to the dialogue.

You know, there's a component of this protection and this thinning that involves larger diameter trees; and that's where the Forest Service, basically, comes in.

Greg tends to deal with the smaller-diameter trees out there; and his group can do the firing, and the mowing, and that kind of stuff. But as we get to the larger diameter density problems, that's a function of our shop. So there's a whole other component -- we're going to handle this -- there's this whole other component of managing the larger stems on the landscape, as opposed to some of the smaller things that reduce the ladder fuels and some of the stuff that Greg spoke about.

ASSEMBLYMAN DANCER: Thank you.

Thank you, Chair.

ASSEMBLYMAN HOUGHTALING: Thank you.

ASSEMBLYWOMAN PINKIN: Thank you.

ASSEMBLYMAN HOUGHTALING: Any other questions?

(no response)

I think that's it for our questions; but I would like to say that I would love to come out there sometime, and walk around those woods with you, and get a really good visualization of what you're talking about.

And a lot of what you're talking about, sometimes for me, is a little bit hard to visualize; so to be out there and see, I think would be very helpful. And if any of our members would--

MR. SACCO: We'd love to have you; thanks.

ASSEMBLYMAN HOUGHTALING: --care to come; yes.

So maybe we could set something up.

MR. McLAUGHLIN: That would be great.

ASSEMBLYMAN HOUGHTALING: And thank you very much for your testimony.

ASSEMBLYWOMAN PINKIN: Thank you.

Next, we'll have the U.S. Department of Agriculture, the U.S. Forest Service, Mike Gallagher.

Just state your name for the record, please.

M I C H A E L R. G A L L A G H E R, Ph.D.: My name is Dr. Michael Gallagher.

Thank you for inviting me to speak here today.

I'm here to speak to you today as a research scientist and wildland fire expert for the USDA Forest Service Northern Research Station.

My knowledge of wildland fire draws from over 10 years of experience studying prescribed and wildfire behavior and effects in the New Jersey Pinelands, with the support of New Jersey Forest Fire Service and the New Jersey Bureau of Forestry. This work has produced numerous peer-reviewed articles; and my talk today summarizes key ideas in those publications.

My knowledge also draws from approximately 2,000 hours of progressive fireline experience as a wildland firefighter on assignments in New Jersey, Pennsylvania, New York, Florida, Idaho, Montana, Utah, California, and Alaska.

Heat, oxygen, and fuels are the three key ingredients required to produce a fire. Like in baking, adding different proportions of ingredients will produce vastly different end results. In the case of wildland fire, these results can be thought of as fire intensity, speed, smoke, and subsequent environmental effects. With prescribed fires, we get a say about all the ingredients by choosing when and where the fire will be; and thus

can produce nuanced fire behavior to help achieve certain types of desirable outcomes.

With wildfires, however, fuels are the only ingredient that we might be able to proactively adjust before a fire to influence the end result. Seasonal patterns in weather and plant life cycles provide predictability in fire behavior and effects, and provide diverse management opportunities. However, predictions of increased extreme weather for our region reduce the reliability of these patterns.

Not every inch of forest can be treated for fuel hazards at once; and treated fuels do grow back with time. But strategies can be employed that account for risk, hazards, and other goals that need to be balanced.

For example, the New Jersey Forest Fire Service is working with the U.S. Forest Service to conduct a Statewide Wildland Fire Risk Assessment to guide risk mitigation recommendations for specific communities, building on a recent pilot assessment in Ocean Township.

Many programs exist to guide homeowners and communities in following such recommendations, such as maintaining fuel breaks around their homes. However, it should be pointed out that some homeowners do not actually have jurisdiction over the forest fuels that put them at risk, particularly when those fuels occur on neighboring private properties.

It should also be pointed out that fuels near homes are critical, not just because they risk flame impingement on homes, but for managing ember conditions. In fact, embers are an important component of short- and long-distance fire spread. In this way they're a common, yet often underappreciated, ignition source to homes and outbuildings during wildfire events. Ember showers act like snow showers; but instead of snowflakes,

they produce anywhere from flurries to squalls of glowing hot particles that can accumulate and set fire to structures or adjacent forest units when fuels are contiguous or receptive.

In conclusion, fire behavior and management are complex, and we are constantly expanding our understanding of both. But we know enough about the drivers of wildland fire, the ingredients, to work with communities to assess and reduce risk, as long as we appropriately anticipate possible future conditions.

I thank you for your time today, and I'd be happy to answer any questions.

ASSEMBLYWOMAN PINKIN: Well, Michael, how are you interacting with the State Forest Service; and how can we leverage the benefits of both groups?

DR. GALLAGHER: We work with the New Jersey Forest Fire Service and the Bureau of Forestry to conduct research on State lands here. We operate a small research station in the Pinelands; but much of the work happens -- since we don't own or manage any land in the Pinelands -- happens in conjunction with the State.

And so, in those ways, we leverage our relationships and the opportunities here to seek out competitive grant funding from research organizations; to conduct work here that uses the opportunity and the importance of wildland fire in this environment, not only to guide management in this area, but also define research, really, nationally and globally, and use it as an example.

ASSEMBLYWOMAN PINKIN: Have you taken any of the information that has been learned from the California fires and tried to apply it proactively in New Jersey or other areas?

DR. GALLAGHER: That's a-- The California fires happened pretty recently; and so those fires are still being studied and being investigated.

I can say that the research that we conduct -- particularly, right now, with embers and fuel loads -- relates directly to fire problems at the Wildland-Urban Interface. And that that was a critical problem in California.

ASSEMBLYWOMAN PINKIN: Thank you.

Are there grants that we -- Federal funds that we can access that we're not currently accessing?

DR. GALLAGHER: From a management standpoint, I'm not sure. From a research standpoint, we are competing for a lot of funds from the Department of Defense; they're a primary agency that manages land nationally, and particularly in New Jersey. You heard about one of their areas today, I believe. And so that's one avenue; that's a major avenue for wildland fire research nationally, right now. And so we're continuing to pursue that.

But I can't really speak on the subject of management-oriented grants.

ASSEMBLYWOMAN PINKIN: Thank you.

Are there any other questions from-- (no response)

Thank you.

ASSEMBLYMAN HOUGHTALING: Thank you.

DR. GALLAGHER: Thank you.

ASSEMBLYMAN HOUGHTALING: Okay; next is New Jersey Forestry Association; Bill Brash, Tony Petrongolo, Lynn Fleming, and Lori Jenssen.

Hi.

L O R I J E N S S E N: Good afternoon.

My name is Lori Jenssen, Executive Director of the New Jersey Forestry Association.

I want to thank the Chairs and the Committee for allowing us to be here, and to have this hearing.

The New Jersey Forestry Association is a nonprofit association that is dedicated to supporting the woodland owners in the State of New Jersey. We do this by advocating for sound forest management -- which includes prescribed burning -- and mainly that's through education and advocacy.

We supplied a packet of information that I hope you have, that gives you some basic information. It has some stuff on prescribed burn, defensible space -- some of the materials that we give to our members and whatnot. There's also testimony from those who were not able to attend today.

I'd like to turn it over to Bill Brash.

W I L L I A M F. B R A S H, Jr.: Thanks, Lori.

My name is Bill Brash; I'm a member of the New Jersey Forestry Association, as well as President of the New Jersey Fire Safety Council -- part of a National Learning Network that includes nonprofits and government agencies from California to New Jersey, Florida to

Washington State; People who are concerned and advocating for reduced fire risk.

We are the only component to that Learning Network that's in the Northeast; and there's a reason for that.

The last time I was here, speaking to the Assembly Committee, was for Assemblyman Dancer's prescribed burn bill. And I want to thank you, Assemblyman, for that very effective tool that we now have in New Jersey, that we didn't have before it was signed in August.

There was a question before -- by Assemblyman Taliaferro, I believe -- about have we seen successes in other areas of the country, and can we bring them here to New Jersey. A component to that prescribed burn bill actually came from Florida -- okay? -- and it was brought back from a Learning Network meeting that we had in Florida. Florida burns about 2 million acres a year; because their growing season is 12 months a year, some pieces of ground they have to burn twice in the same year. It's quite an impressive program, and we brought some of those lessons back to New Jersey, and they are our prescribed burn bill.

One of the things that you may not realize -- but we have, after traveling across the country -- is that New Jersey and the Forest Fire Service -- actually burns more acreage than California does in prescribed burning.

We have an institutional knowledge here in New Jersey about prescribed fire that's the envy of much of the country. They lost their institutional knowledge in prescribed burning when they began to suppress wildfires back in the 1940s; whereas, New Jersey never, never gave up that institutional knowledge. Consequently, this week, we have students from

Utah here visiting to learn how we do prescribed burning here in New Jersey.

So you should be proud of the program that's in New Jersey; and it's nationally recognized for both prescribed burning and the way that we suppress fires in the most populated state in the country.

But let's talk about the forest in the Pinelands. I also included a package of information for you, along with a table. We heard Mike Mangum, from Ocean County Parks, talk about Roosevelt City. They purchased this structural private property, 6,000 acres, around this 3,600-unit subdivision called Roosevelt City. They contracted with me, as a forester, to develop a stewardship plan for the purposes of constructing a fuel break around the perimeter of this very at-risk community. You'll see, on the first page, that there's a table that comes directly from the data that I developed in doing that plan. And we heard a lot of comment today, by the State Forester -- John -- and also Bob Williams, about density and the issue with relative density. How many trees per acre are growing in the Pinelands?

And what my data reveals is that there are too many trees growing too close together in the Pinelands. For a majority -- for a good portion of the Pinelands, it is unmanaged to the point where they are impacting the growth and the forest health.

One of the reasons we have the pine beetle issue that we do, is because the Pinelands are weakened because there are too many trees competing against each other, creating a weakened resource, and increasing mortality. The increase in mortality increases the risk of wildfire.

Ocean County Parks understands that; when they purchased that structural property, the first thing they did was, say, “We need a stewardship plan, and we need to manage that property with a perimeter fuel break.” There are two things that had to happen to reduce risk for residents. One of them is thinning, because you can’t burn this ground; it’s too thick. If you go to the second page, you can easily see photographs of what the Roosevelt City perimeter property looks like. You can’t burn that ground now; it’s too thick. The fire would transfer from the surface up to what John discussed -- ladder fuels, the shrub layer -- into the canopy. Once that fire transfers from the surface of the ground to the canopy, you’ve lost control over it; is no longer a prescribed or controlled burn. It’s a wildfire.

So before you can do that to this ground in Roosevelt City, you have to thin it with a -- the photograph you see at the bottom of the page, all right? -- you thin those weakened trees, you leave the stronger trees, and you prescribe burn the shrub layer and remove those ladder fuels. Now you have some semblance of risk reduction, and you have an anchor point for the Forest Fire Service to come in and defend that community, should they need to.

There’s been a lot of testimony here today. There were some comments about the Bass River Fire Tower, all right?

I was at that testimony last week, where the Pinelands was considering whether or not they would allow the removal of 16 acres of trees that are protecting 50,000 people in Little Egg Harbor, Eagleswood, and Bass River townships. The application that was submitted by the Forest Fire Service meets the Pinelands Comprehensive Management Plan. It was recommended by staff to be approved at their August meeting. For

some reason, it was not approved. They didn't have the votes available from the Commissioners to approve that, and they actually requested that the Forest Fire Service come back with an alternative analysis about whether or not the fire tower could be retired, and alternate technologies -- like drones and even NASA satellites -- could take the place of it. Therefore, they wouldn't have to remove the trees that were obstructing the view on three sides of the fire tower.

My thoughts on that was why the Pinelands Commission felt compelled to answer, or request alternate technologies -- that came from local residents, that seemed to me to be ill-informed -- and not take the professional opinion of the Forest Fire Service that said there was no alternative that we could use. The fire tower is not only used for detection; it's also used for coordination in wildfire response during an incident.

ASSEMBLYWOMAN PINKIN: Well, can I just make a comment on that.

I mean, I was watching the hearing previously on this issue; and so some of -- you know, not being an expert in fire service -- but part of the issue was the amount of the trees, versus other areas of the country that use more modern technology -- not necessarily drones, but more modern surveillance equipment.

MR. BRASH: Cameras.

ASSEMBLYWOMAN PINKIN: So I don't know what the answer is about the percentage of, you know-- Because it seems like the other fire towers that exist don't have as much of an area cleared, as was being required in this area.

But those are just questions that I had.

MR. BRASH: I think to answer those-- The obstruction was a non-native species of white pine, which is not common in the Pinelands. Pitch pines don't grow to 82 feet, the height of the Bass River Fire Tower; so it was an oddity that those trees would be obstructing, because they were planted in the 1930s.

The other part of it is the fact that detection is just a small part of what a fire tower actually is responsible for. It detects the fires; but once there is a fire, it is responsible for coordinating response from the Incident Commander on the site, to all the assets that that person, that Incident Commander -- whatever he or she needs -- Radios through the tower as a dispatcher, and goes out to gain those assets for the fire. So it's not just detections; it's also managing and coordinating response during the wildfire. That can't be completed by a camera; only the detection part of that maybe could be replaced by a camera.

So I have included newspaper articles in here, for several of those; with some recommendations on how coordination between agencies may be able to solve some of the issues that we talked about today.

ASSEMBLYWOMAN PINKIN: Thank you.

ASSEMBLYMAN HOUGHTALING: Thank you.

MR. BRASH: Are there any question? (no response)

T O N Y P E T R O N G O L O: Are you done Bill? Okay.

My name's Tony Petrongolo; I'm a wildlife biologist.

I worked for the Division of Fish and Wildlife in DEP for 35 years, before retiring in 2015.

I want to reiterate some of the things that some of the folks have said today about the importance of opening up the ecosystem and the importance of wildlife resources.

But I also have a different take on things, that hasn't really come up today, that I experienced in my career.

Back in 1982, I was appointed our Division's liaison to the Pinelands Commission. Later on in my career, I became Chief of the Bureau of Land Management, so I was responsible for the 360,000-acre Wildlife Management Area system in the state; 181,000 acres of which were in the Pinelands. So you can say that I worked with the Pinelands Commission for my entire career, and I was responsible for managing wildlife habitat on State lands in the Pinelands. And the Commission was charged with maintaining the region's ecological integrity. But I didn't actually work with the Pinelands Commission. From day one, the relationship was adversarial and contentious, and it remains so today.

For public land managers responsible for maintaining habitat for native species, and maintaining forest health, and protecting the region from wildfires, facing this adversarial relationship presents a significant problem; and normally one that is insurmountable, given the limited budgetary resources involved.

The problem is a relatively simple one to understand. The Pinelands are resilient, but they are disturbance-dependent; and that bears repeating. The Pinelands ecosystems are disturbance-dependent.

In the Pinelands *disturbance* translates to *fire*. For thousands of years, the Pinelands has burned on a regular basis; today, it no longer does. To illustrate how significantly Pinelands' ecosystems are impacted, you only

need look at the Pine Plains regions, formerly dominated by pygmy pines, less than three feet in height. It was inhabited by the eastern prairie chicken. Today, the Eastern prairie chicken is extinct, and these Pine Plains areas -- which are mostly on State lands -- are generally over 20 feet tall and represent a wildfire waiting to happen.

The only intact Pine Plains ecosystems left are those that get bombed regularly by the Air Force at Warren Grove Bombing Range, and are out of the jurisdiction of the Pinelands Commission.

In a nutshell, the problem boils down to the use of ecological burning that can be hotter than would typically be done for strictly fire control. This cannot be done safely without significant forestry preparation in those areas where there's an excessive buildup of hazardous fuels. The Pinelands Commission makes it difficult, if not impossible, to accomplish these necessary forestry activities. Instead of encouraging scientifically based forest management in a disturbance-dependent ecosystem, they discourage you.

Given the limited budgets available to State government agencies to accomplish the goal of properly managing a disturbance-dependent ecosystem, the roadblocks placed in the way by the Pinelands Commission usually make the difference between success and failure of a forestry project. The result is the tinder box which characterizes the existing Pinelands region, along with the decline of many native wildlife species, and the recent extirpation of both the ruffed grouse and the bobwhite quail from the region.

Why an agency, with limited scientific expertise, charged with maintaining the ecological integrity of the Pinelands, would adopt such policies is beyond reasonable explanation.

A parallel problem for public land managers in accomplishing wildlife habitat restoration projects is the lack of a thriving forestry industry. When meaningful habitat management plans are developed by State agencies, the only economically feasible way to carry them out, many times, is through the private sector. The beauty of these habitat projects -- in an environment where State agency budgets are extremely tight -- is that they can potentially be carried out for little or no cost, because the trees have value. The problem is that there are few bidders for most of the projects, because there are so few forestry businesses left in the Pinelands. Over the past 40 years, Pinelands' regulations have resulted in the disappearance of the forest industry, despite the fact that the original Pinelands Act recognized that forestry was consistent with the purposes of the Act. Forestry is classified as *development*, the same as building houses and roads; and this type of discouragement has resulted in the gradual decline of the industry.

Forestry conducted by State agencies to restore a rare species habitat, or for other ecosystem restoration purposes, is also classified the same way: development. State agencies must apply and pay for a permit to conduct activities that will maintain ecological integrity in the Pinelands, a goal that the Pinelands Commission is supposed to be espousing and encouraging. And the process for getting a permit is time-consuming, expensive, and, ultimately, always not successful.

In the absence of uncontrolled wildfire, comprehensive forest management, including birding activities, is the only reasonable way a million-acre disturbance-dependent ecosystem can be maintained. It should be a win-win for everybody. Over the last 40 years, the policies of the Pinelands Commission have turned it into a major lose-lose, with the worst catastrophic western-type wildfires yet to come.

That was 35 years of frustration built up. (laughter) I apologize.

ASSEMBLYWOMAN PINKIN: Thank goodness you got it out of your system.

ASSEMBLYMAN HOUGHTALING: Yes, thank you.

I have a question for you.

On a scale of 1 to 10, if you have TO cut a firebreak through the Pinelands, how hard would that be?

MR. PETRONGOLO: Impossible.

It's not-- You know, we don't-- In Fish and Wildlife Management, we didn't cut any firebreaks. We thinned the forest to produce habitat for snakes, butterflies, bobwhite quail, various native species. This also had the impact of opening up the forest and reducing the wildfire threat.

The two things are, you know -- you can do it compatibly; it just was, you know-- The Pinelands looked at those things as being -- anything that involved tree cutting as incompatible somehow. And you know, why the New Jersey DEP would have to get a permit from the Pinelands Commission to conduct habitat management, you know, is a question itself.

But those permits were all -- usually so difficult to obtain that with the limited resources we had, you know, we went and worked in the Highlands, or down the shore, or on the marsh, or somewhere else. It was just -- it's just like pulling teeth to get things through.

You know, that's their -- one of their jobs, by legislation, is to maintain the ecological integrity. They should be helping us do that, and making it as easy as possible. And I say *us* because, even though I've been retired four years, I still feel like I'm a part of it. But, you know, they don't help the situation; they make it much more difficult and expensive.

ASSEMBLYWOMAN PINKIN: Is there a discrepancy-- It seems like there's a discrepancy over having a prescribed burn and not having one. Is that the crux of the question here?

MR. PETRONGOLO: No, you can't burn an area, that has had the kind of fuel build-up that we've had over the last 40 or 50 years, safely without doing some kind of forestry preparation; some kind of reduction of that fuel mechanically. So opening up the canopy so that the fire doesn't get up into the canopy and cause a fire that's uncontrolled. Because once it gets up into the tops of the trees, there's not a whole lot you can do about it.

But you need to do that mechanical prep. And once that mechanical prep is done, you know, you can do the burning on a regular basis and it doesn't -- it can be done safely. But it's just difficult to get -- to be able to get that prerequisite done to be able to do the burning.

ASSEMBLYMAN HOUGHTALING: Any other members have a question?

Yes.

ASSEMBLYMAN ARMATO: I hate going back to the tower (laughter), but I'm trying to understand this.

And using the drone, so to speak-- I mean, fire towers also do crosses. So not only in their area, they're going to cross a fire in somewhere else. Once you cross it, then you can get the location of the fire.

MR. BRASH: That's correct.

ASSEMBLYMAN ARMATO: So 16 acres -- supposedly 16 acres to save how many acres?

MR. BRASH: I think we heard it was a 150 square miles of area that can be seen from the fire tower.

ASSEMBLYMAN ARMATO: All right; it just seems -- I don't know -- 40,000 or 50,000 acres, and you're throwing in the 16 acres -- it just doesn't seem to make sense. On top of that, it's not even a tree that actually grew here.

MR. BRASH: That is correct.

ASSEMBLYMAN ARMATO: I think that's the crux right there. This was imported, and now it's just wild.

Sometimes when we're dealing with other entities, it's a little bit hard. But I think that I would much rather the Pinelands be a partner than an enemy.

MR. BRASH: Absolutely; there's a need to be a partner.

You know, I think we-- Tony talked about it. You have-- The Pinelands was responsible for preserving a million acres; and they did a terrific job doing it. They've been doing it for 45 years, and it's a model for the rest of the country. I think, at this point, it's time to go to the second gear, which is manage the resource before the preservation kills it.

ASSEMBLYMAN ARMATO: Thank you.

ASSEMBLYMAN HOUGHTALING: Any other questions?

(no response)

Thank you for your testimony.

MR. PETRONGOLO: Thank you.

ASSEMBLYWOMAN PINKIN: Next we have New Jersey Cranberry grower and former Pinelands Commissioner Stephen Lee III.

STEPHEN V. LEE III: Thank you all for your hospitality today.

ASSEMBLYMAN HOUGHTALING: We had another Stephen Lee here; any relation?

MR. LEE: I am related to Steven Lee IV.

ASSEMBLYWOMAN PINKIN: Just state your name.

MR. LEE: My name is Stephen Lee III. I am only the fifth generation to live on our land in Speedwell, Burlington County; Washington, Tabernacle, and Woodland townships.

I did serve on the Pinelands Commission for 27 years. My role today is not to defend the Commission, but I can try to explain a little bit about the Pinelands Commission.

When it was created by the Legislature in 1979, it was for the purpose of protecting an area that was threatened; but it was threatened by things like real development -- a jetport in Ocean and Burlington counties, near Coyle Field, in the pygmy forest that we've heard about today. And development was occurring around the edges. And the Legislature was careful to give the Commission authority to tie up development. The Legislature also encouraged the Pinelands Commission to use acquisition in order to take land out of the threat of development. And a great deal of

public acquisition has occurred over the years, with support from the Legislature, with support from the Federal government. The National Park Service has been very supportive of acquisition.

The problem is, that acquisition has not always been supported by maintenance. Assemblyman Dancer, I believe you asked the question about -- when you buy with public money, what about maintaining? And Ocean County is doing, and has always done, a good job of attempting to do that, in my opinion.

And I give your two Committees great praise today for bringing us all together in this room. It's good for us all to be able to hear each other -- the people behind me, and those of you in front of me. We need to continue these conversations; it's essential for the health and the long-term good of the state.

You heard a reference earlier to the *Rolling Stone* article that Mr. Dickman, who was a fire jumper and wrote several books about fire-- But he quoted in there Dr. Stephen Pyne from Arizona State University; he's probably the national expert on fire ecology. And he visited New Jersey a few years ago; visited our farm, and spoke to many people in the Pinelands area.

He said that, "The woods are choked with hydrocarbons; like a toxic dump. Sooner or later, Southern New Jersey may know the fire equivalent of a Hurricane Sandy."

I think we're here today because we don't want that to happen and there are things that we can do.

A forester, who I know, says that, "We can't burn our way out of this problem; we must cut too." There is a resistance to cutting; I saw it

last week at the Pinelands Commission meeting. It was the first time I'd been in the room in 10 years, but I was concerned enough about the possibility that the Bass River fire tower would be taken out of service again this year, because the lack of visibility, that I went to the Commission meeting.

I can understand our residents are concerned, because they like trees. I love trees; we cut trees on our farm. We cut 650 acres of trees, because that area was destroyed by a wildfire. And we replanted with trees, and now it's a beautiful forest. Sometimes trees are meant to be cut. Not all tree; California protects its Sequoias.

But we need to help the public understand that occasionally cutting a tree is not a bad thing, if it accomplishes a bigger public safety or public goal.

We're at a decision point today, however. I think the health of the forest in the Pines is not good. The Forest Service and the Forest Fire Service do their best at managing the State lands that they're charged with. But they-- Greg had difficulty giving you an answer to what it would cost to go after the most threatened areas. I think they're doing that because they're trying to live in the confines of the budget. We need to think outside the box, outside the budget, and say, "What can we do to make this work?"

When we did our harvest, as a result of a forest fire, we brought in an outside contractor who, at that time, because there was somewhat of a forest products industry available, harvested pine trees and oak trees on our farm. And pine went one way, and the oak went another. And they were made into chips, and many of them were turned into

hospital gowns; not exactly what you would want your tree to become -- a hospital gown -- but they did.

The bad thing was, then they had to go to York, Pennsylvania, to be processed; there were no facilities in New Jersey. So already, the contractor had a lot of expense just in hauling. The only thing we got out of the harvest of our entire forest was they loaned us one piece of equipment to use to prepare the land for replanting; and they provided the trees. The rest has been at our expense; the ongoing-- First the land preparation -- there's thinning necessary; you can't just plant a lot of trees, because-- We planted trees. By the way, you plant one tree per 100 square feet; one every 10 feet. And guess what? In the Pinelands, you'll get not that one tree that you plant every 10 feet, you'll get 100 volunteers that come up from seed stock in the soil; it's a beautiful thing to see. But the ground has to be properly prepared for that to happen.

There's a lot we can learn about forestry and creating a healthy forest. As a member of the Commission, I saw the trouble that agencies had. When I joined the Commission in 1982, I was told that DEP was in the process of preparing a forestry management plan for Lebanon State Forest -- that's now Brendan Byrne State Forest -- but the plan was underway. It's still not complete; as far as I know, the DEP has been unable to complete, basically, a stewardship plan for any of the State forests. I could be wrong about that, but I don't know of any comprehensive plan. Yet, it's the DEP that has to do the work of approving private people's stewardship plans. They have the ability; they just don't have the resources to do it on all of the State property. And it's a shame, because the land is not being managed in a comprehensive way.

The Pinelands is really a beautiful tapestry of various land uses now; but the problem is, the land is not being managed, in the most fragile areas, to respect the fact that someday we may have a fire.

Our family has been doing this a long time. Some of you may know the name Gifford Pinchot. He was governor of Pennsylvania, but he was also the founder of the U.S. Forest Service. He and my grandfather were good friends. He used to come out to the Pines in order to hunt deer; but also he loved being in the forest and talked about the need to be a steward of the land. He taught my grandfather that, my father taught me that; and we've been doing prescribed burning and practicing stewardship before the word was invented.

But it's more than just prescribed burning. I've learned recently that prescribed burning, in the same area over and over again, may add smoke to the atmosphere, but it doesn't provide a lot of good. You need to go into the areas that are difficult to burn if you really want to protect the forest resource. That takes nerve. We had some of these new forests that -- I'll just tell you anecdotally -- we've been trying to burn for the last five years, because they're young, they're full of lots of fuels at a low level. But they needed fire. And just about 10 days ago, we were able to get fire in about 1,000 acres of our land that really needed it. I didn't have the nerve to do it; we have a young fellow who works for us, who used to work for the Forest Fire Service. He had more nerve than I did, and he lit sections that I was scared to death to do. But, by golly, it worked. Sometimes you have to take a risk, and sometimes you have to cut a tree.

But taking risks and cutting trees will protect the people of the State of New Jersey, and the people of the communities that surround the Pinelands, for a long time, if we have the public will to do it.

So I really could--

ASSEMBLYWOMAN PINKIN: Well, sir, when you say it worked; what was the result?

MR. LEE: The fire went through; it did not kill or destroy any of the trees that we had planted and nurtured for the last 20 years. And it thinned the understory, so that it's much less likely to have a fire start by somebody riding by and tossing a cigarette out of the car.

And we will continue to do the things we need to do to continue to thin the forest, in order to, someday, have the potential of harvesting trees. In about 45 to 60 years from now, somebody will get to harvest a tree. That's the purpose. We want to grow some nice, tall, straight trees, like used to grow in the Pinelands. Our area has had at least three major clear cuttings, because we saw evidence from charcoal piles when the State Forest Fire Service flew over and took pictures. We had charcoal piles throughout the forest; and they had two different ages, and there was about a 100 years difference between the two sets of charcoal piles.

The area had-- It's not like we're the first people that found the New Jersey Pinelands; it's been here a long time. But as we heard today, it's fire-dependent; and the plants, and the animals, and the quail -- many things are fire-dependent, disturbance-dependent. We don't want to see it paved over; we don't-- I'd love to have a jetport closer to home, but we

don't need that, and we're not going to have any of those things. But we do need to take care of the resource.

ASSEMBLYWOMAN PINKIN: Thank you.

ASSEMBLYMAN HOUGHTALING: I have one question.

When you said you cut down your trees and you replanted, you don't pull the root out, do you? The root just rots?

MR. LEE: Yes; the root rots. It rots best if you run over it with something called a *drum chopper* that makes like -- it looks like the land has been plowed. We do that to break up the top layer, and give the planted trees a much better chance of surviving -- so that water can get to the roots.

ASSEMBLYMAN HOUGHTALING: Any other members have a question?

MR. LEE: And we're available for tours. (laughter)

ASSEMBLYMAN HOUGHTALING: All right, thank you; and I'll take you up on that.

MR. LEE: Herb Conaway came down, and had a great time one day, just going through-- I think he had more fun in the woods than he did in the cranberry pile. (laughter)

ASSEMBLYMAN HOUGHTALING: Thank you very much.

MR. LEE: Thank you.

ASSEMBLYWOMAN PINKIN: Next, we'll have the North Atlantic Fire Service Exchange; Inga Parker LaPuma and Nicholas Skowronski.

Just state your name for the record, please.

N I C H O L A S S K O W R O N S K I, Ph.D.: My name is Nick Skowronski, with the USDA Forest Service.

I N G A P A R K E R L a P U M A, Ph.D.: I'm Inga LaPuma; I'm with the North Atlantic Fire Science Exchange.

DR. SKOWRONSKI: So I'll go first.

So first of all, thank you all for the opportunity to be here today.

My name is Dr. Nick Skowronski; I'm a research scientist, focused on wildland fire behavior and fuels, with the USDA Forest Service Northern Research Station.

Earlier in my career, I spent several years as the Prescribed Burn Coordinator on Fort Dix here in New Jersey. I've been conducting fuels treatment and fire behavior research in the New Jersey Pine Barrens, with support from the New Jersey Forest Fire Service, for over 15 years. I'm also the Principal Investigator of the North Atlantic Fire Science Exchange; and a member of the Northeastern Regional Cohesive Strategy Committee, where I Chair the Prescribed Fire Working Group.

Fuels, weather, and topography are the elements that dictate the fire environment which directly drives fire behavior. Fuels -- as we've heard several times here today -- are the only element that we have in this triangle that we were able to manage prior to a fire event.

In a forest, we can think of fuels occurring in three layers. The first layer, or the forest floor, contains dead and fallen leaves, twigs, and branches. The mid-story, or the part of the forest between about 3 and 15 feet off the ground, can be thought of as *ladder fuels*, as fires can be drawn up into the overstory through this vegetation. Finally the overstory, or mature trees. Houses or other structures may also become fuels, in some cases, as in California; and here in the past.

The characteristics of these fuels change with space and time in many ways. With time, for example, we can think about small and fast changes, like moisture content through the day. Similar to how the snow may melt in your yard faster in some places than in others, fuel moisture does the same in the forest due to shading.

A second, longer-term example of fuel changes through time is the growth of the forest over years or decades. Following a severe fire, a thicket of pine trees may re-sprout, or seed in, difficult to walk through as they grow overhead. Let's call this *fuel type number 1*.

As competition takes place, many of these stems may die, falling to the ground and leaving gaps, becoming a very different kind of fuel: *fuel type 2*.

Fuel type 3 would see these now overstory trees continue to grow, and new seedlings of a different species -- perhaps Oak -- seeding in under them. Given the ignition of a fire, each of these fuel types represents a very different set of conditions and feedbacks which influence the behavior of the fire. The arrangement of different types and loadings of fuels across the landscape have a large influence on the dynamics of wildland fire. Our research, and that of many other scientists across the world, indicates that fuels may be actively managed prior to a fire event in a way that alters fire behavior directly. Risk management and planning strategies exist that allow for science-based management and planning for the mitigation of these catastrophic fire events, even on our landscape.

DR. PUMA: Once again, my name is Dr. Inga Puma, and thanks for the invitation to come today.

I am the Science Communications Director for the North Atlantic Fire Science Exchange, one of 15 joint Fire Science Exchanges across the country, funded by the Department of the Interior and the U.S. Forest Service.

I'm also a visiting scientist at the Center for Remote Sensing and Spatial Analysis at Rutgers; and I'm a consultant with the New Jersey Forest Fire Service.

I have been working on landscape-level wildfire issues in New Jersey since 2004, and I'm very familiar with the fire history of New Jersey. So I passed out a group of maps; I'm hoping you guys can pull those out and check them out while I'm talking here.

So the wildfire history maps of New Jersey, over the last 90 years, show how often our forests have burned. So if you look at a Map 1, you can see that there are areas with the highest fire frequency that -- have experienced fire up to 10 times over the last 90 years. So those are your red, bright red colors -- orange and red -- where it has burned most often.

If you look at the Map 1b, you can see when the last large wildfire occurred across the landscape. And I've also outlined the 1963 wildfire polygon in black. So you can see there are some areas that haven't burned since that 1963 fire; so it's been a while for a lot of the Southern Pinelands. Not to say that those areas haven't had prescribed fire; a lot of them have.

So the third map, Map 3, shows the ignitions over the last 10 years. So all those little tiny black dots are fire ignitions, over the last 10 years, along with the New Jersey Forest Fire Service fire tower locations. So

there are 21 fire towers; only about 9 are in regular use during High Fire Danger days. I just wanted to point all of those out.

So we have lots of fire history information, which can inform us about what has happened. But we also have that wildfire hazard and risk mapping, which can show us how current fuels might impact where fires can spread.

So Greg was talking about the latest science that separates wildfire hazard and wildfire risk. So the hazard is, basically, your fuels, your ignitions, and your climate; so where the fire is going to go and how severe it might be. Whereas, the risk -- you overlay your highly valued resources and assets -- things like communities, infrastructure, farms, habitat -- whatever you deem as *at-risk*, you can overlay with that hazard map, which is the fourth map that I have there.

So Map Number 4 is an example of a wildfire hazard map. It does not have the risk included in that map. But you can see, across the United States, there are those areas of red -- and California has a lot of it in that map -- but you also see that South Jersey has a bright red spot as well, so it's comparable. And that was a U.S. Forest Service hazard map that I showed there.

So the Northeast Region of the U.S. Forest Service is actually in the process of a region-wide assessment, similar to what you see there; so it will be a little more detailed. But then, also, the New Jersey Forest Fire Service is doing a state-level one. So we're going to add the elements of infrastructure for risk as well, so we'll have a really good idea of risk in our state after that's done.

So with this information, creating a fire management plan to decrease risk and prioritize those fuel treatments, for any part of the state, will become much easier. Additionally, ensuring refuge for species of concern, while accounting for fire risk, will also become clearer at the landscape level. So with any species of concern that we're talking about in a fire-adapted ecosystem, there's a constant balancing act of maintaining its preferred habitat through prescribed fire or fuel treatments, while also not harming the species overall. In other words, you can't burn everything all the time if you want to help a fire-adapted species; but you absolutely do need to rotate your burns around the landscape in order to maintain the preferred habitat for those same species. So this is called the *shifting mosaic*, in landscape ecology; it is a widely held idea that we've been talking about for a long time in landscape ecology.

So in order to do that, you need data, communication, planning, and mapping to create the shifting mosaic management-type plan. So it takes a lot; it's complicated, as a lot goes into it.

So another area I'm familiar with is the Federal smoke regulations for prescribed fire. There are two pollutants that generally limit the use of prescribed fire in the State of New Jersey. One is called PM2.5; so those are small particles that penetrate the lungs -- they are less than 2.5 micrograms; and ozone, which is, as they say in the EPA, "Good up high, but bad nearby," okay? So we don't want ozone near us; we want it up in the stratosphere.

There are numerous ways to limit the effects of these pollutants on humans in the environment; for example, taking into account loft, wind direction, mixing height, or other fire weather indicators before you do a

burn. Luckily, the number of days in each year in New Jersey with levels over the Federal limits has been steadily decreasing. For example, Brigantine experienced only one day of unhealthy levels of ozone last year, in May, and no unhealthy days for PM2.5. So Brigantine is one of the air quality sensors that they use across the state; and a lot of our smoke heads in that direction.

And, also, the EPA has developed an exception rule if prescribed fires happen to push our state's air quality readings over the legal limits. So one of the things that we talk about in the fire world is, "How do you want your smoke?" Do you want it in a controlled manner when you know what the weather is going to be; or do you want it with a large wildfire that you can't control? So that's our phrase, "How do you want your smoke?"

So, overall, the fire history of New Jersey is fairly detailed; it gives us a good idea of what has happened in the past; the wildfire hazard and risk maps give us an idea of where to concentrate our efforts; and the smoke science tells us that smoke effects are mostly predictable.

So I just think that if we use all this type of scientific background, we can move towards a safer and more resilient fire-adapted landscape in South Jersey.

Do you have questions for us?

ASSEMBLYMAN HOUGHTALING: Thank you.

Any members have a question? (no response)

Thank you.

ASSEMBLYWOMAN PINKIN: Thank you.

ASSEMBLYMAN HOUGHTALING: And I think for closing remarks, we're going to have Bob Williams come back.

MR. WILLIAMS: Well, we've heard a lot today; and I think this hearing is really positive -- a tiny first step.

It's really important that you folks begin to understand this: it's very complex, there are a lot of moving parts, and we have a long way to go.

The best thing about this hearing -- as I sat and listened to every single person -- was we have a really good group of people who care about this; knowledgeable people, people with expertise. So we have something to work with here. We didn't have that at the last hearing. That was a fragmented, "I think this," "I want that." This group -- there are differences but there's some general consensus. I think one consensus is, "We have a problem;" and another consensus is, "We have no clue when we can get going."

This problem is now, today; the weather's changing. That's why they're letting us burn.

The two main obstacles are going to be getting social buy-in to cut trees. When you threaten 50,000 people because you're concerned about cutting 15 acres of trees -- not clearing 15 acres of trees, regenerating them; there's going to be a little forest there in one summer we're not destroying the environment, by any means. How the heck are we going to get people to buy in, when we say we need to thin 6,000 acres of trees here? That is quite scary to me.

No, I've lived with this for 30 years; I know what anti-tree cutting is all about. I get forestry permits all the time, and I'm harvesting trees. I get we have a political-social problem with the concept of cutting

trees. Everybody in this state consumes wood fiber every day of their life like there's no end to it. Look around you; it's nothing but wood. Look at the paper -- the products that come from wood fiber are just amazing, and the quality of life that it gives us. To have this concept that somehow to utilize the resource in a renewable, ecologically green way is so anti-green -- I don't know what to say.

I tell people, "I actually have a really green job," and this problem offers green jobs.

The one thing I am amazed that I've not heard mentioned once -- is this thing about climate change. I assume the DEP and the Governor see this as a really important issue. When it comes to the forest and forest management, that hits on all eight cylinders when it comes to helping the issue of climate change. It is the only way to keep this forest green and vibrant, and sequestering carbon from the atmosphere. That's why we have these forests now. Taking the carbon and locking it up in panels for centuries to come is the way to go. The alternative is, make these forest carbon producers. They're going to burn up in one day and put more carbon in the air of New Jersey than all of our cars are doing the whole year. Then the trees are going to stand there and rot, and fall on the ground, and release all that carbon.

More than that, how about the water resource -- that somebody did mention. These forests are so dense, many of these wetland areas, these moderate, intermediate wetland areas, are drying up because there's too many trees transpiring water out of the ground. You need to understand what a tree does every day of its life when it's growing. It's taking tons of water out of the ground to survive; that's how it lives.

And there is a lot of evidence growing in the world of forest science across the country that many of our overstocked forests are sucking the water and destroying our wetland habitats.

There are many, many, many critical reasons that we need to start taking care of these forests. And that message has to be delivered across the board.

I've dealt with so many people who hated me for cutting trees; but the great news is, when they kind of understood, "Oh, I see. I wish you didn't have to do that, but I think it's okay. Because my children are going to go to that same forest and enjoy it." Forests are renewable; they've been renewing themselves before we even got here. But the forest of southern New Jersey, according to Dr. Little -- our best forest silviculturist with the United States Department of Agriculture, who studied the Pinelands for over 30 years -- said they cut it off, since European settlement, five times; clear-cut everything for the shipbuilding first; for the fuel to fuel New York and Philadelphia. Think about it; in the 1700s, everything you did, you needed to burn wood to keep warm. That's why those houses had 10 fireplaces in them.

So to somehow, today, say by going out and selectively thinning the forest, we're destroying it, is a horrible thing. It's ludicrous; and at the same time, go over to McDonald's and say, "I want a hamburger;" they wrap it up in a piece of wood, they put it in a box that's a piece of wood, then they put it in a bag that's a piece of wood. Then they give you a cup that's a piece of wood, and you go home and yell at Bob Williams. (laughter) There's something wrong; and it's upon us, working with the government -- I'll say it again -- in partnership, educating, but not

rolling over and just saying, “You know what? Don’t kick the can down the road.” I’ve watched that for 30 years; they just kick the can down the road. “It’s too complicated.” We need leadership; we need leaders who stand up and say, “I understand your concern. We’ve taken all the information in; here’s what we’re going to do, because it’s the right thing to do.”

It’s not a Democrat or Republican thing. We’re talking about our very quality of life; the planet we live on. If we can’t come together on that, we’re pretty sunk, because a lot of people are going to die from this fire. And they’re going to be able to read this transcript of this hearing and say, “Yes, they were told; here’s what we did.”

So thank God you had a crowd like this; you have something to work with. Every one of these people actually cares; every one of them seemed to be ready to listen. “Well, what could I do?” In my experience, in these kind of public -- that’s kind of rare. Usually people are at each other’s throats, “This one is going to get over on me, and this--” Today, we’re together; but we need to do something. You don’t need to sit around and talk again; you need to start moving the ball down the field.

ASSEMBLYMAN HOUGHTALING: Thank you.

Does anybody else have a--

Do any of the members care to make a comment about what you’ve heard today?

ASSEMBLYWOMAN PINKIN: I think we’re good.

ASSEMBLYMAN HOUGHTALING: All right; thank you.

I would just like to say thank you to everybody coming out today. We did hear a lot of testimony; we heard a lot of problems that need solutions, and there were a lot of organizations that need to come

together. And I think that us coming together today to try to find out some of the problems that we have, and we can correct these problems, is something that we're going to work on.

And I'm happy to be on the Agriculture Committee; we're going to look at this thing, and I'm sure Chairman Pinkin as well, with the Environmental Committee. We will be focusing on this, and we will try to come up with some kind of solution. And we hope that we will have the opportunity to work with each and every one of you to make this happen.

So thank you all for coming out.

ASSEMBLYWOMAN PINKIN: Thank you.

(MEETING CONCLUDED)

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