S. HRG. 107–930

DECLINE OF OAK POPULATIONS IN SOUTHERN STATES CAUSED BY PROLONGED DROUGHT AND THE RED OAK BORER INSECT INFESTATION

HEARING

BEFORE THE

SUBCOMMITTEE ON FORESTRY, CONSERVATION AND RURAL REVITALIZATION

OF THE

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY UNITED STATES SENATE

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DECLINE OF OAK POPULATIONS IN SOUTHERN STATES CAUSED BY PROLONGED DROUGHT AND THE RED OAK BORER INSECT INFESTATION

THURSDAY, SEPTEMBER 5, 2002

U.S. SENATE,
SUBCOMMITTEE ON FORESTRY, CONSERVATION, AND RURAL REVITALIZATION, OF THE COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:10 a.m., in room SR–328-A, Russell Senate Office Building, Hon. Blanche L. Lincoln, Chairman of the subcommittee, presiding.

Present or submitting a statement: Senators Lincoln, Hutchinson, and Crapo.

STATEMENT OF HON. BLANCHE L. LINCOLN, CHAIRWOMAN, SUBCOMMITTEE ON FORESTRY, CONSERVATION, AND RURAL REVITALIZATION, AND A U.S. SENATOR FROM ARKANSAS

Senator LINCOLN. The Senate Agriculture Subcommittee on Forestry, Conservation, and Rural Revitalization will be called to order.

I would like to thank all of you for coming this morning to talk about the forest health problem that is really ravaging the entire Ozark Highlands. As I mentioned earlier, the fact that the House Committee is having a hearing this very morning as well, with Secretary Veneman and Norton testifying about the health of our forests is indicative of the fact that we do have a problem and that people are beginning to see in their own States some of the incredible concerns that we have over the health of our forest.

Again, I would like to thank all of you all for joining us. Senator Carnahan, we are delighted that you are here, as well.

I am going to begin with my opening statement and then pass it over to Senator Crapo. Thanks for coming, Senator Crapo.

Senator CRAPO. Thank you.

Senator LINCOLN. I appreciate all that you do.

The health of this Nation's forest, both private and public, is in the forefront of our minds. We have the seemingly annual fires throughout the West, forest insects and disease outbreaks throughout the Nation, and now the prospect of losing all of the oaks in the Ozarks. The situation is particularly pronounced in my home

State of Arkansas and throughout the Ozark Highlands of Missouri and Oklahoma.

Growing up in Arkansas and traveling through the Ozark Mountains, I have become accustomed to seeing a very vibrant oak and pine forest. However, we are now finding large brown bare patches developing among the trees, an all too vivid indication of the epidemic of oak decline and the mortality sweeping through the Ozark Highlands.

Oak decline is a natural occurrence in older forest or in areas where trees are stressed by things such as old age, overpopulation of the forest, poor soil conditions, or the effects of several years of severe drought. Under normal conditions, oak decline is not necessarily fatal to the trees or to the forest.

However, these conditions have allowed insects such as the red oak borer to flourish throughout the forest and has led to an epidemic of oak mortality throughout our forests. In fact, many estimates now suggest that potentially up to one million acres of red oaks have been affected in the Ozark Highlands, and it is important to note that this epidemic has not been long in coming. It was only first discovered in the late 1990's. I am concerned that this epidemic will lead to a complete loss of red oak from the Ozark Highlands and cause long-term changes to the health of the forest ecosystem.

It is also important to remember that the epidemic has not been limited to just public land. Private forest landowners and homeowners throughout the Ozarks face the same problem.

The past several years of extremely dry summer conditions have weakened trees throughout our region. We are going to discuss this morning the extent of this epidemic in Arkansas as well as what, if anything, we can do to mitigate the effect this is having on our forest ecosystem.

Left unchecked, this epidemic of oak mortality could completely rob the Ozark Highlands of our oak forest and have effects on everything from our timber industry to forest tourism, wildlife populations, as well as causing extreme fire danger. We all too readily remember the fuel left on the floor of our forest after our ice storm of a couple of years ago.

The Arkansas delegation has worked together before to respond to disasters within our forest and I expect this to continue as we address this new epidemic. Most recently, we worked to gain directly finding, as well as an exemption from NEPA, to aid mitigation efforts following that massive ice storm I just mentioned.

We are also in the midst of debating the Interior Appropriations Bill on the floor this week and one of the topics being debated is that of the forest health and how to address and hopefully mitigate against the problem of fire, insect, and disease. Many of us here have worked for some time on drafting provisions that would hopefully allow us to quickly address these problems and I hope we will be successful.

I also believe that the president echoed this sentiment during August and it is good to have the Administration's full support in this endeavor.

Through our witness testimony this morning I hope to gain a full grasp of the extent of oak mortality in the Ozarks, what the full

effects of this epidemic will be, as well as what can be done to mitigate against it.

I would like to yield now to our ranking member on the subcommittee, a good friend and colleague both in the House and here in the Senate, and someone I have certainly enjoyed working with, to make any opening remarks. Senator Crapo.

STATEMENT OF HON. MICHAEL D. CRAPO. A U.S. SENATOR FROM IDAHO

Senator CRAPO. Thank you, Senator Lincoln.

I appreciate your holding this hearing and certainly agree with your comments about the need we have to address forest management in a proper manner and the opportunity we will have in the next few days to do so.

I appreciate your hearing this hearing. Oak mortality is an important discussion and it is timely to be discussing the forest health, as you said, as the Senate considers the Interior Appropriations Bill, and the repercussions of an unmanaged forest.

I just want to take a few moments to mention the concerns we have in Idaho. Although it will not be with the same species, this is a very similar issue, just to show that this is not just a local issue, one part of a regional issue, one part of the country.

Oak decline in the Ozarks Highlands reflects many of the problems we face across this country. The contribution to the fuel load, the impact it will have on recreational opportunities, the effect on wildlife and the repercussions to local economies are all repercussions of the oak.

We do not have the red oak in Idaho and so we do not have the red oak borer in Idaho. We do have the Douglas fir and the Douglas fir bark beetle and the mountain pine beetle for the pines. The outbreaks of these insect infestations follow much the same course as the red oak borer.

In Idaho, we went from 33,000 acres affected in 1996 to 122,000 acres in 2000. The trees stressed by drought, root disease, and other insects increased the susceptibility of even healthy trees to these beetles, which then leads to epidemic populations.

In another similarity, loss of the Western white pine and the risk that it poses to Idaho's forest is a potential outcome with the red oaks in the Ozarks. Like red oaks, the Western white pine is an economically, environmentally desirable species. The white pine, which by the way is Idaho's State tree, once dominated the forest ecosystems in the Northwest. Passive and inactive management have resulted in a dramatic decline in the abundance of this pine.

In 70 years, we have lost 90 percent of this important species. The combination of factors that decimated the white pine has resulted in a species shift where the Douglas fir and other less fire resistant species have increased in abundance. This shift to a more densely populated species, compounded by the overgrowth, has resulted in a change to the ecosystem that lends itself to increasingly high risks.

The United States has seen that the loss of the Western white pine and its replacement by less desirable species has had on the economic impact in rural communities. Wildlife loses habitat and

increased catastrophic wildfires, and similar outcomes could be the result of the decline of the oaks in the South.

I want to show a map just very quickly. This map is 2 years old. The red on this map is probably more intense today, if a current map were to be provided. This Forest Service risk map from 2000 shows that 70 million acres of forest land are at risk of mortality from insect and disease. It is more distressing when you consider the fact that about one-third of our nation's land is composed of forest, as is shown by the gray. Yet, that red is taking over and is growing every year.

This is an issue that touches Americans in every walk of life. Already this year, we've seen 6.3 million acres affected by wildfires and the suppression costs are reaching $1 billion. This devastation follows the 2,000 fire season where 8.4 million acres burned with a suppression cost of $1.36 billion.

Sadly, these costs and these outcomes were not unexpected. Fires are a natural part of a healthy ecosystem and provide numerous benefits. In an unhealthy forest, these fires can burn with an intensity and size that is destructive with all of the impacts that we have previously discussed. They also present a significant safety risk and cause economic loss that hits most communities very, very hard.

Madame Chairman, I have more that I would like to submit for the record, but I would just like to tell you that I look forward to an interesting discussion with regard to these witnesses that we have today and hopefully gain a better perspective on the level of the problem we have.

I can certainly tell you that we, in Idaho and in the Pacific Northwest, though we do not have the same species and the same insects, certainly share your concerns and hope that we will be able to work together to find a common solution to the problem for the entire country.

[The prepared statment of Senator Crapo can be found in the appendix on page 36.]

Senator LINCOLN. Thank you, Senator Crapo. Without a doubt, we all recognize that not only do we have forest health issues in Arkansas but Idaho, Montana and California have some real difficult problems that they are going through.

We are hoping that today's hearing will bring to light not only the critical problems that our forests across the country are facing, but some of the ideas and the ways that we can look to mitigate some of those problems.

Senator Carnahan has requested to testify before the committee this morning, and we are delighted that she is here. She and I are both aware of this problem that this epidemic has caused in both of our states.

We are very pleased to have you before the committee, Senator Carnahan.

STATEMENT OF HON. JEAN CARNAHAN, A U.S. SENATOR FROM MISSOURI

Senator CARNAHAN. Thank you very much, Madame Chairman, and I thank you for your leadership in convening this hearing, and

certainly Senator Crapo for his words and his commitment to this problem, as well.

As you know, oak decline is a serious issue in Missouri. I want to thank you for inviting Robert Krepps, Missouri's Chief Forester, to testify today. He has been working hard to manage oak decline in Missouri for many years. I believe his testimony will be valuable to this subcommittee.

Although we cannot outwit Mother Nature and halt oak decline, by working together we can at least mitigate its impact. Mismanagement of our forests many decades ago is the prime culprit behind the thousands of dead trees that we see today.

Fortunately, we now know how to prevent the mistakes of the past. A diversity of trees is integral to good forest management in Missouri's Ozarks. Although beautiful and stately in their own right, it is clear that oaks must share the forest with other species of trees.

Today's foresters and responsible land stewards have the capability to manage our woodlands in a sustainable and profitable manner. When they do, wildlife, jobs and natural beauty are all protected.

Beyond learning from the past, we must also plan for the future. Action taken today will determine what our forest will look like at the turn of the century. A comprehensive and immediate response to oak decline is essential to Missouri and other states' suffering.

I am pleased that several government agencies and other stakeholders have taken important steps to access and respond to the decline. We must make sure that public agencies and private stewards of the land share best management practices. The need for a coordinate response between State, local and Federal agencies working closely with the private sector cannot be overemphasized.

In Missouri the Department of Interior, the U.S. Forest Service, the U.S. Army Corps of Engineers, the Missouri Department of Natural Resources, the Missouri Department of Conservation, and several other agencies manage land affected by oak decline. In addition, 85 percent of Missouri's 14 million forested acres are owned by the private sector. We must acknowledge and cultivate the private sector that is so essential in forest management.

Government agencies must also be a party to and not a hindrance in these efforts. Missouri's 500 sawmills and over 34,000 jobs that depend on the wood industry are now being jeopardized by oak decline. Sadly, a majority of these jobs are in counties that do not share in the prosperity of the 1990's. Many of these counties have unemployment rates among the highest in the State. We must do all we can to protect these jobs in our rural areas. This hearing is certainly an excellent step.

My home is in the Missouri Ozarks, an area that is unparalleled in beauty and serenity. In fact, as I look at these photos displayed here today, I feel very much at home. They could have been taken anywhere on the land on which I live in Phelps County, Missouri.

Our stately forests are blemished by thousands of acres of dead oak trees that mar the landscape. The decline of our oaks threatens one of Missouri's most vibrant industries, tourism. Families from across Missouri and the world vacation in Missouri because of our scenic outdoors. They come to enjoy our clean streams, our lush for-

ests, and abundant recreational opportunities. Sportsmen rely on the acorn-lined forest of the Missouri Ozarks to supply food for deer and turkey and game species.

Declining oak populations will almost surely lead to profound changes in wildlife populations. Responding to and changes in wildlife population is key to Missouri's tourism industry and rural lifestyle. Thousands of Missourians rely on tourism dollars for their livelihood. Tourism contributes $12.5 billion to Missouri's economy every year. These jobs, like those in the wood industry, must be protected.

I look forward to reviewing the testimony of today's hearing and I hope that the experts that you have convened will help us to understand what must be done to promote the long-term health of our forests. Missouri's picturesque and bountiful forests are among our State's most precious resources. Their protection is worthy of our best efforts.

Again, thank you, Madame Chairman, for the opportunity to testify today.

Senator LINCOLN. Thank you, Senator Carnahan. We appreciate you bringing not only the interest of the people of Missouri, but your personal experiences as well. That is very important.

I know that the committee welcomes you behind the dais, if you would like to join us, if you have time that permits.

Senator CARNAHAN. I may have to go, but thank you.

Senator LINCOLN. Absolutely. We appreciate it. Thank you very much, Senator Carnahan.

Senator Carnahan mentioned there are so many different aspects of how this epidemic affects our forests and other very important things that come from our forests, not just the forest itself but the acorn crops and the wildlife that are supported. Even those that are passing through. I know in Arkansas we support a tremendous population of neo-tropical migratory birds that come through and use our forests as a stopping over place.

We are happy to welcome our first panel of witnesses this morning. We begin with Tom Thompson, who is the Deputy Chief of the U.S. Forest Service and Charles Richmond, who is the Supervisor of the Ozark-St. Francis National Forest in Arkansas.

I understand that Mr. Thompson will deliver the oral testimony and then both of you will be available to answer questions; is that correct? Great. We look forward to your testimony. Mr. Thompson.

STATEMENT OF TOM THOMPSON, NATIONAL FOREST SYSTEM DEPUTY CHIEF, ACCOMPANIED BY CHARLES RICHMOND, SUPERVISOR OF THE OZARK-ST. FRANCIS NATIONAL FOREST

Mr. THOMPSON. Thank you, Madame Chairman and members of the subcommittee. We appreciate this opportunity to appear before you this morning. I am Tom Thompson, Deputy Chief of the National Forest System, Forest Service. I am here today to provide the Administration's comments on the oak mortality situation in Arkansas.

Accompanying me is Charles Richmond who is the Forest Supervisor on the Ozark-St. Francis National Forest.

Certainly, as has already been spoken of this morning, the health of some of our forest and rangelands are deteriorating and they are stressed to the point that insects, disease and wildfire kill literally millions of acres of trees each year.

In response, Federal, State, tribal, and local governments are making concerted efforts to restore our forests and rangelands to healthy conditions. These efforts include reforestation, restoring fish and wildlife habitat, revegetating riparian areas, thinning, and prescribed burning.

Additionally, the President's Healthy Forest Initiative will further existing efforts and establish a framework for protecting communities and the environment through local collaboration and restoration projects. The Initiative would provide for active forest management, including removal of diseased and infested trees, thinning of forests to reduce fire risk, biomass removal and utilization and other tools that will meet long-term ecological, economic, and community objectives.

The President's Healthy Forest Initiative will also help to expedite active forest management activities which are often complicated by procedural delays and litigation. It will allow us to effectively maintain healthy forests and address forest health problems, including oak mortality in the Ozark/Ouachita Highlands in Arkansas, and do this in a timely manner.

Forest Service surveys indicate that oak mortality has impacted well over 1 million acres of oak forest in the Ozark/Ouachita Highlands of Arkansas. Factors such as advanced age, steep mountain slopes, poor rocky soil conditions, and overstocked forests set the stage for oak mortality. Drought and defoliation add additional stresses to the trees.

Secondary agents such as insects and disease attack highly stressed trees that eventually succumb and die. In Arkansas' episode of oak mortality, several years of extreme drought and unprecedented population of red oak borer beetles contribute to that problem. The mortality is not associated with the pathogen that causes sudden oak death that was originally found in California and Oregon.

Preliminary data from the Ozark/St. Francis National Forest suggests that as many as half of the red oaks on National Forest System lands are currently dead or dying. The increased amount of dead trees results in excessive fire danger, increased threats to life and property, and compounds other forest health problems.

The Ozark/St. Francis National Forest in Arkansas is severely impacted with over 300,000 acres of the forest's 1.2 million acres affected. The Ouachita National Forest in Arkansas, the Mark Twain National Forest in Missouri are affected as well, but to a lesser degree.

The impact on private lands, which constitute 78 percent of the forested area in the interior highlands, is thought to be less severe and much more difficult to estimate.

Mortality of Northern red, black, and Southern red oaks became particularly evident in 1999 following 2 years of severe drought. White oaks, hickories, and other species are affected as well, but to a lesser degree.

A third year of drought in 2000 greatly made the problem more complex and mortality increased. Oak borer populations have exploded to unprecedented levels in the past 5 years. In 2001, limited sampling in Arkansas found an average of over 400 insects per tree. These numbers are vastly greater than any numbers previously recorded, which were four to six insects per tree.

You can see by the oak bore here how devastating that can be, when they get that number of trees.

Oaks are extremely important to this part of the country. Ecologically, the oaks are a source of food for squirrels and bear and turkey and deer. A lot of non-game animals, small mammals and birds depend on acorns for food.

Economically, the red oaks are a highly desirable hardwood species used for furniture, cabinets, flooring and other building projects. Widespread loss of red oaks could severely impact the social fabric of the Ozark Highlands through job losses, reduced game populations, scenic quality, and tourism opportunities.

According to forest inventory data in the recent Ozark/Ouachita Highlands assessment, 25 percent of the board foot volume in the interior highlands is red oak, a total volume of something like 13.8 billion board feet. In timber terms alone, the dollar value of trees at risk exceeds $1.1 billion.

We have a strategy in place that has been worked on from an interagency standpoint, the State and Federal organizations. That strategy includes five key components: public safety, public awareness, inventory assessment, management strategies for prevention and suppression and restoration and research.

In looking at the situation overall, I guess the short-term challenges are certainly to provide for the safety of forest users and create a healthy environment for future forests to grow and flourish. Oaks thrive in a forest that is managed, one that is free from excessive fuels, that incorporates natural and manmade activities in order to sustain healthy ecosystems.

The long-term challenges that we face include development and implementation of strategic management actions founded on sound science that will result in healthy, resilient forests for generations to come. We are working to address both the short and the long-term challenges and will be able to do so even more effectively and efficiently under the President's Healthy Forest Initiative.

This concludes my statement and Mr. Richmond and I would be happy to respond to any questions that you might have.

[The prepared statement of Mr. Thompson can be found in the appendix on page 42.]

Senator LINCOLN. Thank you, Mr. Thompson, your complete statement will be included in the record. We appreciate it very much, and we appreciate your service.

I want to particularly say how much we appreciate what Mr. Richmond does in Arkansas. He does a fine job and he is great to work with.

In your long service in the Forest Service, Mr. Thompson, have you ever seen a forest health issue as bad. Is this oak mortality epidemic evident in other parts of the country? How are they similar?

Mr. THOMPSON. Well, it is certainly a classic example of all the factors coming together at the wrong time. The age of trees, site conditions, and the extreme drought and the conditions brought on tremendous explosion in populations. It is not uncommon when you get a very mature forest, and one that is not able to withstand the kind of stress that exists here.

Certainly, in the National perspective, this red oak borer, but more importantly just the entire oak decline, is one that is tremendously troubling. It is very similar, however, to the stress that Senator Crapo was alluding to with regard to whether it is the mountain pine beetle or the spruce bark beetle or the Douglas fir, where you get conditions where trees are stressed, you get drought, and you get very mature trees, you get these kinds of outbreaks.

Senator LINCOLN. When I first came into Congress in 1992, we both came into the House in the same year, in 1992, I remember one of my first official tours of the national forest in Arkansas, and I took my father along, who knew every tree and every trail and every inch of that forest. When we got back I asked him, I said did they show us all of it? Did they show us everything we needed to see?

He said well, they showed you most of it. There are a few things that you did not see that you probably should have. He said but what so many people do not understand is that the forest, although it is beautiful and there are some healthy—and as you mentioned the age of the trees—some old stately trees, he said a hundred years ago this was pastureland. If you want to keep it healthy and you want to keep the forest growing and healthy, and you want to maintain those stately trees and you want to maintain them consistently, you must manage the forest.

That is something that is important for us to look at at this point, as we are seeing the age of these trees consistently reaching the same situation. Like you said, almost a textbook situation of all of these conditions coming together at one time. We have to be very cognizant of that.

The severe oak decline, it is not just a disaster waiting to happen.

Over a million acres of red oaks will be impacted just during this year throughout just Arkansas and Missouri.

Can you give us an indication of how the National Forest Service, on a national level, is going to make oak mortality a priority?

Mr. THOMPSON. The challenge that we have at this stage is the state of the forest and the epidemic is so advanced and so great, the most important thing that we can do is provide the public safety, to make sure that people are aware of the problem and understand the problem, to look at management strategies that will allow us to treat those acres where we can do removal of trees. The area is so large that it is obvious that you cannot treat it all.

Then there are some research questions that need to be answered and continue to look at these factors and how they interplay. Certainly it takes a tremendous amount of interagency cooperation and work. Prioritizing our efforts, though, our principal focus is on public safety, making sure that we remove those trees that present a hazard to campgrounds, homes, highways, trails,

those kinds of things. The trees, when they get that kind of riddling in them, are very weakened and certainly do pose a threat.

In the longer term, the approach that we have to take, and this is not unique to Arkansas but across the country, is to remember the role of management and active management in the treatment of our forests. We probably have better science, better information, more knowledge and more professional ability to do active management then we ever have done, and do it in an environmentally sensitive way.

Where we have failed to do that over time, or conditions have extremely worsened, we find ourselves behind the curve. You just cannot catch up with it in a couple of years. What happened in the last four or 5 years in Arkansas is an example that we should learn from and we should be looking for places where we can prevent that from happening.

At this stage, what we can do is just basically deal with the situation as best we can and try to restore oak where we can, and make sure that in the longer term it is a part of the ecosystem.

Senator LINCOLN. Well, I go back to my first question, and that is have you ever seen anything that has happened as rapidly or as quickly? Your answer there indicates that these things have happened very quickly and it is something that we have to make sure that we do not let happen again.

Mr. THOMPSON. Tremendous impact, tremendous devastation.

Senator LINCOLN. Mr. Richmond, just a couple of very quick questions. When were the conditions of the oak decline first detected on our national forest?

Mr. RICHMOND. About 1999, we noticed that we had approximately about 20,000 acres and we called our entomologists and experts in and we talked a lot about oak borers and oak mortality. At the time, we thought that we would continue to lose some trees but it would not be this significant.

In 2001, 2 years later, we had over 500,000 acres on the Ozark National Forest. As you said, it did spread very quickly. Hopefully, we are sort of peaked out. We have had a very wet summer and hopefully we can get around this thing in the next few years and at least slow it down. We probably can.

Senator LINCOLN. If we assume that the root problem is too many trees per acre, what do we need to actually restore the ecosystem to a healthy condition? What progress do you think that we could expect on that?

Mr. RICHMOND. As Deputy Chief Thompson mentioned, we do have a strategy that has five elements. I can prioritize those very quickly for you that will answer that question.

No. 1 is the public education. We just have to have public acceptance for management on the Ozark National Forest. We will spend a lot of time during the next few years working with our public, taking them on tours, showing them the situation and what we plan to do. That is critical.

Safety, we have 1,800 miles of roadways that have thousands of standing dead oak trees that will fall across those roads, will be a safety hazard. We have hundreds of miles of recreation trails, dozens of recreation campgrounds, picnic areas. We are going to work

very hard in the next few years to try to take those trees down and reduce that safety hazard.

Then probably more to answer your question, our management strategies to restore the oak forest. There are a number of things that we must do in the next few years. One is to remove some of those standing dead oak trees out in the forest to allow light to the ground, so that oaks can grow and replace the dead stands.

Then thinnings. We need to get out ahead of this epidemic, out in areas where we do not have oak borer, and thin those forests so they are healthier and can withstand an insect attack. They can compete better for moisture and be healthier. We have to do those thinnings out in the areas that are not affected now.

We also need to get our age class distribution out on the forest more evenly distributed. Currently we have 60 percent of our forest that is 80 years or older. That is not a healthy situation. We need some more of the forest in earlier age classes.

Prescribed fire is a tool that we have to increase greatly on the forest. Currently, we are burning about 30,000 acres a year. That probably needs to be up around the 100,000 acre a year mark, so that we can reduce the competition of those other species so that the oaks can get a head start and replace those dead trees.

Then we are going to have several thousand acres of actual planting of red oaks that we will have to do, although that is very costly and we will not be able to do that except on the more productive sites.

Senator LINCOLN. Thank you very much. Senator Crapo.

Senator CRAPO. Thank you very much, Senator Lincoln.

Mr. Thompson, in your testimony you indicated that there was something like a billion dollars in value at risk here in the oak forests. You also, both of you, have stress the importance of active management in the forest. Senator Lincoln indicated that one of the problems is too many trees per acre.

The question that I have with regard to that is there are groups who believe—at least out in the West, and I assume they would have the same position in the South, that we should not do anything in the forest, that we should not log the forest period.

The question I have is does this notion of active management or the management strategy that you are talking about for the red oak, does it include logging?

Mr. THOMPSON. Most certainly. From the standpoint of removing, whether it is for fire or for insect and disease, and they are many times, unfortunately, connected. When you have insect and disease, you have dead material and then you have a fire hazard which is just much greater than it was before. If you do not remove material in some way, you always will have the fire risk, and that is virtually across the entire country.

Getting the amount of biomass down so that when you do have a fire, a natural fire occurs, that the intensity of that fire does not damage the site so that you lose productivity over decades and decades and decades, you have to remove the amount of material that is on the ground.

That, in turn, adds to what the Forest Supervisor was talking about, with regard to allowing the diversity of ages to come in, which hence creates more of a self-protective mechanism in the for-

est, to where younger trees withstand the attacks. You may lose some old trees, but there is not enough old trees that it carries the kind of epidemic that we are seeing here.

Those kinds of systems are the same in pine stands all across the West. It is using the tools that we have, recognizing that you are not going to do it every place. Certainly where you have high value for scenic, high value for harvesting of a product where we have very suitable ground, it is very important to manage with all of the tools that you have. Mechanical treatment, whether it be commercially or through stewardship contracts and other ways, is an approach that we need to take.

Senator CRAPO. Does the extent of the harvesting or the thinning that you were talking about here, for management purposes, for the health of the forest and for the safety concerns, does that allow for viable economic benefit to the private sector in terms of those who would come in and conduct the thinning and the management activities? In other words, is there another objective that can be achieved here? Or are we talking about such a small scale that it really does not matter economically?

Mr. THOMPSON. When you look at these factors, the key is a sustained program, a sustained program. That is the key as far as prevention, as well. It does not do any good to throw a lot of effort to it for a few years and then let it get out of balance again.

From an economic standpoint, the tools that we have and the needs that we have to use people that can remove material and make a marketable product out of it, you have to sustain that over a long period of time. If you cannot come up with a program that goes on for years and years and years, then you have not got a viable program or a solution.

You lose the capability to treat, too. There is only so many ways to do it and you need to sustain those folks that do that work.

Senator CRAPO. In the current debate that we are having here in Washington, there are some who are saying well OK, if we need to get in and do some management in the forests, then we should do it just in the areas around the urban communities to protect them from the fire risk.

I personally believe that that ignores the much broader issues that we are talking about here, but I would like to get your opinion on that. This issue is not just limited to areas close to urban communities, is it?

Mr. THOMPSON. The insect and disease problems certainly do not. From a fire standpoint, obviously there are priority areas where you can treat, through that wildland/urban interface. The issue still goes beyond that. If you have to prioritize where you would treat first, certainly for fire purposes, it would be in the wildland/urban interface.

Again, there are other issues as well. Watersheds, huge watersheds and domestic watersheds go quite a long ways from the wildland/urban interface and are very important to protect, as well.

Senator CRAPO. I would like to take time to ask one more question, if I could.

Senator LINCOLN. Absolutely.

Senator CRAPO. About 2 years ago I went into an Idaho forest with our forest supervisor and they showed me an infestation of

several different things. There was an insect infestation as well as a disease that was hitting the trees. In this particular section of the forest, the Forest Service was proposing some thinning activities that would need to be conducted to help address these disease and insect infestation problems.

A thinning sale proposal was put forward and went through a very extensive public process where concerns were brought forward, the proposal was modified several times. Then it was let out. It was then immediately challenged in court.

I went into that same forest with the forest supervisor again just a month or so ago. Nothing has happened there. The forest is in even worse condition, it is more of a red spot on this map now.

What happened was that the litigation was brought by people who did not participate in the whole process, as the whole plan and proposal was being developed and put together. Issues were raised that had never been raised before.

About 90 percent of the proposal was approved by the court, but there were a few procedural things that were really—the Forest Service was willing to drop them to get on with it, but they were sent back to handle. They just decided to drop the whole thing because now it was too late.

Even though there pretty much was no problem, even after the court review, with what they were doing, the management in this particular case did not occur and the forest is now being lost. There are things we are going to be able to do hopefully, but they do not know really what to do because they are going to get in the same cycle again.

My question is is there a solution that you can see to this problem? What can we, as policymakers, do to help us get past this litigation paralysis that we face today?

Mr. THOMPSON. The President's Healthy Forest Initiative will identify a number of those areas legislatively. There also are a number of things that we can do administratively. Ultimately it comes back to again what the Forest Supervisor was talking about with regard to public awareness and understanding of these issues.

We are in a world where choices need to be made and there are consequences to those choices. The fire season of this year and the past year, as we have seen the consequences of some choices that were made that maybe were not the right choices. We have had devastating losses. We have had loss of life, tremendous loss of resource and tremendous loss of capability to product clean water and wildlife and recreation.

The solution is building the public awareness and support for active management. The national forest public lands across this country, whether they be State, Federal or local, as I said before, we have tremendous scientific knowledge. We have tremendous capability professionally to manage. It is a time to try to pull together and understand that in the public interest, some choices need to be made. Active management is one of those.

Building the kind of support that we need is going to take some time, rebuilding some trust, and understanding the consequences. In Arkansas, you have a very visible evidence of the consequences of not being aware of the situation overall, and everybody looking

at it and loving the beauty for years but not recognizing the consequences of not doing something in some places.

Obviously, disturbance elements are going to continue in our forest. There are disturbance systems. With the knowledge we have, there are things we can do about it. That is what the Healthy Forest Initiative is all about, and we certainly look forward to working with the Senate and the House in trying to come to some better futures I guess, and better approaches in how we deal with the very problem that you have explained.

Senator CRAPO. Thank you.

Senator LINCOLN. Thank you, Senator Crapo.

Just to build on his question, I have read through the President's Healthy Forest Initiative and many of the points that you make and that are made in that initiative are points that have been championed by many of us here in Congress for some time. Knowing how long it does take us to get legislation passed here, we do not work at breakneck speeds oftentimes.

You talk about parts of the initiative that the Administration can accomplish without the passage of new laws. I am assuming you mean this educational process, of better awareness that can be brought to the public. How much of that has been started? Really what parts of that will help our oak mortality problem in the Ozarks? I mean, are we too far gone? What type of educational initiatives have you started and how quickly are they going to be in place?

Mr. THOMPSON. In addition to the education, there are a lot of other things we can do administratively that will help with the problem.

Senator LINCOLN. Without requiring us to pass laws.

Mr. THOMPSON. Right, but there are elements on both sides that would be helpful. Administratively, looking at streamlining of our procedures and the Chief of the Forest Service spoke up here months ago about process, predicament and how we can move through some of those process. Through streamlined processes on an interdepartmental interagency manner, so that we do not spend all of our money and all of our energy just going in circles on process, whether that be for a National Environmental Policy Act, trying to figure out ways to do consultation on the Endangered Species Act better and more efficiently, looking at ways to streamline those processes are probably some of the greatest ones.

One of the other areas that we can do better at is improving our ability to manage complexity in projects at the ground level, of helping our managers to understand when you have enough information to make a decision and get on with making decisions in a more timely basis.

One that I talk about an awful lot is the prevention side. Prevention of more process, looking and examining everything that we do to make sure that we do not already have that information. We have a perpetual kind of just keep adding more and more to that, and that is very, very difficult.

The public awareness is one that uses the examples that are showing up in Arkansas and Idaho, using the examples that we see from the fires of this summer, and understanding the connectivity between what we do and what the result of that is the public can

understand that. The public understands it better today than they did before the 2000 fire season. They understand it better this year than they did even after that.

Senator LINCOLN. Is the streamlining of those processes within the Agency, that is currently occurring?

Mr. THOMPSON. We are working very hard. We have been for several years on some of those. We have stepped up our efforts and we are focusing on it very intensely right now to overcome some of those process issues.

Senator LINCOLN. Mr. Richmond, I know you will understand the educational part of that, which if it has not already occurred, will occur rapidly in Arkansas. Our home state university is up in the Northwest corner of our state and everyone travels to the football games and they go through the Ozark Forest. It is part of the joy of going to the football game is seeing the trees and the forest on their way to the university.

I am sure that we are already bracing ourselves in the office for the calls we are going to get about what they see in comparison to what they have seen over the past couple of years. Some of that education will happen whether we initiate it or not.

I am aware, Mr. Richmond, of the press release that you put out last week, detailing that you are beginning a program to remove infested oak trees within the Ozark National Forest that pose an immediate hazard to health and welfare of visiting public. Mr. Thompson has mentioned that obviously safety was the very first, and you had mentioned that as well.

Have you already seen an impact to the forest tourism in Arkansas?

What should we be telling the traveling public who venture out into our forest?

Mr. RICHMOND. I do not know that we have had a great reaction from the visiting public yet. We probably will have that as these trees definitely begin to fall and are blocking highways and that sort of thing. We need just to be telling the public that there are consequences to management and——

Senator LINCOLN. Or lack of.

Mr. RICHMOND. Or lack of. As the Deputy Chief mentioned, we have an excellent opportunity, an excellent demonstration to be able to show people that.

Senator LINCOLN. I know in our particular instance, the red oak borer is a 2-year cycle, so we talk about how quickly this has happened, and I am assuming we will also see how quickly some of that destruction and some of those safety problems will occur as those red oak borer, go into cycle in 2003 again, do they not?

Mr. RICHMOND. The insects will emerge from the trees in 2003. At that time, we do not know whether the epidemic has slowed or is continuing and is——

Senator LINCOLN. Or is escalating. Thank you.

Did you have any further questions?

Senator CRAPO. No, I do not have any further questions.

Senator LINCOLN. We are delighted to have been joined by my colleague from Arkansas, Senator Hutchinson, if you would like to ask some questions of our panel or make a statement or however you want to proceed.

Senator HUTCHINSON. Why do we not just continue. I apologize for being tardy. We had a meeting on Iraq at the Pentagon and that is the only thing I would have missed this for. Just go ahead.

Senator LINCOLN. OK. You do not have any questions?

Just one last question in terms of educating the visiting public and those that are actually using the forests. What about land owners? What actions, maybe you might indicate to us, Mr. Richmond, what actions are being taken or do you think you will be taken to educate land owners and motivate them to do something about the problem? They normally do work very well with our State foresters and I am assuming that is the case with this.

Mr. RICHMOND. State Forester John Shannon can probably answer that when he is up here in a few minutes, but we have worked very closely with him and his employees in his agency. We have put out several brochures, question and answer sheets for those that call in. We have had a lot of requests, and his department has been answering calls almost daily about what to do and they have actually been going out and helping, assisting private land owners to both identify the insects and also come up with management strategies for their lands.

Senator LINCOLN. Thanks. Just in conclusion, Mr. Thompson, you mentioned something about watersheds earlier. In looking at what we are dealing with, and I will be asking the second panel the same thing here, is there anything particular you want us to know or that you think is very important to be made public about the effects that this epidemic will have on municipal watersheds as well as the potential for the species issue which you also mentioned very briefly, the threatened or endangered status as a result of the epidemic and what it may cost, both for us locally, but also on a national level?

Mr. THOMPSON. In general, it is, again, the connectivity between an insect and disease epidemic like this, the change in structure, the increase in susceptibility to fire, and then the effects of that to a watershed or to a viewshed, a scenic area, those kinds of things. In the forest, everything is connected, and when you have something like this that puts a tremendous change to the system, it is basically going to affect everything there. It is going to affect wildlife species, it is going to affect water, it is going to affect certainly the recreation values that are in the forest.

Dealing with that, those extreme shifts, is going to be difficult, and there will be certainly some major short-term impacts. Hopefully, through restoration activities, the species diversity can be maintained and we can keep oak in the system and doing well and future generations will be able to again enjoy the beauty and the value that comes from that diversity in the forest. It is going to take some hard work to restore and it is going to take some concentrated, sustained effort to keep the forest healthy.

Senator LINCOLN. Mr. Richmond, do you have any comment on particular watersheds or species that could be affected in Arkansas?

Mr. RICHMOND. The wildlife situation, the species, is probably the largest issue for us. Watershed-wise, these trees will be replaced, but they will be replaced with species other than oak if we do not do the restoration. That leads us to the species question,

and in the Ozark Highlands, there are so many species that just have to have the lakes and the mass crop that those oaks provide. That is where we are going to see the largest impact if we cannot restore the oaks in those landscapes.

Senator LINCOLN. We thank you both very much, gentlemen, and Mr. Richmond, thank you again for the service that you provide to Arkansas.

Mr. RICHMOND. Thank you.

Senator LINCOLN. Mr. Thompson, we appreciate your work, as well.

As these gentlemen are exiting, I would like to call the second panel.

Senator HUTCHINSON. Madam Chairwoman.

Senator LINCOLN. Yes?

Senator HUTCHINSON. Could I ask unanimous consent that I have a statement to put in the record——

Senator LINCOLN. Without objection.

Senator HUTCHINSON [continuing]. A couple of questions. I am not sure what was covered and what was not, so if I can just put those questions in the record for the panel.

Senator LINCOLN. Without objection, so ordered.

[The prepared statement of Senator Hutchinson can be found in the appendix on page 47.]

Senator LINCOLN. I am very delighted that our second panel has taken time out of their schedules in Arkansas and Missouri to join us this morning. We have with us John Shannon, who is the Arkansas State Forester, Jim Crouch of the Ouachita Timber Purchasers, Scott Simon of the Arkansas Nature Conservancy, and Robert Krepps of the Missouri Department of Conservation. Mr. Krepps, I hope you do not feel outnumbered by the Arkansans here on the panel, but we are very delighted to have everybody here from our neck of the woods in this country.

The committee has also received written testimony from the Ozark Woodland Owners Association and the Arkansas Game and Fish Commission that we will insert into the hearing record at the appropriate place.

[The prepared statement of the Ozark Woodland Owners Association can be found in the appendix on page 54.]

[The prepared statement of the Arkansas Game and Fish Commission follows can be found in the appendix on page 67.]

Senator LINCOLN. Gentlemen, we are all delighted you are here. We would like to ask you to try to limit your testimony to around 5 minutes, but please rest assured that your entire statement will be included in the record of the committee.

We can just start with Mr. Shannon. Welcome.

STATEMENT OF JOHN T. SHANNON, STATE FORESTER OF ARKANSAS, ON BEHALF OF THE NATIONAL ASSOCIATION OF STATE FORESTERS

Mr. SHANNON. Thank you, Senator. It is great to see you again, and thank you so much for inviting the National Association of State Foresters to be here. Today, I will try not to wear my Arkansas State Forester hat and I will try to speak on behalf of the National Association of State Foresters.

It is meaningful to me as an Arkansan that both of you are here. We appreciate it more than we can tell you. Thank you for being here and for calling this hearing.

Senator Crapo had to step out, but he is right. Forest health issues are much broader than the Ozark Highlands. It is a significant issue from Idaho to Florida. He could look at that map. There are too many red spots. State foresters are interested in all those issues, but in Missouri and Arkansas and Oklahoma, this oak mortality issue is of acute interest to us.

I am going to focus on one aspect, and that is the wildfire danger that has increased because of this oak mortality. You have heard it before, so I will skip through it quickly. The trees, the oaks in the Ozarks, are generally really old. The acres are generally way overcrowded. The sites are generally very poor, very thin soils, very droughty soils. Red oak borer is as natural as rain. It is a native species in the Ozarks. It is not going away, even if we want it to.

We had a drought in 1998. We had a drought in 1999. In 2000, we had a knock-out punch of a drought. All those conditions combined are terrible if you are a red oak, but they are really good if you are a red oak borer, really good. The population of red oak borers just skyrocketed.

The numbers are—and we are not sure about the numbers, it is one of the problems we have now—at least half a million acres of dead oak trees. I would say the number, including private land, is probably closer to a million acres of dead oak trees. I tried to do a little homework last night, a little arithmetic. How many trees are we talking about? I am confident to tell you tens of millions of dead oak trees.

As you drive through neighborhoods around here and see folks have stacked a rack or a cord of oak firewood waiting for the winter, there is a reason they choose oak. It really burns hot. It really burns a long time. Now we have at least half a million acres of that stuff stacked up in the Ozarks. I would like you to understand the risk of wildfire has significantly increased. On average, we believe the fuel loading has increased approximately 350 percent. Now, if you have a 350 percent increase in the fuel loading, the old ways we fought fires and the equipment we used just is inadequate.

Not only has the fuel loading tremendously increased, but the type of fuel has changed. We were talking about hardwood leaves back 5 years ago. Now, we are talking about big, heavy oak timber. It is a whole different fuel type. Those fires burn a lot hotter, burn a lot longer. The acreage will be much bigger, and those types of fires are much more dangerous for civilians and for fire fighters.

I will bet you I am not the only supervisor of forestry employees in this room who have had one of his employees killed fighting a wildfire, and I am telling you, that is a very traumatic event for an agency to deal with, and we have been through it in Arkansas. Twenty people have been killed out West this summer—we ought to do what we reasonably can do to reduce the risk of wildfire.

That brings me down to two recommendations, and these are captured, Madam Chair, in my written comments. Missouri, Arkansas, and Oklahoma have to upgrade their fire fighting equipment. Arkansas has started. We just committed about $800,000 to upgrade our equipment, and that is totally independent of whatever

this committee may do. My two colleagues and I believe that the three States combined need approximately $2.4 million worth of equipment upgrades.

Now, I remember Senator Everett Dirksen and I remember what he might have said about $2.4 million, and it is real money. It is not like the $1.3 billion that has been spent out West this summer. I mean, it is pocket change. Understanding that the Federal budget is terribly tight, there are ways we can share this cost, and some of the State foresters disagree on just how we should share the cost.

I recommend, and this is more of a personal recommendation now, that the Congress and the States split the cost, that the three States proportionally come up with a total of $1.2 million and that the Congress help us with $1.2 million, a 50–50 cost share, dollar-for-dollar, and we will get that equipment in the field and we will put out the fires. We will do the work.

I know there are some States, like Oklahoma, that will have a terrible time even meeting that 50–50 match, and they have recommended that the match be in-kind, such as our time, keeping record of our time on fire fighting. Either way, we really do need help from Congress on gearing up for these wildfires.

The second recommendation I have, Madam Chair, is we rely on volunteer fire departments in rural Arkansas very, very heavily, especially throughout the Ozarks. These are poor communities, and often the only fire fighting equipment they have is Federal excess personal property, which means worn-out military trucks that the State forestry agencies acquire, bring to Arkansas, our home States, repair them so they operate, renovate them so they are available for fire fighting, and we give those trucks to the fire departments.

Well, the priority for screening that Federal excess property changed several months ago and that source of fire fighting equipment has dried up. Congressman Ross has drafted a bill that his staff is still working on that will help restore the priority that fire fighters have just in the spring, and if you folks in this committee could work with Congressman Ross on getting that bill passed, it would be very helpful.

I appreciate so much being invited here today. Thank you.

Senator LINCOLN. Thank you, Mr. Shannon. We appreciate what you do.

[The prepared statement of Mr. Shannon can be found in the appendix on page 70.]

Senator LINCOLN. Scott Simon, thank you for joining us and what the Nature Conservancy does. We certainly enjoy working with the Nature Conservancy.

STATEMENT OF SCOTT SIMON, DIRECTOR OF CONSERVATION, ARKANSAS CHAPTER, THE NATURE CONSERVANCY

Mr. SIMON. Yes, ma'am. Good morning. Thank you for inviting us. Good morning, Senator Hutchinson. My name is Scott Simon. I work with the Nature Conservancy. I am their Director of Conservation. I am here with Joe Fox this morning, who is our forester.

The Conservancy, as you may know, is an international nonprofit conservation organization. We work on protecting species throughout the world through private action and working with public agencies.

The Ozark Mountains are really a center of biodiversity within North America and the United States. The Ouachita system and the woodlands and savannahs that occur there are the largest last remnant of a system that used to occur from Oklahoma to the Eastern seaboard. There are about 150 species of animals and plants that occur there and nowhere else in the world, so it is a really special place.

Early explorers, like Henry Rose Schoolcroft and Joseph Mudd, as they traveled through the Ozarks, described an area of very open woodlands and savannahs, much like this picture here, free of understory brush and an open, diverse, herbaceous layer, and it was a system mostly maintained by fire. Native Americans, annual and biannual, set fires for a variety of purposes.

Over the years, the system has changed, and about 80 to 100 years ago, the Ozarks were cut, and over time, many of the fires were suppressed and the system looks like this middle picture here, the Ozarks that we love now. The new woods are much denser. Historically, when the woodlands were maybe 18 to 30 trees per acre, currently, we see stem densities, on average, of 300 to 1,000 trees or saplings per acre, which is really a staggering increase, and those trees and stems are trying to compete for the same amount of nutrients, water and soil moisture and everything that has always historically been available to them.

Many of the oak trees—a mature and healthy oak tree, white oak, will live to 250 or 300 years old, a red oak, 125 to maybe 150 years old. This stressed system is vulnerable to outbreaks like the red oak borer, exacerbated by droughts, and so that in our opinion, the root cause of the current situation is simply too many trees per acre, as you describe.

The effects, the long-term effects are concerning because there is nothing in the post-glacial record that indicates that the Ozark forests have had these sort of changes of this magnitude and rapidity and we are worried that many of the wildlife species and the rare species that occur only there and nowhere else may have difficulty adapting as the forest changes from predominately oaks to maples, ashes, and other species.

What do we do? Historically, this group of folks here, we have the knowledge and experience to address this cause and return sustainability to the forest. In the long term, it is restoring fires ecologically and safely and of a frequency that the system has adapted to. In the short term, it is using mechanical thinnings and fire in combination to reach a lower stem density that is sustainable.

There are several examples of ongoing projects that have shown positive results. The Forest Service in the Ozark National Forest, the Arkansas Game and Fish Commission, Missouri agencies, the Nature Conservancy, and the Heritage Commission have all worked on projects like this, using prescribed fire and ecological thinning with good results. The Forest Service has some proposed projects. One is an example that we have submitted with our testimony that is about 54,000 acres in the Bayou Ranger District, and

it is projects like this that we think are an example on what to do on a scale significant enough to restore the system to sustainability.

We think that the three things that are needed to help facilitate this is there needs to be a Federal funding priority to help ensure that these projects are funded. Second, as the Forest Service staff mentioned and that you mentioned, Madam Chairman, ensuring that the process is streamlined so that these projects can move through quickly. Third, ensuring that new projects are encouraged so that we can start working on other areas, particularly in front of the existing infestation.

It is clear that the changes that are happening in the Ozark forests are a threat not only ecologically, but also economically to the people that depend upon it, and that the major causes are fire suppression, leading to overly dense woods, and we know what to do about it. We have the technical experience and the history to be able to address it.

The Nature Conservancy strongly encourages the use of prescribed fire and ecological thinnings to achieve a more sustainable density, and although the national forests in our public lands throughout the country have many needs, ecological sustainability, we feel, really must be the priority, because all of our other uses fall from this.

With that, we greatly appreciate the opportunity to testify and share our time with you and thank you much for inviting us.

Senator LINCOLN. Thank you, Mr. Simon.

[The prepared statement of Mr. Simon can be found in the appendix on page 73.]

Senator LINCOLN. Mr. Crouch, we appreciate your being here very much and look forward to your testimony.

STATEMENT OF JAMES R. "JIM" CROUCH, ON BEHALF OF THE OUACHITA TIMBER PURCHASERS GROUP, OZARK-ST. FRANCIS RENEWABLE RESOURCE COUNCIL, MARK TWAIN TIMBER PURCHASERS GROUP, AND THE AMERICAN FOREST AND PAPER ASSOCIATION

Mr. CROUCH. Madam Chairman, it is real pleasure to be here, and Senators, it is great to have you here too. I know you would not be anywhere else if you could possibly be here.

I am Jim Crouch. I do represent the people that buy this timber in Missouri and in Arkansas and also today I am here representing the American Forest and Paper Association.

We firmly believe that active management, based on sound science with local decisionmaking, is the way to go about restoring the health of our national forests. We do recognize very quickly that without some significant changes in the existing procedural requirements associated with NEPA appeals and litigation, that the Forest Service cannot take the timely action that it needs to take.

The Forest Service predicts that the oak mortality crisis will impact over a million acres of national forest. About a billion board feet of valuable oak will likely die, fall down, rot, and as our State Forester says, probably burn. Unfortunately, what is happening is much more serious than anything that we have ever seen before.

Instead of a few bugs per tree, there are literally thousands of bugs in some trees. The mortality is very widespread. It is not localized.

In 1986, the Forest Service approved new forest management plans for all three of these forests. The plans did provide for thinning the overly dense stands of immature trees and it provided for the harvest and the replacement of mature trees with new forest. For a various number of reasons, these three forests fell way behind, and if you look today, they have actually accomplished less than half of the work that those forest plans called for.

The Forest Service's failure to carry out the plans, coupled with the drought, has contributed greatly to the current crisis. Because of the widespread mortality, there is a major shift occurring in the composition of our forests. The dominant and predominant trees in the oak forests are mostly shade intolerant. The mid-story and understory is made up of maple, hickory, black gum, and other shade tolerant species. If nature is allowed to take its course, the new forest will change. It will be mostly maple, ash, black gum, hickory, that type of thing. It will be quite different from what we have today.

Today, I believe that the Forest Service is at a fork in the road and must choose between whether it is going to restore the forest, which we call active management, or whether it is going to let nature have its way, which is passive management. Under the active scenario, the Forest Service would accelerate the restoration activities immediately using good science and using local decisions. The activities would include harvesting the dead and dying trees, followed by the silvicultural treatments needed to restore the oak forests.

Under the passive scenario, which is what I am afraid will happen if there is not action from this body, the Forest Service would let these overstocked and overmature stands decline and die. The Forest Service would accept the losses and the increased risk of catastrophic fires. The oak forest would be replaced with maple.

If the decision is to restore the forest, there is a limited window of opportunity. Dead and dying oaks lose their commercial value quickly and the risk of catastrophic fire increases as the trees die out and the falling branches accumulate on the forest floor. The agency must have new ways to comply with the key environmental laws if they are to get the job done quickly. There must also be a major increase in funds.

The forest industry strongly recommends that the Forest Service choose active management and immediately launch a major restoration effort. The restoration of the land should be completed within 5 years of any harvest. The affected lands that are classified as suitable for timber management should retain a major oak component. Congress must either grant exceptions from the environmental laws and regulations or they must authorize some type of streamlining similar to what we saw recently in the Black Hills. Congress must provide new money. There is not enough money within the agency today to do these kinds of things and do their normal day-to-day work.

In conclusion, the forest health crisis affecting the Ouachita and the Ozarks is acute. It is not unique. Due to decades of fire suppression, and more recently passive management, our national for-

ests are rapidly approaching ecological disaster. We encourage you to find as many ways as possible to expedite the efforts of the Forest Service to use active management and local decisionmaking.

With that, I want to thank you again for the very, very important job you are doing by holding this hearing and I know it will take a lot of action on your part, but we know you will do it. I will be glad to answer questions at the appropriate time. Thank you.

Senator LINCOLN. Thank you, Mr. Crouch.

[The prepared statement of Mr. Crouch can be found in the appendix on page 78.]

Senator LINCOLN. Before we move to our Missourian, I also want to note that there is another Arkansan that has joined us. Congressman John Bozeman is in the back of the room and we appreciate very much your joining us, John. Thanks for your interest and input in this issue.

Mr. BOZEMAN. Thank you for holding the hearing.

Senator LINCOLN. Absolutely.

Mr. Krepps, thank you so much for joining us and representing Missouri. We would love to have your testimony now.

STATEMENT OF ROBERT L. KREPPS, ADMINISTRATOR, FORESTRY DIVISION, MISSOURI DEPARTMENT OF CONSERVATION

Mr. KREPPS. Thank you, Senator Lincoln. I am Bob Krepps and I am here today representing the Missouri Department of Conservation and the State of Missouri as the State Forester.

The continued decline of forest health and the increasing mortality of red and black oak in Missouri and other States in the Ozark Highlands are very important issues to me as a State Forester, as they are to the Federal Government through the National Forest System. Businesses and citizens depend upon the forest resources of our State. I appreciate the attention of the subcommittee and am gratified by your efforts to become better informed on this issue.

Factors such as site conditions that have been described here by the other folks providing testimony, including advanced tree age, drought, and insects and disease, are a few of the many factors that affect our oak forests. In my testimony, I would like to briefly describe the impacts on recreational use of lands affects by oak decline and mortality. While my comments are focused on Missouri, they certainly apply to all the States within the Ozark Highlands.

Oak decline is most severe on ridge tops, south- and west-facing slopes, and sites within thin, rocky soils. These site conditions describe much of the forest land around some of the most important and popular recreation areas in Missouri and certainly other areas in the Ozark Highlands.

Much of Missouri's tourism industry is centered in the forested areas of the State, areas such as Lake of the Ozarks, the Branson area, Table Rock Lake, the Ozarks National Scenic Riverways, and the Mark Twain National Forest. Tourism is very important in Missouri. Tourism is Missouri's third-largest industry. It generates more than $12.5 billion annually for the State's economy and provides one of every 14 Missouri jobs.

As travelers choose to travel into Missouri, one of the first impacts the visitors will notice will be the amount of dead and dying

trees on the landscape. Visual impact will be very noticeable as trees die and deteriorate across the landscape. In some areas, large expanses of dead trees will be noticeable for several years. In other areas, factors such as fire will further impact the forest views. Changes in the scenic beauty of the forest can contribute to losses in tourism and recreation.

How does this occur? Well, dead and declining trees located in areas receiving high recreational use are considered hazard trees due to the real danger of falling limbs and trees. Recently, I saw a photograph of an oak tree laying across the top of a camper trailer. Needless to say, the individual that was in the trailer at the time the tree landed on it was extracted safely, but the trailer was flattened to the ground. It gives you an idea of what some of the potential hazard is.

Hazard trees combined with multiple targets, such as people, structures, and vehicles, greatly increase landowner liability. Hazard tree removal along roads, within campgrounds, parks, picnic areas, and hiking trails can be very expensive and time consuming. Often, managers are faced with a decision to remove the trees at a very high cost or close the facility to protect the public.

On private land, and the trailer that I referred to was in a private campground, on private land, the reality is probably nothing will be done to reduce those hazards until something occurs to get private landowners' attention.

Another primary recreational use of the Ozark Highlands is hunting of abundant wildlife, such as white-tailed deer, wild turkey, squirrel, raccoon, and other species. Many of these species depend upon acorn production as a major food source. As oak decline increases, a reduction in mast acorn production will occur, with the result being decreased populations of many wildlife species, which equates into decreased hunting opportunities.

In the State of Missouri, for example, as our quail population has declined, we have also noticed a shifting of attention by hunters to other species or quitting entirely, quitting the outdoor pursuits. We have a concern that this will carry over into the future, as well.

I guess, in summary, the overriding question, the management of oak decline and mortality, must be what are our objectives in managing the forest? In Missouri, we actively manage the State forest land, which includes harvesting and thinning where needed. On private lands, we encourage land owners to improve the vigor of their forests by thinning young stands and harvesting mature stands. We are actively using the provisions of programs in the Farm bill, such as EQIP, for forest health management on private lands. That is not without some prioritization and emphasis on those areas, and certainly there are conflicting laws that we work with that affect how effective we are in application of those on private lands.

I guess what we do today will affect what our oak forest looks like at the end of the next rotation, and I certainly hope that our children and grandchildren will look back with pride at the efforts we put forth today.

I guess a couple of things to dovetail into some of the other testimony, probably the most important thing we can do right now, that Congress can do, the Senate and the House, is to take a look at

the myriad of laws that guide the implementation of programs on the national forests. Many of the laws conflict or give opportunities for inconsistent management practices. We need to work to get the National Forest System so they have the tools to rapidly respond to situations such as the oak decline situation that we are facing in Missouri. I would like to see more cooperative management projects encompassing Federal, State, and private lands.

I appreciate the opportunity of being here this day and look forward to working with this committee in the future. Thank you.

Senator LINCOLN. Thank you, Mr. Krepps.

[The prepared statement of Mr. Krepps can be found in the appendix on page 84.]

Senator LINCOLN. This is obviously a very immediate problem that needs our immediate attention and we will be continuing to call on you and others across the country to look at what is the best way that we can deal with it.

Just a couple of questions and then I will pass it over to my colleague. Mr. Crouch, I have always praised the Forest Service for making our forests what they are today and have enjoyed working with them. I noticed in your testimony you talked about how the Forest Service has done their job almost too well in some ways. What should the Forest Service do to restore the oak ecosystem devastated by our oak mortality, what we are seeing here? Do you have any specific ideas that you would suggest to the Forest Service?

Mr. CROUCH. I really do, Senator, and I would like to just emphasize what you just said and what the National Forest Deputy Chief said. There is no question that within the agency, there exists a tremendous knowledge base and a tremendous ability and willingness, in fact, to do the things that need to be done to keep these ecosystems healthy. As you can imagine, in recent years, the agency probably has been as frustrated as many of us on the outside have been and a lot of things have not happened, and that is what I pointed out.

On the Ozark and the Ouachita and the Mark Twain, they have had management plans now for the last 20 years almost that basically said you need to thin these young stands, you need to harvest the old trees, you need to use a commercial program as much as you can to save taxpayer dollars, and yet they have been challenged almost every time they try to do these things.

That is why we talk so much about we have to do something with some of these laws that are really just bottlenecks, and it is not that the majority of the people are using them. It is a handful of people. I often wonder, in a democracy, how do we get to vote on these kinds of things rather than letting one individual completely stop it?

To answer your question more specifically, I believe that the Forest Service on all three of these forests should immediately recognize the emergency, start a salvage program, maybe not use that word, but start a harvest program that will harvest as much wood as the forest industry can assimilate, recognizing that a lot of the infrastructure has disappeared in recent years, and at the same time begin to prescribe burn, begin to do timber stand improve-

ment work trying to favor these oaks so that these future stands that we do have will have a significant component of red oak in it.

I do not really hear or see much about any money to increase these programs, and obviously, supervisors like Charlie Richmond cannot do it out of the goodness of his heart. There is going to have to be some significant money flow in order for him to be able to do these bigger programs.

Senator LINCOLN. Right. Well, I can always remember my father telling me that too much of anything can be hazardous, even chocolate if you eat too much of it. Well, if there is one thing we have come to understand about our forests, it is that the diversity of those forests is very important, both in age as well as in species.

Mr. Simon, in your testimony, you talk about the need to better reintroduce fire back into the forest ecosystem, and larger land owners, such as the National Forest and State lands, or even very large private land owners, this might seem practical. I am just curious, how would that apply to our smaller land owners? Is fire really a viable management tool for smaller land owners? We talk about the use of fire as a management tool on both public and private forest lands. I just wonder, how viable a tool is it for small land owners?

Mr. SIMON. Yes, ma'am. It is a viable tool for smaller land owners and the State with several agencies offers prescribed burn courses and technical assistance, as does the Nature Conservancy with land owners that are in priority areas on how to plan for prescribed burns and execute them and monitor to see if they got the results and objectives that they meant to achieve when they started.

Senator LINCOLN. One of the other things you mentioned was the root problem of too many trees per acre.

Mr. SIMON. Yes, ma'am.

Senator LINCOLN. In restoring the ecosystem to a healthy condition, if you look at, say, going in with selective cuttings, I was reading that a man was quoted as saying after a couple of years or better, the dying trees are good for nothing but just firewood. If you do go in with that cutting, how quickly or how important is regeneration of the trees from the stump in terms of—that is possible, is it not?

Mr. SIMON. Yes, ma'am.

Senator LINCOLN. Is that healthy?

Mr. SIMON. The way that we have looked at it is trying to identify what the desired condition would be for the stand or the forest so that it is sustainable and then using whatever methods are available. If it is regeneration from a stump to allow the red oak to continue or increased light to allow more red oaks to get on the floor, are both viable options.

Senator LINCOLN. Well, my question was, if you encourage regeneration from the stump the concern I would have is that you still have the same amount of root systems per acre as you would previously, so I know it is taking less nutrients from the soil, but does that matter at all?

Mr. SIMON. Yes, ma'am. Thanks for educating me on that. It would not necessarily address the issue of too many stems per acre and that in some way, we would need to thin those, and probably

the best way to do it is with prescribed fire, allowing the things that are most adapted to the Ozark Highlands and the weather that we have to survive and the things that do not to be thinned by fire, yes.

Senator LINCOLN. Thank you. Senator Hutchinson.

Senator HUTCHINSON. Yes. Thank you, Senator Lincoln. I have not yet thanked you for calling the hearing, and I very much appreciate you doing this. This deserves attention and I regret we do not have more members here. I know it is a very busy time after everybody getting back, but this is a very important subject and thank you for calling the hearing today.

It seemed to me, listening, and I did not hear all the testimony of the first panel, but that there is a general consensus around two things. One is we need more money in this issue, and the second is that we need to streamline the process and clear out the kind of regulatory obstacles that cause a kind of paralysis in moving. There may be nuances as to where the money ought to go and how it ought to be prioritized, but everybody seems to agree we have to make a Federal commitment in resources and we need to change the way the process works.

After the ice storm, when was it, 2 years ago, the terrible ice storm, and in trying to move the Forest Service to quick response and action in dealing with the threat that resulted from the downed trees and branches and so forth, I was struck with the degree of regulatory obstacles there are in trying to move anything forward. It was not the Forest Service's fault, it was this enormous process that made it difficult to move quickly in responding, and we are seeing the same thing in the oak mortality issue.

In listening, John, your emphasis was, of course, on the danger of wildfires. This is what we heard about after the ice storm, was that with the increased fuel, that we faced a greater, much greater intensified risk of wildfires. What would be the nature of the kind of fires we would face? I know they burn longer and hotter, the hardwoods, but compared with what you see in the West, we have never had those kind of fires in the Ozarks or the Ouachita, but what could we expect if nothing is done?

Mr. SHANNON. I am often glad I am the State Forester of Arkansas and not one of those Western States. The climates are different. More than just the weather climate, the business relationship with the Forest Service is different in Arkansas. It is cooperative. Folks get along. They work together. I do not think we can anticipate the types of fires they have out West. We can anticipate more difficult fires than we usually have in Arkansas.

You were very helpful, sir, after the ice storms by helping us—I know you did all the heavy lifting, helping Arkansas get some money for fire fighting equipment in South Arkansas, and Senator Lincoln helped us receive an EDA grant. Donna Kay helped us receive an EDA grant to keep our air tankers in the air fighting the fires, very effective.

We have been lucky since the ice storm and lucky so far in this red oak borer that the weather has cooperated. We have upgraded our fire fighting equipment and we do have air tankers in the air getting to those fires quickly.

Senator HUTCHINSON. It seems to me the finance scheme that you kind of proposed, laid out, I do not know if that is the exact way it ought to work, but they are pretty modest amounts, and for the good that could do and the dollars it could save in the long run, it would seem to me that would be a very worthwhile investment.

Mr. SHANNON. Bob Krepps and I come up here to Washington a few times a year and it is the only time we hear the figure "billions." We do not deal with billions. We do not deal with millions. State foresters deal with hundreds of thousands of dollars to rebuild our fire fighting. I really think this is a partnership, Senators, where we could make a dollar go a long way, and especially with the Federal excess personal property.

If I can give you my 1-minute stump speech on that, the State foresters are the ones who acquire the equipment, and there is none available in Arkansas. It is all out of State. They bring it back to Greenbrier. We repair the equipment. We renovate it for fire fighting. We get it out to the fire departments for free. We track it in our inventory forever, and when that equipment is finally just flat worn out, we haul it back to Greenbrier, we sell it, and the money goes to GSA. Now, the Arkansas Forestry Commission does not want a nickel, and the volunteer fire fighters do all that work for nothing. You talk about a good Federal program and getting a big bang for the dollar. To reduce, to lower the priority for the fire fighters in screening that equipment just really kicks the teeth out of work that is really valuable for our country.

Senator HUTCHINSON. Thank you.

Mr. SHANNON. Yes, sir.

Senator HUTCHINSON. Mr. Simon, I am curious in what your response would be to what Mr. Crouch said, because both of you, it seemed to me, were advocating that we cannot just let it go, that we need to have an active response to the oak borer crisis. You mentioned prescribed burns and you used the term thinning. Mr. Crouch used the term harvesting. Is there a conflict there, or do you see that those are consistent in what you would advocate as the proper response to the increasing amount of dead oaks that we have?

Mr. SIMON. Senator, I would think that in any alternative, prescribed fire would be necessary to maintain sustainable density and that the differences between thinning and harvesting are probably dependent on what you are using to achieve your desired future condition and how, in my eyes, a thinning is something that leaves an open stand. Thinning, I guess, is a type of harvesting.

Senator HUTCHINSON. Jim, do you want to respond to that?

Mr. CROUCH. Scott is absolutely right. When the stems are real small, obviously, the best and easiest way to do it would be with a prescribed burn. Once they get to be middle aged, like a lot of us are, then obviously you can do it commercially and prescribed burn would not necessarily be the right tool. Then eventually, when it becomes mature, you want to replace it with a young, vigorous stand. I really do not see that we are saying anything different there, Senator.

Senator HUTCHINSON. Mr. Krepps.

Mr. KREPPS. I would say we need all the tools in the toolbox. We need to keep all of our options open and put what fits for a particu-

lar piece of ground in place, whether it be prescribed burning or thinning. We just need to keep our options wide open on that.

Mr. CROUCH. Let me say one thing John Shannon did not say that he meant to say and he forgot to say.

[Laughter.]

Mr. CROUCH. All the money that came out of the ice storm for equipment in Arkansas essentially went to South Arkansas. Most of the oak problem is in North Arkansas, and what he is talking about is replacing some of that small, old equipment up there with some bigger stuff similar to what he bought for South Arkansas so he can push these big snags around.

Senator HUTCHINSON. Just to sum it up, I know my time is probably way over and you have been indulgent, but I am curious, because you talked about the danger to the species with the transformation of the forests——

Mr. SIMON. Yes, sir.

Senator HUTCHINSON [continuing]. You gave us a little history lesson on the way it was, which was very interesting. It was not originally oak and hardwoods, right? Or was it just the density that was different?

Mr. SIMON. Sir, based on the historical accounts, much of the Ozarks was oak woodlands and savannahs with pine in scattered areas and then denser forests maybe on the slopes and in the bottoms, so a mix.

Senator HUTCHINSON. The species mix that we have now, did that develop in the course of the last 100 years or so and is that why it is important that the hardwoods stay, that we restore oak where we have had these forests so damaged, 400,000 or 500,000 acres already?

Mr. SIMON. Yes, sir. Even after the cut of about 100 years ago, many of the pieces were all still in place and they have lasted this long, so there was still a predominance of oak with some pine, though the pine may have decreased on the sandstone ridges.

Senator HUTCHINSON. You all are agreeing that if nothing is done, the oak stands, the oak predominance disappears and that we go to an ash, maple, softwood kind of mix that is going to forever change the ecology of that Ozark Highlands, is that fair?

Mr. SIMON. Yes. We all agree on that, based on what is coming up in the understory.

Senator HUTCHINSON. How long does it take to—and you all may have covered all of this, but a restoration program like that with the extent of damage that we have, how long a process is that?

Mr. CROUCH. I would answer it this way, Senator. It depends on the situation on the ground. There are, in fact, young stands today that can be thinned and saved that will not experience this mortality. There are other stands that are essentially 100 percent dead, and this is where you heard the Forest Service talk about maybe reintroducing oak back into them. There are other stands where you have enough oak left that you can either cut the tree down that is there and get the copus from it, or you maybe can even prescribe burn in some cases and get some back.

You have, as the State Forester here said, a lot of different situations, but the agency has the expertise to deal with that. You could be often in good shape with a healthy span in 10 years, or it could

take a long, long time. It just depends on the circumstances. That is where the expertise comes in that these folks have and they have to have the direction and money to do those kinds of things.

Mr. SIMON. Yes, sir. I would say, although it is going to vary a little bit onsite conditions, the last picture on the right shows a restoration area after approximately 5 years and it probably looks something like this, and that would involve one thinning and two prescribed burns. On an area that has not been extensively grazed, there is still a lot to work with. Arkansas is blessed with really resilient communities and they respond with that sunlight. If it has been heavily grazed, it may take a little bit longer as more species seed in. I would say between five to 10 years, you could go from very dense, minimal herbaceous understory, heavy fuel loads, with a few burns and some thinning to an open stand that is sustainable.

Senator LINCOLN. Thank you. That is very helpful. I was just looking at the time line of the oak forest in the Ozarks and realizing that oaks have been there since 1000 B.C. It would be such a shame not to be able to try and take advantage of the management tools we have to maintain them.

How safe is it to say, or how realistic is it that the younger oaks that Mr. Crouch mentions, if we do not do anything about the older and dying trees, how likely are the smaller trees to not survive?

Mr. SIMON. Overall, without fire, they would be out-competed by the maples, the ashes, and the gums, just because they are more adapted to heavy shade and no fire.

Senator LINCOLN. Has it been our experience in the forestry industry that if we change the landscape, that the species itself would retreat to its normal condition, because the red oak borer is indigenous to Arkansas. If we work to return the landscape, then is it safe to say that the red oak borer would retreat to its normal existence?

Mr. SIMON. Yes, I think so. I mean, a lot of us in the conservation community and the land management community talk about complex systems, that maybe we cannot understand all the nuances, but we operate under a simple premise that if we try to establish the conditions that we think are most healthy, that the rest of the wildlife species or animal species would fall into place. That under an open stand, the red oak borer would decline to its normal range of populations, and the same with other wildlife species that may be threatened.

Senator LINCOLN. We have had some experience with that.

Mr. SIMON. We have had some experience with that. The Conservancy's experience is probably more with rare species, so that as we restore the habitat type of plant community or a forest back to a certain system, some of the rare species will increase because they are used to that place and the way it looks.

Senator LINCOLN. We talked about one of the easiest solutions that we can provide is technical assistance to private forest land owners. In our recently enacted farm bill, we included for the first time permanent funding for technical assistance to private forest land owners. To our State Foresters, both John and Robert, how can you apply that Forest Land Enhancement Program and the

sustainable forestry outreach initiative funds to the problem of the Ozark oak decline and mortality?

Mr. SHANNON. We can apply it directly. The Forest Land Enhancement Program cost share money, the State foresters and the local stewardship committees have a lot of flexibility on how to use those funds and we can certainly set aside a significant portion of those funds for the Ozark oak mortality problem. It will be a direct help.

Senator LINCOLN. That is our intent.

Mr. KREPPS. As I mentioned in my testimony, we are already looking at the provisions and have already started implementing this past fiscal year through the EQIP program, recognizing the FLEP program will be coming on board. We are having quite a bit of success. We worked very closely with the Natural Resource Conservation Service in highlighting the forest health issue and have directed a number of our projects specifically in the oak decline area, working with private land owners.

We were a little concerned as we started into that process that many land owners would not recognize the need. With a minimal of sell, we have had a lot of folks come forward and it is pretty gratifying to see the interest in implementing forest health measures on private land through those programs, so we are very encouraged.

Senator LINCOLN. Well, that was our intent. Our intent was to help enhance what you could do and providing private land owners that ability, and with your ability.

Just to ask the entire panel, and any or all of you may have a perspective, what effects will this epidemic have on our watersheds? I asked our first panel, and I am very curious to know in terms of our watersheds and also what potential for species falling into threatened or endangered status as a result of this epidemic. Is there anything you all may have to add to that?

Mr. SHANNON. I will jump into the watershed issue, Madam Chair.

Senator LINCOLN. Please.

Mr. SHANNON. There are several values from a good, vigorous, healthy Ozark forest and one of those is watershed values and providing water qualities that really are the envy of the nation. We are talking high-quality water out of the Ozarks.

Millions of those trees die. Then you get a fire through there that could be hot enough to really reduce it all to ash and even burn some of the soil and those watersheds are at risk, a true risk of heavy runoff, heavy siltation. I am not sure how far it will reach down to municipal water supplies, but it will certainly hurt the water quality in all those creeks in the Ozarks. I would say the oak borer followed by wildfires is a significant risk, and we have seen that out West.

Mr. SIMON. Yes, ma'am. I agree with Mr. Shannon. If there was a heavy wildfire, that it could threaten, because of the increased erosion, some of the watersheds, because the historic grassy layer is not there to hold the soil.

Regarding some of the species, the Ozarks are so rich in species that only occur there, and numerous dozens of federally listed species, there is a possibility, although I would have to get back to you

on which ones, whose populations could decline significantly, that only are dependent on the oak ecosystem that could potentially be listed if somebody petitioned it, both terrestrial species and in some of the watersheds that are threatened. Many of the six rivers that flow just off the Ozark, the Boston Mountains themselves each have an endemic crayfish or a fish or a mussel that might only be known from that river and nowhere else in the world, so it is a possibility.

Mr. KREPPS. I guess from my perspective, certainly, the impact on the neotropical migrants, as has been mentioned here, as well as the mussels and the aquatic life potentially are going to be affected through this process.

As far as without fire what is going to happen, I guess my perspective is that we are going to have vegetation out there. The other species will colonize and grow rapidly on the site to fill the gap. Certainly, we need to do everything we can to enhance the maintenance of our oak component in this forest.

Senator LINCOLN. Just in closing, there has been much debate here in Congress related to preserving old growth trees. This epidemic has affected almost solely older trees. Given the background of the debate about old growth forests, how does it make the job of addressing this epidemic of oak mortality in the Ozarks different from other forest health issues or situations throughout our country and how is that challenge different on private lands?

Mr. CROUCH. I will talk just a little about the National Forests. You know, the old growth, it depends on whose definition you are using for old growth because these lands here, as beautiful and as pristine as they look, oftentimes are truly the lands that nobody wanted. If you look at most of them, the Ozark, for example, the Ouachita was put together in the very early 1900's. There was part of that land that was so poor and rough that it was never even homesteaded. It was public domain.

If you move up to Missouri, it was put together basically in the 1930's out of land that had been farmed, burned, grazed, cut, and nobody wanted and was out of taxes.

If you consider this old growth, we can grow you any amount of it you want for 70, 80, 90 years, it is quite different from old growth in the West.

Mr. SHANNON. A whole different picture of old growth out West and old growth in the Ozarks. For whatever you want to call old growth in the Ozarks, red oak borers are not too interested, really, in what we call the trees. They are taking care of the old growth right now.

Senator LINCOLN. Bob.

Mr. KREPPS. We have to go back to something that Jim Crouch said here a minute ago. It depends upon how you define old growth. When I look back into the history of the Missouri portion of the Ozark Highlands, it was cut over about 80 or 90 years ago. It was burned repeatedly up into the 1940's and early 1950's. My agency and my department was formed to try to resolve the massive annual burning that occurred. It is hard to place that all in context with an old growth forest. What we have here is a result of 80 or 90 years of mismanagement and mistreatment of the land.

Mr. SIMON. I agree with all that. At some level, we are blessed because Arkansas's systems are so adapted to disturbance, like fire, that old growth that may be relevant and capture the image and the issues in another part of the country, for us, the picture might be the trees plus all the other species so that we have all the pieces of the puzzle and the system can be sustainable. I would say it is not—old growth does not frame the issue for us, it is diversity in Arkansas.

Senator LINCOLN. In all of the education I have on this issue, diversity of the forest has clearly been the one issue that has come out most prominent in my mind as being the most viable tool for sustainability, without a doubt.

I want to thank all of you, all of our witnesses who have come to Washington this morning. All of your testimony has been very beneficial and will help the committee address this epidemic in both the coming days on the Senate floor as well as coming months as we continue to work toward healthier forests throughout this nation.

The committee will keep the record open for 10 days for additional submissions to the record. Also, if members have additional written questions for witnesses, they may submit them during this time and we will forward them to the witnesses for written response and hope you will make yourselves available for answering any of those written questions. They will appear in the final hearing record.

We appreciate very much your input and we look forward to working with you in the days to come. The committee stands adjourned.

[Whereupon, at 11:04 a.m., the subcommittee was adjourned.]

APPENDIX

SEPTEMBER 5, 2002

STATEMENT OF SENATOR MIKE CRAPO
SENATE AGRICULTURE SUBCOMMITEE ON CONSERVATION, FORESTRY, AND RURAL REVITALIZATION
HEARING
SEPTEMBER 5, 2002

MR. CRAPO. Madam Chairwoman, thank you for holding this hearing today. Oak mortality is an important subject, and it is timely to be discussing forest health as the Senate considers an amendment to the Interior Appropriations bill that address the repercussions of unmanaged forests. Unfortunately, and as evidenced by the need to address widespread forest health issues, the decline of oak tree populations and the epidemic levels of red oak borer in the Ozark Highlands are not unique.

Oak decline in the Ozark Highlands reflects many of the problems we are facing across this country. The contribution to the fuel load, the impact on recreational opportunities, the effect on wildlife, and the repercussions to local economies are all evidenced with the oak.

While we do not have the red oak or the red oak borer in Idaho, we do have the Douglas-fir bark beetle and the mountain pine beetle. Outbreaks of these insect infestations follow much the same course as the red oak borer. In Idaho we went from thirty three thousand acres in 1996 to one hundred and twenty two

thousand acres in 2000. Trees stressed by drought, root disease, and other insects increase the susceptibility of even healthy trees to these beetles, which leads to epidemic populations.

In another similarity, the loss of western white pine and the risk that poses to Idaho's forests is a potential outcome with red oaks in the Ozarks. Like red oaks, western white pine is an economically and environmentally desirable species.

White pine, Idaho's state tree, once dominated the forest ecosystems in the Inland Northwest. Disease, insects, past logging practices, fire suppression, and in active management have resulted in a dramatic decline in the abundance of white pine. In 70 years, we have lost 90 percent of this important species. Blister Rust, an introduced disease is the primary agent of mortality, but nonetheless, the combination of factors that decimated the white pine, has resulted in a species shift where Douglas-fir and other less fire resistant species have increased in abundance. The shift to a more densely populated species compounded by over growth has resulted in a change to the ecosystem that lends itself to landscape level risks.

In Idaho, we have seen first hand that the loss of western white pine and its replacement by less desirable species has had an economic impact on rural communities; an ecological impact on wildlife who lose habitat; and an increased catastrophic wildfires. Similar outcomes could be a result of the decline of oaks in the South. But again, this is not unique to Idaho or the South.

Forests around the country have changed in structure and diversity. A decline in traditional species, rampant insect and disease infestations—both native and non-native—and increased density and over-accumulation of vegetation has created unhealthy forest ecosystems that threaten wildlife, environmental quality, local economies, and long-term sustainable use and enjoyment of our forests.

The same stresses that have resulted in the problems you called this hearing to investigate are problems throughout the country on both public and private forestland. This Forest Service Risk Map from 2000, shows that 70 million acres of forest land are at risk of mortality from insect and disease. This map is more distressing when you consider these red blotches have spread considerably in the last two years. With about one-third of the nation's land area composed of forests, this issue touches most Americans.

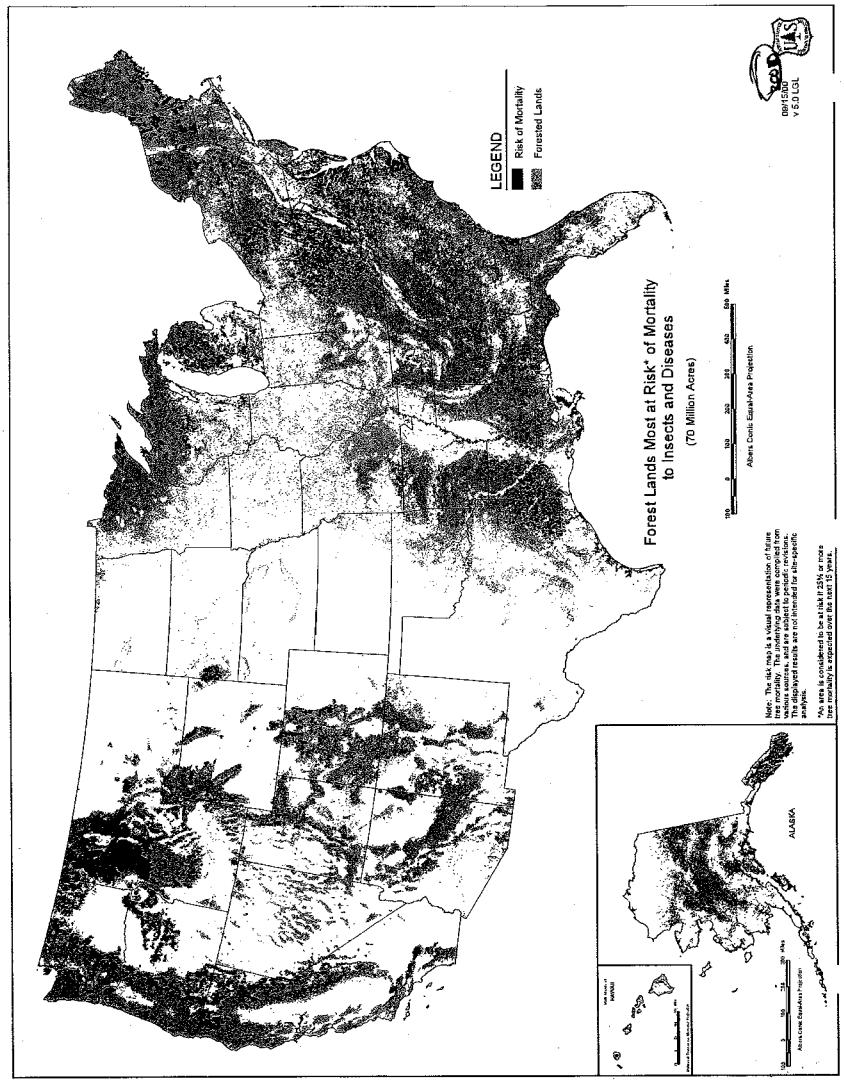
Dead and dying trees have a very real and potentially dangerous impact on the public. Already this year we have seen more than 6.3 million acres affected by wildfires with a suppression cost of $1 billion. This devastation follows the 2000 fire season where 8.4 million acres burned with a suppression cost of $1.36 billion. Sadly, these fires and their scope were not unexpected.

Fires are a natural part of a healthy ecosystem and provide numerous benefits, but in an unhealthy forest, these fires can burn with an intensity and size that is destructive. These fires destroy wildlife habitat, degrade water quality, and destroy urban watersheds. The fires also present a significant safety risk and cause economic loss that most effects the communities that rely on neighboring forests for recreation and livelihoods.

We know, and have known for years, that unhealthy forests lead to these negative results. We also know that insect and disease infestations contribute greatly to wildfire risks and intensity. And we know that past policies have contributed to the growing threat. The issue we have before us is how to address current threats and ensure long-term sustainability and health of our nation's forests.

As we move forward, I hope we can keep the focus on our objectives for the forests. We should give our land managers a toolbox that allows them to achieve our goals of protecting these valuable resources and the flexibility to choose the tools that work best in their area. In the end, solutions to forest health concerns will be locally derived with full participation by interested parties and consideration of the land management objectives and resource concerns for the areas.

I look forward to an interesting discussion with these expert witnesses. I hope to gain a better perspective on the level of the problem, how we got here, and what we can do to address this situation. I am particularly interested in hearing your impression of the obstacles to addressing the problems, the cost estimate of these efforts, and the timeline we must pursue.


LEGEND
Risk of Mortality
Forested Lands
Forest Lands Most at Risk* of Mortality to Insects and Diseases
(70 Million Acres)
Albers Conic Equal-Area Projection
Note: The risk map is a visual representation of future tree mortality. The underlying data were compiled from various sources, and is a product of modeled projections. The displayed results are not intended for site-specific analysis.
*An area is considered to be at risk if 25% or more tree mortality is expected over the next 15 years.
ALASKA
HAWAII
DOI/BLM/OSM
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Statement of

Tom Thompson

Deputy Chief, National Forest System

Forest Service

United States Department Of Agriculture

Before the

Subcommittee on Forestry, Conservation, and Rural Revitalization

Committee on Agriculture

United States Senate

On

September 5, 2002

Concerning

Oak Mortality in The Ozark Highlands

Madam Chairman and members of the subcommittee, thank you for the opportunity to appear before you today. I am Tom Thompson, Deputy Chief for National Forest System, Forest Service. I am here today to provide the Administration's comments on the oak mortality situation in Arkansas. Accompanying me today is Charles Richmond, Forest Supervisor for the Ozark-St. Francis National Forests. He will assist me in addressing any specific questions you may have.

The health of some of our forests and rangelands are deteriorating and they are stressed to the point that insects, disease, and wildfire kill thousands of acres of trees each year. In response, federal, state, tribal, and local governments are making concerted efforts to restore our forests and rangelands to healthy conditions. These efforts include reforestation, restoring fish and wildlife habitat, revegetating riparian areas, thinning, and prescribed burning.

Additionally, the President's Healthy Forests Initiative will further existing efforts and establish a framework for protecting communities and the environment through local collaboration and restoration projects. The initiative would provide for active forest management, including removal of diseased and infested trees, thinning of forests to reduce fire risk, biomass removal and utilization, and other tools that will meet long-term ecological, economic, and community objectives.

The President's Healthy Forests Initiative will also help to expedite active forest management activities, which are often complicated by procedural delays and litigation. It will allow us to effectively maintain healthy forests and address forest health problems, including oak mortality in the Ozark-Ouachita Highlands in Arkansas, in a timely manner.

The Condition of Arkansas Forests:
USDA Forest Service surveys indicate that oak mortality has impacted well over a million acres of oak forest in the Ozark-Ouachita Highlands of Arkansas.

Factors such as advanced age, steep mountain slopes, poor rocky soil conditions, and overstocked forests set the stage for oak mortality. Drought and defoliation add additional stresses to the trees. Secondary agents such as insects and disease attack highly stressed trees that eventually succumb and die. In Arkansas' episode of oak mortality, several years of extreme drought and an unprecedented population of red oak borer beetles contribute to the problem. The mortality is not associated with the pathogen that causes sudden oak death that was originally found in California and Oregon.

Preliminary data from the Ozark-St. Francis National Forest suggest that as many as half of the red oaks on national forest lands are currently dead or dying. The increased amount of dead trees results in excessive fire danger, increased threats to life and property, and compounds forest health problems. The Ozark-St. Francis National Forests in Arkansas is severely impacted with over 300,000 of the Forest's 1.2 million acres affected. The Ouachita National Forest in Arkansas and the Mark Twain National Forest in Missouri are affected as well, but to a lesser degree.

The impact on private lands, which constitute 78 percent of the forested area in the Interior Highlands, is thought to be less severe and much more difficult to estimate.

Mortality of northern red, black and southern red oaks became particularly evident in 1999 following 2 years of severe drought. White oaks, hickories and other species are affected as well, but to a lesser degree. A third year of drought in 2000 greatly exacerbated the problem and mortality increased.

Oak borer populations have exploded to unprecedented levels in the past 5 years. In 2001, limited sampling in Arkansas found an average of over 400 insects per tree. These numbers are vastly greater than any numbers previously recorded, which were 4-6 insects per tree.

Oaks are extremely important in the Ozark-Ouachita Highlands. Ecologically, the oaks are a food source for squirrels, bear, turkey, and deer. Many non-game small mammals and birds depend on acorns for food. Economically, the red oaks are a highly desirable hardwood species, used for furniture, cabinets, flooring, and other building projects. Widespread loss of red oaks could severely impact the social fabric of the Ozark Highlands through job losses, reduced game populations, scenic quality, and tourism opportunities.

According to Forest Inventory data in the recent Ozark-Ouachita Highlands Assessment, 25 percent of the board-foot volume of the Interior Highlands is in the red oak component—a total volume of 13.8 billion board feet. In timber terms alone, the dollar value of the trees at risk exceeds $1.1 billion.

An interagency task force comprised of the Ozark-St. Francis National Forests, Arkansas Forestry Commission, Arkansas Game & Fish Commission, Mark Twain National Forest, Missouri Department of Conservation, Northeastern Area (USDA Forest Service) and Southern Region Forest Health Protection (USDA Forest Service), the Southern Research Station (USDA Forest Service), and the North Central Forest Experiment Station (USDA Forest Service) have developed a strategy to address immediate and future threats to the forest ecosystem and associated communities of the Ozark-Ouachita Highlands.

The strategy includes five key components: (1) Public Safety, (2) Public Awareness, (3) Inventory and Assessment, (4) Management Strategies for prevention/suppression/ restoration, and (5) Research. This strategy focuses on inventorying and assessing the damage, enhancing public awareness, and removing hazardous oaks from developed recreation areas and major travel routes through the forest. Research activities and a needs assessment with the USDA Forest Service Forest Health Unit, the Southern Research Station, the North Central Forest Experiment Station, and numerous universities are underway. Priorities have been established to enhance natural oak sprouts that can grow new trees in those areas where trees are severely damaged. Additional forest thinning and prescribed fire projects are proposed and being implemented to encourage oak sustainability.

(1) Public Safety. Public Safety is the most important objective. Actions include monitoring tree mortality impacts in recreation areas and roadsides, prioritizing removal efforts, providing safety awareness information initiatives and coordinating tree removal programs with highway departments, utility companies, and local officials.

(2) Public Awareness. Public awareness has been heightened since the onset of the oak mortality situation. Information products and communication tools have been developed to inform people and raise their awareness level regarding the oak mortality situation. Brochures, news releases, interpretive signs, field tours, and programs are just a few of the tools used to inform the public. A communication strategy has been written and implemented over the past several months.

(3) Inventory and Assessment. Aerial surveys have been conducted for state, private and federal lands across the region. Impact estimates have increased as more lands have been surveyed. Maps of inventoried areas showing locations of dead trees, infested sites and potential "at risk" areas have been identified to assist forest managers in planning initiatives to alleviate additional losses.

(4) Management Strategies for Prevention/Suppression/Restoration. It is difficult to suppress the insect epidemic because the epidemic is a secondary impact resulting from many factors. Prevention treatments, however, can be effective in improving the health of the forest. Forest Health Protection specialists recommend the following treatments in order to address the situation:

From a suppression standpoint, cutting and removing red oak trees from the forest will reduce subsequent insect populations to some degree, and should reduce near-term mortality in adjacent trees and areas. Borer larvae or developing adults would be removed from the wood and destroyed in processing operations.

Red oak trees infested with red oak borers could also be cut and left on the ground where other insects, predators and environmental conditions would reduce larvae survival. Salvageable trees could be removed at a later date.

Long-term prevention methods are needed to improve the health of these forests. For example, selective removal of red oak trees from the forest would create a bigger variety of trees in the forest that would enhance oak reproduction potential. Prescribed burning across the forest would enhance oak restoration and growth potential. Planting diverse tree species would also assist in a healthier forest in the long-term.

Several grant projects have been funded through Forest Health Protection Programs and the University of Arkansas. Geographic information systems are in place to monitor populations and damages by the red oak borer. A third project with the Forest Service's Southern Research Station is using ground survey plots to evaluate the extent and severity of the decline event over the entire Ozark/Ouachita Highlands area.

(5) Research. Research scientists have developed strategies to reduce the future loss of oak trees in the region. Funding estimates for research needs are included in the agency's action plan. Several studies were initiated in FY 02 to learn more about this pest.

Information is needed to: 1) characterize and describe the ecology of this insect and identify associated factors for future management initiatives; 2) quantify the extent of damage, effects on forest resources and realistic restoration treatments; and 3) develop pest control and regeneration methods.

Activities targeting utilization, restoration, salvage, protection from hazards, effects on wildlife, concerns about recreation and people's expectations are needed for future management of this problem.

Summary:
In conclusion, our short-term challenges are to provide for the safety of forest users, and create a healthy environment for future forests to grow and flourish. Oaks thrive in a forest that is managed, one that is free from excessive fuels, that incorporates natural and man-made activities in order to sustain healthy ecosystems.

Long-term challenges include development and implementation of strategic management actions, founded on sound scientific data that will result in healthy, resilient forests for generations to come. We are working to address both short and long-term challenges, and will be able to do so even more efficiently under the President's Healthy Forest Initiative.

Senator Tim Hutchinson

DATE: **Thursday, September 5, 2002**

RE: **9:30 Subcommittee on Forestry, Conservation and Rural Revitalization regarding the decline of oak populations.**

- Ensuring the continued health of our forests should be of utmost concern to all of us on this Committee and especially this Subcommittee.

- A few months ago when we passed the Conference Report to the Farm Bill, I was troubled to see that many good forestry provisions within the Farm Bill had been dropped at the eleventh hour.

- It has been my hope that Chairman Harkin would call hearings to discuss and possibly implement many of those provisions which were seemingly dropped without reason.

- I am pleased that Chairwoman Lincoln has called this hearing today to discuss oak decline in southern states.

- Earlier this year, having recognized the need to address the issue of oak decline I made several appropriations requests to begin to mitigate this problem.

- I requested $5.445 million for the Ouachita ($1.1 million) and Ozark-St. Francis National Forests ($4.345 million) to begin dealing with oak decline and the red oak borer problem.

- In addition, I requested $8 million to fund the Forest Service's Hazard Mitigation Plan. This plan which will likely need funding over several years addresses the safety issues created by the dying trees for those of us who use the forests.

- I also requested $300,000 above the President's FY '03 budget for Forest Service Research and Development funding. These funds would be administered by the Southern Research Station (SRS) and the North Central Research Station (NCRS) for Forest Service research and development as well as cooperative research with universities and other state and federal agencies.

- Hopefully, this hearing will highlight the funding needs to combat oak decline and the need for proper management of our resources.

- It is my belief that we need a renewed focus on properly managing our forests, and I am supportive of President Bush's Healthy Forests Initiative.

- As this Initiative evolves and hopefully is implemented, I plan to work to make sure that it works for all forests, from the northwest to the southeast.

- Many of the concepts that the President is proposing to manage forests will help reduce situations like we are facing in Arkansas.

- It is estimated that at least 300,000 - 400,000 acres of our forest land is either dead or dying.

- We need to find the funds necessary to help mitigate this situation and then ensure that future funding levels will sustain proper forest management.

- We need to give our forest supervisors like Charles Richmond, who is testifying today, the flexibility to manage the forests.

- Many of you will remember the devastating ice storm that hit Arkansas almost two years ago. In the aftermath I was amazed to learn the complex analysis, paperwork, and regulations to do simple, time-tested forest management practices.

- I have heard from forest service employees who have indicated that sometimes it takes years of jumping through hoops to perform an objective as simple as a commercial thinning or a control burn.

- As Forest Service Chief Dale Bosworth says, we are in an "analysis paralysis." I believe we should do everything necessary and involve as many individuals as possible in making decisions that affect our forests. However, there comes a time when we need to act.

- We need to act to ensure that forests remain healthy, that those of us who visit our forests are safe, and those that live in and near forests are safe. We must have active forest management, not passive forest management.

- The forest industry in vitally important to Arkansas. A few months ago, I met with the Ouachita Timber Purchasers and learned first hand how they are recovering from the devastation of the ice storm and how the oak decline has affected their businesses.

- These are small businesses that rely on timber purchases from the forest service and want to see healthy forests and proper management.

- For the sake of our forests, for the sake of our small businesses, and for the sake of our rural communities, we need to appropriate the funds necessary to mitigate this problem, and then work to make sure that all the tools are available to properly manage our forests.

TESTIMONY OF THE OZARK WOODLAND OWNERS ASSOCIATION, INC.
TO THE
U. S. SENATE REGARDING OAK DECLINE IN THE SOUTHERN OZARKS

INTRODUCTION: The Ozark Woodland Owners Association, Inc. (OWOA) is a nonprofit corporation in north Arkansas comprised of forest landowner volunteers and local forestry professionals formed by landowner request, for the purpose of providing forest landowner training, technical management assistance, and conducting research on local forestry issues. The Association is in it's second year of a partnership effort with state and federal agencies in which it is providing a comprehensive forest landowner education and technical assistance training program to the 30,000 forest landowners of the eleven county Ozark Foothills Resource Conservation and Development Council area, an area of the southern and eastern Ozarks in north central Arkansas.

ASSESSMENT OF FOREST CONDITIONS: OWOA agrees with the assessment of other agencies that the Ozark forests are in a state of decline. This decline is occurring as a result of four factors:

Repeated "high grading" timber harvests where the largest, healthiest, and most valuable species of trees have been repeatedly removed, leaving the diseased, less valuable species and genetically inferior trees to become the seed stock for the next generation of trees.

Forest progression into older, overcrowded and stunted stands of trees that are all of approximately the same age.

A four-year drought ending in the fall of 2001 that weakened or killed many tracts of forestlands.

As a result of the above conditions, the increased incidence of insect and disease outbreaks such as the red oak borer and hypoxlyn canker are acting as the final agents in killing large numbers of weakened trees.

ROOT CAUSES: The conditions listed above are often cited as the "causes" of Ozark forest decline. The OWOA assessment, however, is that the causes are more deeply rooted, subtle, and long-term than the conditions cited above. There are three factors whose long-term effects have converged to create the condition known as oak decline in the southern Ozarks.

Changes in use and ownership of hardwood forestlands have now occurred across the southern Ozarks. Prior to the 1960's and early 1970's, forestlands were owned by resident landowners who utilized their forests extensively for, building materials for

their farm structures, firewood, and income production through timber sales. While not scientific in their application, such practices did have the effect of maintaining some level of forest health and vigor. Since that time, forestland ownership has passed to a new generation of landowners who own forestlands for a different reason, and who generally have not continued those practices. In a just completed OWOA forest landowner survey (copy furnished to Senator Lincoln) 94% of forestlands are owned by private forest landowners, of whom 80% are between the ages of 40-70, most of whom acquired their forest lands by purchase (73%), and who use the lands for reasons other than timber production (63%).

The fluctuation of north Arkansas hardwood timber markets over the last 40 years has contributed to the current forest condition and created an opportunity for forest improvement, if handled carefully. During 1970-1990 there was a small but stable market for hardwood sawtimber, which tended to continually remove only the high quality merchantable trees from the forest. There was no significant demand for hardwood pulpwood. These market conditions resulted in chronic, "high grading" harvests referred to earlier. Beginning in 1991, the market situation began to change rapidly. South Arkansas forest products manufacturers, having exhausted the local hardwood base needed for production of high quality paper products, began to expand procurement operations in north Arkansas. As a result, the demand for, and harvests of, both hardwood pulp and hardwood sawtimber have grown exponentially from 1991-2001. Thus there is an opportunity to use the market to resolve problems dealing with stand overcrowding and overage. There are real dangers, however, that will be addressed later under Concerns.

The third cause of oak decline appears to be the subtle but very real effects of climatic change. Forest landowners and agricultural product producers alike are observing shorter, milder, dryer winters; longer growing seasons, changing rainfall patterns, and both plant and animal specie migration, adaptation, or decline. Red oaks, in particular, are one subspecies of the oak family that are not competitively adapting to the longer growing season and new rainfall patterns. Prior to 1980 the north Arkansas growing season for forests could be described as a period from mid-April to early October with a normal six-week dry period from mid-July to early September. Landowners now agree that the norm is a growing season beginning around April 1, ending around November 1, with a ten-week dry period from early July to mid-September. Red oaks, in particular, are demonstrating that they are less competitive in surviving the midsummer dry period, especially on high exposed south and west facing Ozark slopes. As a result the entire southern escarpment of the Ozark Mountains is undergoing a transformation from a red oak dominated landscape to a blackjack oak, post oak and pine dominated landscape. While this transformation may be acceptable from an aesthetic and conservation viewpoint, it can result in damage to wildlife populations and the thriving north Arkansas hardwood products industry, because red oaks are the apex trees of the forest that are a critical food source for wildlife and provide the quality lumber and fiber for industry. This transformation does not mean that quality red oaks cannot be grown

in this area. It does mean that landowners must pick their sites more carefully (east & north slopes, low areas, creek and river bottoms) and manage those sites a little more intensively.

CONCERNS: The first OWOA concern is the lack of awareness on the part of agencies and elected officials of the role that north Arkansas forestlands play in the quantity and quality of water to the White River Watershed and the eastern Arkansas Alluvial Aquifer. The 11 counties of the Ozark Foothills RC&D Council contain 2.4 million acres of forestland. The main channel of the White River and all major tributaries except for the Buffalo River either begin or significantly increase in volume as they flow through these forestlands. Through surface and subsurface discharges of clean, measured flows of water the forestlands are the living water reservoirs upon which eastern Arkansas farmers and communities depend. Sadly, while hundreds of millions of dollars are spent annually to develop or subsidize the use of those waters in eastern Arkansas, no significant effort has ever been made to maintain, improve, or expand the forestlands from which they originate or to compensate the tree farmers who produce and export that water as a byproduct of their forest stewardship!!

The second concern is the potential for wholesale destruction of the north Arkansas forestry base by forest products manufacturers. Having consumed their hardwood sustainment base in south Arkansas, manufacturers are now relying on north Arkansas forests to meet their hardwood needs, particularly in the area of hardwood pulp. Identifying industry's need for north Arkansas hardwoods, OWOA representatives met with forest industry representatives in May of 2000 to invite them to work with north Arkansas forestland owners in developing the forest product market. OWOA members had two requests: (1) develop the market in a way that will act to sustain and improve the hardwood forest base and watershed, (2) bring manufacturing facilities to north Arkansas so that the region can enjoy the value added economic benefits of the industry, and to assure us, that by investing in and being visible in our region, they would have as much interest in sustainable forestry as we do. In the last 15 months there has been a dramatic increase in the convoys of empty south Arkansas timber trucks and rail cars flowing into the region. The industry is utilizing an "invisible third party" procurement method whereby "independent" harvesters and procurement points exist to supply the pulp needed for south Arkansas paper mills. The old "cut out and get out" policies of the past are again at work to maximize the industry's return to its stockholders. The short-term profitability requirement of industry is colliding with the long term economic and social needs of the people of the region. Additional work needs to be done whereby the needs of industry can be met while addressing the long terms needs, both socially and economically, of the people of the region.

The third concern is the OWOA anticipation that other parties providing testimonies will center their recommendations and requests for funding upon the "need to educate the public." The OWOA position is that current funding provided to multiple

agencies is adequate to continue current educational efforts, and they are producing an excellent effect!

Following is a list of current educational efforts:

The Ozark Foothills RC&D Council, as part of its forest landowner education efforts, is addressing the issues of oak decline and red oak borers in its newsletters mailed out to 20,000 forest landowners and in the semiannual forest landowner workshops conducted in each of the 11 counties.

The Arkansas Game and Fish Commission devoted its fall 2001 Arkansas Wildlife magazine to the issues of oak decline.

The Arkansas Forestry Commission is airing television commercials that visibly illustrate the effects of oak decline and its immediate causes.

The University of Arkansas, through its extension foresters and School of Forest Resources is making presentations on the subject at the county level workshops, and has provided materials for numerous newspaper articles on the subject.

The problem is, while we are performing magnificently in educating landowners, we are failing miserably in motivating them to act! OWOA has found that until a trained forest professional takes landowners into their forest and points out the indicators of oak decline and the other problems described above under "assements" and "root causes" landowners just don't accept the fact that **their** forestland has a problem. Even when they recognize the problem, many landowners are often reluctant to act because of the uncertain consequences of dealing with untrained harvesters and buyers who are strongly motivated to pursue clear cutting operations. And when they do act it is often more motivated by short-term monetary goals than by long term stewardship concerns.

CONSIDERATIONS: As all parties search for solutions to the problems identified above the OWOA position is that solutions must fall within the following parameters:
Actions must protect and strengthen the forestland's ability to retain, and then discharge water into the White River drainage basin in a fashion most usable by the region.

Actions must maintain, and improve the quality of the hardwood forest base with specific emphasis on quality red oak regeneration and maintenance of wildlife populations, with consideration given to the aesthetic nature of the region so as not to impair tourism.

Actions must promote a sustainable hardwood forest product industry in the region. (It must be emphasized that it is not the seedlings we plant today, but the forests we manage today that will provide the sustainment base for the next 40 years).

Actions must provide an incentive that will motivate landowners to act more with long term stewardship goals in mind than short term monetary goals while supporting the preceding considerations.

RECOMMENDATIONS:

The current forestland owner education and technical assistance program, which is funded through 2004, and for which future funding needs have been met in the Title VIII FLEP & SFOI programs of the Farm Bill, should be expanded into the western Ozarks and be continued until it can be demonstrated that the level of forest landowner technical knowledge equals the levels of other agricultural producers.

The University of Arkansas, using some of its portion of the $30 million SFOI dollars to be provided to the states, must reactivate its umbrella of expertise for the benefit of the 30,000+ north Arkansas hardwood forest landowners by providing staff members knowledgeable in hardwood forest management at the Batesville Livestock and Forestry Experiment Station and the University's other holdings in north Arkansas and begin a long-term research, experimentation, and cooperative extension program that will better utilize the 2000+ acres of college forestlands as models of what properly managed hardwood forests should look like.

The third recommendation will require the cooperation of Congress and senior leadership at USDA. OWOA proposes a ten-year hardwood forest rehabilitation program that encourages good stewardship of the 2.4 million acres of forestlands in the Ozark Foothills RC&D Council area. The program, to be called the Stewardship Harvest Incentive Program, and funded under the provisions of the EQIP program, should operate within the following general terms and limitations:

TERMS: An incentive payment of $100 per acre to private non-industrial forest landowners who:

Have a forest stewardship management plan: (meets EQIP requirements for a comprehensive management plan)

Conduct a harvest designed to promote forest health and oak regeneration by performing a "low grade" selective harvest that thins the stand and removes lower quality, less desirable trees and leaves substantial numbers of high quality oak trees to promote regeneration and improve the quality of the forest. (Meets EQIP standards as a practice that protects water, soil, and related resources.)

Comply with Arkansas Forestry Commission's Best Management Practice guidelines.
Agree to keep harvested tracts in forestland for 10 years with no further harvests during that period of time. (Extracts full benefit of EQIP 10 year contract limitation.)

The incentive payment partially offsets the decrease in the per acre sale prices the landowners will receive for their timber but puts both the landowner and region on a good forest management glide path. This effort over time, will result in healthy forestlands on a healthy watershed, by creating a mosaic of uneven aged, vigorously growing forestlands, each managed differently to meet individual landowner management objectives, but benefiting the region as a whole.

LIMITS: It is suggested that the program operate within the following limitations: Enrollment of a maximum of 5,000 acres per county per year. (To preclude extensive harvest activity at any particular area in the watershed.)

Limit participation to 50 acres per landowner per year, unless all requests in a particular county have been met, then permit up to 100 acres per landowner subject to the 5,000 acre per county limitation.

A $1.25 million start up and pilot program test in FY 2003, then full implementation to the extent of landowner demand, subject to the earlier limitations, for the remainder of the life of the Farm Bill.

Continuous measurement and reporting of the economic and environmental outcomes to see if results produced will continue to justify the investment of society's resources in the project.

The program should be voluntary, in no way infringing upon the rights of landowners who choose to manage their forestlands outside the parameters of the program.

It is recommended that the Stewardship Harvest Incentive Project be considered for funding under the Title II EQIP because (1) private, non-industrial forestlands are considered eligible lands [Sect 1240A, para. (2) (B) (iv)]; (2) the Secretary has the authority to "make incentive payments in an amount and at a rate ... necessary to encourage a producer and; (3) the practices "mitigate the effects of drought, improve the storage of water through measures such as water banking and ground water recharge" and meet the needs of both forestland water producers and the agricultural water users of the White River watershed.

At OWOA's request, the Ozark Foothills RC&D Council is developing a formal project proposal to be forwarded to USDA as soon as it can be reconciled with USDA draft guidelines to be published in late September. It is OWOA's recommendation that the RC&D Council contract directly with USDA to efficiently administer this project. In a state where conservation and forestry organizations and leadership are dominated by grain interests in the east, poultry and cattle interests in the west, and the forest industry in the south OWOA recognizes the reality that this innovative proposal will probably not receive high priority in any final state priority plan. Therefore, the 30,000

non-industrial forestland owners of north Arkansas appeal directly to our members of Congress and to senior USDA officials to work with OWOA and its partner agencies to make this project a reality.

In the Farm Bill, Congress has challenged regional organizations and citizens to develop innovative solutions to local problems and use the technical resources of the private sector to solve them. OWOA and partner agencies accept your challenge! Now work with us and support us in this unique endeavor!

OZARK FOREST LANDOWNER SURVEY, YEAR 2002
(SCORE SHEET)

DEMOGRAPHIC/GEOGRAPHIC INFORMATION

1. My forestlands are owned by:
A private individual or individuals
A trust for the benefit of one or more individuals
A partnership, corporation, or other legal entity

2. My forestlands are owned by, or managed for the benefit of:
A female landowner
A male landowner
Both female and male landowners

3. The age of the owner(s) is: **(if more than one owner, indicate the average age)**
Younger than age 40
41-50
51-60
61-70
over age 70

4. If the forestlands are managed by someone other than the owner, the age of the manager is:
Younger than age 40
41-50
51-60
61-70
over age 70___
Not applicable, I manage my forestlands.

5. My forestlands could be best described as: **(select all situations that apply)**
Bottomland, or creek bottom hardwoods
Upland, or hill country hardwoods
Pine forests
Mixed pine and hardwood stands

6. The person completing this questionnaire is:
Female
Male
both male and female respondents are providing input to answers.

REASONS FOR OWNING FORESTLAND

7. My forestlands were primarily acquired through:
Inheritance
Gift
Purchase of lands containing forestlands
Purchase of open lands, then planted to trees

8. Since owning my forestland, I have conducted the following fish and wildlife management activities **(select all that apply)**
Planted trees and shrubs for wildlife food and habitat
planted wildlife food plots
Conducted controlled burning of either forests or open lands to improve wildlife habitat
Taken other steps to improve or manage wildlife populations
Stocked fish or made other fishery habitat improvements to increase fish populations

9. Since owning my forestlands, I have conducted the following forest management activities **(select all that apply)**
Planted hardwood trees
Planted pine trees
Conducted controlled burning
Thinned existing stands of young trees
Conducted harvest of mature trees

10. I own forestlands for the following objectives **(select all that apply):**
Hunting
Recreation, other than hunting
Conservation benefits
Aesthetic value
Income production through timber sales
Wildlife management benefit
Environmental benefit

11. In assessing how well my forest meets the objectives identified above, I would say that I am:
Satisfied
Unsatisfied
Uncertain, because I do not know how well my forest is capable of meeting those objectives.

12. I consider my forestland's greatest economic value to be: **(rate each entry from 1-4, using each number only once with 4 being the greatest value and 1 being the least value)**
It's value for potential real estate development
It's value for timber production
It's value for hunting leases or other income production
I do not assign any economic value to my forestlands
Potential long term appreciation

KNOWLEDGE OF FOREST MANAGEMENT PRINCIPLES

13. My knowledge of forest management has been acquired through (select all that apply):
Instruction from parents, relatives, neighbors
Personal experience
Participation in forest management workshops, field days, or other instructional events
Forestry newsletters, magazines, or other publications
Use of private or industry forestry consultants
Technical assistance from state or federal agencies

14. In observing my forestland, it appears that the general health of my forest has:
Improved during the last ten years
Remained about the same over the last ten years
Declined during the last ten years

15. When I seek advice concerning my forestland, I: **(check all technical service sources which you have used)**
Contact the Cooperative Extension Service
Contact Arkansas Forestry Commission
Contact the Natural Resource Conservation Service
Contact a forestry consultant or wildlife biologist
I have never sought technical advice regarding my forestlands

16. The Arkansas Forestry Commission publishes a set of voluntary forest management guidelines known as Best Management Practices (BMPs):
I am familiar with those guidelines
I am not familiar with the guidelines

17. The various agencies of the state of Arkansas, as well as the Arkansas Forestry Association and the Ozark Woodland Owner's Association, periodically conduct forest landowner training workshops, field days, and cooperative extension courses:
I have participated in one or more of these educational opportunities.
I am aware of these opportunities but have not participated.
I have been unaware that such opportunities existed.

18. The US Department of Agriculture's Natural Resource Conservation Services offers a variety of forest management incentive programs ranging from cost-share for implementing forest management practices to land rental programs to promote the expansion and improvement of forestlands. Programs are known as the Forestry Incentive Program (FIP), the Conservation Reserve program (CRP), the Wildlife Habitat Incentive Program (WHIP), and the Environmental Quality Incentive Program (EQIP).
I am familiar with the programs and have applied for participation in the past.
I am familiar with the programs but have not elected to participate.
I am unfamiliar with the programs.

19. The state of Arkansas provides to landowners who request it, the service of a state wildlife biologist to assist the landowner in developing a wildlife management plan for their properties.
I am familiar with the program and have applied for participation in the past.
I am familiar with the program but have not elected to participate.
I am unfamiliar with the program.

20. The state of Arkansas provides to landowners who request it, the services of a county forester or consulting forester to develop a forest management plan. This program is known as the Arkansas Forest Stewardship Program.
I am familiar with the program and have applied for participation in the past.
I am familiar with the program but have elected not to participate.
I am unfamiliar with the program.

21. I consider my knowledge of forest management principles to be:
Adequate to meet my forest management objectives.
Somewhat inadequate to allow me to accomplish all that I would like to do.
Inadequate, I wouldn't know where to start.

KNOWLEDGE OF FOREST PRODUCT MARKETS

22. Do you utilize your forest for timber income production?
Yes
No

If you do not utilize your forest for income production, please do not answer questions 23 through 28, continue your responses at question 29. If after reviewing questions 23-28, you wish to provide an answer, please change your answer on question 22 to "yes".

23. In assessing the economic value of my forest in providing raw materials for the forest product market:
I am familiar with the local market for the various products from my forest.
I am unfamiliar with local markets.
I am familiar with the various harvest methods that may be used to remove marketable products from my forest.
I am unfamiliar with the various harvest methods.
I am familiar with the methods for contracting the services of a forest product harvester.
I am unfamiliar with contracting procedures.

24. Forestry consultants provide a service assisting landowners by developing forest management plans, providing forest management services, and assisting landowners in marketing their forest products.
I am aware of the services that forestry consultants provide.
I am unaware of the services that forestry consultants provide.

25. My attitude toward timber harvesting is that: **(select all that apply)**
I would conduct a selective harvest to improve the health of my forest.
I would harvest timber for my personal use. (ie. lumber, firewood, etc.)
I would harvest timber before converting my forestland to another use.
I would harvest my timber if timber prices were high enough.
I would never harvest my timber for any reason.

26. If/when I conduct a timber harvest sale I would prefer to: **(select one)**
Handle the sale myself
Seek help from an industry forester
Seek help from the Arkansas Forest Commission
Employ a consulting forester to handle the sale.

27. If/when I conduct a timber harvest I:
Make a verbal agreement with the harvester or buyer.
Utilize a written contract with the buyer.

28. If/when I conduct a timber harvest, I prefer to:
Conduct a select harvest and have individual trees marked before the harvest.
Conduct a "diameter cut" removing all trees above a certain diameter limit.
Conduct a "species cut" removing, or leaving all trees of a certain species.
Conduct a "clear cut" removing all merchantable trees.

WILLINGNESS TO PARTICIPATE IN FORESTRY & WILDLIFE MANAGEMENT EDUCATION ACTIVITIES

29. To improve my knowledge of forest management, I would be willing to: **(select all that apply)**
Attend periodic forestry workshops and field days in my county.
Check out and view instructional forest management videotapes from one of my county agencies.
Enroll in forest management education courses offered by a local college or agency.
Attend regional forestry topic seminars where participation fees are charged.
I am not inclined to participate in educational activities involving forest management.

30. To improve my knowledge of wildlife management, I would be willing to: **(select all that apply)**
Attend periodic wildlife management workshops and field days in my county.
Check out and view instructional wildlife management tapes from one of my county agencies.
Enroll in wildlife management education courses offered by a local college or agency.
Attend regional wildlife management topic seminars where participation fees are charged.
I am not inclined to participate in educational activities involving wildlife management.

31. To actively advance the issues of forest and wildlife management, I would most likely be willing to be a member of a **(select all that apply)**
County or regional forestry association
State forestry association
National forestry association
County or regional wildlife association
State wildlife association
I would not seek membership in any of the above
National wildlife association

WILLINGNESS AND ABILITY TO MANAGE PRIVATE FORESTLANDS FOR VARIOUS USES

32. In management of my existing forestland I would: **(select one)**
Prefer to take no active management, but let my forest progress naturally.
Prefer to actively manage my forest by doing most of the work myself.
Prefer to employ someone to conduct my forest management activities.
Seek professional advice, then perform the recommended activities myself.

33. I would be willing to conduct forest management activities (examples listed in questions 8 & 9) to improve my forestlands at the following minimum financial threshold if government funds were provided **(select one):**
Zero cost-share, my forestlands are currently managed as an investment.
25% cost-share for the management activity.
50% cost-share for the management activity.
75% cost-share for the management activity.
100% reimbursement for management activities producing no revenue.

34. In conducting non-revenue producing forest improvement activities, I would prefer: **(select one)**
To provide my own labor and machine time and be reimbursed for my activities.
To contract and pay a forest service provider to conduct agreed upon forest improvement activities and then be reimbursed.
That a government agency contract for, supervise, and pay a forest service provider for agreed upon forest improvement activities.

35. The following is the maximum amount of personal time and funds that I am willing to invest in forest and wildlife management activities each year.

TIME	MONEY
0 Hours	$0
0-20 hours	$0-250
20-40 hours	$250-500
40-80 hours	$500-750
80-160 hours	$750-1000
> than 160 hours	>$1000

36. I would be willing to convert other land to forestland at the following minimum financial threshold: **(select one)**
I do not own, or would be unwilling to convert additional land to forestland.
50% cost-share for land preparation and tree purchases and planting.
75% cost share for land preparation and tree orders and planting.
100% reimbursement for land preparation and tree orders and planting
Some cost-share & annual rental payments for a period of years for converting existing open lands to forestlands.

INTEREST IN UTILIZING SERVICES OF A FOREST LANDOWNER COOPERATIVE

Provisions of the upcoming farm bill authorize the Secretary of Agriculture to establish a sustainable forestry cooperative program. The program provides funds to organizations for the purpose of establishing and supporting sustainable harvesting practices carried out by members of forestry cooperatives for the purpose of creating long term, sustainable income streams for landowners. The following questions are designed to determine the level of landowner interest in participation in such a cooperative and the services that landowners would request (It is assumed that the cooperative would charge appropriate fees for services and supplies provided, some of which would be reimbursable to landowners participating in the various forest management programs.)

37. If a forestry services cooperative were available I would be willing to purchase the following forestry supplies and equipment if competitively priced: **(select all that apply)**
Seedlings
Herbicides/insecticides unique to forestry use
Small hand tools unique to forestry applications.
Personal safety equipment
Flagging and marking supplies unique to forestry applications.

38. If a forestry services cooperative were available I would be willing to rent the following equipment for forest management applications: **(select all that apply)**
Backpack sprayer
Tractor or 4 wheeler mounted sprayers
Subsoilers
Tree planters (hand or tractor drawn)
Tractor mounted grapples
Seeders

39. If a forestry services cooperative were available I would be willing to utilize the services of cooperative personnel to conduct: **(select all that apply)**
Seedling site preparation (brush hogging, herbicide application, subsoiling, etc.)
Tree planting
Controlled burning events
Wildlife food plot preparation
Precommercial thinning and other forest improvement activities
Marking of trees for harvest

40. If the creation of a forestry services cooperative required participating landowners to contribute a nominal fee ($25-$50) to meet capitalization and membership requirements:
I would be willing to contribute
I would not be willing to contribute

COMMENTS:_____

Thank you for your cooperation in completing this survey. Please return the survey in the stamped, self-addressed envelope included in your survey packet.

This survey is made possible by the technical and financial assistance of the USDA Forest Service, Rural Community Assistance Program.

In accordance with Federal law and U. S. Department of Agriculture policy, the organization conducting this survey is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.)

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Sheffield Nelson
Little Rock

Bill Ackerman
Fayetteville

Freddie Black
Lake Village

September 3, 2002

The Honorable Blanche Lincoln
United States Senate
Chair, Agricultural Subcommittee on Forestry, Conservation and Rural Revitalization
355 Dirksen Senate Office Building
Washington, DC 20510

Re: Comments on Oak Decline

Dear Senator Lincoln:

On behalf of the Arkansas Game and Fish Commission, please accept our agency's sincere appreciation for your efforts to bring national focus upon the serious issues facing our central region's oak forests. We also appreciate the opportunity to submit these comments for the public record regarding the possible effects that current ecological events, especially oak decline, will have on our wildlife resources.

The significant mortality currently being experienced on large sections of forestlands throughout our state is staggering and without precedent. Citizens want answers that provide management direction and protection of their forestlands. Vast areas of our forest exhibit dead and dying oaks. We have conferred with research facilities as well as experts in the field of forest management concerning this die-off and their responses are all similar. Our land stewardship policies of protection have not served our forests well. These forest health problems are best correlated to an overprotective policy that has limited management and fostered the exclusion of fire for decades from these ecosystems.

Although our agency has been very involved with investigations around the epidemic of red oak borer as well as oak decline occurring throughout Arkansas and Missouri, our agency falls short in being able to provide real remedies to the public regarding the protection of their forests. Resource agencies have more questions than answers regarding management alternatives available for use that will regain forest health. However, we are not without anecdotal cause and effect knowledge of the circumstances that lead to such a situation.

Our understanding of the oak-hickory ecosystems is best found in the study of the history of this region and the influence of human disturbance upon vegetation and wildlife. Our history details over ten thousand years of human occupation in the Interior Highlands. All of these groups shared in both the ability and need to manipulate the landscapes of these mountains to carve out an existence. The tools of choice were fire and axe. The extensive use of these tools as recorded in early writings provided for conditions conducive to their way of life of both hunting and

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The mission of the Arkansas Game and Fish Commission is to wisely manage all the fish and wildlife resources of Arkansas while providing maximum enjoyment for the people.

farming while, at the same time, were the necessary ingredients for oak sustainability. With the constant disturbance to the landscape that Native Americans, European settlers and turn of the century Americans provided to this region, our forests remained healthy and provided the food and habitat required for the wildlife populations we still enjoy today. Elk, bobwhite quail, bear, deer and turkey co-existed on a landscape characterized by more open forests thinned by frequent fires. This stewardship principle and the symbiotic relationship between the ecosystem and human endeavors provided the very ingredients that perpetuated an oak-hickory condition for the last four thousand years. However, after less than a century of public protection, these oak forest ecosystems are not working as they once did. The understory communities of these forests are dominated by tree species that will not provide the food supply for our wildlife that previous forests have.

If the plants change in this system, the animals will change also. The swing to a different type of forest, dominated by maples and gums and the exclusion of fire, rather than oaks and hickories in the presence of fire, will shade out the ground vegetation required by animals for both food and cover. Our agency is very concerned that for the first time in centuries, our historic oak forests could make this shift in species composition. Native and migratory wildlife will suffer significant declines.

Consequently, the Arkansas Game and Fish Commission, along with our conservation partners, have implemented the following strategies in an effort to inform our citizens of the problem and increase understanding of professional resource managers so they may provide effective technical assistance to forest landowners:

- We have provided the Subcommittee with copies of our special issue of *Arkansas Wildlife* magazine focusing upon oak forests and what's happening to them. Over 100,000 copies of this issue have been well distributed throughout our region.
- The Commission has co-sponsored, with many other agencies and partners, a symposium on Upland Oak Ecology with the expressed purpose of assembling natural resource professionals, researchers and academia to increase our understanding of these ecosystems. This conference is to be held in Fayetteville, Arkansas in early October.
- Conservation partnerships have been formed around the oak decline issue and we are working together to find management solutions that foster oak sustainability. We have joined ranks with our historic partners as well as The Nature Conservancy in evaluating the extent and possible future impacts of our forest health problems.

The conservation agencies are firmly united in our resolve that we can no longer afford to watch as unwise decisions regarding the stewardship of our natural resources are delegated and regulated by hands off policies of the past. As scientists, we have observed and learned many truths about how our natural resources function and as previously stated, human co-existence and the disturbances we have provided through the centuries have been the rule. Our wildlife populations have depended upon both natural and human disturbance to provide the mix of habitat requirements across landscapes that those populations depend upon. As a nation, we must ensure that future generations have the benefits of the vast natural resources we enjoy today. We must develop and implement science-based strategies that ensure the sustainability of the ecosystems we have inherited. I am convinced that we continue to learn from our mistakes of the past and that we are wiser regarding the care of our forests as a result.

I would respectfully ask the committee to consider two needs that would greatly assist resource management institutions and natural resource managers.

1. Help stem the tide of legislative policies that only serve to tie the hands of professionals and allow unequal support for efforts with focus that have no regard for the benefits of historical human influences upon land and wildlife.
2. The solutions to the problems of forest health we are dealing with in the Interior Highlands of southern Missouri and northern Arkansas require timely and specific funding support. With the proper research and management funding we stand to learn a great deal from this event and more effectively meet future challenges to sustaining our forests.

Thank you again for the opportunity to comment.

Sincerely,

Hugh C. Durham
Director

Statement of John T. Shannon

State Forester of Arkansas
on behalf of the
National Association of State Foresters

before the US Senate Agriculture Subcommittee
on
Forestry, Conservation, and Rural Revitalization

September 5, 2002

Subject: Oak Mortality in the Ozark Highlands

INTRODUCTION

On behalf of the National Association of State Foresters (NASF), I am pleased that Chairwoman Lincoln invited me to testify regarding oak mortality in the Ozark Highlands. NASF is a non-profit organization that represents the directors of the State forestry agencies from all 50 States, eight US Territories, and the District of Columbia. State Foresters manage and protect State and private forests across the US, which together encompass two-thirds of the nation's forests.

Today I am representing NASF in my role as Chairman of the Forest Health Protection Committee. The widespread mortality of oaks in the Ozark Highlands is an important issue to State Foresters, private landowners, and our partners. The problem is of acute interest to the State Foresters of the Ozark Highlands region—Arkansas, Missouri, and Oklahoma.

NASF appreciates the efforts of the Subcommittee to become apprised of the issue. There is a serious and difficult forest health problem in the Ozark National Forest and the surrounding Ozark Highlands, and the Federal government should play a significant role in restoring the health of these forests.

Forest ecosystems are complex, and "fixing" forest health problems is difficult. Each member of the panel will discuss an aspect of the oak mortality issue closest to the witness' areas of responsibility and expertise. A forest scientist will discuss research needs. A National Forest Supervisor will discuss Federal lands issues. A scientist from The Nature Conservancy will discuss long-term ecosystem management issues. I will focus on the link between oak mortality and the increased danger of wildfires on private lands.

DESCRIPTION OF PROBLEM

The Ozark Highlands forest health problem is inaccurately described in three words: red oak borer. Recent data indicates populations of the insect, red oak borer, have exploded far beyond numbers ever before measured. But red oak borer is a native insect, a natural part of the Ozark Highlands ecosystem. We could not make red oak borer go away if we wanted to.

On very many acres, the forests of the Ozark Highlands are overcrowded. On these overstocked acres, basal area is approximately 120 square feet when in healthy stands it should be 60-80 square feet. There is little species diversity. Most of the native shortleaf pines, impervious to the red oak borer, were cut-out early in the last century, leaving mostly oaks.

Generally, the site index in the Highlands is around 60, indicative of poor sites with thin soils. Most of the oaks in the area are over 80 years old, very old for these species on these difficult sites. But the land is susceptible to drought, which most recently occurred in 1998 and 1999 followed by a knock-out in 2000. During these latest droughts, millions of oaks were stressed, and the red oak borer population skyrocketed. Red oak borers have infested millions of upland oaks, in most cases weakening or killing the trees and creating hazardous fuel accumulations.

We are working with the USDA Forest Service to estimate the extent of the forest health problem. Current estimates range from 400,000 to 1,000,000 acres of dead or dying oaks in the Ozark Highlands.

THE WILDFIRE HAZARD

These millions of oak trees were recently providing food and shelter for wildlife, and protecting air quality and water quality for communities. These trees are now fuel, cured "on the stump" and ready to burn.

There has always been fuel on the floor of the Ozark Highlands, but the recent infestation has created a tremendous upsurge in the fuel buildup. Before the red oak mortality, the Ozark Highlands averaged approximately four tons of fuel per acre. Today, the average fuel loading is approximately 14 tons per acre.

In addition to a 350% increase in the fuel loading, the nature of the fuel has changed. Before the red oak decline, the primary component of fuel in the Ozark Highlands was hardwood leaves. Wildland firefighters could contain these wildfires relatively quickly and easily. But with much larger amounts of hot-burning oak fuel on the ground, wildfires in the area will be much more difficult to contain and extinguish. Firefighting efforts will take longer, and average fire size will likely increase. These wildfire conditions will persist for many years.

The State Foresters in the Ozark Highlands region have sufficient firefighting equipment in place to fight wildfires on private lands in the fuels that existed *before* the upland oak mortality. The equipment is *not* adequate to protect homes, lives, and property when fires erupt with the current fuel loads.

Wildfires that are larger, hotter, and burn longer are more dangerous. Property and natural resources are at increased risk, as are the lives of civilians and firefighters. Many State Foresters, including this one, have endured the heartbreak of a workmate killed when fighting wildfire. Working together, the State Foresters of the Ozark Highlands region and the US Congress should take reasonable actions to reduce wildfire risks.

RECOMMENDATIONS

To safely and effectively suppress wildland fires in the Ozarks, the State Foresters in Arkansas, Missouri, and Oklahoma need to upgrade their firefighting equipment. The equipment will be used primarily for firefighting on private land. State Foresters and the USDA Forest Service will continue to routinely cooperate in detecting and fighting wildfires on Federal land.

The State Foresters report that at current prices, the equipment upgrades in the three affected States will cost approximately $2,352,000: $1,440,000 for Arkansas, $625,000 for Missouri, and $287,000 for Oklahoma. We are looking for assistance, not a handout. NASF also recognizes that there are many demands on the Federal budget.

Accordingly, I recommend that the parties equally share the costs. If Congress provides $1,176,000, the three States will match that amount in proportion to their needs.

In addition to State forestry agencies, rural fire departments—many of which are volunteer—are also in need of firefighting equipment upgrades. These fire departments are not part of the State agencies and do not receive State appropriations. Importantly, procedural changes to a most critical program that helps equip rural fire departments with Federal Excess Personal Property has drastically reduced the amount of property available to State Foresters, and thus to local fire departments, for use in their fire programs. We are working with Congressman Mike Ross to introduce legislation that would eliminate this problem, and we need this Subcommittee's support.

CONCLUSION

NASF looks forward to the opportunity to work with the Subcommittee. Our efforts should focus on dealing with the increased wildfire hazard in the short-term and restoring Ozark Highlands ecosystem health in the long-term. We are glad to work with you and the Subcommittee staff toward these ends. We commend Chairwoman Lincoln and the Subcommittee members for their interest in the health of the nation's forests.

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STATEMENT OF SCOTT SIMON
DIRECTOR of CONSERVATION, ARKANSAS CHAPTER
THE NATURE CONSERVANCY
Before the Subcommittee on Forestry, Conservation, and Rural Revitalization
Committee on Agriculture, Nutrition and Forestry
United States Senate

September 5, 2002

I. Introduction

Madam Chairwoman, and members of the sub-committee, my name is Scott Simon, and I am the Director of Conservation for the Arkansas chapter of The Nature Conservancy. Attending with me is Joe Fox, Director of Protection and Forestry for the Arkansas Chapter. We appreciate the opportunity to appear before this committee and share The Nature Conservancy's views and experiences regarding the oak decline in the Ozark Mountains. I will describe the Conservancy's interest in the Ozark Mountains, our views on the causes of the current oak decline, long-term effects, and long-term solutions.

The Nature Conservancy is an international, non-profit organization dedicated to the conservation of biological diversity. Our mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. The Conservancy has more than 1.1 million individual members and 1,900 corporate sponsors. We currently have programs in all 50 states and in 27 countries. To date we have protected more than 12 million acres in the 50 states and abroad, and have helped local partner organizations preserve millions of acres in other nations. The Conservancy itself owns and manages more than 1,340 preserves throughout the United States – the largest private system of nature sanctuaries in the world. The major premise underlying our work is that successful conservation requires protecting and managing suitable habitats while ensuring that human needs are integrated with conservation. Although our work is largely accomplished through private action, we have an ongoing record of successful partnerships for conservation with many federal, state, and local governmental agencies.

II. Ecological Significance of the Ozark Mountains

The Ozark Highlands are one of the centers of biodiversity in the United States. This system of oak woodlands, forests, and savannas is the largest contiguous remnant in the United States. Over 150 species of animals and plants are only found from the Ozark Mountains and no where else on earth. In the southern Ozarks, the Boston Mountains are the watershed for half a dozen

rivers considered globally significant aquatic resources because of their diverse suite of aquatic animals.

For several thousand years prior to European settlement of the region, middle North America was influenced by Native American practices, including frequent woodland fires set for a variety of purposes. In the Ozarks, such fires usually occurred during the late summer and early fall, but could burn at any time of year. These practices have been well documented by numerous historic, anthropological, and ecological studies.

Reflecting on nearly eight decades of observing changes in the landscape of the Interior highlands, Joseph Mudd wrote in 1888:

> *"Annually, after this rank growth of vegetation had become frosted, dead, and dry, the Indians set fire to it and burned it from the entire surface of the country. When this annual burning ceased, the germs of underbrush and young timber began to grow..."*

Thus, the landscape encountered by the early settlers had a long history of being shaped by, and even dependent upon, periodic fires. These fires played a major role in shaping the vegetation of the Ozarks. The prevailing timber type over large portions of the region was open, often park-like, oak woodlands. Here, trees were thinly scattered, allowing free passage between them. Sufficient light reached the ground to allow the growth of a rich mix of wildflowers and grasses. The periodic fires in these timbers were generally of low intensity because of the lack of accumulated heavy fuels. These fires generally removed most of the brush and young woody growth while leaving most of the larger trees.

Henry Rowe Schoolcraft, who traveled extensively throughout the Missouri and Arkansas Ozarks during the early 1800's, described these woodlands:

> *"A succession of hills of moderate elevation, covered chiefly by oaks and without underbrush. A tall thick, and rank growth of wild grass covers the whole country, in which the oaks are standing interspersed, like fruit trees in some well-cultivated orchard, and giving to the scenery the most novel, pleasing, and picturesque appearance."*

This general theme of open timbers in the uplands, with well spaced trees, little underbrush, and a well developed and grassy ground cover is repeated in hundreds of accounts by the earliest European travelers in midcontinental North America. The similarities among these accounts are striking, even thought the individual writers come from a variety of eras, nationalities, and educational and social backgrounds. This information is also supported by other studies, including analyses of tree data from original Government Land Surveys and ongoing fire history research on the Ozark National Forest.

To this ecosystem, fire is as essential an ecological process as rainfall. Regular ground layer fires are the predominant ecological process that created and maintained the open woodland and savanna structure and its associated prominent and diverse ground cover of grasses and wildflowers.

III. Changes to the Ozark Oak Ecosystem and Causes of Oak Decline

Forest health issues in the Ozarks are similar to changes occurring in other forests throughout the country. There is a common theme of fire suppression leading to increased woodland densities, shifts in species dominance and increased fuel loads. This increased tree density often results in large-scale mortality or catastrophic disturbance, such as the red oak borer outbreak or high-intensity wildfires like those we have witnessed in the western United States this year. Similar increased fuel loads are a threat to Ozark woodlands. The increased fuel from increased stem density and dead trees is a significant wildfire risk. Wildfires with these fuel loads are significantly more intense than the system is adapted to, resulting in even greater tree mortality, and greater threat to private property.

Fire Suppression and Woodland Densification

Approximately 80-100 years ago, the woodlands of the Ozarks were heavily cut and the fire regime was drastically altered. As a result, the woodlands that grew back were much denser than had occurred previously. Historically, Ozark woodlands were estimated to average 18-30 trees per acre. Steep slopes and riparian areas had up to 50 trees per acre. Current densities in much of the region average 300 – 1000 stems per acre – a staggering increase over the pre-settlement stocking density.

The increased stem density and corresponding increases in brush density results in severe shading that produces declines in ground layer vegetation and changes in species composition. This deep shade often results in a bare expanse of leaf litter, with virtually no oak regeneration. To germinate and survive, oak acorns need full sunlight, the kind provided by an open woodland stand. In a closed stand with little sunlight reaching the forest floor, oak germination, regeneration and recruitment decline significantly.

Although oaks do not germinate in shade, many other trees like maples, ashes, elms, and black gums germinate prolifically. These shade tolerant species are not as adapted to fire, but increase rapidly in the modern fire-suppressed landscape. Over time, as the overstory of oaks dies from old age, they are replaced by this new forest type of maples, ashes, and black gums, changing the site conditions and impacting all the species of plants and animals that are part of the system.

Drought, Insects, and Ecosystem Stress

Droughts and native insects like the red oak borer have been part of Ozark oak ecosystems for millennia. These forces have historically thinned woodlands in synergy with fire. Because in modern woodlands many more trees are competing for the same amount of nutrients and water, the current dense forest system is under stress. The trees are mature, but not near the end of their lives. Just as stressed humans get sick, stressed trees die before their time. Healthy white oaks will live 250-300 years. Healthy red oaks will live 120-150 years. Because the forest is so dense, competition for resources, such as water, light, and nutrients, is intense. Where previously a single tree competed for necessary resources, there may now be a dozen or more

trees, each needing as much water, nutrients and light as the original plant. This results in entire stands of stressed, vulnerable trees.

Recent droughts have been within the historical range of variation. Records indicate that more severe droughts lasting up to ten years have occurred in recent history without extensive oak mortality. The current over stocked forest may appear healthy during non-drought years, but is nevertheless stressed. During the slightest dry period, trees become vulnerable to insects and diseases, and as a result, large numbers of trees die. These outbreaks are not a result of drought, but rather the symptoms of a stressed ecosystem incapable of sustaining itself under altered conditions. The cause is an unnaturally dense forest. An ecosystem in a healthy state with a lower tree density would better withstand these disturbances and replace itself. Before our eyes, many areas of the Ozarks are shifting from majestic oak woodlands to overstocked stands of maples, ashes, and other tree species. The resultant shade tolerant woodlands themselves may not be sustainable over time, and may further degrade.

IV. Impacts of Changes on Biodiversity

Nothing in the post-glacial record suggests that Ozark woodlands have been previously impacted by changes of this magnitude or rapidity. These changes, and their impacts to soil, water, and other habitat conditions, may be occurring too fast for many of the species to adapt. Of particular concern are the those species adapted to the Ozark's oak ecosystem and found no where else in the world.

The animal life of an ecosystem is dependent on the plant communities. Fire-maintained oak woodlands provide superlative habitat for deer, turkey, quail, bear, and the expanding Buffalo River elk population. Acorns and ground cover plants provide the best food source for many wildlife species. If the plants change, the animals change. Changes from an oak ecosystem to another woodland type will be associated with changes in both types and numbers of animals.

V. Solutions

The knowledge exists to restore the health and sustainability of Ozark oak systems. To maintain an oak ecosystem in the Ozarks requires restoration of a safe and ecologically appropriate fire regime. This can be accomplished through a management program that includes periodic prescribed burns. In the short-term, it requires thinning the woodlands through prescribed burns and/or mechanical treatments to a more sustainable density on hundreds of thousands of acres. With the restoration of a woodland density adapted to local climactic conditions, the resultant healthy ecosystem will have increased resiliency to insects, drought, wildfires, and other stresses.

The Ozark National Forest, The Nature Conservancy, the Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, and the Missouri Department of Conservation have for many years been utilizing prescribed fire and ecological thinning at a small scale with positive results. Unfortunately, these projects are not at a scale sufficiently large to restore ecosystem health. Many recent Forest Service projects have been proposed in collaboration with Arkansas Game and Fish Commission and The Nature Conservancy at a scale that would restore the

ecosystem, such as the 54,100 acre project in the Bayou Ranger District of the Ozark National Forest. Existing projects should become a federal funding priority, administrative blockages for ecosystem restoration should be eliminated, and additional projects should be initiated.

VI. Conclusion

It is clear that current woodland conditions and trends in large areas of the Ozarks threaten the economic and ecological integrity of a unique resource. A major factor in the current large-scale oak decline is the result of decades of fire suppression, and its associated impacts. This has resulted in unsustainably high stocking rates, reduced stand vigor and resiliency, and compositional shifts that simultaneously degrade system biodiversity and threaten the continued existence of an oak dominated landscape and its associated wildlife and other benefits. As a society, we have the technology and knowledge to reverse the situation. The Nature Conservancy strongly supports the restoration of Ozark oak systems through the use of prescribed fire and mechanical thinnings. Although there are many needs facing public lands, sustainable stewardship must be the priority. All other uses flow from this.

Thank you for the opportunity to present The Nature Conservancy's views. We are happy to answer any questions you may have.

Attachment (1): "Restoring Forest Ecosystem Health in the Wildland/Urban Interface on the Bayou Ranger District" Proposal from the Bayou Ranger District, Ozark National Forest

Statement of James R. "Jim" Crouch

On Behalf of Ouachita Timber Purchasers Group, Ozark-St. Francis Renewable Resource Council, Mark Twain Timber Purchasers Group, and the American Forest and Paper Association

Before the United States Senate

Agriculture Subcommittee on Forestry, Conservation, and Rural Revitalization

September 5, 2002

On behalf of the above named groups, I would like to thank you for the opportunity to present testimony on the ongoing forest health crisis that is severely damaging our national forests not just in Arkansas, Missouri, and Oklahoma, but across the country. While I will focus on the situation we are facing in my area, it is important to note that 72 million acres of the National Forest System (more than one third of the entire system) is at risk to catastrophic fire, insects, or disease. We firmly believe that active management, based on sound science and implemented through local decision making, is necessary to restore the health of our public lands.

The situation on the Ouachita, Ozark, and Mark Twain National Forests is just one example of a problem that can be addressed through active forest management. It is critical to note, however, that existing procedural requirements seem designed to prevent timely action to stem the forest health crisis and restore our public lands.

Background: The Ouachita, Ozark and Mark Twain National Forests are located in the highlands of northern Arkansas, southeastern Oklahoma, and southern Missouri. They are an important part of the Central Hardwood Forests of the United States. These forests are known for their scenic beauty, outstanding wildlife habitat, and the production of high quality oak lumber for furniture, flooring, and cabinets, railroad crossties, wooden pallets and charcoal, and outdoor recreation of all sorts including canoeing, hiking, camping, and ORV use. Hundreds of small entrepreneurs and family businesses depend on oak from these national forests for their livelihoods.

Congress established the Ouachita and Ozark National Forests at the beginning of the twentieth century and the Mark Twain in the mid-1930s. These forests were made up from "the lands that nobody wanted." These lands were cut over, farmed out, grazed into the ground, and in many cases abandoned. Some parts were so poor and rough that they were never homesteaded. Congress made these public domain lands a part of the new national forests. Fires were a regular occurrence. Many of the owners were happy to get rid of these lands by selling them to the federal government for back taxes.

Once established, the United States Forest Service provided fire protection and started the process of restoration. The Forest Service has done such a good job of restoring these forests that, in recent years, environmental groups have frequently called for their designation as wilderness because of their "pristine values and untrammeled characteristics." Yet we know that less than 100 years ago they were some of the most abused and misused lands in this country. Professional managers can, given time, manage forests to achieve the wide range of conditions required to meet the needs of stakeholders with different interests. Land uses such as wilderness, wildlife, timber, water, scenic beauty, camping, hiking, etc. can all be achieved through active management as the agency implements its multiple use mandate.

The collapse of the oak ecosystem on the Ouachita, Ozark, & Mark Twain National Forests.

1. Scope of the Problem. The Forest Service predicts that oak decline will impact over a million acres of red oaks in Ouachita and Ozark Highlands. Currently, 650,000 acres are dead or dying on the Ozark National Forest. An additional 500,000 acres are dead or dying in the Mark Twain National Forest. Additional acres are affected on the Ouachita National Forest. To put this in perspective, 84% of the oak type on the Ozark is dead/dying. This is more than 60% of the entire national forest. It is no small problem!

2. Cause: Although there is no single cause for oak decline, trees are predisposed to decline and insect infestations by (1) old age; (2) low site index; (3) severe droughts and (4) overstocked timber stands. Historically scientists have recognized that during periods of severe drought small patches of old oak found on ridges and shallow soils often died or had portions of their crowns die. As the vigor of these trees declined various insects and fungi including the oak borer often attacked them. Unfortunately, what is happening on the Ouachita, Ozark and Mark Twain National Forests is much more serious than anything previously reported or anticipated. Instead of a few oak borers attacking a tree, hundreds are attacking. These unprecedented numbers are causing widespread mortality on a landscape scale never seen before.

3. Existing Forest Plans: In 1986, the Forest Service completed and approved new forest management plans for these national forests. The plans were prepared over a 10-year period at a cost of about $10,000,000 each. They included stakeholder input from thousands of people. The approved plans pleased no one interest group completely, but were of necessity compromises designed to achieve overall forest health through active management.

   As a part of keeping the ecosystems vigorous and healthy, the plans provided for thinning overly dense stands of immature trees and the harvest and replacement of mature trees with new forests. Annually, the plans called for the analysis and, if needed the treatment of one-tenth of the forest. Said another way, the professionals would examine each stand on the forest at least once every ten years and prescribe the needed treatment. By the time the forest plans were adopted, there was already a severe backlog of acres needing treatment. Overly dense stands of immature trees and overmature trees abounded. They were rapidly declining in vigor and therefore highly susceptible to drought and attack by insects and pathogens.

   The Ouachita, Ozark, and Mark Twain National Forests for various reasons fell far behind in implementing the forest plans. They have accomplished less than ½ of the essential work. The Forest Service's failure to carry out the plans coupled with several years of drought contributed greatly to the current forest health crisis. Even if these national forests could meet all the goals set out in the existing forest plans, they would not even address 1% of the oak borer problem on the ground

Management options: As a result of the oak borer, there is a major shift occurring in the makeup of our forests. If the decline is allowed to continue without any type of emergency restoration work, we will see a dramatic change in our forests, from predominantly oak forests to

predominantly maple forests. The dominant and codominant trees in the oak forest stands are mostly shade intolerant members of the red and white oak family. The mid and understory is typically maple, hickory, blackgum, and other shade tolerant species. Because of their shade intolerance, there are very few established oak seedlings and saplings in the understory. If nature is allowed to regenerate the area, the future forests will be quite different from the current forest. The tree species composition of the new forest will be heavy to shade tolerant species such as maple, blackgum, etc. There will be a major reduction in the number of oaks in the future because of the lack of active management.

Given the scale and severity of the oak mortality taking place, we are facing a change that will result in numerous adverse impacts such as:

- Loss of wildlife habitat – acorns from oaks provide critical food during the cold winter months for many species of wildlife.

- Loss of recreational opportunities – declines and shifts in wildlife species will change the quality of hunting and wildlife viewing.

- Loss of product values – These oaks are dying and falling to the ground where they become fuels for catastrophic fires. Unless they are removed before they start to decay, they are worthless as raw material for the many wood products demanded by American consumers. If these products aren't manufactured from U.S. wood, they will come from other countries as imports.

- Loss of aesthetics – healthy green forests with beautiful fall colors are replaced for many years by a landscape characterized by dead gray and brown stumps and tangles of limbs and briars.

The Forest Service is at a fork in the road and must choose which way to proceed. There are two basic management options available for these lands.

1. The Forest Service can respond to this crisis and immediately begin restoration. This will mean the harvesting of dead/dying trees and follow up silvicultural treatments necessary to restore the oak forest type; or

2. The Forest Service can continue to let these overstocked and overmature stands decline and accept the loss of an entire forest type with very real ecosystem impacts. These impacts include wildlife habitat loss, loss of recreational opportunities, product value losses along with increased risk of catastrophic fires and the loss of our majestic oak forests.

Issues that need addressed prior to choosing the future management direction.

1. Management Approach: There are two distinct approaches to forest management that the agency must decide between:

➢ *Active management*: Using scientifically based active management to restore and maintain the predominantly oak forests which provide high quality wildlife habitat, water quality, and forest products.

➢ *Passive management*: Allowing the current forest health crisis to continue without intervention by simply letting "nature" take its course. Many trees will die over time, fall down and rot, and species now in the understory will likely become the future forests. In some areas, catastrophic wildfires raging in the heavy fuels will "sterilize" the soils causing colonization by entirely new plant and animal communities.

2. Time frames. There is a limited window of opportunity to treat and restore our oak forests. Dead and dying oaks lose their commercial value quickly, and the risk of catastrophic fire increases as the dead trees dry out and falling branches accumulate on the forest floor. Moreover, unless the Forest Service is granted at least some relief from existing bureaucratic requirements, it is extremely likely that the dead and dying timber on these forests will lose all commercial value before it can be used. It is important to note that it is not just the forest products industry and local communities that loses out if this happens; commercial timber sales help offset the costs of necessary land management treatments. If the timber loses value, the taxpayers will have to shoulder the entire burden of necessary restoration work.

3. Potential for Delay Because of Appeals and Litigation: The Forest Service could attempt to move these project forward through the existing maze of regulations, including extensive appeals and litigation. We believe, however, that the agency should adopt alternative arrangements for complying with key environment laws, and perhaps consider non-traditional structures such as the incident command system used to fight wildfires in order to expedite treatment.

4. Setting Priorities for work. If the decision is to harvest the dead/dying timber and maintain a major oak component in the future forest, the Forest Service must set priorities for treatment. Consideration must include the need to protect improvements, ensure user and employee safety, and be cost effective by treating the more productive sites first.

5. Funding: Given the acute nature of the Forest Health crisis, Congress should consider whether enough funds will be available through regular appropriations for the critical restoration work. If not Congress should act quickly to appropriate emergency funds.

Forest industry's recommendations.

1. Forest industry strongly believes that the Forest Service must immediately launch a major emergency restoration effort with national funding and staff support. The restoration of the affected lands should be completed within 5 years of initial treatment. Lands identified in the forest plans as suitable for timber management should be managed to create forests with a major oak component.
2. This committee and Congress should immediately grant emergency exceptions, or at the minimum, streamlined NEPA, appeals, and litigation for such restoration needs.
3. The Agency should make available immediately the funds, manpower, equipment, and leadership needed by the forests to make this emergency restoration a success.

4. The Agency should immediately establish an action committee of representatives from forest industry, state forester's office, state game and fish commission, Nature Conservancy, Forest Service, Fish and Wildlife Service, and EPA. This committee would be charged with taking action on the spot to ensure the restoration work moves forward in a timely and responsible manner. The committee would meet biweekly or more frequently if needed. The committee will report to this Senate Subcommittee quarterly until the work is complete and the land is restored.

Conclusion:

The forest health crisis afflicting the Ouachita and Ozark Highlands is acute, but unfortunately it is not unique. Due to decades of fire suppression and more recent trends towards passive management, our national forests are rapidly approaching an ecological disaster. It is my understanding that the Senate is considering providing broader relief from laws that have tied the Forest Service up in legal and bureaucratic knots while preventing necessary forest health treatments from going forward. We encourage you to find as many ways as possible to expedite the efforts of the Forest Service to use active management with local decision making to protect and restore our national forests. I'll be glad to answer any questions at this time.

Robert L. Krepps
Testimony on Oak Mortality
September 3, 2002

Statement of Robert L. Krepps
Forestry Division Administrator

On behalf of the
Missouri Department of Conservation
and the
National Association of State Foresters

Before the U.S. Senate Agriculture Subcommittee
on
Forestry, Conservation and Rural Revitalization

September 5, 2002

Subject: Oak Mortality in the Ozark Highlands

INTRODUCTION

On behalf of the Missouri Department of Conservation (MDC) and the National Association of State Foresters (NASF), I am pleased to accept the invitation from Chairwoman Lincoln to testify regarding oak mortality and decline that is occurring in Missouri, Arkansas and Oklahoma in an area known as the Ozark Highlands.

Today, I am representing the Missouri Department of Conservation and the State of Missouri as Forestry Division Administrator. The continued decline in oak health and increasing mortality of red and black oak in Missouri and the other states in the Ozark Highlands are very important issues to me as Forestry Division Administrator, as they are to the federal government through the national forests. Businesses and citizens depend on the forest resources of our state.

MDC and NASF appreciate the attention of the subcommittee and are gratified by your efforts to become better informed of the issue of potential loss of our red and black oak forests. This is not a simple issue; we find that many factors are coming into play that create and compound this situation. Factors such as site conditions, advanced tree age, drought, and insects and disease are but a few. Other witnesses will and have described in more detail these factors. In my testimony, I would like to briefly describe the impacts on recreational use of lands affected by oak decline and mortality.

RECREATIONAL IMPACT

In general, impacts to recreation will be varied but yet very real to all who visit or recreate in the area encompassed by the Ozark Highlands. Whether hunter or angler, camper or hiker, or a visitor just passing through on the highways through the Ozarks, there will be some level of impact. Oak decline is most severe on ridgetops, south- and west-facing slopes and sites with thin rocky soils. These site conditions describe much of the forestland around some of the most popular recreation areas in Missouri.

Much of Missouri's tourism industry is centered in the forested areas of the state -- such as the Lake of the Ozarks, Branson and Table Rock Lake, the Ozark National Scenic Riverway, and the Mark Twain National Forest. Tourism is important to Missouri. Tourism is Missouri's third largest industry, it generates more that $12.5 billion annually for the state's economy and provides one of every fourteen Missouri jobs.

As more travelers chose to drive instead of fly, the effects of oak decline will be readily visible to them. The first impact visitors will notice will be the amount of dead and dying trees on the landscape. Visual impact will be very noticeable as trees die and deteriorate across the landscape. In some areas, large expanse of dead trees will be noticeable for several years. In other cases, factors such as fire will further impact the forest views. Changes in the scenic beauty of forests can contribute to losses in tourism and recreation. Heavy oak mortality changes the appearance of the forest with increased numbers of dead trees and eventually a change in species composition.

Dead and declining trees located in areas receiving high recreational use are "hazard trees" due to the real danger of falling limbs and trees. Hazard trees combined with multiple targets (people, structures and vehicles) greatly increase landowner liability. Hazard tree removal along roads, within campgrounds, parks, picnic areas and hiking trails can be very expensive and time consuming. Often managers are faced with a decision to remove the trees at high cost, close the facility to protect the public, or face the potential liability. On private land, the reality is nothing will be done to reduce hazards.

A primary recreational use of the Ozark Highlands is hunting abundant wildlife, such as white-tailed deer, wild turkey, squirrel, raccoon and others. Many of these species depend on acorn production as a major food source. As oak decline increases, a reduction in mast (acorn) production will occur with the result being decreased populations of many wildlife species, which equates into decreased hunting opportunities. Studies have shown that stands affected by oak decline have experienced a 41 percent reduction in mast production.

SUMMARY

The overriding theme in management of oak decline and mortality must be: What are our objectives in managing the forest? If public safety concerns us, then removal of the hazard trees along roadways, trails, campgrounds, and picnic areas must be strongly advocated. If managing for sustainable wood production or sustainable populations of deer, then forest management objectives should seek to prevent oak decline through regular thinning and shorter rotation age for red and black oaks. In Missouri, we intend to actively manage the state forest land, which includes harvesting and thinning, where needed. On private lands, we encourage landowners to improve the vigor of their forest by thinning young stands and harvesting mature stands. We are actively using the provisions of programs in the Farm Bill such as EQIP for forest health management on private lands. "What we do today will affect what our oak forests look like 80 years from now!" I hope that our children and grandchildren will look back with pride at the efforts we put forth today.

I want to thank Senator Lincoln for the opportunity to present our concerns to the subcommittee. I am pleased to be a participant in dealing with the overall issue of oak mortality and decline. I look forward to working with the subcommittee on long-term forest health. I would encourage

the subcommittee to support measures that would allow states and their partner agencies to address these oak decline issues at the local level, through:

*Provide incentives, financial or otherwise for private landowners to do proper forest management and us resource professionals in their management.

*Level the playing field between the National Forest System and the states; Through simplification of rules and regulations for managing the national forests and use of more cooperative management projects encompassing federal, state and private lands.

DOCUMENTS SUBMITTED FOR THE RECORD

SEPTEMBER 5, 2002

PROJECT PROPOSAL

Restoring Forest Ecosystem Health in the Wildland/Urban Interface on the Bayou Ranger District

Implementing the Ozark-St. Francis National Forest Land and Resource Management Plan with the Federal Wildland Fire Management Policy and Program Review

Ozark – St. Francis National Forest
Bayou Ranger District
12000 SR 27
Hector, Arkansas 72843

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EXECUTIVE SUMMARY

Restoring Forest Ecosystem Health in the Wildland/Urban Interface on the Bayou Ranger District

Opportunity

The 1995 Federal Wildland Fire Management Policy and Review was the impetus for the current opportunities in ecosystem restoration on the Ozark-St. Francis National Forest. Congressional funding for project implementation exists now. A partnership with The Nature Conservancy also currently exists to facilitate ecologically appropriate and economically efficient projects.

The specific opportunity on the Bayou Ranger District is implementing a long term, landscape scale forest ecosystem restoration project in a Nature Conservancy identified "conservation priority" area. The current state of forest ecosystem health clearly demonstrates the need for restoration. The fiscal resources and existing partnerships are in place to take advantage of this opportunity.

Benefits

The ultimate benefit is the restoration of forest ecosystem health and sustainability. Benefits derived from the holistic nature of this project extend far beyond the Forest to include the protection of private property and municipal water sources, and wildland fire education.

Partners

The Bayou Ranger District has a strong base of partner support and interest in taking full advantage of this opportunity. At this time partners include:

- The Nature Conservancy
- National Wild Turkey Federation
- Arkansas Audubon Society
- National Park Service
- U. S. Fish and Wildlife Service
- Arkansas Forestry Commission
- Arkansas Game and Fish Commission
- Quail Unlimited
- Caddo Nation Of Oklahoma
- Rocky Mountain Elk Foundation
- Southwest Fire Use Training Academy

Action

This proposal identifies 54,100 acres in six areas on the Bayou Ranger District for a long term (minimum 10 years) ecosystem restoration project. Specific project activities for these areas include prescribed fire and commercial, non-commercial, and pre-commercial silvicultural treatments. The goals of these activities are to increase forest health and to provide for safety in the wildland/urban interface and protect municipal water sources.

Restoring Forest Ecosystem Health in the Wildland/Urban Interface on the Bayou Ranger District

Implementing the Ozark-St. Francis National Forest Land and Resource Management Plan with the Federal Wildland Fire Management Policy and Program Review

Introduction

LRMP Forest Management Goals

The Forest Management Goals of the LRMP are broad statements that describe a future desired condition for the forest. Some of the goals related to ecosystem restoration projects are:

1. Provide measures to protect, maintain, and improve soil, water, and air resources (page 4-2).
2. Provide and maintain plant community diversity to meet multiple-use objectives (page 4-2).
3. Protect and enhance habitat for PETS species (page 4-2).
4. Maintain and improve Management Indicator Species habitat consistent with multiple-use objectives and provide opportunities to restore native species (page 4-2).
5. Respond to land, resource, social, and economic changes (page 4-1).
6. Protect and improve renewable resource quality while maximizing net public benefits (page 4-1).
7. Provide multiple-use and sustained yield of goods and services that are cost efficient, respond to public issues, and management concerns and maximize long-term benefits in an environmentally sound manner (page 4-1).

The concept of forest ecosystem restoration is clearly embodied in these and other Forest Management Goals in the LRMP.

Federal Wildland Fire Management Policy and Program Review

The Federal Wildland Fire Management Policy and Program Review (Review) was initiated after the wildfire season of 1994. The Review was chartered to ensure that uniform federal policies and cohesive interagency and intergovernmental fire management programs exist. (See http://www.fs.fed.us/land/wdfirex.htm)

Many of the Review's Guiding Principles and Policies are directly concerned with the use of wildland fire and prescribed fire in forest ecosystem management. Principles among these are:

1. The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
2. Fire management plans, programs, and activities support land and resource management plans and their implementation.
3. Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
4. Fire management plans and activities are based upon the best available science.

The Review also recognizes that wildland fire, which includes prescribed fire, is a critical natural process that will be integrated into land and resource management plans and activities on a landscape scale. Concerning the use of fire, the Review policy is that wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role.

Fire and Forest Ecosystem Health

Fire History

Evidence concerning the pre-historical and historical occurrence of fire in this physiographic area has been summarized in the Ozark-Ouachita Highlands Assessment. Numerous fire history studies from the Missouri Ozarks, the Buffalo National River, and Ouachita Mountains have clearly documented the frequent occurrence of fire in these areas in the past (example: *Proceedings: Workshop on Fire, People, and the Central Hardwoods Landscape*; USDA Forest Service, Northeastern Research Station, General Technical Report NE-274, March 2000).

In 2000, a fire history research project was conducted at three sites on the Bayou Ranger District. The principal investigator, Dr. Richard Guyette, determined the fire return interval for these sites. Guyette's research documents fire return intervals for the Bayou Ranger District sites that are very similar to other documented fire return intervals in the Ozark-Ouachita Highlands.

Fire Effects

Fire is one of the most important ecosystem disturbance processes in the Ozark-Ouachita Highlands. Evidence continues to accumulate that the pine and oak-hickory forests of this area owe their existence to disturbance processes such as wildland fire.

Conversely, the exclusion of landscape scale fires from these ecosystems for the past several decades has changed the structure and species composition of the forest. Fire exclusion has allowed the development of a dense understory and midstory of shade-tolerant, fire-intolerant tree species. The oak-hickory and pine forest ecosystems of the Ozark National Forest are not sustaining themselves.

Role of Fire in Resource Management

Prescribed fire is the deliberate application of fire to wildlands to achieve specific resource management objectives. Currently, our resource management goals for the use

of prescribed fire are for hazardous fuel reduction, wildlife habitat improvement, and seedbed site preparation.
Our understanding of the role of fire in the development, maintenance, and sustainability of our forest ecosystems and the people that depend upon them, requires that our fire-related resource management goals be much less narrowly focused.

Fire in the Wildland/Urban Interface

Protecting Private Property

The Federal Wildland Fire Management Policy and Program Review reaffirms that the first priority in wildland fire management is the protection of human life. The second priority is the protection of private property and natural resources. As the wildland/urban interface increases and hazardous fuel loads increase, the complexity and economic importance of providing fire protection increases.

Protecting Municipal Water Supplies

The quality of several municipal water supplies is directly affected by resource management activities on the Bayou Ranger District. The water supplies of Hector, Dover, Russellville, and Clarksville originate in the watersheds of the Illinois Bayou and Big and Little Piney Creeks.

Municipal water supply quality is at risk from catastrophic wildland fires in the National Forest. The risk is magnified as fuel loads increase due to widespread tree mortality through much of the National Forest.

Hazardous Fuel Reduction

The protection of human life, private property, and natural/cultural resources becomes more difficult as the wildland/urban interface increases and hazardous fuel loads increase. The combined use of fuel reduction prescribed fire and mechanical fuel reduction treatments can reduce the risk of catastrophic wildland fires.

Public Education

An understanding of the role of wildland fire in forest ecosystems is essential for the long-term success of this project. An informed and educated public can protect their property from damaging wildland fires and support fire protection efforts at a larger scale on public lands.

Project Proposal

Background

The goals of an ecosystem-based approach to the management of forest ecosystems are promoting the health, sustainability, productivity, and diversity of these systems. Ecological disturbance processes from the past to the present have affected all of these ecosystem attributes.

Wildland fire is widely recognized as one of the most significant ecological disturbance processes in the Ozark-Ouachita Highlands. The composition, structure, diversity, and spatial arrangement of the forest and woodland ecosystems have been largely determined by the historical fire regime.

During the last 80 to 100 years, the historical fire regime has been drastically altered through widespread fire suppression. The virtual elimination of fire as an ecological disturbance process has lead to declines in forest and woodland ecosystem health, sustainability, diversity, and long-term productivity.

In 1998 the Bayou Ranger District began using landscape scale prescribed fire for hazardous fuel reduction and wildlife and PETS habitat improvement. Forest ecosystem scientific research and years of field observations indicated that initiating the use of prescribed fire at this scale would be a cost-effective first step in reestablishing fire as an ecological disturbance process in our forest ecosystems. Currently, other Ranger Districts on the Forest are also using landscape scale prescribed fire for fuel reduction and wildlife/PETS habitat improvement.

Planning, establishing objectives, and monitoring the results of landscape scale prescribed fire in terms of fuel reduction and habitat improvement goals fails to capture the primary reason for these types of projects. Hazardous fuels loads can be reduced and wildlife/PETS habitat can be improved with prescribed fire, however, the focus should be on restoring the fire-dependent ecosystems of the Ozark National Forest.

Purpose and Need

The purpose of this proposal is to identify specific areas on the Bayou Ranger District where ecosystem restoration is needed to promote forest and woodland ecosystem health, sustainability, diversity and long-term productivity. With ecosystem restoration as the overall goal of these areas, we will protect municipal water supplies originating on the Forest and improve conditions in the wildland/urban interface to provide for the safety and economic well being of private property.

With the long-term elimination of wildland fire as an agent of natural change and ecological disturbance, the ecosystems of the National Forest have slowly changed over the years. The consequences of these changes are becoming more apparent each day. The sustainability of the oak-hickory forest ecosystem is in jeopardy due to the lack of advanced oak regeneration. The natural regeneration of the shortleaf pine ecosystem often fails due to hardwood competition. Oak and pine woodlands, once common in the Ozark-Ouachita Highlands, have almost been completely eliminated from the National Forest. Ecological conditions beneficial for PETS species have deteriorated with decades of fire suppression. This is particularly apparent in glade ecosystems that are being degraded by the invasion of fire intolerant woody plant species.

To reverse the ecological effects of decades of fire suppression will require a long term management commitment. The restoration management areas and treatments identified in this document should be in effect for at least 10 years.

Proposal

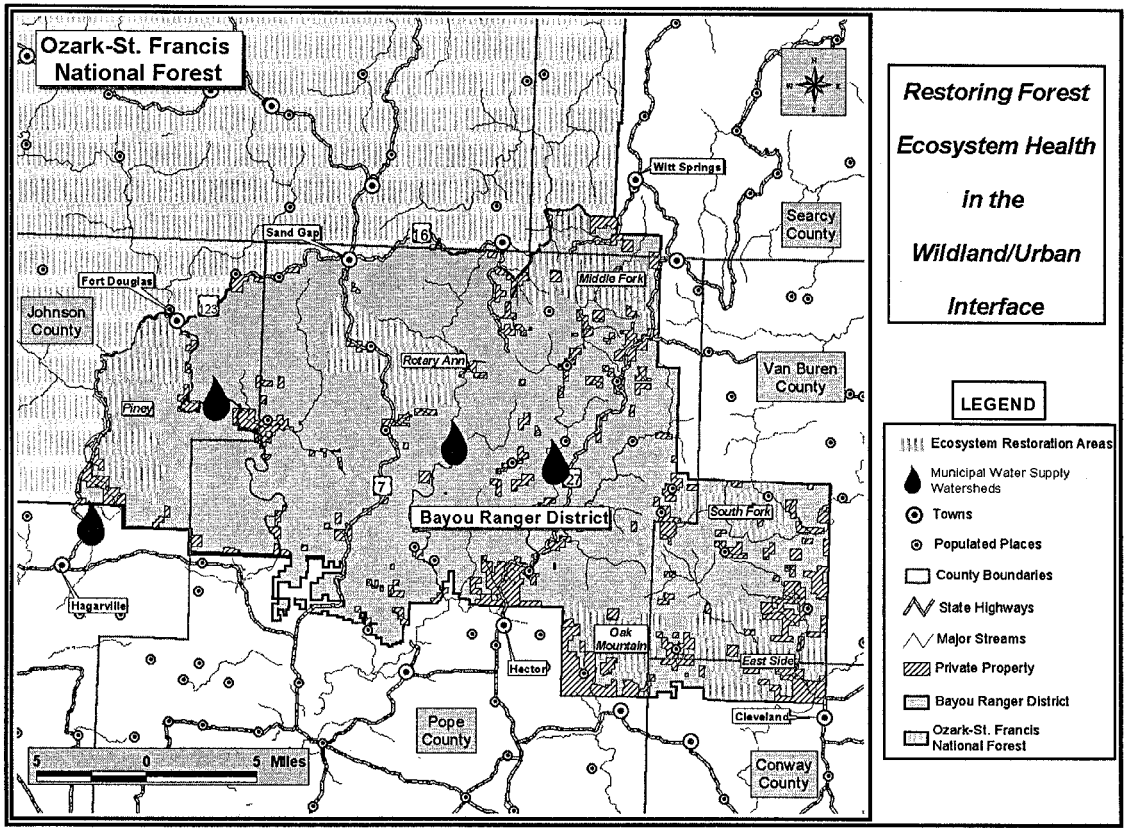
Ecosystem Restoration Areas

Six ecosystem restoration areas have been identified. These areas are displayed on the Bayou Ranger District map (see page 9) to show the location of each area and the district-wide distribution of the restoration areas.

The combined acreage of these six areas is 54,100 acres. Each restoration area is made up of 3 to 6 landscape scale prescribed fire units. The following table lists the size of each area by name.

Restoration Area	Acres
East Side	9500
Piney	11400
Rotary Ann	11400
Middle Fork	11200
South Fork	5000
Oak Mountain	5600

The selection criteria used in identifying each of these areas included a variety of ecological, economic, and social factors. Some of the ecological factors include land type associations, forest types, silvicultural treatments, wildlife habitat improvements, fire history, and forest health. Economic and social criteria included municipal water supplies and resources at risk in the wildland/urban interface. These resources include communities and private property with residential and commercial developments, such as poultry and cattle operations.



Restoring Forest Ecosystem Health in the Wildland/Urban Interface

LEGEND

- Ecosystem Restoration Areas
- Municipal Water Supply Watersheds
- Towns
- Populated Places
- County Boundaries
- State Highways
- Major Streams
- Private Property
- Bayou Ranger District
- Ozark-St. Francis National Forest

Ecosystem Restoration Management Treatments

Prescribed Fire

The regular use of prescribed fire in the restoration areas will reestablish the role of this valuable ecological disturbance process. In general, each area will be burned on a 3-year rotation basis. Dormant season and growing season burns will be used to develop desired plant species composition, forest structure, and forest ecosystem health.

The influence of topographic features on fuel moisture will produce a mosaic of burned and unburned patches in the restoration areas. Within the burned patches, the fire intensity will vary from low to high based on fuel moisture, fuel loading, and firing technique.

Permanent fire lines will be constructed where possible to facilitate the long-term commitment to the use of prescribed fire in the restoration areas. Permanent fire lines in the wildland/urban interface will help protect private property and its values.

Vegetation

Management of the vegetation in each of the restoration areas is an integral part of this proposal. The use of prescribed fire alone will not achieve the desired ecosystem conditions of health, sustainability, and productivity in a reasonable amount of time.

Stand sized patches distributed within the restoration areas will be thinned using commercial timber sales, firewood cutting, and non-commercial methods. Initial estimates of supplemental thinning include:

1. Thinning timber stands via commercial timber sales on about 10,000 acres over a ten-year period.
2. Non-commercial thinning timber stands via prescribed fire, firewood cutting, and/or contract on about 15,000 acres over a ten-year period.
3. Pre-commercial thinning timber stands via prescribed fire and/or mechanical methods on about 5,000 acres over a ten-year period.

The immediate goal of these treatments will be the development more open forests, with additional sunlight reaching the forest floor. Growing fewer trees per acre will reduce competition for light, moisture, and nutrients, improve crown size and form, increase seed production and generally improve tree health. Increased levels of sunlight and enhanced seed production will permit the establishment of advanced regeneration pools of both oak and pine species. The advanced regeneration pools of fire-adapted and shade intolerant oak and pine species will become the next timber stand in these areas, ensuring the sustainability of the oak and pine forest ecosystems. In addition, the regular use of prescribed fire in these open forest ecosystems will improve the vigor of the advanced regeneration stocks and favor these species over fire intolerant species. These dual

treatments will also improve PETS species habitat, wildlife habitat, and ecosystem-wide biodiversity.

An even aged system of forest management will be used in the restoration areas. The rotation age of timber stands will be the maximum allowed under the LRMP. It is anticipated that it will require about ten years to build advanced regeneration pools in existing mature timber stands. Once advanced regeneration is established, even aged regeneration using seed tree and shelterwood systems will be applied through a normal silvicultural order of entry.

Monitoring and Research

Research and monitoring from various parts of the country indicate that the concepts embodied in this proposal can effectively restore our degraded forest ecosystems. Long-term fire suppression and the subsequent changes in forest ecosystem structure are similar in widely separated geographic areas.

Some of this research, such as the fire history study by Dr. Richard Guyette, has recently taken place on the Bayou Ranger District. Guyette has established the fire return interval at three sites on the District.

The Ozark-St. Francis Forest Archeologist, David Jurney, will employ similar fire history monitoring techniques in this proposal's restoration areas to extend Guyette's initial research. Jurney will also establish long-term (1,000 years+) changes in forest plant species composition via the fossil pollen record at five perched upland wetlands (bogs) on the Bayou Ranger District.

Current fire/silvicultural research projects being conducted on the District by Dr. Martin Spetich of the USDA Southern Research Station include:

1. Effects of Periodic Fire on the Composition and Long-term Dynamics of Upland Hardwood Forests.
2. Effects of Dormant and Growing Season Periodic Fire on the Dynamics of Oak Borer Infested Upland Hardwood Forests.

Other prescribed fire and hardwood research projects are planned and these may utilize some of the ecosystem restoration areas (M. Spetich, per com).

The holistic nature of this proposal, with ecosystem-based goals and objectives, will require the development of a monitoring plan. This plan will be designed to capture both short term and long term ecosystem changes produced by restoration management actions. It will also allow the accurate assessment of the effectiveness of the various ecosystem restoration treatments.

Examples of short term monitoring are pre- and post-burn fuel load measurements, post-burn evaluations along with administrative records and inspection reports of timber sales and non-commercial thinning contracts.

Examples of long term monitoring within the restoration areas are the establishment of camera points, landbird monitoring points and advanced regeneration surveys.

Public Education

Education will play a role to help develop public support. Sharing this information would possibly lead to better cooperation and understanding among property owners, local government officials, and those who manage our public lands.

Currently, Bayou Ranger District fire managers cooperate and participate with the Arkansas Forestry Commission in presenting fire safety and fire education programs to third grade classes and 4-H Clubs in Pope County. The district also displays and staffs exhibits at the Pope County fair, industry safety fairs, and local festivals placing emphasis on wildfire safety and prescribed fire education. Educational materials received from program such as FireWise and Fire Education Team materials are distributed to both adults and children. The interactive CD entitled "Burning Issues" is now available and will be incorporated into future district educational efforts.

Approval and funding of this proposal would allow this educational effort to expand. Education efforts would be broadened to include the wildland/urban interface areas in adjacent counties. Education materials appropriate to the Ozark Highlands would be developed and distributed. Partnerships with the Arkansas Forestry Commission, other federal agencies, volunteer fire departments, businesses, and local civic groups would be developed and utilized to further educate and inform area residents and others about the uses and benefits of prescribed fire.

Partnerships

The Nature Conservancy

The Arkansas Chapter of The Nature Conservancy (TNC) is a valuable partner in this ecosystem restoration project. The project will be implemented in the Boston Mountain ecoregion, which is a "conservation priority" site for TNC. The demonstrated ecosystem restoration experience and expertise of TNC staff in Arkansas will assist in defining and monitoring the target ecological conditions of the restoration areas. The networking and outreach capabilities of TNC will also be utilized to bring other public interest groups and individuals into this restoration project.
Contact: Douglas Zollner, Director of Conservation Science; Phone: 501-663-6699.

Arkansas Game and Fish Commission

As a partner, the Arkansas Game and Fish Commission can be effective in many aspects in this project. Providing information and education to the people of Arkansas will critical for the success of this restoration project. The expertise of Game and Fish Commission biologists can be utilized for wildlife population/habitat monitoring and identifying areas for wildlife stand improvement (WSI) treatments. Providing funds to accomplish some WSI treatments is possible.

Contact: Leo Knoernschild, Biologist; Phone: 501-964-7227.

National Wild Turkey Federation

Implementing this long-term ecosystem restoration project at the proposed scale will produce landscape scale areas of high quality habitat for Wild Turkey. A partnership with the National Wild Turkey Federation ensures the success of this aspect of the restoration project. The Wild Turkey Federation can provide funding for specific projects that will enhance Wild Turkey habitat such as WSI treatments and prescribed fire. The Federation can also provide educational materials and information to the public.
Contact: Mike Widner, Biologist; Phone: 501-470-3650.

Quail Unlimited

Implementing this long-term ecosystem restoration project at the proposed scale will produce landscape scale areas of high quality habitat for Northern Bobwhite. A partnership with Quail Unlimited ensures the success of this aspect of the restoration project. Quail Unlimited can provide funding for specific projects that will enhance Northern Bobwhite habitat such as WSI treatments and prescribed fire. QU can also provide educational materials and information to the public.
Contact: Bob Taylor, QU Arkansas State Council; Phone: 501-968-2778.

Arkansas Audubon Society

Monitoring the response of various animal groups to ecosystem change is an important component of this ecosystem restoration project. The highly skilled birders of the Arkansas Audubon Society can play an important role in monitoring bird populations.
Contact: Leif Anderson, AAS President; Phone: 501-284-3402.

Caddo Nation of Oklahoma

The use of landscape scale prescribed fire is the most important ecosystem disturbance process in this project. A partnership with the Caddo Nation of Oklahoma will help to ensure the success of the prescribed fires used in this restoration project. At the same time, the fire crews will gain more experience with prescribed fire and be a part of a project that will use fire in much the same way that Native Americans used fire in the past.
Contact: Gary Parker, Project Cooperator; Phone: 405-656-2344.

National Park Service, Buffalo National River

The well trained and equipped prescribed fire modules from the Buffalo National River will be an important partner in implementing the landscape scale prescribed fires contained in this proposal. These prescribed fire teams have very effectively assisted with landscape scale prescribed fires on the National Forest in the past.
Contact: J. P. Mattingly, Fire Management Officer; Phone: 870-741-5446.

U.S. Fish and Wildlife Service, Arkansas Field Office

The opportunity to work with the Arkansas Field Office of the USFWS is very important in this ecosystem restoration project and the expansion and continuation of these types of

projects in the future. The Endangered Species Act, Section 7 Consultation, regarding the effects of prescribed fire on threatened and endangered species, will benefit with on the ground experience of the agencies involved.

USFWS participation in ecosystem restoration prescribed fire planning and execution will assist in the accomplishment of site-specific goals and provide training experience for personnel.
Contact: Hayley Dikeman, Biologist, Phone: 501-513-4486.

Southwest Fire Use Training Academy

The Southwest Fire Use Training Academy (SW-FUTA) is a subunit of the USDA Forest Service, Aviation and Fire Management branch. Southwest Area cooperators for FUTA include the USDA Forest Service and USDI Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, and National Park Service. Academy provides a large number of employees within federal and state agencies an opportunity to gain valuable experience and exposure to prescribed fire operations, management, and training.

SW-FUTA will contribute to this ecosystem restoration project in the following manner: pre- and post-burn fuels inventory on the burn areas, fire behavior and smoke modeling, fire effects monitoring, and burn implementation.
Contact: Jerome Macdonald, Program Manager; Phone: 505-842-3140.

Rocky Mountain Elk Foundation

As a partner in this project the Rocky Mountain Elk Foundation can provide funding for prescribed fire and WSI treatments. The Foundation can also play an important role in education and publicity.
Contact: Doug Young, Arkansas Chapter: RMEF; Phone: 501-337-0277.

Arkansas Forestry Commission

The Arkansas Forestry Commission will also be an important partner in this project. The Commission personnel can disseminate information and educational materials related to prescribed fire and fire safety. Also the skilled equipment operators of the Commission can be valuable asset for fire line construction.
Contact: Tommy Condley, County Forester; Phone 501-331-3040.

Annual Budget

ACTIVITY	*Scale*	*COST*
Prescribed Fire	18,000 acres/year	$450,000
Commercial Timber Sales	1000 acres/year	$10,000
Non-Commercial Timber Sales	1500 acres/year	$75,000
Pre-Commercial Thinning	500 acres/year	$20,000
TOTAL/YEAR		**$555,000***

*Project planning costs are included in these values.

Project Proposal Contacts

Bayou Ranger District

Lew W. Purcell, Jr., District Ranger; Phone: 501-284-3150

Steve Osborne, Wildlife Biologist; Phone: 501-284-3150

John Andre, Ecologist; Phone: 501-284-3150

Mark Morales, Fire Management Officer; Phone: 501-284-3150

Ozark-St. Francis/Ouachita National Forests Fire Management Team

Jim Burton, Team Leader; Phone: 501-321-5284

Roger Fryar, Fire Management Officer; Phone: 501-964-7293

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1500 Museum Road, Suite 105
Conway, Arkansas 72032
Tel.: 501/513-4470 Fax: 501/513-4480

IN REPLY REFER TO:

September 12, 2001

Mr. Steve Osborne
Ozark National Forest
Bayou Ranger District
12000 SR 27
Hector, AR 72843

Dear Mr. Osborne:

The Fish and Wildlife Service (Service) has reviewed the information supplied with your *Restoring Forest Ecosystem Health in the Wildland/Urban Interface on the Bayou Ranger District Proposal* (Proposal) submitted to our office on August 2001, requesting our comments and support.

The Service agrees with the need to reduce fuel loads on federal lands with an ecosystem restoration approach as directed by the Federal Wildland Fire Management Plan and agrees to serve as a partner in fulfilling the Proposal's objectives. As a partner the Service can provide assistance in the general planning of the proposed project, attend any meetings and site visits, expedite section 7 consultation for endangered species and provide technical assistance on non-endangered wildlife and its habitat.

We appreciate the opportunity to contribute to this project and looking forward to working with you. The point of contact for this is Hayley Dikeman (501-513-4486).

Sincerely,

Margaret Harney

Margaret Harney
Environmental Coordinator

Attachments

Letters of Support for Project Proposal

US Fish and Wildlife Service, Arkansas Field Office

Conway County Judge

Van Buren County Judge

Pope County Judge

JIMMY HART
Conway County Judge
Courthouse

117 S. Moose St., Room 203
(Voice) 501-354-9640
(Fax) 501-354-9607
Morrilton, AR 72110
e-mail: judge@mev.net

August 31, 2001

Lew W. Purcell, Jr.
District Ranger
Bayou Ranger District
Ozark-St. Francis National Forests
12000 SR 27
Hector, Arkansas 72843

Dear Mr. Purcell:

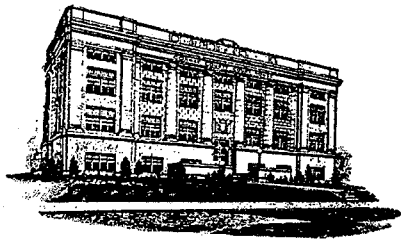
I have reviewed your proposal for "Restoring Forest Ecosystem Health in the Wildland/Urban Interface of the Bayou Ranger District".

I support your efforts to reduce the risk of wildland fires to our communities, property, and watersheds.

I also agree that informing county residents about the uses and benefits of prescribed fore is important and may possibly lead to better cooperation and understanding among property owners and those who manage our public land

Sincerely,

JIMMY HART
Conway County Judge



COUNTY OF VAN BUREN
DALE LYNCH, County Judge
P. O. Box 60 / Clinton, Arkansas 72031 / (501) 745-2443

08/31/01

Lew W. Purcell, Jr.
District Ranger
Bayou Ranger District
Ozark-St. Francis National Forests
12000 SR 27
Hector, Arkansas 72843

Dear Mr. Purcell:

I have reviewed your proposal for "Restoring Forest Ecosystem Health in the Wildland/Urban Interface of the Bayou Ranger District".

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I also agree that informing county residents about the uses and benefits of prescribed fire is important and may possibly lead to better cooperation and understanding among property owners and those who manage our public lands.

Sincerely,

Dale Lynch

Dale Lynch
County Judge

DL/pb

JIM ED GIBSON
Pope County Judge
100 West Main Street
Russellville, Arkansas 72801

Phone: 501-968-7487
Fax: 501-967-6874

September 4, 2001

Lew W. Purcell, Jr.
District Ranger
Bayou Ranger District
Ozark-St. Francis National Forests
12000 SR 27
Hector, AR 72843

Dear Mr. Purcell:

I have reviewed your proposal for "Restoring Forest Ecosystem Health in the Wildland/Urban Interface of the Bayou Ranger District".

I support your efforts to reduce the risk of wildland fires to our communities, property, and watersheds.

I also agree that informing county residents about the uses and benefits of prescribed fire is important and may possible lead to better cooperation and understanding among property owners and those who manage our public lands.

Sincerely,

Jim Ed Gibson

Jim Ed Gibson
Pope County Judge

News from...

U.S. Senator Blanche Lincoln
of Arkansas

359 Dirksen Senate Office Building, Washington D.C. 20510 Phone (202) 224-4843 Fax (202) 228-1371

FOR IMMEDIATE RELEASE
August 22, 2002

Contact: Drew Goesl
(202) 224-6436

Senate Agriculture Subcommittee to Hold Hearing Examining Oak Tree Mortality

Washington – U.S. Senator Blanche Lincoln (D-Ark.), Chairwoman of the Senate Agriculture Subcommittee on Forestry, Conservation, and Rural Revitalization, today announced an upcoming hearing on the decline of oak tree populations in southern states caused by prolonged drought and red oak borer insect infestation.

"It's important that Congress take a closer look at the wide ranging problems our forests and timber lands are experiencing due to sustained drought and red oak borer insect infestation," Senator Blanche Lincoln said. "These combined forces have endangered public safety, increased the threat of wildfires, and reduced the habitat for wildlife. The short and long-term economic impact on our timber industry has been significant as well."

The Subcommittee will focus on oak tree decline and the problems red oak borer insects cause to southern forests. Oak decline is a syndrome caused by prolonged drought, over-population of trees, and the prevalence of insects and disease which together result in decline and mortality of oaks, particularly red oaks. This phenomenon has been studied and described in the past in many upland hardwood areas of the eastern U.S., but never on the current scale in the Ozark Highland forests of Arkansas and Missouri.

The Subcommittee will hear testimony from forestry, conservation and environmental experts, along with timber industry representatives. The hearing will be held on **Thursday, September 5th, 2002 at 9:30 a.m. in room 328 of the Russell Senate Office Building, Washington, DC.**

Members of the Agriculture Subcommittee on Forestry, Conservation, and Rural Development include: Senators Blanche Lincoln (D-Ark, and Chair), Mike Crapo (R-ID and Ranking member), Pat Leahy (D-VT), Mitch McConnell (R-KY), Tom Daschle (D-SD), Craig Thomas (R-WY), Debbie Stabenow (D-MI), Wayne Allard (R-CO), Mark Dayton (D-MN), and Tim Hutchinson (R-Ark.).

For information on the hearing please contact Chuck Barnett or Drew Goesl in Lincoln's office at (202) 224-4843.

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