Christopher Topik, The Nature Conservancy
Answers to Additional Questions for the Record

House Committee on Energy and Commerce,
Subcommittee on Environment
Hearing Wednesday, October 4, 2017, entitled:
"Air Quality Impacts of Wildfires: Perspectives of Key Stakeholders."

The Honorable Frank Pallone, Jr.:

1. Forest ecosystems are at risk due to a number of factors including the changes in climate. As you and other witnesses pointed out at the hearing, controlled burns should be part of a management plan for forests, and gaining support for this management practice with managers and the public has been challenging in many areas of the country. In general, there is public support for maintaining healthy, resilient forests over the long term. However, short-term priorities general dominate budgets and management practices. What are some options to incentivize federal, state, and local forest managers to prioritize long-term goals for fire management or at least weigh them equally with the need to address immediate needs?

Topik Answer:

I think that it is essential that we do an honest job of assessing our national, state and local funding and staffing to implement all three major goals of the nationally accepted National Cohesive Wildland Fire Management Strategy. As I discussed in my written testimony, the nation has done a pretty good job of coming up with a plan, largely based in science, but we are not doing a good job of building capacity, both human resources and funding for the up-front mitigation, forest and fire management activities, including maintenance that we know will provide for long-term forest health and reduced catastrophic fires. We can't stop fires from being damaging, but we can get our citizens, communities and natural resources much more fire ready and understand that fire is also a natural forest process in many cases. To date the Congress and most states have been focused on dealing with the immediate emergency needs of fire suppression and have under resourced the known approaches to improve fire adapted landscapes and communities.

1. Helping communities and citizens to be fire adapted:

As briefly discussed in my statement, there are some proven programs that are already showing cost-effective approaches to organize and improve community readiness to fire. This means being ready before, during and after fire. These

approaches are not expensive, but they are underfunded and usually get left behind when government and the Congress are stressed to fund immediate fire suppression needs. Increasing funding for such programs, like the Fire Adapted Communities learning network, the U. S. Fire Learning Network, the Collaborative Forest Landscape Restoration Program and the Joint Chiefs Landscape Restoration Partnership would provide direct benefits to increase citizen action, enhance collaboration and cost sharing with a wider array of local governments and industries, and reduce the negative effects of severe wildfires.

A large part of this action is working collaboratively with communities and public health officials and providers to understand the need for various kinds of controlled burning and fire use, managing the short term adverse impacts of controlled smoke events in order to avoid the really nasty, prolonged impact of uncontrolled wildfires that we saw this year in particular. Communities that have accepted their shared risk of wildfires and made local investments to become fire-ready provide public land managers and fire services with the enabling conditions and support (i.e., incentive) to make longer-term decisions about how they manage fire.

We also need to establish and implement organized adaptive management processes that can monitor and evaluate what specific programs are most effective and what impacts they have on overall fire management effectiveness and costs.

2. Increase resilience of fire adapted landscapes

There is a great deal known about methods that can increase the resistance and resilience of landscapes, especially forests, to fire. More science is certainly needed to directly evaluate ecosystem responses and treatment effectiveness, but we are not even utilizing the knowledge we already have. Much of the most problematic wildfire impact is in fire-prone landscapes that now are out of whack due to a variety of past management practices and a changing climate. This means that we need to dramatically increase our ability to bring fire use and controlled burns back, including the use of managed wildfires when and where it can be done safely. In the long run, I don't see any approach to achieving success on our vast areas of fire prone landscapes without such implementation. Logging and vegetation removal alone will not do it, although this is often an important part of the process of bringing forests back to a healthier condition that will resist extreme damage.

The policy choice is pretty clear: do we have the political will to invest in proven up-front mitigation and maintenance management techniques that reduce negative impacts subsequently? And can we monitor, adapt and determine the other co-benefits of these treatments, such as cleaner water, continuation of business and tourism activities, forest product harvest, and fish and wildlife use and enjoyment? Adding some honest economic and social calculations, and then following the

evidence, would lead to a much better use of our federal and state resources and staffing.

The Honorable Debbie Dingell:

1. The President recently announced the United States will be withdrawing from the Paris Climate Accord, announcing to the world that the U.S. federal government is abandoning its commitment to tackle climate change. Essentially saying that our rapidly changing climate isn't worth addressing.

    a. Mr. Topik, in your testimony you mention the need for increased long-term protection of forest resources from threats like catastrophic wildfire, insects, and diseases. Can we realistically achieve the goal of maintaining healthy and resilient forests without acknowledging the threat posed by unchecked warming?

2. By all reports we are in the middle of the most expensive wildfire season to date, with over $2 billion spend this year combating fires according to the U.S. Forest Service.

    a. Mr. Topik, if we fail to properly address climate change now, in your best estimate, will combating and preventing wildfires be more or less expensive in the future?

3. In 2016, according to the Michigan Department of Natural Resources, there were 262 reportable fires that occurred on over 3,000 acres in Michigan. The Forest Resources Division responded to a total of 384 fires. In comparison to western states, this is a low number of wildfire events.

    a. Mr. Topik, if we do nothing to address climate change could wildfires spread or increase in non-western states, including Michigan?

<u>Topik Answers:</u>

1. It is unlikely that we will be able to develop and implement forestry and integrated fire management in the future without careful analysis of the changes that climate change has already made and will certainly increase in the coming decades. All responsible scientists and industry already recognize that large changes have occurred, with the fire seasons now being longer in most all forest types in North America and globally. Forestry and integrated fire management is a long term endeavor, so caring for forests requires a perspective that looks ahead for many decades. Unchecked global warming will change the balance of environments that forests and communities face and will certainly also increase the extreme weather events that can be the most damaging to people and nature. If society does not respond to current climate threats, the increasing global climates will unsettle the forests and exacerbate the context for severe fire that we currently have, and require

much more human intervention to provide the vital services, such as our water, wood and wildlife, that we need.

Fortunately, forested landscapes are also one of the greatest natural solutions to reduce future climate change. It is vital that society and governments and industry invest in proven greenhouse gas reducing management, including extensive reforestation, improved forest management, avoided conversion of forests to non-forest, and improved fire management so forests are not lost in the future due to catastrophic fires and vegetation change. The recent scientific report by Nature Conservancy scientists and partners shows how various activities, including aspects of forestry and fire management, can play a major part in mitigating future climate change, if we invest. This paper details 20 specific pathways for action – what we call natural climate solutions– and finds that they can cost-effectively deliver 37% of the emissions reductions the world needs by 2030.
(see Proceedings of the National Academy of Sciences, Oct. 31, 2017, vol. 114 no. 44, B. W. Griscom, et. al, 11645–11650, doi: 10.1073/pnas.1710465114)

2. A future with unabated climate change will also include much more extreme and costly damage to communities and habitats. The combination of expanding populations into fire prone areas and more extreme weather events that trigger catastrophic fires will certainly lead to vastly increased costs of fire suppression and costs to society with mortality events and damage to watersheds. The kinds of tragic fire events we have seen this year in Northern California and last fall in Tennessee will be more common. The future costs of severe fire events in a changed climate world will be large in monetary treasure, but larger in human impacts and lost opportunities.

3. Yes, current projections for the US indicate greater wildfires in more areas. The specific locales of future wildfire events are not knowable everywhere, but it is known that climate change will bring with it greater vacillation in extreme weather events. It is just these kinds of extreme events that can bring unexpected and unanticipated wildfires to areas that previously have not had such recent experiences. That means it is likely that Michigan and other non-western states may find themselves facing surprising wildfires more often.

   From a worldwide perspective, warming in the boreal and Arctic region is projected to be substantially above the global average, a trend consistent with both model projections and observations. According to the Intergovernmental Panel on Climate Change (IPCC), in the past 100 years temperatures in the Arctic have increased at twice the global rate. Boreal forests are expected to be especially sensitive and vulnerable to climate change because those ecosystems are naturally sensitive to warming, because of the nature of their soils (peat and permafrost are prevalent) and the likelihood of increased incidence and extent of fire. Additionally, boreal forests themselves have the ability to impact the global climate through radiation balance and carbon cycling, leading to interconnected feedback loops between climate and forest. i.e. boreal forests are expected to be more problematic for severe fires under the projected climate change scenarios.

The recent tragic, fire caused mortalities in the southern Appalachians and the frequent tragedies in Texas, Kansas and Oklahoma may well be harbingers of future problems in places that we don't think of as having fire problems but are in fact naturally fire adapted forests and rangelands. This includes areas such as New York, New Jersey and the broader Appalachians, as well as the northern forests of Great Plains and Midwestern states. It's not just drought that brings on fire events, but the combination of increased human infrastructure, inadequate preparation, rainy periods that enhance vegetative fuel growth, and extreme, dry windy events.

Furthermore, non-western areas are greatly impacted indirectly by the costs and business interruption that severe western wildfires bring to our entire nation.