**Event ID:** 2241699  
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Please stand by for realtime captions.

This is Amy Daniels. You should have received a correct it link. If you can hear my voice, you are on the right lace but check your e-mail if you are not and the Live Meeting webinar platform yet. You should have a correct did link. We had to change the date because of the for love. That created some problems and creating unique URLs corresponding to this event so please check your e-mails. I will give the system a moment to managing mail and other strains of communication to make sure everyone gets the right information and we will start in just a moment.

If there is anyone that is providing information, I have not activated global mute so if anyone wants to troubleshoot on the line, feel free to speak up. I am getting messages saying people are getting and I see the attendance going up so again, I will wait a moment before we get started.

I'm going to make the announcement and we will get started. We had problems with the URL because I changed the date grade we push this back one week because of the furlough so if you are not on the mailing list, e-mail me. My address is on the screen. I can send you an updated link. I'm getting a lot of requests I sent it out to my mailing list and if you don't receive monthly e-mails I will need to get that link to you. So it will get started in just a moment thank you for your patience.

Okay. Apologies for the delay. This is Amy and yells with forced service research and development in the Washington office. I just sent out not dated link so I will continue to monitor my e-mail and make sure all of you get the updated information. I am going to do my intro slide and look at my e-mail and send out the corrected link. If you can hear my voice, you are in the right place so hold on that we will get going and I will send out the link. We have a great webinar lined up Dr. Steve Norman is going to be talking about the long-term wildfire effects across complex landscapes. We also have a data spotlight by Ty Wilson at the northern research program he will tells about carbon-carpet forest stocks and you can hear about that at the end of the hour we will stick with the regular program of this presentation and Steve's presentation will take up 30 min. and we will follow that with 15 min. of questions and five-minute data spotlight and close out the hour with general announcements. This is sponsored by the forest service. We are in the Department of Agriculture there are three main branches of the agency and we are research and development. Our main function is to provide science and technology, we develop and deliver research and products to the national Forest system, as well as state and private forest tree which is part of the agency along with private land owners. Research and development is located throughout the country where comprised of 500 research scientists at 500 regional stations that you see here in pastel colors located at 67 different labs that we had 81 experimental forest ranges which makes the forest service you need and its ability to do broadscale research. We have an impressive 80+ year collection of forest inventory data and you will hear about one of the great products of that in the data spotlight, that covers 47 states. The forest service research covers a broad portfolio of national research from traditional fourth Street to social science, two aquatic, to terrestrial, you can see our strategic program areas in the center of the diagram and the priority areas from climate change to nanotechnology. We will get into a few logistics for the webinar. This webinar is being recorded so if you object, you can log off. The global mute has been activated. To meet yourself, press start ember six before you speak.--Press\*, number six, before you speak. If you click on the SND button, you get a drop down list and you can see the participants and you can chat with any by clicking on their name and typing your text in the lower box and hitting enter. We will manage the question and answer session using this button at the top of your Live Meeting ordo. Type in your question and hit the ask button and I use this to see how many questions I had so I prefer people speak their question but if you can type in a general indication that you have a question, that helps me manage and I will call on you because your name will show up so I will remind you how we are doing that but that is it for webinar logistics and I have a few questions that I like to take this helps our speaker know who they are talking to so if you can indicate your affiliation.

Looks like we have a large federal audience today. Next question, in what region of the country are you?

What is your primary role in the organization where you work?

Largely research with a good share of land managers and some communications and delivery folks and a few others. Forest service employees all, if you could indicate what deputy area you are in.

Largely research and development but also over a quarter of you are from the national Forest system. And finally, forest service research and development employees, what station are you with? Okay. Let me take a moment to block the data and I will queue up the slides.

Again, Dr. Steve Norman was our Southern research Station will be talking about predict long-term wildfire effects of loss--across complex landscapes.

Thanks everybody for coming today. And providing the opportunity to speak about something we have been working on at the eastern assessment center where I work with a number of collaborators this is a topic that consolidates a number of lines of work that I have personally been working on that includes the satellite-based monitoring and fire management strategy which I have been a part of for a couple of years. Is therefore very broad in scale and tries to be consolidated. At dodging my co-authors, [Indiscernible] in the southern eastern station of the forest service and [Indiscernible] [Indiscernible] Mississippi.

How do I advance?

Are you there? Amy, are you there?

Can you use the arrows, does that work?

No.

I am surprised she did not practice you on this, but if you move your mouse to the bottom, it should bring up a menu of control things like a highlight button.

Yes.

And none of those allow me to advance.

You did practice?

I practiced but I have a short memory. Thank you for your help. I am going to provide a quick introduction about wildland management a crisis from an national perspective, the importance of monitoring and the importance of predicting and how this technology can help with that. And as part of this fire management crisis, key aspects of that, we are dealing with past management decisions that people have made over a few decades, ecological needs when it comes to resilience, there are some long-term fundamental things that the ecological system requires but it is also changing so the past insights that we get may not necessarily be relevant for the future. The best source of understanding across the United States, is [Indiscernible] the historical [Indiscernible] map a characterization of the fire regime that existed prior to fire suppression or exclusion under frequency and low severity. You see in the East, there is a lot of dark orange color where fire used to be allegedly frequent. Next,, for forest in California and parts of the Pacific Northwest with high-frequency and this light orange, and the grassland areas, we have high severity areas with a concept of [Indiscernible] the grasses totally consumed by fire.

This is what we are left with if we go throughout the agriculture we end up with a map that looks a little bit different. You notice the effects in the corn belt in particular. So we have a lot of change, and one of the problems that has developed over the last century is fire exclusion and Smokey the bear has played a big role for that, and the West in particular. In the East, the idea of excluding fire hazard has a deep history as well. There is [Indiscernible] from the 1930s from Pennsylvania . A propagation effort. So we have conflicting values and people moving into the wildland area. This fire near Waldo Canyon in Colorado Springs 2012, homes were burning, it is different than it used to be in a lot of these are larger and more severe in this map shows the larger wildfires based on the fire mapping efforts if you look at trends in these fires over time you see it generally is increasing and something we hear a lot about on the news and it is episodic, four years we had these huge fires larger than 100,000 acres and other years where we do not have that many. All of these changes we see of large fires are not entirely excluded to the last. Large is a concept we have to be flexible with what we think about the east, large can mean impact and not necessarily acres and some of these large impact areas start in the wetland areas such as this. This is the swamp in southeastern Virginia and the Fish and Wildlife Service is trying to restore this and they have a problem with drainage, windstorms, and repeated fires. We have novel conditions such as buffalo grass, [Indiscernible] and [Indiscernible] grass across the United States. Changes in fuel that make prescribed fire application and wildfire much different problem than it was before. We have considerable outbreaks of insects and diseases in places. We are not just dealing with those [Indiscernible] but the effects of the wildfire and drought. And climate change, we cannot forget that. Meanwhile, we have some fundamental shifts in management policy. Even with wildfires we have some extensive areas that burned in ways that are very much restored and consistent with our ideas and ecological resilience and I would say this particular photo gives a good sense of how that can happen. With that background in mind, how do we track this and make sense of it and engage all that has changed that we have observed in the past, everything we want to have based on historical evolutionary or value related decisions and how we monitor the change with species that we see. It is a very difficult--task to do a coast-to-coast and it way that is going to satisfy the diverse needs that we have. So the level of efficient coarse filter landscape monitoring addresses what has burned, what is likely to burn and what needs to burn. Not just those areas but the rest of the landscape. We don't want to forget that because the goal is landscape resiliency and change we would like to monitor before it burns and how to prioritize.

So, there are a number of different approaches out there to monitor and look at the man's-landscape. We have research and focus efforts, case areas, think about a typical dissertation, those are done occasionally after a fire event. The [Indiscernible] sample across the [Indiscernible] portion of the United States happens every for you years as does land fire products and the aerial detection surveys target certain forest in the United States that tell us where there has been a disturbance. Not so much fire as insects and we have this other technology, this system which is satellite based but [Indiscernible] imagery changed section product and that is about 203 m so it is a lot coarser than what we get from land fire which is [Indiscernible]. 16 times the resolution. So this product that we have is called forewarn and it is based on a different vegetation index. It is based on the timeshares and it is valuable because it is taking a picture every day and sometimes you can have [Indiscernible] or not but if you do it every couple of weeks, it is a fine resolution that lacks the continuity because of the frequency of the clouds and the systems of basically it is trading resolution for frequency so this is about 232 m and we have processed this and every eight days we have a new product and then is a historical data set that is [Indiscernible] and we have change maps on the website which you can go and explore at your leisure. So just exploring this, [Indiscernible] website, you can see with the help of photos that are provided, that there are different patterns and [Indiscernible] if you look at the [Indiscernible] overtime they tend to have a strong [Indiscernible] pattern and it is characterized with a strong amplitude up and down over the course of 13 years. You can look at the onset of spring and how it differs in following these examples of having a similar pattern characteristic of a deciduous forest. [Indiscernible] does not have the amplitude over time. So you just don't have that low winter drop in green. Except occasionally when you have snow you can see that in the Appalachian spruce system. Now grass dominated his lust green it is not the highest [Indiscernible] you can see the value here on this graph over the 13 years and they tend to get a pretty high because of the nature of those particular systems as a pattern that is not unlike wheat or corn but in general these are lower across the system and another thing you might know, compared to other things we have, [Indiscernible] is characteristic of grass and [Indiscernible]. There are all sorts of ways we might want to explore this. We need to monitor some measures only can drive those from this time and we get the maximum and the minimum and look at the percentiles of the annual distribution and the maximum percentile, the minimum is the 1st percentile, and the median would be the 50th you're ranking those figures and 25%--and all these different ones that are possible, we focused on a little bit these three, a living biomass measured by the 50th percentile [Indiscernible] of distribution some measure of evergreen and because we want to capture the conditions during the winter, because that separates [Indiscernible] from a summer condition, we will go with a low percentile but not the bottom because that is influenced by snow. To get the grass development, you look at the highest portions. Generally, patterns like this have a [Indiscernible] and [Indiscernible] sharp peaked nest with the highest value of the distribution are going to be what distinguishes--and red, yellow, orange and white does not come from normal color, the hem log trees and [Indiscernible] wilderness area and you can see a gradual drop in the minimum. 50th percentile) on the middle and the 20th percentiles going to be a good measure for us as a condition of the evergreen component of the particular landscape. The tops are rounded and [Indiscernible] and the grassy areas in northeastern California [Indiscernible] the median varies a lot and I think this is mostly climate variation. You can look at the 100th percentile and the 80th percentile and more separation and there is going to be a measure of index of grass in this, you can see how that is manifested overtime. So, if we just make a map of the United States, this is what we get. The [Indiscernible] agriculture [Indiscernible] California as well as [Indiscernible] grass areas of northeastern Nevada it is all captured fairly well. This is a simple comparison with the data set. You can see it is consistent.

So these three measures and how we are going to actually do the harder part which is track them and make sense of them and that is where we have to talk about predicting in terms of what we really want with desired conditions. Here we have a handful of different examples across the United States and this is how they change with service related to fire. The [Indiscernible] complex in 2003 and [Indiscernible] than it used to before, we are pretty far north and look at their Redwood where there is not much snow, if any. And you can barely see the low severity fire and the [Indiscernible] fire in Southwestern California really strong change and notice it is not that high to start with. Not much amplitude but it is coming back and here in the grassland of northern Texas [Indiscernible] with our expectations and here is the fire in 2006. Notice it has a different shape to it. The [Indiscernible] fire in Montana, pre-evergreen, but low. The [Indiscernible] drops down really strong and we have repeated fires and [Indiscernible] in 2002 and 2007 drops and comes back and notice there is a high pattern that drop stand and never comes back over time until you get through this current year, this is a really powerful way to monitor and you can get some sense, that it should be possible to project the recovery in some way and get some sense as to whether or not there is recovery and that is what we will talk about so if you go to the [Indiscernible] website you will see Northern California and compare the current greenness of the maximum experience and all of the areas in red and yellow are we have a reduction in greenness. Let me run back here quick. One of three fires were going to look at. This particular fire is half 1,000,000 acres and what we have done is take a cookie cutter block of the fire and this is a graphic that compares to the red line, the average greenness within that fire perimeter. He can see there is a general cover he and greenness and the last 11 years and we have on the gray liner areas outside those fires and maybe they do not [Indiscernible] we will talk about that in a minute but that is basically consistent from one year to the next. And that does not have to be the only reference for standard that we can come up with. We can just take these pre-fire conditions and copy that over and over and say that is our expectation of normal. An average sense of what it was before and obviously, let's say this area is overly dense pine forest, 50% [Indiscernible] the tran24 that might be somewhere down here and if you can assign that pretty easily he can see how the conditions are and you will get a sense about what you're statuses, if you burn more frequently or not and [Indiscernible] desired frequency for a particular location so there are all sorts of rules that can establish those condition and this is the 50th percentile here and there is one value for each year and you can see it is pretty constant in its recovery that is a good predictor of recovery a good measure of biomass overall this is the 20th this--25th percentile here. It goes up and down but not as much as the minimum because of the impact of snow and this is a coastal area the get some snow in the [Indiscernible]. Look at the highest percentile with variation and in some places it does because [Indiscernible] am the 50th percentile is a pretty good at it your of biomass and outside the fire you can see there is a general drop over time which is interesting but it is not that much that even baseline conditions might have a little bit of [Indiscernible] for reasons that might involve clear-cut logging or an factious diseases and in terms in general. So at the top, this is a comparison of the biomass of the single [Indiscernible] percentile that we looked at and this is a single comparison of a non-burned area around it and at the top, this is the adjacent areas that did not burn. And you look at grass tennis which is a departure between maximum and we see there is a lot of jumping all over the place, this particular year is when the fire occurred to cannot interpret that a big surge in grass and that is because of the burned area rehabilitation area and other factors and radical changes that occur. Peaks like that often happen because of climate conditions that favor that. We can map these out and come up with calculations there attends a calculations there attends 1000s of calculations and the percentile represents that evergreen component and it has recovered quite a bit and similarly considerable recovery but notice that the evergreen fraction has a fair amount patterns of dark and 50th percentile which is a more general measure for vegetation and you can see averaging across years because of climate sensitivity we have pre-climate conditions great increase and departure from the ever most portion of percentile which you would expect and the pre-fire to decade changes are not as strong, that means we have a lot of closure and [Indiscernible] and within that post fire timeframe on the right, you can see there are areas where it is becoming less peaked. But also, areas with more grass, like down here in this area. It is interesting. So we can predict this. Based on a simple slope and [Indiscernible] line there is a progression here that is online 50 years of recovery time ahead of them and the evergreen perspective from a general biomass perspective, there is not much difference. So, quickly, just to show a few other fires [Indiscernible] from 2002 in Arizona and as it looks today, this is the surrounding area and that the pre-fire conditions and the shortcoming of using the adjacent areas, the system insight into the climate [Indiscernible]. Again, the 50th percentile shows pretty good recovery within the burned area and says not quite the same slope but notice this is high to start with this is interesting this is jumping all over the place and departure is inconsistent and this is a drier interior climate so the evergreen fraction in 2003 a strong decline in some places but not everywhere. Biomass is pretty similar in its pattern. You look at pre-12 evergreen fraction recovery has biomass there are some differences in the 50th percentile there has been more recovery than in some of the smaller watersheds. When it comes to the evergreen part the con person are slower to move up in canopy than the sprouting vegetation and the major increase, and the higher severely burned areas, by 2012 that has changed quite a bit. You can see most of that recovery on the northern part. Predicting the future, we are on different projectiles. The biomass, the 50th percentile is on a pretty slow trajectory and the evergreen fraction. With the Hayman fire in Colorado, notice that it is not recovering much. It is pretty flat consistently over the years and you can see that is basically on the same slope as the areas outside of the fire. The biomass in the burned area is non-recovery and you have some varying-over time because of climate as well as grass cover. Evergreen component is hard-hit. Biomass 50th percentile and by 2012 we don't see the recovery that we saw on the [Indiscernible] fire.

This fire was a [Indiscernible] area. It caused a tight conversion over a good portion. This is a rather interesting map. You don't see a strong increase despite that. A few places where it is increased but not as we saw in some of the fires. We look at recovery time we're talking [Indiscernible] it is flat and talking at least 15 years a majority of this fire so this particular grass to show how a broader system might work, we have a set of desired future conditions. So [Indiscernible] from that time series. All of these are pixels and the landscape and these red dots may or may not be where we want them to be after a fire or after treatment. They might move in the direction of that desired [Indiscernible] but it is a regime of multiple events that will make or break with conditions of what we want. So, high frequency moderate resolution [Indiscernible] gives us insight and comparable which is the resolution of the [Indiscernible] severity efforts and long-term fire effects pre-fire or [Indiscernible] towards a desired future condition . This can be something we predict.

It allows us to characterize ecological processes that we care about. And areas that have experience that might be dependent upon [Indiscernible]. So, this works for other disturbances I showed you the [Indiscernible] a lot of insects and diseases are often captured by the system and most importantly it captures the cumulative effect, you can see multiple fires and how this will affect the condition of her time and pre-powerful way to monitor landscapes.

Thanks so much. It is really interesting work and a nice follow-up to the more focused presentation we had earlier in the year. With that, I will move over to the Q and a to see what we have.

Looks like it was a technical question so I will give you a minute if you want to click on the box type in your question and just raise your hand which is the upper right so I will give it a minute and see if we have any questions.

Or you can hit star six to meet yourself and ask your question as well.--You can press\*six if you want to ask the question yourself.

We have a new [Indiscernible] they came out that describes the forewarned system and highlights the forewarned system that includes fire, the particular process is something we are still refining a little bit.

You happen to know the GTR number?

180.

If you go to the forewarned website, you will have a link to that.

Great. Let's see, Matt, can you hit star and number six to ask your question?

I am here. Sorry. I wrote it in but basically my question is one of the early slides is showing historical fire regime across a large scale across the country and I was wondering if you have observed any relationship between those sister Oracle regimes of frequency and severity and time to recovery observed using the [Indiscernible] data.

The time for recovery projections we have are confined to these fires in the area around them. We do have the capacity to look at that more broadly and 560--since 2000 is a lot of data and we plan to have a look at this across the entire [Indiscernible] for all fires and to include the contact areas that have not burned yet, that is a super task that is ahead of us.

Part of my rationale, it seems like probably not among forest service researchers but in the national forest system there is almost a blanket application of the idea of thinning and fuel reduction operation which is universally appropriate in regards to the historical fire ecology of the different systems and also an expectation that recovery would be similar. Seems like you could address those questions.

I think it is probably true from a historical perspective, the theme I have observed and look for to establish reference conditions doesn't really come close over any large broad landscape where the conditions were there 200 years ago. Projects tend to be small scale, the prescribed fire events we have are not fire regime except in a few scattered locations of the haven't really gotten to the point where I would feel totally comfortable saying we are looking we have a fair playing field site that things in historical context and we have changes in fire climate which means that even if it was a range of distribution, it has shifted a little bit for reasons we can't control. It is difficult to put that into a framework of expectations to inform policies like that with specific things you are talking about. More broadly, we can use this to provide a course management tool that can feed the broader questions. Not just fire events but the fundamental fire regime we switched to and the changes that we see in cross jurisdictional different managed landscapes it is very much a course filter perspective. I am hesitating a little bit to think that resolution can be applied [Indiscernible] still questions.

That is an interesting thing to think about. I am looking at the question box and I'm going to ask Bruce's question for him. Is this available for Alaska? And I want to say if you don't mind holding your questions I think we will just address that this is available for Alaska and move onto the data spotlight and come back to the questions.

The simple answer is, it is not Alaska, it is pretty big and we thought about [Indiscernible] but it is a huge landscape and we don't have it for Alaska.

Okay. So, I am going to queue up the data spotlight at our northern research station this is a repeat brought back by popular demand because we had some problems last week and we will take 5 min. and hear about this great product and we will head back to the question to get the remaining questions and not be so limited for discussion.

Can you hear me?

I can.

Thanks for the opportunity to present this again and thank you to Steve for a great presentation it feeds in nicely to my RSS a lot of this is based on using [Indiscernible] imagery. We have recently published a set of maps that use FIA survey data that may be adventurous to the broader community. For those of you who don't know, the national forest inventory of the United States is conducted by the forest inventory analysis program and our program is tasked with reporting on the extent status and trend of the forest resources of the US this is a national program that is implemented regionally, they correspond with the research stations Pacific Northwest and Southwest research stations and these programs agree upon a common sampling frame that is based on the map hexagons basically if you can imagine a giant soccer ball surrounding the earth. If you were too oriented that so one of the panels falls over the contiguous US, that is basically the foundation of the sampling frame that we use only can subdivide that panel into smaller hexagons like you see here for the state of Maryland and these are ensuring spatial balance of our sample and you can see that we have a penetrating panel in the case of the eastern US and it is almost a complete cycle. The common plot design a familiar triangular pattern is a clustered pattern I'm going to skip through some of the details but on each of these subplots. You have a series of attributes that you collect and it might be location or elevation and within each plot we map conditions where we would observe land cover honor ships slope and disturbance and breach of these for each tree in its status and species we are able to model for the whole plot average trees volume of biomass and carbon with my co-authors northern research station we have a set of predictor variables at 250 we have the vegetation phonology used a time series of imagery or climate data precipitation and temperature geographic location information derived from the national elevation data set as well as boundaries and response variables for each plot which would be a live area and all of those are brought together in a model using correspondence analysis and that provides us with loadings which we transform the predictors to produce our future space where we measure nearness. So using nearest neighborhood we impute to every pixel the plot idea of the nearest plot and keep track of all of the nearest neighbors for each individual plot and from that, we are able to--we have a table of nearest neighbors as well as a map of plot ideas and we have a stratification layer available at a finer pixel resolution to help increase the precision of the results and a database of plot attributes from the half IADB database and that is a mapping machinery and a three species basal area to see this coming up from the forest Alice and the US and maps of forest carbon stocks and using the plot along, we are using this for various scales so we have results of the assessment for 25, mutters up to a 200 km spacing for each of those poorest carbon components we have done the same thing for the species data all of this is available from the research data archives and the easiest way to find it is to go to the archive and type in the two data sets listed there. In a nutshell, there is the link to the archive and for further information you can contact me with that. Thank you.

Great. Thanks so much. It is a great data set so Google forest service research archives and you can search for the name and documentation and you have the contact information here. So I will make a couple of announcements and for those with questions, I hope you can join me for a quick 5 min. hold over and we can continue the discussion on the presentation and if there happens to be anyone on the line for a question for tie, feel free to stick around. This is the last of the first year in the series of landscape webinars said thank you for joining and I'm going to put out a survey sin and your feedback is really valued.--I'm going to put out a survey sin and your feedback is valuable and I will make some enhancements to the format and we will get started in 2014. I also point you to a survey on the policy committee that we have put together. If you request the webinar materials you can click on that link and respond to the survey if you haven't already. A few agencies to go over. Particularly at the headquarters. A couple of research directorships are available there is an ecosystem market program manager position, an assistant director for vegetation ecology as well as director of forest service national partnership office so would you want more information, feel free to look those up on USA jobs and contact me and I can send out more information. I think you have my contact. I have last month's information and the date is unknown as of yet but again, we will start back up in 2014 look at the questionnaire coming to you soon in the next day and look for a call for presentations and I am going to organize continuing education credits. With that, I'm going to go back to the question box and I will pick up with Susan if you are still on the line, could you press\*six to speak your question? Martin, Teresa and a different Susan, I will read the question. Have you predict how long a particular fire will take to regenerate?

I probably glossed over that a little quicker than I should have it is a simple regression line from the timeframe, one year after the fire is thrown out, the 2003 fire, the values for the percentile in the case of prediction, the 25th, the Evergreen component since 2004. 2004 through 2012 and it is a line in your project from 2004 to the value established based on the conditions and the [Indiscernible] shows it was a prefire condition. If you want to have a different restoration goal of 25% of that more or less equate herbal [Indiscernible] because of the prescription that is your goal. [Indiscernible]. How about [Indiscernible]. There is a room of folks at Oak Ridge.

[Indiscernible]

Of a particular fire at payment, and it is true for the northern portion of the [Indiscernible] fire and there is no visible recovery, the [Indiscernible] burns hot because of uncharacteristically high severity fire so I think in both cases, the Ponderosa pine tree and dominated landscape, there is no roots or re-sprouting or [Indiscernible] over regeneration and the hatch size of a high severity fire has created a particular landscape component which is uncharacteristic of what we had seen before.

Was that the Oak Ridge question?

Yes.

Thank you.

How about Teresa, are you still on the line?

I will read the question. How confident you feel about the utility of methods for non-forest land cover such as [Indiscernible]?

If it is a system that has a strong grass component, you saw that in the [Indiscernible] timeseries was a big map of the United States in the middle. [Indiscernible] popped right back up almost immediately. The variation in the system is quite often more strongly dependent on climate than on disturbance given the adaptability of that particular system. [Indiscernible] transition from shrubs, particularly if they are Evergreen such as sagebrush [Indiscernible] to something that is a little bit different.

The best way to know is for you to go to the website and there are some instructions on the website and that will teach you how to click on areas you care about. And see if you can detect any recovery or pattern and we are here to help out.

Thanks. Someone asked if the webinar is recorded. Yes, it is being recorded so feel free to contact me and I can put you on the mailing list which doesn't go out to everyone but I am happy to send along a slide as well as the recording itself and the transcript. So it looks like my question.