>>Danny Filer:
Well, folks. Grab a seat. We're going to get started. [inaudible] They follow directions.

Welcome everyone to the National Conservation Training Center. Thanks to all of you for coming. For some of you it might be your first time here, some of you have been here many times. Hopefully you like the venue. Peggy Sandretsky, our NPS liaison to this Fish and Wildlife site is actually on leave today, so I'm going to do the official welcome, so work with me. I would like to welcome the folks who are streaming live today online. We would also like you to participate. There is a chat function. This afternoon we will be doing lightning presentations with Q&A, so please log into the chat. I'd also like thank Rhonda over here from UMCPS. Rhonda will be our host on live chat and will be reading the questions out to the group, so thanks, Rhonda.

The meeting will go from 10:00 to 12:00, then we'll have a break for lunch, and then we'll come back, so for those folks online, there'll be a break for lunch. You can eat lunch as well. Sadly, you won't be able to eat lunch here with us.

If you haven't already, on your nametag, please list your name and also which organization you're with. I'm looking around and seeing that everyone did that. Great. Oh, looks like Maggie has got to catch up. Okay, that's fine.

We also found out that some folks were not able to get a lunch pass when they came here for the day. For lunch at The Commons, there's two ways to buy lunch. You can buy a lunch pass in the gift shop in The Commons at the bottom of the steps. It's $9 for all you can eat or you can purchase whatever you get when you go through. That's up to you. The food here is great. Ask a colleague who's been here before; you'll find out. Know that's there for you as well.

Just some quick housekeeping stuff before bring Eric on stage to formally welcome you to the meeting. Just some facts about NCTC. This place was finished October 1997. It's 21 years old today. It's in impeccable shape for 21 year, so just want to point that out to you. When NCTC was built they looked at 10 different sites across the country and ultimately chose Shepherdstown which Shepherdstown loves to tout. Mostly what's out here are conferences and seminars, so it's a great venue for that. We do have WiFi in the room. It's WiFi Guest and there's no password, so feel free to log in, but please don't be working during the meeting. We want you to stay here, okay? I tried to block the WiFi but they wouldn't let me.

There are snacks, coffee and tea if you go out the door to your left. That will be there until 10:30 so if you need to grab something real quick you can run out. We will also

have those back there in the afternoon at 2:00 when the meeting wraps up, so you can grab something on your way out the door. For those federal partners to gain ground for the afternoon meeting, and you know who you are, you can grab something and come right back to the meeting.

Bathrooms if you go out the door and to your right, they are immediately almost across the hall. If you decide to use the bathrooms on the other end of the building, they're flip flopped so make sure you read the signs. And I know that from experience, fyi, okay?

>>Speaker:
It's never happened before, right, Danny?

>>Danny Filer:
It has happened. That's a different story.

Cell phone coverage here is a little spotty. AT&T and Sprint are the best, Verizon is not so good. So, use the WiFi is much as you can. But, again, enjoy yourself while you are here.

In case of emergency, we need to exit the door. Go down the hall this direction towards The Commons and we will gather outside The Commons, okay? So just keep that in mind in case of emergency.

Any questions before we get started about the logistics, before welcome Eric onto the stage? Okay. Great. Thanks. Welcome everyone.

>>Eric Davidson:
Thank you all for coming. My name is Eric Davidson. I'm the Director of the Appalachian Laboratory of the University of Maryland Center for Environmental Science, and we are the host institution for the Chesapeake Watershed CESU. I'm not sure if Danny actually fully introduced himself. He is our National Park Service Research Coordinator, and the fact that this room is full to capacity I think is testimony to all the work he's been doing over the last year and a half since he joined us. He has really reinvigorated our CESU and so I want to thank Danny for doing that. I hope you -- I'm sure you all received many emails from him, and actually, Danny already introduced Rhonda briefly, but I also want to explain that Rhonda is our host institution coordinator, and you've probably received a lot of emails from her.

One of the objectives of this meeting, of course, is for us to get to know each other better and so that you can recognize some of the people that you see virtually via these

sorts of notices; also, to bring you up to date on a lot of activities that have been going on in the last year. Actually it's been more like seven months since we had our last meeting. I think it was in October, here at Shepherdstown University.

As you can see from our agenda, we have updates on what's going on with the CESU at the national scale. We just finished three days of meetings here with representatives -- my counterparts, Danny's counterparts, and Rhonda's counterparts from all 17 -- well, they weren't all there, but most of these 17 CESUs were represented and we went through three days of meetings about progress in the CESUs at the national level and future directions. We're going to hear from Tom Fish in a few moments about that for an update of that. Then we'll be giving more of an update of what's happening in this region. Then we want to have some opportunities for people to give some feedback and to find out what's really going on at the local level, so we've organized this group of lightning talks, and we were really pleased with the response that we got. We actually had to turn a couple down because we didn't have enough time.

We are going to be fairly brutal about the clock, on that. Because frankly, one of the things we are trying to do at this meeting is -- we started at 10:00 o'clock, so that I know some of you are driving from considerable distances. Some of you came last night, but some of you probably got up very early this morning in order to get here, maybe fighting some rush hour traffic and you will probably be fighting some rush-hour traffic on the way home today, so we are trying to keep the meeting relatively brief. We're going to dispense with the usual courtesy of going around the room and having all of you introduce each other. I'm sorry for that, but if we did that you'd be stuck in rush-hour traffic longer. That's why we've asked you to fill out these placards and make sure you do it on both sides, not just to remind yourself who you are, but also recognizing that there are people behind you so they might want to see what is facing you in terms of your name. That is our compromise that I'm sorry we have to make in order to keep this meeting brief but hopefully very useful.

That's pretty much all I wanted to say to get this going, and so we will get into the meat of the many things that we are doing at the moment. Are there any questions before we move on?

Okay, then I would like to introduce Perry Wheelock who is the -- well, I'll let you introduce -- she's got a very long title and I will goof it so I will let her introduce her title. Thanks, Perry.

>>Danny Filer:

Folks, I forgot to announce this. There's a sign-up sheet going around. We want to try to track who's coming today. So, please sign your name next to your name. If it doesn't appear, please write your name in. We had a lot of last minute registrants. Thank you.

>>Perry Wheelock:

Good morning, everyone. I'm Perry Wheelock and I'm the Associate Regional Director for Resource Stewardship and Science in the National Capital Region of the National Park Service. We are the National Park Service host and partner with the Chesapeake Watershed CESU network. I want to salute Eric and his team. It is not only the invigorated and energetic presence of Dan Filer that has benefited our relationship, but it is also your arrival at UMCES as well that has strengthened the partnership as well between the National Park Service and the host institution, so thank you, Eric.

I also want to welcome you all to what is the National Capital Region. You are in the middle of the National Capital Region of the National Park Service. You are surrounded by a lot of NPS units, and they include Antietam National Battlefield, C&O Canal National Historic Park, Harpers Ferry National Historic Park. Catoctin Mountain Park is not so far away, and Monocacy National Battlefield. There are representatives from many of those units here today, but I want to particularly call out the Superintendent of Monocacy National Battlefield, Chris Stubbs who is here as well. So, that also shows you how keenly interested our people on the ground and our managers are in the work of this group.

I also want to call out the fact that our Chief of Natural Resources from the Northeast region of the National Park Service, Carmen Chapin is here, as well as our Chief of Cultural Resources from the National Capital Region, Sam Tamburro, who is also here. So, in my very long title, what all of that wording means is that in the National Capital Region I oversee both natural and cultural resource programs for that part of the Park Service. I also believe we will be joined by Tina Norward today -- Is that, correct? Has she come in yet? There she is. Hello, Tina -- Who is the representative from NASA to the federal partnership and so that is wonderful to have that federal partner presence within our CESU meeting. We may have another federal partner here, is that correct?

[Off Mic]

All right, yes. If you are on the phone, we are very, very pleased to have you.

With no further ado, I think we are ready to go. Thank you.

>>Danny Filer:

Thanks, Perry. Thanks, Eric. We would like to welcome Tom Fish to come up to the podium. Tom is our national coordinator of the CESU program, and as Eric mentioned, we spent the week talking about the program. Tom is going to provide an update.

>>Tom Fish:
Thanks, Dan. Good morning everyone. My name is Tom Fish. I'm with the CESU Network National Office in Washington, DC. The National Office is hosted by National Park Service but my position, coordinating our 15 agencies and our almost 440 partners across the country. I'm going to give just a bit of nuggets of what we talked about over the last three or four days here at NCTC.

One kind of overview and I think probably everyone is thinking in this direction, but why do we coordinate, integrate and collaborate across agencies and partners? We have got a lot of grand challenges, as they may be called, that are beyond the single the scope of a single agency or organization to tackle. They benefit from participation from many disciplines, and we also are dealing with resource constraints, and so the concept behind the CESU network is I think important. It's able to bring together a vast kind of compendium of expertise and experience to bear on a lot of these grand challenges. Also, establishing and maintaining strong and successful partnerships that are built. Whether they're between individuals or institutions, these are very important and we carry those forward over time. They are strengthened and then they lead to other ways to leverage resources and bring in other expertise.

We have some barriers, limitations on time, travel and human resources, so this live streaming is great. We tried our hand at some of that during our national meeting over the last couple of days, and I'll mention that in a minute.

Then the bottom line, a lot of folks are entrenched in their discipline or their office or their institution and their stovepipes and so we try to our fullest extent to break down some of those in terms of bringing groups together and I will mention a little bit about how we support decision science or usable knowledge and a number of different terms applied to that.

Using science to inform natural hazards actions, so last year where there have been a number of events that we think our network is well positioned to be able to respond to, and so we are exploring some of those options including talking with FEMA and other agencies.

Then I would say the program has been a bit labeled as natural resources oftentimes but it's fully natural and cultural resources, but the areas, the subject matter areas that

can be addressed through the CESU program are wide-ranging; I always say anthropology to zoology, right? A to Z and everything in between, but we are hearing more or talking more about the connection between nature and public health and sustainability and green design and a number of different areas, so I think this is not in any way an exhaustive list, but it's some of the topics that have been coming forward that we are really confident that the program, the full network can be applied towards.

Just for review for folks who, you probably know this but, this is more or less the three legs of the CESU stool: research, technical assistance and education, all broadly defined. Technical assistance often has a research or education component to it. Research, the same. Many times projects could tick the box on each of these. Then in terms of our strategic focus collaboration, innovation, generating new information to help inform decisions and then kind of a recurring and ever-present evaluation lens so that we think about how well are we doing, what can we be doing better, what other areas might we be focusing our efforts on? Those sorts of things.

This is a map of the full network of our 17 regions, biogeographic regions, and we did have -- I think we had representation of the last three days from all but one region and that was the Gulf Coast and those folks could not join us in person or on the phone. But, very helpful to have that broad perspective of regional folks here for a few days to discuss science and particular issues and also programmatic topics.

Just a review of how the program came to be. It was authorized 20 years ago, November of 1998. This is our 20th year in terms of authorization, and in 1999 we formed an interagency MOU that led to the creation of our CESU Primary Agency CSU Council, and that also was the year that our first four CESUs came online. Then there were four subsequent competition. So, first one, second through five that established all of the 17 units. Chesapeake Watershed was in 2001. The concept was building on other programs at the time, and then next year is our 20th anniversary so we talked quite a bit about activities that we are going to try to foster for a recognition of that as a full network including, perhaps, special issues and journals and other publications and outreach activities, and even a symposium or two, bringing in partners from across our network from all agencies, all partners and all subject matter areas to highlight the great work that's gone on over the last 20 years.

This is just a graphic of the growth of each of the CESUs over the different agreement terms. Each CESU operates under a five-year cooperative agreement. Just this year, Chesapeake, for example, added 12 new partners. This is the Chesapeake here, but you see this upward trend in terms of numbers of partners in each of the units. Gulf

Coast I think has 63 partners now. But, just an illustration of the change in I guess interest and participation over the last 20 years as well.

Our federal partners, we have 15 currently but we are in conversation with EPA, FEMA, I mentioned, APHIS, the Department of Homeland Security, Bureau for Customs and Border Protection, Coast Guard and then the State Department and USAID is another conversation that we are having. I think there are some others. We've had Energy in the past so we're had some preliminary conversation with the Department of Energy, but there remains interest in our program from the federal side and nonfederal side. Of course, you are all here as a testament to that.

Just a quick graphic on the structure. I think maybe everyone's familiar with how this works, but we have our council, our federal agencies. Each CSU is made up of federal agencies, [Inaudible] Federal Managers Committee, state and local agencies, nonprofits, tribes, academic institutions, [Inaudible] Institution. Five-year agreement with the programmatic IDC, indirect crossgrade, and then that goes down to where agencies have jurisdiction regional activities, regional supervision and application of funding to develop cooperative projects that align with the jurisdictions and authorities of each of the partner institutions.

This is a bit of an exaggerated model of our interagency funding process, but it's not too far off actually. I mentioned this in our meeting this week and actually this is the real one which is -- which is not super awesome actually. So we bring in funding from our -- this is primarily in the context of supporting our host institutions to provide some -- to defray some of the cost of the responsibilities of being the host institution regionally. We get funding from our external agencies to the NPS, that goes through an interesting series of changes or steps within that agency, then eventually gets to our host institution and then so the green is the money going out; the red is the money that's being billed back. I'm not going to spend too much time on this, but we did this week spend quite a bit of time on this and how we might try to think of ways that are a bit more efficient than this. But anyway, just wanted to show that there is a real process, even though it looks like that.

We also have had a number of nominations and awards for this year, national awards, and two of them from the Chesapeake Watershed, one with Virginia Tech and one at University of Virginia, so the White House Kitchen Garden Project and then this multifunctional management at BLM Meadowood Special Recreation Management Area, among another of others and we'll be posting this on our national website. We're creating a CESU National Awards section on the website so that we can put those

awards going all the way back to 2003, just as a continued recognition of the great work that people are conducting.

We talked a lot about connectivity. Connecting our network with other networks, connecting with other programs and we actually had a panel on Wednesday looking at large landscape conservation and representation from the landscape consultation cooperatives, the climate adaptation science centers, the NOAA Regional Integrated Applications and Sciences programs, the USDA Climate Hubs Program and the USGS Fish and Wildlife co-op units program. So, really good conversation. We had that, and then we had a second session following that panel to identify regional challenges. Eric and others were talking about some challenges that are here in this area and that may be well beyond this area but one was I think Invasives and Forest Health, and also Deer Population Management, and there are a number of others but we kind of scratched the surface on that. The idea was to promote connectivity by connecting different -- this is just an example framework for connecting these different Interior programs because a lot of the constituents within those programs overlap. But we also talked a lot about making connections like between a PI and an agency, not only the agency sending out a solicitation looking for statements of interest for a particular funded project, but also PIs in the Academy or at the NGO and state conservation communities, reaching out to the agencies, understanding their needs and then articulating to them that they have expertise and experience addressing some of those priority issues so can we come together and talk about it a potential project in the future? So, that was a good conversation, I think, and each of the different CESUs talked about how they may help support some of that through their different regional activities, but we are also going to, I guess, develop some further space on the national website for that very reason, so we can highlight great projects and then maybe bringing together some open space and forum of sorts for people to communicate topics of interest.

We also talked a lot about communications and outreach. Part of this was related to the 20th anniversary but part of it is just a need overall. We are a big program. We're 20 years old. We still are relatively invisible in many regards, and I always say you can have a faculty member who's had a CESU project at a university; you walk two doors down and they've never heard of it. The same goes for the federal agencies. So, you'll have a technical representative from an agency who's been a technical rep for 10 years; their colleague two doors down doesn't know anything about the program, doesn't know their agency is a part of this, doesn't know that it's an opportunity for connecting to the expertise out in the community. Part of this speaks to the development of various types of information resources, print and online, and then social media is another topic that we included in our conversation. I should also mention this one down here; we talked about the possibility -- well, not the possibility, the need for developing orientation

materials for new partners, for new technical representatives, for CESU council members so that when they are coming on board they understand what it involves, but also what the expectations are, being responsive to communications, like when Dan send you an email six or seven times a day, you want to reply to at least one of those just to tell him you're still there. But all kidding aside, this has become an issue, partly because the programs have gotten to be so large, we are having challenges getting responses and this is particularly an issue when we are trying to get signatures on amendments and agreements. When we sometimes need to get everybody's signatures, we will have a couple of partners that are just completely nonresponsive and that holds up the rest of the group in terms of executing one of those documents. So that's an important part.

Then on to the social media side, we now have a Facebook page, we have a Twitter account and we have an Instagram account. This is kind of real new and we are working to populate those things. We would encourage everyone to when you are doing a project and you want to post it, if you're active on Twitter, active on Instagram, you can put a tag on there to our program. We're @cesunetwork, all one word, in most cases, and really just beginning to build this. But, I think, as I mentioned we did a Facebook Live, just one part of our session over the week and I think we had, I don't know, a couple of dozen folks who were tuning into it, so I think that's pretty neat.

>>Speaker:
You should mention the hashtag too.

>>Tom Fish:
Oh, for the meeting?

>>Speaker:
The hashtag, year.

>>Tom Fish:
It was #CESU2018. That's the other one we were tagging. So we had one of our CESU host institution coordinators who is here, who's very social media savvy so she was posting and posting and posting and posting, which is great.

That's just in a nutshell some of the things that we talked about. I'm happy to field any questions, but I'll be here all day so if you want to have a sidebar conversation just pull me aside.

>>Speaker:

Thank you.

>>Tom Fish:
You're welcome.

>>Speaker:
That symposium I presume would be linked to some of those special issues.

>>Tom Fish:
Yeah. We talked about what's the best way to do this, what are the best outlets for this kind of information, so there is probably a few journals where you'd be able to put together a batch of papers that covered the breadth of our program, but we also talked -- we talked about maybe the symposium connected with a group of papers. We also talked about holding a symposium at an existing meeting that a number of partners are already attending. ESA, for example, next year is in Louisville, and so that's one place. The Colorado Plateau CESU, or the Colorado Plateau Region holds a biannual science symposium on research on the Colorado Plateaus and so a number our partners in the West already attend that so we've done symposia there in there past, but then connected with that maybe that's a way to bring together a series of papers and projects again.

>>Speaker:
I'd love to support that.

>>Tom Fish:
Great.

>>Danny Filer:
Thanks, Tom.

Okay, so I would thank you everyone. I also would also -- I would like to recognize some federal partners. Perry had started to do that. We had one who was not able to come but I do want to recognize those in the room. Ann Tem (phon) from US Forest Service. Ann, if you could wave and say hello. Directly to her right is Alan O'Connell back there, trying to hide, from USGS. Then Sean McDougall, that's that vacant chair off to your right. Sean's project was actually the one that won the 2018 award for the principal investigator. Sean had to take a call; he's out in the hallway. He's here from BLM so try to pick their brains, or pick their ears whenever they're around. Okay.

>>Speaker:

[Inaudible].

>>Danny Filer:
Yeah, I'm not sure. I don't know, Ron, if you want to check and see if there's any federal partners.

>>Speaker:
Sherry Whittaker.

>>Danny Filer:
Sherry Whittaker from the U.S. Army Corps Engineers.

>>Speaker:
That's the only federal partner that I know about.

>>Danny Filer:
Okay, okay, great. Now we are going to talk a bit about the Chesapeake Watershed CESU. Eric and I are going to talk about some things. I'm about a year and a half in this position, getting close to two years. It's been great, Eric, right?

>>Eric Davidson:
Just great. I remember his first day was Halloween.

>>Danny Filer:
It actually was Halloween.

>>Eric Davidson:
I'm waiting for him to take the mask off.

>>Danny Filer:
See what I deal with? It's been a fun ride. I've enjoyed working with everyone. I think we had another pretty good year. We accepted 12 new nonfederal partners into the CESU network this year. A lot of these partners, all of these partners in fact were either requested by a federal partner or we had researchers for the federal government who asked they join. Two of these partners had interest in joining from the outside. We now have 43 partners in the Chesapeake Watershed. That's a lot of partners, and on top of that, the Bureau of Ocean and Energy Management is going to join. They submitted a letter to us about two weeks ago. And from conversations this week, the Bureau of Indian Affairs is also now going to join our CESU, thanks to the seven federally recognized federal tribes in Virginia. [Inaudible] this year. And NASA is considering

joining, so we want to impress Tina today so that she also wants to join. We'll have a lot. We'll have close to 12 or 13 federal partners in our CESU.

What does that mean for those non-federals sitting around the room? That's more potential funding that could come to you, so we're --

Those in the room, if you are from one of these institutions, university institutions, raise your hand. So we have got lots of excited, invigorated people here in the room, so try to chat with them and talk to those folks, and we'll keep the collaboration [inaudible].

So, in 2017 we did 55 new projects across our federal partners and 41 modifications to existing projects; it was a pretty active year. Of those projects, 56 percent were cultural resources. As I travel around to the federal partners, and I've been to lots of federal partners and universities -- I'm hoping to go to more, so if you want me to do a visit email me afterwards and we'll talk. In those conversations, when people hear Chesapeake Watershed CESU, they think Natural Resources. In reality, the bulk of the work that we do, at least through this CESU as far as funded actions, is actually cultural resources. I spend a lot of time kind of re-educating folks. When they hear my title, they think I'm a biologist or an environmental scientist. My background is actually social science.

Then, 39 percent are natural resources, and that number is growing, so we are kind of catching up. As you can image, a lot of the cultural resources work that we're doing is Park Service, but there is some cultural resource work we're doing that Department of Defense, for example, or one of the other federal agencies.

We're doing some social work. I'll be the social scientist here today. Maggie Daniels, who is going to present this afternoon, doing work on the National Mall. As a social scientist I'm trying to uptick that number.

We obligated $5.5 million this year across our federal partners to our non-federal partners, and that was in new dollars and also in modifications. That's a pretty big number, I think. I don't know, Tom, if you think that's a big number, but that's -- and that number is growing.

The types of projects that we've done, most of what we do, as Tom mentioned earlier, the three buckets that we do, technical assistance is really the biggest one and that's where we're working with principal investigators to do research on federal lands to help our federal managers make management decisions on the best practices of those places, and that's the bulk of what we do. Those result in sometimes usually planning

documents; I've listed some of those up here. These documents, when you create these documents, you think of a report that sits on a shelf that never gets used. We use these reports. They're very important to us for planning purposes and for other things, so that continues.

We also have done and have some successful internship programs. We'll be showcasing some of those this afternoon in our lightning presentations. That is not really an example of technical assistance per se. There's an educational component to that. We get something out of it and so does the student, so we love doing internship programs. Then some [inaudible] use studies, we will see some of those this afternoon, and we've also developed some training programs as well through the CESU this past year that were pretty good.

We do have a newsletter now. I have copies here on the center desk. You are welcome to grab one. It is an e-newsletter, so we send it out. We just printed it just for today because you're all here, but those newsletters come out in those emails that we send to you. We host those on our website.

In that newsletter, I provide updates. We like to showcase a success story. The feature article is Dr. Peter Newman at Penn State University who actually did a lot of his post doc work through the CESU and is now a benefactor of CESU dollars to do work at his institution. Then we also talk about other things that are happening in the network and we feature other projects.

When you get that email, please take a look at it. Glance over it. We do some exciting stuff in there. You can access it on our website here. Let me just actually bring the website up real quick so folks can see it. This is our website here. You'll notice across the top the newsletter is up there. This is also where we post our opportunities. They are listed on the far right, if you haven't been there. We also list all of our partners with all of their contact information. If you need to contact another partner in the network you can always call me, but you can also get the information here on the website.

Then, we also feature -- and I want to showcase this website as well. We spent a lot of work this past year going out, talking to our federal partners and talking to our nonfederal partners and finding out what projects you've done, when you've done them, collecting reports and other information and we post that information here. So, if you're wondering what kind of projects have been funded the CESU, what type of work are these different partners doing, we're keeping this information up to date so please take a visit to this website and take a look. We have links all the current projects that are happening on there as of April 2018, and we try to update that quarterly. But obviously,

if you want an up-to-date printout I can run it really quick and send it to you, and we also have historical projects that were done by partner, you can take a look at those as well.

Let's see if there's anything else I wanted to cover. I think that's pretty much it before I pass it over to Eric. We are going to talk about we have been in the process of developing an experts database. Eric and I are going to present that to you next. I don't want to steal a lot of Eric's thunder, but the whole idea behind it is to create a platform where federal partners can more easily find you nonfederal partners and your expertise when they are trying to find it. I love playing match.com when I get a call from a federal partner trying to find a researcher. It can be a little stressful and I want to make sure they find the right person, so computers always help with that, so I'll let it do that.

So any questions before we jump into our experts database about just the general state of the program? Rhonda is not here, so if there questions on the line, Rhonda will share them with us when she gets back. Eric, I'll jump over. Do you want to present the experts database?

>>Eric Davidson:
Sure.

Actually, I'd add a few more comments on this topic first. Since many of you are new, we are delighted to have all of these new partners. I imagine some of you have some questions about what your responsibility is as a technical representative of your institution, and in fact, there is turnover at all of the institutions in the technical reps, and so that's one of the things that we hope to develop, that was discussed in these last few days, to have webinar type materials for that.

I would say that there are two things that we really need from our technical reps at our partners, at least two and probably more. One is that it really is your responsibility to let the faculty, or your colleagues I should say, more broadly, at your institution know of the opportunities. So when you receive a notice of say a statement of interest, a request for statements of interest, I mean we heard of one case of a technical rep said, "Well, I look at it and if it interests me, I follow it up. If not, I hit delete." That isn't going to be helping the rest of the people in your institution find out about what opportunities are available. That's a pretty important thing to do, and if you don't feel that you're the right person to do it then you need to make some other arrangements with your institution where you can forward it to somebody else who will then distribute it more broadly. Of course, it's a challenge because some of these statements of interest are probably outside of the

realm of your area of expertise and you may not know who else at your institution might be interested in it. That's a challenge but that really is your responsibility.

The other thing is that we need to hear back from you about the projects that are ongoing at your institution, and we very much appreciate receiving a copy of any final reports. You saw the website and the newsletter. We would love to feature the progress reports or any sort of photos because, as Tom said, as Tom Fish said, we need to work on getting the word out to all of our partners, federal and nonfederal, about what we are capable of accomplishing.

Interesting, one of the very odd features of the CESU is that Danny made a joke about sort of being a dating service and in a way that's kind of true as to what we do, but the actual contract, once a federal agency has a task agreement with a nonfederal partner, we don't always necessarily see that at the host institution office. If it's Park Service there is a pretty good chance we will see it because we have -- the Park Service is so much engaged and Danny is likely the one who is working through that paperwork. But if you have an agreement from USGS or NOAA or any of our other partners, it may well not come to us unless Danny makes a special effort to reach out and find that information, but that's really important information because if we can make those partners more aware of the opportunities, then that means there may be more projects available in the future and we'll be able to achieve, more fully achieve our objectives.

We also need that for our five-year renewal reports. When I came on board three and a half years ago, we immediately had to do a five-year renewal and Danny's predecessor had just announced his retirement. We were kind of scrambling to figure out, well, what data do we have? It turns out we did not have a whole lot of data, and so our report had the data that we had available, but we knew it was very incomplete. So, I would make a plea to all of you who are technical reps to keep us in mind and pass along to us copies of anything that you think is relevant, progress reports or final reports. That is the last of my sermon or admonitions to you about that.

Now I want to describe a bit about the experts database that we are trying to develop. Again, when I came on board about three and a half years ago, we did have an experts database, but as I looked at it most of the CV's that were entered there were at least five years old and hadn't been renewed, and it was structured in such a way that we asked people when they signed up -- they asked people when they signed up back then to list their area of expertise. Someone might list fisheries and another one might list brook trout and another one might list fish habitat. So, these were keywords to search by and so it wasn't particularly -- there was a lot of confusion; I don't think it was all that useful. But, technology has changed and we've learned from those lessons, and so we

are going to try it again and we are trying to design it from the outset to make it easy to enter, easy to update and easy to search, so do you want to start that? Actually, this is in response to a request from some of our federal partners to do this, so we know this is not just our idea that we want to do it and hope that somebody will come to the party. We know that there is a demand for this.

So, Katie Klein is the webmaster. She's a staff member at the Appalachian Lab and she is building this out. We have a committee that is advising us, and I have [inaudible]. Oh, there they are. Dan and Tom you've already met. Claire Jantz is here and she's been advising us. Katie Klein, I don't know if she is online, but she is our webmaster and she's the one doing the technical work, and Tim is advising us, and is David Delinsky [phon] here?

>>Speaker:
He's online.

>>Eric Davidson:
Oh, he's online, okay. So, we are starting out from the beginning and not just thinking, well, these are our ideas. We want to vet it and so we have a committee of reasonable size to advise us next.

The idea is it's going to be very simple to enter data and very simple to search, and there will be ways of searching in terms of a few areas of expertise, keywords that can be entered, but it will also be searchable throughout all the words in your CV. So, if you've published on something, or you have a statement in your CV about your research interests, those will end up being searchable words. The federal partner would get on in this way, or if you were looking for a colleague to help you I suppose, you could get on this way and you could search for something like effects of land use change, and if you did that, at the moment -- this is kind of a mockup -- you would end up with this group of people who have indicated that in terms of the data that we already have for a trial purpose. So Claire shows up and some of my colleagues at UMCES show up, so this gives you an idea of what would come up from that particular search.

Here is an example of one of our experts, a particularly handsome one, that I thought I would feature. The idea is that Bill would enter in -- I think we probably just cut and pasted this from a CV that we had available online from our own institution -- and there would be a brief bio, a very brief indication of educational background, some ongoing projects, and some other research interests. At the bottom there would be kind of a teaser or here are a few other people who have some related areas of expertise. Katia Engelhardt is here. Next, please.

The entry process is pretty simple. You click on that form and you fill in a few things that you can see here about the institution and name, trying to keep this to a minimum, to the most important things. We have some dropdown menus for areas of discipline and we've taken those from -- well, I'm not sure exactly what we ended up with but one of the suggestions I had made was there are some lists from NSF about various discipline that we were using. So, instead of it being a free for all that you can enter anything you want -- you can do that in your CV -- but this is going to be a more limited set. We'd welcome feedback if we find out this set is incomplete. There'll be opportunity to put in at least to three of those, an opportunity to put in something else if they can't find it. These things like biographical sketches, that would be optional. You can just cut and paste something you already have. In the educational background, pretty easy stuff to cut and paste. If you have a project, you can take the summary from your project that you have or a project you just finished and cut and paste that into there. Likewise, if there's any other research that you want to feature a brief summary, you can do that. Also you can edit those online. Next.

Then you upload your CV. We'll have some suggestions on how you might -- how long the CV you might want to include, although, you know, it really doesn't matter all that much. We might have some suggestions on the form of the CV, but we don't want to make it hard so that you have to reformat the CV. But if you upload it there, then it becomes a feature of this experts database that is just as searchable as all of the other features, and if you'd like, you can share that handsome photo of yourself.

>>Danny Filer:
Oh, it's too big.

>>Eric Davidson:
Yeah. Danny has too big of a CV.

>>Danny Filer:
No, my photo.

>>Eric Davidson:
Oh, your photo. You've got too big of a head.

>>Danny Filer:
I probably should have checked that.

>>Eric Davidson:

You really gave that one to me.

>>Danny Filer:
I know. [Inaudible].

>>Eric Davidson:
So, and then you are done, so it's pretty painless.

Next, I thought there was another one about upload.

>>Danny Filer:
Yeah, there is.

>>Eric Davidson:
Here's the plan. We have -- this is about ready to be sort of beta tested and we have a few people over the course of the summer that we're going to ask to upload things and to test things, and a few federal partners to do some searches and things like that to see how well it works, work out the kinks, and then we will be asking all of you to ask your faculty or your colleagues at your institutions who are interested to participate in this. Then, to further refine it -- next -- we will try to get some feedback on how that's working and also develop a system that each individual can then go in and update, so that you will have authority to update your own entry, and work out a system in which you will receive a notification if you have not updated it recently and a warning that if you don't update it after certain period of time you will be dropped from it. The last thing we want is a stale set of experts in our database. So, it really will require some -- even if it's just a click to say no updates, but we want to make sure there are still real, live people out there behind those expert updates.

That's the effort that we're trying to go on here, and I'd be happy to take any further suggestions or discussions on what you think would be useful, both from any of you who are working in the Parks or from federal partners who might be the ones searching, or any of you who are from the nonfederal partners who think that there might be something else we should or shouldn't include in this database.

>>Speaker:
Are the other CESUs developing a similar expert database and are they also using similar functionality that you guys are developing?

>>Eric Davidson:

Some of them have it but it -- there are 17 different CESUs and probably 17 different approaches to it. I think we are being seen as, well, I would like to think that we will be a model that others would follow, if this works, and we certainly will offer it, this structure, to others.

I guess I went through it kind of fast. There's one other thing, that we looked at a whole bunch of different software packages that we could use, ranging from some that were just outside of our funding ability to purchase, and we ended up with basically a Wordpress plug-in with some in-house development, which since have somebody capable of doing that in-house development [inaudible] and I think gives us the most flexibility at the most reasonable cost. Hopefully that will be a model that they other CESUs use to follow. I don't see any reason why they couldn't eventually all be integrated into a single experts database at some point, national experts database, but we'll crawl and then walk and then try to do that.

Was there another hand? Sam.

>>Speaker:
One of the things that I found as people come to work with us, not because they see that wonderful photo of me -- in fact that's kind of a negative -- but because they've seen a product that they say, "Oh, I want one of those," right? "I like -- we need to use that." In addition to the -- I think it's fantastic you're doing this experts database, I'm not at all suggesting we don't do that -- but I think a parallel effort of showcasing some of the products that the CESU partnerships have generated would be equally useful, and so populating that website with some example products would be really helpful.

>>Eric Davidson:
That was part of my admonition that we want to hear back from you when you have a project done or a product, we want a copy of that publication. We want a copy of that technical report and there is no -- if we have your permission, we will upload it onto the website. Then we have to think about how to make those things searchable to find, but that's another discussion. Sam, did you have something?

>>Sam:
[Inaudible]. The one comment I have is will there be an opportunity for people to make recommendations on the page itself and as [inaudible] and grows, the ability to have different word search ability for making the new expertise that comes in. I guess what I'm getting at is hopefully it will be maintained consistently so that it has the most up to date information on it.

>>Eric Davidson:
I agree fully, if it isn't maintained, it will get stale and it won't be useful. There's nothing more discouraging than somebody does a search and you find out that that faculty member retired, so we have to make sure that that's up to date. I guess that is part of the idea of being able to search the CVs, so that as research topics change over the years there will be other kinds of words in those CVs that would be searchable, and we will try to update the dropdown list as well but … Yes?

>>Speaker:
For long term sustainability, one recommendation I have -- I don't think it is something that you need to put on there but is to collect DoI codes for DoI members for any publications that result from work that has been supported in whole or in part by [Inaudible]. I think that it's not only good for long term sustainability with CSC; it's also a great way for universities to evaluate what's the impact of participating with CFC.

>>Eric Davidson:
And DOI's can be assigned to non peer reviewed. They can be assigned to data sets, and so that's a really good point. Yes?

>>Speaker:
So you mentioned that the idea behind it is matchmaking, right? I was wondering if you plan to track that results of the match. In other words, if somebody found this profile [inaudible], you know, I want to connect with Bill and them maybe I can click on his email from the site, and then somehow you are able to track that, or somehow we end up collaborating on something. Almost like a social network analysis kind of concept that maybe down the road, I don't know if you're thinking along those lines.

>>Eric Davidson:
Well, we were going to hire Cambridge Analytica to …

>>Speaker:
[Inaudible].

>>Eric Davidson:
Sorry. Well, we will -- I don't think we are going to try to track your email exchanges, but if it does end up with a funded project, then in theory we ought to be able to track that. Now, whether that funded project started out through a connection on the experts database, we won't know. But I am not sure we have to prove that our experts database was the thing that got the connection and the funded contract. We'd be happy

to hear from you like that, to hear those sort of anecdotes and put it in our newsletter, but, yeah. Tom?

>>Tom:
I had two other thoughts on this. One, [inaudible] the national website so for your technical representatives, your representatives from each of your partner institutions, it would be nice to tie that to your database so that -- it maybe doesn't have to be living within the experts database, but a connection so that maybe when -- or maybe it's a tag in the experts database that this is the technical rep for the CESU and then that information is connected to the list of technical reps for both your side and the national side at some point. Then the national subject database that we're moving forward also has PI lists of the -- I'm just thinking it would be great to be able to have a list of your experts and then next to their profile it shows that they've had a project with the Fish and Wildlife Service and the Park Service and the U.S. Army Corps through the [inaudible] program. That would be an extra kind of a, you know, demonstration of the fact that they've been active within the program and for the federal agencies they'd say this is someone who is already [inaudible] projects or carried out a project and likely would be a good person to [inaudible].

>>Eric Davidson:
Right. There is a field there to enter information on CESU projects that you have now or in the future but I think what your point would be, we'd need to figure out a way to harvest that data to put it into some sort of tabular form or find another field to migrate those data to.

>>Speaker:
What if we just had a field that said CESU Partners, or Other CESU Partners, then we could track -- there's a field where you want to describe the research but if we just had a list of partners that we established through the CESU.

>>Speaker:
[Cross-talking]

>>Speaker::
[Inaudible].

>>Eric Davidson:
Claire?

>>Claire:

Could I follow up on Sam's comment about the ability to make recommendations? Sam, did you mean -- because I thought it was really interesting, did you mean like if say Bill did a fantastic project and you want to recommend Bill to partner -- you know, like put a …

>>Speaker:
Star is the word …

>>Speaker:
Customer feedback section, something like that.

>>Speaker:
[Cross-talking] make a recommendation [inaudible].

>>Claire:
[Cross-talking] Yeah, like this person really kept to the timetable, something like that. [Inaudible] under budget. That's what we all do. I thought that was really interesting. I don't know if that's something we want to incorporate at this stage but that's I thought a really interesting idea.

>>Eric Davidson:
Yeah. Of course the original entries, before they go live, will be reviewed by a human to make sure nobody is fooling around with this with obscenities and things. But those comments, I kind of wonder, what they have to be filtered to make sure that -- I mean we don't want to put a place up where …

>>Claire:
We don't want Russian trolls.

>>Eric Davidson:
Yeah, and we don't want someone getting into an argument that this comment wasn't fair, and I certainly don't want to be the arbitrator of that sort of thing. We can give that to our committee to think about. Yes?

>>Speaker:
Currently on the website it has project titles whether it's completed or not. There could be a mechanism where you're just saying it was successfully completed without commentary that invites trouble. Right?

>>Eric Davidson:

Right. Sure.

>>Eric Davidson:
[Inaudible] Annie's List, there'd be sort of Danny's List. [Inaudible] with similar interests? That would be Bill is like but Sam has this and Claire has this, maybe talking to those two folks might give you a greater expansion on the projects you're looking for, without any commentary. Just a conversation then between me and Claire and it turns out no, that won't work for us but Andrew is the best person to work with, so that might be [inaudible]. So there's not commentary between the individual partners who are talking.

>>Speaker:
If it's just photos [inaudible].

>>Speaker:
[Inaudible].

>>Eric Davidson:
I started it and then [inaudible]. Yes, did you have a comment? Did you have your hand up?

>>Speaker:
There could be references. If you've worked on a project before and that you want to list someone as a reference to that project, instead of a comment it would just be a contact name.

>>Speaker:
[Cross-talking].

>>Eric Davidson:
Who is the Project Manager was that you reported to or something like that? Danny, did you have one?

>>Danny Filer:
I do. I just want to put on just a couple of things. So, we envision this website not just as a way for the feds to fund the nonfeds, but for the other way around, and we also have some agencies like USGS and Forest Service, they're researchers as well, and sometimes there's a need for collaboration and vice versa. We're trying to create a database where all of these things can happen, so this is great feedback. Claire, I'm taking notes from the [inaudible], but we're trying to build a database that isn't just one-

sided. So, if you're a member of the CESU and you want to collaborate with someone at Morgan State University, you can go there and this will be as strong as the number of people who put their information in. This seems like a lot but you can enter all this information. If you have your CV ready and you're good with copy and paste, and you have a great photo that the file's not too big, and it's not Bill's photo, you could load it really quickly, in five to seven minutes. Okay?

Yeah, I just want to throw that out there that when people think of this, they think that the only people who will be using this will be our 15 federal partners. That's not what we want. If that happens then Eric failed, not me. I did a good job.

As Eric indicated as far as that rollout is concerned, this is why we're having this conversation, why we presented it, because once we build this thing and roll it out, as those of you who work with databases know, we're kind of in it to the end, so we want to make sure we capture all those ideas. And, as Tom indicated, we are working on that national database and someday we hope this will all feed together, but we used a whole variety of databases. Some of that lists are already in the CESU, so recognition [inaudible] outside the CESU will come together in this. Good comments. This is great.

Are there any questions online?

>>Rhonda:
We have a general question online, not related to the experts database.

>>Eric Davidson:
If there are none others on the experts database we can probably move to that. Are there any?

>>Speaker:
I'm from the [Inaudible] Institute, and all of our experts are artists and designers, so we work visually and represent our projects literally, and I think there are ways we can embed website links, but I do wonder if there's an opportunity to post a portfolio or a relevant project that might pertain to the expertise would be helpful to outside partners to kind of see and understand the work we do or that our experts are tackling. I don't know [inaudible].

>>Eric Davidson:
Certainly we need to make sure that your area is represented in our dropdown list, but I think this is flexible enough that certainly in the description of research interests there's a place to enter in text and it can have all the links you want to products on your

website. Now, that does involve having a user move in and out of one website to another, so we might want to think about that. I don't know if you or someone from your institution would like to serve on this committee I think that's a perspective that we currently don't have on the committee and we would be welcome to have that.

>>Danny Filer:
There was something else I wanted to mention. For many of you who I've visited, you've heard this spiel before, but I'll give it for the good of the group. In the CESU, the benefit of the CESU is we can reach researchers without competition, so to speak, from a contractual standpoint. The curse is that we can reach those same investigators without competition. So, we do see trends in the network where some of our larger institutions get a lot of that work. We -- I, personally, see this experts database as a way for our new institutions, some are institutions who have not been engaged in the past, to be engaged in this experts database as a way to get your name out there and try to kind of 'spread that love around a little bit'. We're really hoping this will be a way -- if your institution has not gotten a project for a while, or you've not able to engage in the network, the first thing I am going to ask you is how active are you in getting in your researcher into this database because I'm going to use it as much as these federal partners are going to use it, as much as Chris Stubbs might use it Monocacy National Battlefield. So, it's a way to be seen in a way that's gotten me -- we have 43 partners, thousands of [inaudible] members. I try to remember them all but I just can't; it's not possible. Just keep that in mind as well, too. This is an effort for that.

>>Rhonda:
[Inaudible].

>>Speaker:
Can I take advantage of just a request right now, [inaudible]. Being from NASA, of the 10 centers we have three are in your area -- we have Langley, Wallops and Goddard. I want you guys -- when you think of your [inaudible] I understand the DoI terms, the National Science Foundation's dropdown, think a little large. It's not helpful for us to hear details of your research. We can glean that from your title. I want you to think outside. One of the CE Institute's approach [inaudible] and I am driving home and I was thinking exactly how is that connected with natural resources? I had to come back and ask him, and sure enough, it is for payload. We need to know how your technology can be used in studies of satellites. Sensors would -- you know, maybe an out of box, but think a little bit bigger. I'm always so proud of when I go to Wallops with the University of Pennsylvania dominate, and I'm surprised you guys aren't in there. This is an opportunity, you guys are discussing, maybe a little outside the box, so when you're thinking of listing those expertise [inaudible] you can think larger than just, you know,

being pollinators, which we need, on the ground, but we also need sensors to help us with the climate change, and those are being based right here in your area.

>>Eric Davidson:
That is great.

>>Speaker:
Thank you.

>>Eric Davidson:
Thank you.

>>Danny Filer:
Rhonda, what was the question that we had?

>>Rhonda:
Sabine Gillingham [phon] is asking are there any plans for the Smithsonian Institution to join the network?

>>Speaker:
Good question. I mean I can field that a bit. I have had very preliminary conversations with the Smithsonian and some of their particular programs and facilities, but it's certainly is an organization we can talk with. They are a bit of a different type of federal entity than our typical CESU federal partners, so that probably bears a longer discussion with them in terms of mechanism that they would use for funding and where they are getting their research from, but I'm happy to follow up with that person if they'd like to be in.

We've had interest from the Department of Labor, the Department of Transportation, so the federal partner side it is pretty broad-ranging and part of that evolution over the years has been that those other agencies weren't really in the conversation in the beginning, and now they are doing some different things like workforce development grants that are in the environmental sciences or engineering and think that it becomes a better business, that once they hear about what this program is all about, they're like, "We'd maybe like to be part of that program." It just hasn't really gotten to that level yet where they are part of interagency of councils.

>>Eric Davidson:
If I could just -- as far as federal partners joining, we are actively recruiting some federal partners. We accepted to nonfederal partners last year, Shepherd University and

Virginia Tech, back into the network, and then we had the 12 this year. We're going to have conversations after amongst our federal partners but I think as long as far as the non-feds are concerned, we're probably not looking to solicit more applications. The amount of federal funding is not growing right now, but it's still pretty good, but we want to engage those who are already in our network. But we are always looking for more federal partners that have interest because that means more opportunities for the nonfederal agencies.

>>Danny Filer:
The CDC, I'll mention that. That's another agency that's expressed some interest in the public health arena, so we are getting more schools of public health within our academic universe and that's -- so there's opportunity to expand in the -- Energy, Department of Energy. If you have suggestions then I'm all ears.

>>Tom Fish:
Actually, Danny, didn't -- weren't we given statistics these last few days that some of the agencies are putting more? The amount that they are putting into CESU projects is growing, and I'm thinking in particular of DoD and the Army Corps had pretty substantial increases over the last few years.

>>Danny Filer:
Yeah, I think the figure you listed, Tom, the Department of Defense has saved $51 million, I think you said, since they joined us. That's a cost savings in the number of projects they've put through the network. That's not the amount that went through it; that's how much they saved.

>>Eric Davidson:
We should clarify. That was the savings that they calculated based on the reduced [inaudible]. Of course, if you talk to your Vice President for Research, that's probably not something that you want to brag about.

>>Speaker:
[Inaudible].

>>Speaker:
The representative from DoD mentioned so far this year, right, 203 projects across the network at about 50 million? Fifty, 60, 70 million dollars [inaudible].

>>Eric Davidson:

Yeah, so the number I guess is increasing -- the Department of Defense increasingly uses that more and more each year, which we, here in our CESU, we have had three DoD projects just this year already.

>>Danny Filer:
It was very interesting, she -- this representative boasted about how many species they were able to get de-listed. I had to think about that for a little while. But I guess that means it's a success story for those rare and endangered species. By de-listing them that means that they are free to use their land for other purposes, so that's kind of a double edge sword.

>>Speaker:
[Inaudible].

>>Eric Davidson:
Pardon me.

>>Speaker:
[Inaudible].

>>Eric Davidson:
Yeah, so it kind of depends how you look at it. All the more reason that there should be good science backing up those efforts. Any other questions? Another one.

>>Rhonda:
Laura Fowler is asking when to expect the database to be ready to go?

>>Eric Davidson:
I believe the plan is that this summer we will be testing it, putting it through the ringer, and I imagine we will be up and ready to go by the beginning of the academic year. Is that reasonable?

>>Danny Filer:
Yeah, I mean our goal was to have it ready for the funding season for next fiscal year. We've missed this fiscal year in most cases, so yeah, like fall, August, September, October, somewhere in there is our goal. It was a good question.

>>Tom Fish:
Danny, do we have other business we want to cover? We are a couple minutes early.

>>Danny Filer:
So lunch does not begin until 11:30 a.m. That is seven minutes from now.
It's about a three minute walk and you are welcome to mingle. For lunch, remember, if you don't have a pass and you want to get all-you-can-eat you have to go into the gift store in the bottom floor of The Commons first, otherwise pay à la carte. When you leave here, you're going to make a left, go all the way to the end of the hallway, across the boardwalk and just keep going straight into that big building right in front of you and go up the steps, okay? Just follow everybody. No one ever gets lost at lunchtime here.

>>Speaker:
Do we leave our stuff in here?

>>Danny Filer:
Yes, you can leave your stuff here. I will be here. Please be back promptly at 12:30 p.m. Presentations will begin at 12:30, so please be courteous to your colleagues. You have an hour so please be back promptly at 12:30. Grab any water or coffee on your way back in. Thanks everyone.

For those online, we will be back online at 12:30. Thank you.

[Lunch Break Taken]

>>Eric Davidson:
So we have 11 talks and the arithmetic that I did was five minutes per talk, two minutes of questions, one minute of transition, that is eight times 11 is 88 minutes and we have 90 minutes and I'm already two minutes into it, so [inaudible] time.

There is a clicker here. Right is forward and left is backwards. Danny will be here to help as well. If you just want to say next, we'll advance it. I'm going to keep time. I have a two minute warning and a one minute warning and those forks you use for cutting bread, I brought one of those with me. Actually, I will use my timer on my phone. Please try to keep to the time. All the speakers are up there so that relieves me from having to make a long introduction for each one. So, Ann Gallagher from National Park Service, get started.

>>Ann Gallagher:
Good afternoon, nice to see you all back from lunch. It's hard to break away. I'm speaking today about the Urban Ecology Research Alliance and the things we have done at the CESU. Our research learning alliance is one of the research learning centers for the nation and we are a regional and get to work with all the parks in the National Capital Region. In the last 15 years of existence or so, we have worked with

over 90 interns. We have mentored 90 interns from 24 different universities reaching nine different CESUs. Can we work with you? And that does not include the Geologists in the Park Program which will be another 17 internships, but today I am going to elaborate a little bit more on the last six months.

Since January, we have conducted people, parks and science using complex science communication techniques and have had, just this last six months alone, 15 interns. Primarily because we are communicating science and complex science ideas, we mostly work with people who are either graduate students or recent undergraduate graduates and were undergraduate seniors. Other projects could involve people of different ages. We also have interns in the office who are from high school that were not part of the CESU. Although have we thought of bringing high schools in?

How does this work? Why does it work for us? We are bringing together a variety of expertise and that is how it works best. So here, we are bringing literally to the table principal investigators who are holding expertise and they are bringing with them interns who are recently educated in current practices, current findings, current communication techniques even, and we bring them to Parks and the Parks bring the park expertise. That allows us to create products and to develop data sets that will serve a variety of parks and park interests. In this case, we were able to gain a million and a half observations about weather in order to establish climates of regions and the intern who did this work collected records back to 1820s, evaluated them by -- not just for information about weather and climate, but also for the records themselves. So now we get this robust, vetted set of original records, plus it was analyzed and now we can use those findings, not just because they are interesting, which they are, and at one point, for example, we are using it at the National Mall for visitor engagements and visitors can plan their visit and imagine what weather is going to be like, but we can use these records in other science investigations to provide even deeper and more robust understanding of our projects.

We communicate this information in significant ways, we hope. In this example, we have created a social engagement opportunity by recruiting a filmmaker and in order to have access to the filmmaker, we were able to work with George Mason University. They were able to hire an American university student who is getting her Master's degree in Environmental Filmmaking and she made this film for George Washington Memorial Parkway, but it's not just that she made a pretty film, and it isn't just that she is a filmmaker with camera skills and equipment. She also is interested in evaluating what the film can do and whether it's actually doing the engagement we want. So she evaluated science films. She created a survey mechanism. She obtained feedback/ She analyzed the work and then was able to make this film striving to engage the general public on social media.

We also work with design interns. We want people with visual skills too who can communicate complex ideas and allow for Parks to be able to reach visitors to understand the science in ways that they can apply, but that they can share with visitors to. It's really all about the partnership.

Here is my address, and our work at this Urban Ecology Research Learning Alliance is to translate complex results into readily understandable information, providing research, education and technical assistance to Parks. We provide science communication outreach to park managers and external audiences. We work via red sites [phon], workshops, publications.

What can we do with partners? Do you have ideas for us? We have six projects in the works right now. I am very excited and interested to think of more. The end.

>>Eric Davidson:
Questions? I've got to figure out how to turn this damned thing on.

>>Speaker:
Natural Resources stakeholders have been receptive to the use of qualitative forms of investigation like film to inform.

>>Ann Gallagher:
Yes and no. We were going to be doing something that was -- sorry, [inaudible] I'm pretty loud. So if you were, for example, a park manager and you needed to have the information that was applicable for your resources, then of course something that's [inaudible] is not going to be of use and you are not going to be particularly receptive to that. But, if your idea is engagement then yes, it is very valuable. So, it just depends on the project and outcomes and the goals which one we use, and how receptive it is. But additionally, and equally important in my opinion, Parks are at the table from the beginning. As the project is being imagined the people who will be the end recipients have a say on what kinds of information is being gathered so it's not going to be a surprise to them that they can't use it at the end [inaudible].

>>Speaker:
I'm from UDC University, District of Columbia, and we are providing a lot of community based projects like the DC Master Naturalist Program, the part of that that's urban ecology. My question would be how we can use or benefit from your service to engage some of our community or community projects part of it?

>>Ann Gallagher:
We could be working together in ways that Parks can reach that project. My work is in service of the National Parks. I'm happy to talk to you after the meeting and think of ways that we could work on that, but also if what I do directly in terms of Parks is not

exactly what you are trying to do, I can brainstorm some other ideas too. I think that's what I'm hearing.

>>Eric Davidson:
Great, thank you. We will move on to the next talk. Thank you, Ann. Kathryn Smith from [Inaudible] Service.

>>Kathryn Smith:
Good afternoon. My name is Kathryn Smith and I'm the coordinator for the National Historic Landmarks Program for the National Capital Region of the Park Service. I'm going to be quick. You don't want to look at the name any longer. I'm going to talk about a project that we are working on currently with a partner, but first a little background on the National Historic Landmarks Program. National Historic Landmarks are the grouping of our most significant historic sites. The vast majority of them are privately owned, but some are parks like Monocacy National Battlefield that Chris Stubbs is representing here. There are about 2,500 nationwide and the National Capital Region boast about 114 of those. The program provides technical advice and assistance to the National Historic Landmark owners. We help monitor the status of National Historic Landmarks. We help protect them through consultation, through the compliance with the National Historic Preservation Act. We also support communities and individuals who are interested in nominating new National Historic Landmarks. And, finally, we do thematic historical studies that help us to identify what those national significant places are.

In 2015, the Friends of Tolson's Chapel, which is a local nonprofit in Sharpsburg, Maryland, very near here, approached the Park Service about nominating a property in Sharpsburg, and this is Tolson's Chapel and School in Sharpsburg, Maryland. The school was built in 1868 as a school for recently freed African Americans. It was community supported. It was also supported by the Federal Freedmen’s Bureau, which you may have heard of. This was a key period in the Reconstruction era of America and this is really one of the best preserved examples of a schoolhouse from that era.

Our partner in this project -- we found some funding and we partnered with the Organization of American Historians. They are a nationwide professional organization. We also were partnered or we’re working closely with the Friends of Tolson's Chapel who are the owners of the property. Antietam National Battlefield which it is right adjacent to is also involved in the project, helping us review and provide feedback to the historian.

The Organization of American historians hired a historian, a member historian of their group to prepare a National Historic Landmark nomination and it's a pretty -- there is a form that you fill out, but it's a pretty intensive historical document. Also, part of the funding went towards funding a National Council for Preservation education intern who

sits in my office, who supports the project, so is sort of the local person because the historian is actually not local who is working on this.

The project will result in a nomination that will hopefully go through the National Park System Advisory Board. They have a committee that reviews the National Historic Landmark nominations, and then eventually it goes to the Secretary of the Interior for designation. If this school is designated, it will become the first property designated under one of these nationwide theme studies that I talked about earlier that is focused on the Reconstruction era in America, which is a real understudied topic or underdocumented in our registered programs.

Here you see a picture of the interior. It was a school and a chapel as you can see, and on the upper right is some of the primary source material we use for understanding what happened. A teacher monthly report that was submitted to the Freedmen's Bureau to acknowledge how many children were being educated and who the teachers were and where the money was going.

The organization -- once the nomination is done the Friends of Tolson's Chapel will hopefully be able to use it for fundraising because it's quite an honor to become a National Historic Landmark. They also do a number of public programs. They have been greatly involved and Antietam has been helpful in gaining some money to do -- like this wayside here and they've done a phenomenal professional restoration of the church and school.

I just want to leave you with there is a variety of things going on. We do a number of CESU projects. The National Historic Landmarks program is generally doing historical research, but we are really excited to be part of the program and have done some great projects in our office and in my program over the past several years.

Happy to take any questions you might have.

>>Speaker:
So the chapel itself, prior to you seeking to make it a national landmark, what was it doing? Just sitting as an empty property?

>>Kathryn Smith:
Interesting story, but it was actually -- the organization did get it designated a National Register Listing, but they sort of focused on its statewide significance, hadn't really connected it to this broader historic. But before it was sort of rediscovered actually by one of my colleagues and several historians that live out in that region, out of that area. It was essentially the church had been shut down or been deconsecrated, essentially, in the 1990s and it was a storage building. It looked like a shed outside because it was covered in asbestos, those sort of faux brick shingles, everything was covered

essentially. It did not look as lovely as it does these pictures for sure. But they walked out the day -- the Bibles were still in there. The furniture was all there. It's a pretty phenomenal place.

>>Eric Davidson:
Any more quick questions? Thank you very much.

>>Andrew Landsman:
All right. I'm Andrew Landsman. I'm a biologist with the National Park Service at the C&O Canal National Historical Park. It's right across the river, if you look there on the map, whichever way it is. For those of you that don't know the C&O Canal is 185 miles long. It runs from Cumberland in Western Maryland all the way down into Georgetown and basically follows the Potomac River for those 185 miles.

It's a historical park and I won't butcher any facts about the historical aspect of the park; you can ask Sam that later, but it has some amazing natural resources, some really -- several hundred rare threatened and endangered plant species and many native and unique plant communities and wildlife communities.

Danny asked me to just talk about a few of the CESU projects that we are either just wrapping up or just getting started at the C&O canal, one of which is wrapping up this project with Dr. Jennifer Franklin out of the University of Tennessee. As I mentioned we are kind of long and windy along the river and we have over 5 million visitors each year, so actually this project here was looking at vegetation management in these high visitors use landscapes. With all those visitors come things like social trails, lots and lots of social trails, erosion and lots of mowed grass. This project basically looked at overarching recommendations for managing these high visitor use areas, both for natural resources aesthetics and for visitor impacts.

Also have a project that is starting in a few weeks with Dr. Paul Gugger from the Appalachian Lab of the University of Maryland Center for Environmental Science. This is looking at invertebrate diversity and spatial variation across the landscape so, again, 185 miles long. Our research sponsor are co located with the long term vegetation monitoring plots the Park Service runs, so we will be able to look at spatial variation across the landscape in regard to our communities. [Inaudible].

Another thing that is starting this summer, at Frostburg State University, we're working with Dr. Rich Raesly, looking at fish communities across the canal so we have over 160 streams that run through the park and very little information on what's in the streams, so that will look at some of the fish communities in those streams.

Another project with the Appalachian Lab at University of Maryland. This is with Drs. Elmore and Fitzpatrick. We are looking at building species distribution models for bird

species of concern and bird communities across the park. This will be done using forest vegetation LiDAR data, and also look at habitat connectivity and suitability for these species outside of the parks, so looking at a broader landscape level.

Actually, I did list two CESU funded projects that are coming up; they should be starting soon. These are projects that we just got funding for: one through College of William and Mary for archaeology at Ferry Hill, which is literally right across the river. I came in from Maryland. Then also a historical research project on African American history associated with Ferry Hill and the Blacksburg property, and that's with Shepard. I also wanted to mention, this is not a funded project at this point but we do work closely with Danny and the CESU to find and work with local faculty for unfunded projects and as ways to get students out into the field and into the park to get them involved in research in the field. Just as an example I have Dr. Tom Serfass over here. I've been working with him at Frostburg, and then Drs. Bowman and Delaney at the University of Delaware, and others. So, I'm early.

>>Eric Davidson:
So no good deed goes unpunished. You get extra questions.

>>Speaker:
I have a question. How did you go about establishing partnership for the project? Were you offering funding for a specific research team, or … ?

>>Andrew Landsman:
For which projects?

>>Speaker:
Any of the projects you just mentioned. Are these all CESU?

>>Andrew Landsman:
So, yes, these are all CESU projects. A few of these projects -- most of these are Park Service funded. These are for regional competed projects and …

>>Speaker:
How did you connect with Dr. Andrew Amalar [phon] [cross-talking]?

>>Andrew Landsman:
I gave a seminar at the Appalachian Lab and ended up meeting a bunch of faculty there. Then just through conversations, some of these ideas are research needs that have been in existence, but it just so happened meeting the right person to get these projects started.

>>Speaker:

Okay. Thank you.

>>Speaker:
To follow up on that did these come out as like a Request for Proposals, or did you go straight to Andrew and Mat,t in this example, to do the work?

>>Andrew Landsman:
Well, I was talking with Danny about who would possibly be interested in this certain project.

>>Speaker:
So it was match.com.

>>Andrew Landsman:
Basically.

>>Danny Filer:
The project with Frostburg State, the Rich Raesly, we actually -- I believe we did send out a solicitation for that one, and ultimately ended up with Rich. But with the others, I invited Andrew up to present what was going on at C&O Canal and we match.com-ed it.

>>Eric Davidson:
One more.

>>Speaker:
So if you take on a project unfunded, are you then looking for funding like in the process?

>>Andrew Landsman:
Some of the time. It depends on the project and what the costs are. We have needs that we have defined in the park and if there is an opportunity to do them for free, of course, we are going to do that.

>>Speaker:
I just want to add that at the regional level that we've developed -- this is from the (inaudible) research side. We've developed a list of possible projects of parks, sorry, of kind of small manageable projects that we think students could take on as semester projects or something, or even a year-long project. But that is just to give another outlet -- and that [inaudible]. It's sort of like that. We try and identify if there are students that need to get some experience, they can just -- if they want to come to us, we [inaudible].

>>Eric Davidson:

Some of this match.com has happened here today, right now. I think we need to move on to Maggie Daniels.

>>Speaker:
While they are switching, before she starts, can I just say I come up with the ideas for our projects, but I would love it if you all came up with ideas [inaudible] and wanted to try something. [Inaudible]

>>Maggie Daniels:
Hi. I'm Maggie Daniels at George Mason University, and we have been involved in CESU agreements, primarily with the National Mall and Memorial Parks since 2006, such as about five years with the National Mall Plan and Susan Spain. We've done special events such as the National Cherry Blossom Festival and the Independence Day celebration, and we also did a three-year tour bus study, so we do a wide array of projects. Right now we're working with Perry and Jennifer Mummart in a group and focusing now on technology-based visitor use counts and reporting with the Korean War Veterans Memorial as a pilot test.

The idea behind this particular project is to look at the effectiveness of a technology based visitor count system. The objectives here, first of all, is that most of the accounting procedures for the National Park Service have not changed appreciably since the 1970s and they are focused on hand counts, 15-minute hand counts done six times a day. Because of this there are some questions about accuracy of the data and the multipliers that are used. So, one of the goals is to improve the overall accuracy of the counts by moving to a 24-hour count system. The second goal with this is to free up the NPS personnel so they can focus more directed attention on their areas of expertise. We've partnered -- one of the great things about this collaboration I have found, Dan has been fantastic, Perry, Jennifer. We have worked with just about every single group on the National Mall, looking at anywhere from information technology, security, facilities, interpretation, resource stewardship and a whole lot of privacy concerns because of the 3D technology that we were using. On our end, from Mason, we were really focusing on locking into the correct technology, serving as the liaison, helping with the coordination of the overall project and then our other focal area is the data analysis itself.

Axper was the group we selected ultimately for the technology itself, so I want to talk a little bit about Axper. We did look at probably about a half dozen different types of technology going into the process of selection, over a period of close to a year, really, in terms of pinpointing what was going to work and we focused on a 3D counting system using a camera based technology. Some of the benefits of this particular technology is that unlike other forms it can differentiate between entrances and exits, which is very important to avoid double counting which tends to be a big problem, in particular when you are talking about large groups coming in.

The second area, and because of my background with tour bus counting, we know that when people are going to memorials and monuments that often times they are coming in hundreds at a time. This technology allows you to differentiate between all individuals coming in.

The third was the level of privacy that was required in terms of no personal data being captured and also no individual recognition. I'll show you an image of that momentarily. This just kind of gives you a general overview.

More specifically the pilot test that was chosen was the Korean War Veterans Memorial. It was chosen for a couple of reasons. First of all, it's a very controlled access. If you've had an opportunity to be at this particular Memorial, there are two entrance areas and how they are chaining off it really controls probably 99.9 -- you've got to like crawl through the chains if you're not going to go into the entrances, so there is that. Second, there are also consistent visitor flows. When the tour buses are stopping, day, night, whatever, lots of people going in at once, so this was an opportunity to see does this technology work.

In terms of the preparation, again, a wide variety of involvement. The pole heights, the receptacles, the hotspots, all sorts of areas that had to be considered. So with the installation itself, the 3D counters, because this is an outdoor environment, are in weatherproofed housing. There are routers that are weatherproofed. The GFCIs are within the light poles so they are protected. There was a whole mounting system, I could talk for days about that alone, and then the validation that was going on remotely as well, to make sure that it works.

I wanted to show you the one image so you can see how the reporting goes. You are truly just getting shadows of individuals. There is no way to recognize them. This was done in a one-hour validation period. After that, it is looking at the numbers only, and so privacy itself is very, very high.

Our pilot test is running now, which is exciting, through the end of August to see the accuracy of the data. Concurrently, hand counts are continuing and we are overlaying those with the visitor counts and I will finish -- this is my last point. One of the considerations was lighting. When it was first installed we found out very quickly because of the tree canopy that it was very hard to capture at night. Immediately, the Park Service addressed this, improved the lighting, and bam, we are in business. It is working really well. Thank you for your time.

>>Speaker:
I'm sorry, you probably said this but what is your research or field of study?

>>Maggie Daniels:
My background is in tourism [inaudible] management and so we've been able to provide that in a variety of tourism settings and applications, and tourism economics as well. We've done quite a bit of economic impact analysis.

>>Speaker:
Do you also learn how long people spend at any of these sites?

>>Maggie Daniels:
That's a great question. For this technology, we are just -- it can differentiate entrance and exits. We are not looking at the time spent on site.

>>Speaker:
Do you work with designers [inaudible] system?

>>Maggie Daniels:
Yes, so in terms of the involvement, information technology was involved, maintenance was involved. Axper brought their own individuals on site for the actual installation and validation as well.

>>Speaker:
Will you be ready for the next Inauguration?

>>Maggie Daniels:
Actually, I appreciate [inaudible]. One of the true benefits of this technology is that there are so many sites within the National Park Service system that don't get counts at all. So when you consider the National Mall Memorial Parks itself, there are certain memorials like this that do get hand counts, but the National Mall proper, if you will, that we are underestimating visitation by tens of millions because these areas are not captured in counts. So the long term idea is to be able to apply it in locations such as we've discussed - DuPont Circle - where you cannot imagine the visitor flow that's going through there but there's not a range of which [inaudible]. We've even discussed having a mobile system, if you will, where you can go to some of these areas that are underrepresented, that aren't being counted, and how can you then include that in your database? Because as we all know, it's the visitor counts that often determine the type of funding that you get, so it's an important application for making sure that there are accurate but comprehensive counts as well.

>>Eric Davidson:
Thank you.

>>Maggie Daniels:
Thank you.

>>Ami Riscassi:
Hello. My name is Ami Riscassi. I'm an environmental scientist at University of Virginia and I'm going to speak a little bit about a project that you can see started in 1979, which is about 20 years prior to the CESU, so we are kind of an interesting story in that collaboration between UVA and Shenandoah kind of occurred on its own of just pre-CESU, kind of the idea behind it where you have an idea and you go to Park and you want to collaborate, and then through time expanded as the project continued to another federal partner that was interested in the work and wanted it to continued through a different funding source, which is the EPA, who actually gives the funding to Shenandoah who then gives it us through the CESU. So, even though they're not technically in the network they are benefiting from the system that's been set up. Also, for my the last slide, we are connecting multiple environmental resources, so the atmospheric environment, we're the people who know the water and the chemistry, a little bit of the fish but also working with the Park Services biologists, so it's kind of a nice spectrum of environmental systems that we're connecting.

So the basic story, the motivation for the original research back in 1979 was that the impact of acid deposition was really just starting to be researched, specifically in Pepper Brook and New England, the Northeast, nothing had been looked at down in the Southeast. This graph is just showing you the sulfur dioxide emissions -- that's the main acidifying agent that's coming down through the atmosphere and you can see it's peaking there in the 70s where a lot of this research really started taking off.

If you kind of look where Shenandoah in the Western Virginia region, you can also that Shenandoah National Park is a national park that is getting the bulk of the acid deposition because of our location downwind of the Ohio Valley where a lot of the coal burning is occurring.

I have this picture from 1979. That's Jim Galloway on the left, he's a chemist, and on the right George Hermberger [ph], he's my hydrologist and they set up the first gauge in November 1979. I was out there last week, so this has been a weekly measurement site, so this long-term monitoring system -- i you are familiar with Shenandoah it's in the southwest corner. It did start as Jim Galloway came down and he wanted to study the impact of acid rain in the Southeast. He went to the Park Service and he said, "This is where we want to study it. You have undisturbed systems, you have important brook trout species, this is a great place to understand the impact of acid deposition, hydro stream monitoring and the biology."

So the project was basically initiated to assess what are the processes and factors that determine how these watersheds respond to acid deposition. Then we also benefit from the fact that the National Atmospheric Disposition Program established a rainwater

precip monitoring station within Shenandoah National Park too, so we benefit from that relationship as well.

I'm going to show your data in a minute, but just fast forward the 1990 Clean Air Act Amendments which some of the early days of this research helped push forward change the scenario of the past 40 years -- this is a more recent picture. You can see the incredible declines in the acid deposition that's occurred, specifically in Shenandoah. Now, this project has maintained funding, miraculously, over 40 years and so we are also evaluating what's recovery look like in these systems.

Quickly, the program is comprehensive in the fact that we do huge amounts of surveys every 10 years; quarterly, we do about 66 sites in these mountain streams; and we still go out to 4 sites weekly.

One, I'm just going to basic, just look at the pH here. The initial findings of the program were that bedrock is the main control of how acidic the streams become. So if you have systems that have bedrock with things that can neutralize the acid it's going to be okay. As you move down the spectrum of the systems that can't then you have acid impaired. This was tied to the number of fish species that are present in these streams. This is work that was collaborative with Park Service as well, and we also found that storm events had a particularly devastating effect on the young fry fish in the spring.

Recovery, this is where kind of the EPA comes in. So the EPA, now that the Clean Air Act Amendments are in place, you want to know how everyone is doing, you can see recovery is doing really well everywhere except here. Keep going. It had to do with [inaudible] and the types of soils we have, and right now what we are looking at, having these long term data sets its how is recovery low flow to high flow and financially we're getting more in high flow. So it's kind of a unique system of how the interaction between Park Service, the EPA and expertise of the University of Virginia have combined to benefit several agencies, politics and the management of resources.

Sorry, I took longer.

>>Eric Davidson:
Thank you.

>>Speaker:
Are the fish coming back?

>>Ami Riscassi:
We actually partnered with JMU, Christine May [phon] a few years back. We lost ours [inaudible] and they just reassessed from the early '90s study and what they found was that in the systems where pH was already doing okay, we are seeing greater

improvements. That's where we are seeing more species. The places where the pH was impaired and minimally improving, we are not. Although the Park Service, so we do our own -- they did their own biological assessment. The Park Service does do fish surveys periodically and they did a recent trend assessment, and the same thing with the numbers but they actually assessed sort of the numbers of species. They assessed the numbers of brook trout and they found that those numbers were increasing across the board, slightly, and I think that may be tied to the fact that the episodic acidification is improving across the board, so we are kind of piecing it together.

>>Speaker:
[Inaudible] it is the highest brook trout density in the entire southeastern United States.

>>Ami Riscassi:
It's lower in the more acidic sites and higher in the [inaudible].

>>Eric Davidson:
Thank you. Sean?

>>Sean MacDougall:
Hello everyone. I am Sean MacDougall. I'm the State Office Biologist for BLM's Eastern States Regional Office. Eastern States is kind of an odd duck for BLM because out west BLM owns land, up to about 50 percent state ownership. Out here in the east our Regional Office spans 31 states adjacent to and east of the Mississippi River. We have about 10,000 acres of surface tracts in 10 states and about 40 million acres of federal mineral lands that we administer across the 31 state region.

Today we are going to focus a little bit on a project here in the Chesapeake Watershed at our Lower Potomac Field Station. We have three sites within the Chesapeake system. We have the Meadowood site which I'm going to talk about in more detail, but we also have two sites on the Maryland side of the Potomac River near Nanjemoy and that's fairly exciting because those two sites are poised to become gateways of the new Mallows Bay National Marine Sanctuary Area, so that's going to inform some of our future management decisions. That's kind of the focus of the talk is how we are using science to better inform Land Management decisions.

Meadowood is about 800 acres in Lorton, Virginia on the Mason Neck Peninsula. It's a mosaic of open meadows, hardwood forests, riparian areas, wetlands and we have got two freshwater ponds we stock for fishing. We acquired Meadowood in about 2001 to expose people to BLM in the eastern seaboard who may not be familiar with the agency, since we are fairly focused out west, and be able to educate people about BLM's multiple use mission. On this site, we've tried to balance conservation for wildlife, rare plants and ecological function with recreational and other uses. In the case

of Meadowood, that involves mountain biking, hiking, horseback riding -- we have a series of stables there -- fishing and birdwatching.

Most of the management we've done at Meadowood over the last 20 years or so has been focused on trails, recreational visitor use experience, managing the horse facilities and maintenance work for vegetation treatments.

We partnered with Virginia Tech recently, in 2016, to take a more holistic view of how we are managing our upland and riparian forests and systems. So we are doing that in terms of -- we're working with Dr. John Munsell. He's taken the approach of doing a unit stand evaluation looking at forest age, composition, health, the under story plant community, diversity and we are trying to assess habitat functions. Then we also integrated wildlife studies and the condition and status of our riparian areas.

Through these data sets that we're collecting, we are going to have a better sense of our baseline information in terms of plant community health and structure within Meadowood and with that endpoint in mind we will be able to start updating our resource management plan for that area through the NEPA Process.

Last year was the first year of the study and we are kicking off this year's work as of last week. That will be going on through August. What we've learned so far is that the forest composition is pretty diverse. We've got 19 different tree species in the over story, mostly hardwoods, but we notice that the stands are fairly even aged and overstocked. The average tree diameter is about 10.5 inches, and there is little of that sort of mature forest characteristic. We're not seeing a lot of big diameter trees or snags or things like that, so there's an opportunity to really start pushing the forest into a more advanced seral stage through proper management. Plus we are also working on scouting level surveys for wildlife, looking big game. We're using game cameras, acoustic surveys for bats, and then incorporating a robust citizen science project down there for birds and insects to be incorporated in this more structured study.

For the next steps, we are looking at completing the existing studies we are doing now as well as expanding into a more grid-based approach for vegetation and wildlife. We are looking at then using that information for future targeted research to address site specific management questions and incorporate those principles into our land use plan. Then I mentioned integrating the citizen science. Northern Virginia Audubon has a great 20-year data set that they've been collecting on different levels of weekly and on more structured events, doing time surveys to be able to look at pollinators as well as looking at rare plants. It's a great opportunity to take what the public's generating and merging it with technical expertise, and then being able to have us make better decisions down the road.

I'm happy to answer any questions.

>>Speaker:
How are you obtaining the citizen science data? Do you have an app, or do you …?

>>Sean MacDougall:
They have been recording recently a lot of their bird counts in the [inaudible] and then they have been working with the Virginia Native Plant Society for some of the rare plant data. One of the things we are looking at trying to do is take the plant data and develop a more formal partnership with Virginia Natural Heritage Program so that we can share our findings with them. We are also looking at trying to do some more robust surveys to start looking at density and frequency in our plant community composition and start looking at what those trends have been over time. We are seeing a lot of things like lespedeza and Microsegium moving into the area so we know we have a lot of invasives coming in, but we haven't really quantified what the scope of the invasion is even though kind of on the surface we know we need to start doing some management, but all of this is to help us figure out what is the endpoint that we really need to tailor that management towards as far as the desired plant community.

>>Speaker:
[Inaudible] question in the process of the [inaudible] C&O Canal, actually more and more people in the [inaudible] erosion and other pieces. Are you also looking at preventing access to certain parts and let it recover and allow certain endangered species could actually be protected.

>>Sean MacDougall:
Fortunately, we don't have any listed threatened or endangered on site. We do have rare plants but we are advertising so that ways people find them and love them to death. But part of the challenge with BLM is our mission is multiple use and under thisd particular administration more access is the mandate that's happening right now. There are opportunities when we are doing vegetation treatment to create some rest periods to allow the plant community time to respond and come back in to a desirable state. The last thing we want to do is do a prescribed burn or an herbicide treatment and then have people tromp through, compact the soils and end up having adverse consequences.

>>Eric Davidson:
Thank you, Sean.

>>Sean MacDougall:
You bet. Thank you, guys.

>>Eric Davidson:
Claire Jantz.

>>Claire Jantz:
Okay. I am coming to you from Shippensburg University where I'm a geographer and also director a center rehab called the Center for Land Use and Sustainability. I always get the question of where are you located, and our star is right there just about 30 miles north of the Maryland border. We are one of 14 universities that are part of the Pennsylvania State System of Higher Education. We have about 5,000 undergraduates in 1,000 graduate students, three colleges, about 250 faculty, so we are one of Pennsylvania's best kept secrets, I think. We are primarily a undergraduate teaching university. The standard teaching load for faculty is of 4/4 load, so we do a lot of teaching, but we also are pretty strong adherence to the teacher scholar model. So, a lot of our faculty are active researchers and actively publishing, and also engaging students in research.

I'm going to talk about three projects that we have going on at Shippensburg University. This is the first one which is featured below the fold on the newsletter here, that's being undertaken by my colleague Tim Maret who is over in the biology department. He is looking at bog turtles, which is -- bog turtles are a federally threatened species. They are small and Tim says they are so ugly that they are cute. Right? One of the reasons they are threatened is because the habitat specialists. They rely on emergent wetlands where low grasses dominate, and this is a project through the NRCS which manages a lot of wetland easements on private properties. The NRCS is looking for ways to better manage those wetland easements to promote bog turtle habitat. We know that kind of historically native grazers have been grazing on these wetlands to keep them in sort of the grassland ecosystem, but we don't know much about domestic grazers, so can we use cattle in these situations to keep the wetlands as is? As I'm giving this talk I think Dr. Maret is probably out in the field looking for bog turtles to try to measure their response to grazing. So, that's one.

We also have a couple of projects with the National Park Service that demonstrates how much we love complicated management situations. The Upper Delaware Scenic River, which is up here between Pennsylvania and New York north of us is part of the Wild and Scenic River System. There is more than 5,500 acres covered in that dark green corridor, but the Park Service actually owns about 33 acres. So the rest of the management is undertaken cooperatively with two states, five counties and 15 municipalities. When there is a project happening within the Upper Delaware, they have to locate the parcel that's affected and determine what kind of impact that might have on the corridor. Up until now, that assessment has all happened using paper maps. So 30 different paper maps to try to find out what the potential impacts are. We are currently developing an online GIS to use for that project review process. We just rolled out a beta version of that in April and we are putting the finishing touches on that system to hopefully roll out by the end of this year. So, that's going to be wrapping up in the next couple of years.

We were just awarded the Natural Resource Condition Assessment for the Appalachian Scenic Trail. Again, it's a complicated management situation: 14 states, 2,100 miles long, managed by local, state, regional and federal agencies, and for those of you who are familiar with NRCA, these are kind of synthesis projects that pull together a lot of existing research and data sets to help provide a current picture of natural resources within a park unit that will be used by management to identify places of concern or models that are working well. We are going to be assessing 19 different resource elements that cover air and climate, aquatic and terrestrial biologic integrity, geologies and soils, and landscape processes. We are just in the contracting phase for this now and hope to start in August. Then, look for our report in the next couple of years.

So, here is my contact information and the alarm is going off, so, thanks.

>>Danny Filer:
I would just like to point out the Appalachian Trail Project that Claire got was a solicitation, and Claire responded, for better or for worse. It's going to be a cool project. A lot of work.

>>Claire Jantz:
Yeah. The other two came out of sort of existing partnerships between scientists and federal agencies.

>>Speaker:
I have a question. How do you coordinate with all partners? Like you've got [inaudible] city and state. Do you have someone assigned to coordination or communication?

>>Claire Jantz:
The good thing in the case of the Upper Delaware is that there is a pre existing organization called the Upper Delaware Council which includes membership from all of the municipalities plus the state, DEP's and the Park Service.

>>Speaker:
[Inaudible].

>>Claire Jantz:
Yeah. That was part of the kind of initiation of the designation of this part because in this part of the world, as in many parts of the U.S., there is a resistance to the federal government taking over your land. So to avoid imminent domain they came up with this model of collaborative management with municipalities and with the states.

>>Speaker:

[Inaudible]. This is obviously a multiyear, multipiece. How do you even start? Do you start at the Georgia end? Do you start in Maryland?

>>Claire Jantz:
We are pulling together existing research and data sets, so we are going to be largely focused on acquiring data that are either national or kind of regional in scope. Because the objective is to provide kind of a comprehensive picture of the whole [inaudible] so that is going to be really fun.

>>Speaker:
[Inaudible].

>>Claire Jantz:
Yeah, yeah, yeah. I also want to say I'm really glad that NASA is here because the [Inaudible] system is very engaged with the Chincoteague Bay Gield Station which is on Wallops Island, so we have a lot of Shippensburg and other [Inaudible] folks down on Wallops Island all the time. So maybe we can chat. Later.

>>Eric Davidson:
Another Match.com going on.

>>Claire Jantz:
Yeah, match.com. Thanks.

>>Eric Davidson:
Thank you, Claire. Katia?

>>Katia Engelhardt:
Hello everybody I'm Katia Engelhardt at the University of Maryland Center for Environmental Science at the Appalachian Lab with Eric Davidson and Annie and Rhonda. I'm going to talk to you today about a project that provides me to get into two of my passions. I am first and foremost a scientist, but I'm also an educator and this particular project allows me to do both and to combine them.

So the brain children of this particular project, which is History of Parks and Science are Tim Watkins, who was here earlier on Monday and Tuesday, as well as Jill Baron. They went to Danny, maybe a year ago or so and said, "We would really like to bring together studies that have been conducted in national parks that have been influential in science," and so then Danny come to me and I'll tell you more of the story in just about two slides.

So, quick as lightning, what are parks good for? What do you think the public thinks of first and foremost when they think of parks? Thank you. Recreation. This is me

actually when I was about six years old in Saguaro National Park. I'm too close to a cactus right here. What else do you think people think of? What is the second most important? Wildlife. Okay, how about preservation? So this is me, right before going to Oregon State for my undergraduate, hugging a redwood.

Now another thing that parks are good for is science and so this is me after my PhD. I'm in a wetland. This is actually Dyke Marsh Preserve in the George Washington Memorial Parkway doing some wetland work. So, parks are good for recreation preservation and science, and science are good for parks, so this is where this project is going.

So while Tim Watkins went to Danny and said, "I would like to get this project going," at the very same time I was getting ready for my Classic Readings in Ecology class that I teach every two years. Now, before your eyes roll into the back of your head and say, "Oh my goodness. Those poor students have to study all these fossil papers," let me tell you, it is a fun class because it's actually bringing these papers back to life. They are not fossils, they are actually living documents and they learn that. They learn that Darwin is really important, McArthur, Hutchinson, all these older papers, they actually live today, and so I bring those papers to life. So, my students at this time, which was fall of 2017, so just a couple of months ago, were Carrie, Juliet, Marybeth, Anna, Jake, Nicole, Annie and Barrett they came from four different departments: The Marine Estuary and Environmental Science Program; Geography and Environmental Systems -- this is at the University of College Park -- Environmental Science and Technology and Plant Science, also at College Park. Marine Estuary and Environmental Science Program is through my institution, the University of Maryland Center for Environmental Science. So, we got together to study classic readings, but it turns out that many, many studies are actually have been done on national parks, so all of these stars and the circles and all that bubbled up when it came to influential ecological studies. That doesn't even include geology, that doesn't include anthropology, that doesn't include many different scientific fields. It actually only includes ecology, and so we have around 16 papers that came up. It's like every time I turned around another paper, influential paper came up that [interference] so every student actually got [inaudible] papers to study, they actually have to summarize that study and then that will actually go onto a National Park Service hosted website to really highlight those influential studies.

We have studies like Robert MacArthur who wrote this very influential study on niche diversification in warblers at … does anybody know? Acadia. Acadia National Park. We have Jane Lubchenco with her influential study on the intertidal zone in Boston Harbor, an island actually, Little Brewster Island. We have Robert Whitaker with his very influential planned community ecology studies at the Great Smoky Mountains, as well as in other places actually in the West. William E. Odom comes from a huge Odom dynasty. He studied mangrove systems and how important they are to food with productivity. We have Jack Schmidt that looks at Glen Canyon and controlled releases

out of Grand Canyon Dam to look at downriver influences. Jill Baron looks at Rocky Mountain State Park and nitrogen deposition on the two different areas of the divide. Monica Turner looks at fire at Yellowstone, and finally Thomas Brock was sampling in Yellowstone. He was actually just driving through Yellowstone and he decided to sample bacteria in the waters of thermal pools and by doing so, PCR got developed, and genetic analyses started, and it happened at Yellowstone. I mean that gives you goosebumps, doesn't it? And so all of these studies are just so phenomenal and they happened at national parks.

This is one of these summaries. Marybeth Shea wrote the summary up. It's actually just the beginning of it, and so this is something that is right now being developed. There's going to be many, many different links so people can go to the summary and then dig deeper. We are going to start with these eight summaries and then we are going to continue on developing this. We're thinking also about podcasts and all kind of cool things.

So, thank you very much.

>>Speaker:
Not a question but a comment. You are right, I didn't know that. That's a great fun fact, Thermus aquaticus, which is the organism you are talking about. Taq polymerase for those of you who -- PCR [Cross-talking].

Isolated in the Lower Geyser Basin of Yellowstone National Park. That's a fun fact that I share with my students.

>>Speaker:
[Inaudible] you have just proven that the parks are a great place to grow, which makes me think more about how not just what we are talking about doing with the students on the university level, but I do community art, so back to how are we pulling younger people in so they can grow up in a park and grow up to learn how to do this.

>>Speaker:
[Inaudible].

>>Katia Engelhardt:
What's the course? It's called Classic Readings in Ecology, and it's through the -- Marine Environmental and Estuarian Program that is jointly offered through my institution, the University of Maryland Center for Environmental Science, but you can also get it through University of Maryland College Park.

>>Speaker:
UMES.

>>Katia Engelhardt:
That's right. The University System of Maryland.

>>Speaker:
You'll share your reading list, right?

>>Katia Engelhardt:
This is going to be a website and it's going to keep on developing, so this is just a teaser.

>>Eric Davidson:
Thank you for the teaser. Teresa?

>>Teresa Mourad:
Good afternoon everybody. I'm going to be talking about some of the programs for the Ecological Society of America this afternoon. We are newbies on the block so we really don't have any CESU projects per se, but I just wanted to share with you a few things that we are doing and hopefully then make some connections with what you are doing and what you are interested in.

So ESA's mission, basically, advancing the understanding of life on earth. I'm actually not the technical representative. So Cliff Duke, my colleague who is the Director of Science is the technical representative, but I just happened to be here yesterday to talk about one of my projects, so I stayed over and I think -- I believe Cliff is online. Hopefully? He may be. Okay.

Anyhow I'm the Director of Education and Diversity Programs and in terms of the education piece, we can sort of classify it in two groups. One is sort of the student programs and my focus is primarily on undergraduate students, so we have a SEEDS program. If you are an ESA you've heard of SEEDS and we do field trips. We bring students to leadership meetings, [inaudible] ESA meetings and a fellowship program which is like internships. We are looking for partners to send our students for research experiences, and we also have campus chapter program. So this is a diversity mentoring program.

Then on the faculty side, so we do a number of different things: education conferences, workshops. We are working on a four dimensional ecology education framework, trying to sort of set some standards for curriculum. Then I just threw the last one up there on scaling up because actually that is one of the projects that we did with Bill Dennison here. We are into data. We are really big into data, especially with the coming of the National Ecological Observatory Network data, so that is something we are working on both actually for students and for faculty and early career scientists. By the way, the

education conference, for some of you interested, we also bring in high school educators as well.

These are my partners on the new project I'm working on which is called EcologyPlus and you can see the CESU Network and Chesapeake Watershed. CESU is also part of this network. We are trying to look at not only undergraduate students in this case. We are looking at the progression from undergraduates through early career. So, again, I'm very interested in a lot of the things you have been sharing this afternoon. I've been taking lots of notes and I will be following up because we are looking to connect students and young professionals with folks like yourselves and programs that you offer.

So in terms of the science programs, so this is the vision of the science programs. I think there is sort of a symmetry with what you are interested in, sort of the use of science, the application of science and the Science Programs Office also tries to look at that to support decision making, to bring communities, management communities together and try to build capacity. So, for example, the facilitating engagement, we have done things like connecting agencies with ESA members when they require ecological knowledge and expertise. This photo is a vegetation classification panel field trip, so we run that program I guess we help to manage that. We've conducted peer review programs. For example, ESA was involved with the peer review of Northwest Forest Plant Science. I don't know if you've heard of that. I do have to ask that -- I can't really answer questions about the science part of it but we do things like that where if you are looking for independent review, and especially if you are looking at something regional and you need an unbiased view, voice, from outside the region, we can help to facilitate that. And of course, in terms of building capacity we do workshops and courses and then we also do a synthesis paper here called Issues in Ecology; again, that is to try to make ecology more accessible to managers in the park.

I'm done.

>>Rhonda:
Cliff is online.

>>Speaker:
Teresa, it occurs to me that you deal with the lot of 20-year-old plus or minus, and there's this big 20-year anniversary coming up this year. I wonder if there is a way of combining them? These are 20-year-olds who have been around for the 20 years of CESU but is there way to capitalize on that?

>>Teresa Mourad:
Why not? I heard -- I guess Tom was talking about maybe some kind of symposium at ESA [cross-talking].

>>Speaker:
It would be great to focus in on the -- not just the old people like me but the young, bring in the 20-year-olds.

>>Teresa Mourad:
We can talk about it. It's all a matter of budgets, right?

>>Speaker:
The other thing I want to point out from that program that I was involved with you is you have the most diverse group of students I've ever experienced in my career. You have every hue of America in that workshop, and I think that's something we are all struggling to diversify environmental science, so it would be great to bring your view of diversity of the students to the 20-year anniversary.

>>Teresa Mourad:
Yeah. We definitely try and I'm also very excited to see more UDC is here and Morgan State and I guess Morgan State is not here. [Cross-talking]. Perfect. There you go. Morgan State is one of our partners on the EcologyPlus and we are definitely looking for additional partners from the HBCU side, so we'd love to talk to both of you as well. Definitely that's why we got excited about being part of this network is I'm looking for opportunities for my students to participate and you have them.

>>Speaker:
Would you be willing to -- so, I really like your EcologyPlus. I'm with the Forest Service and we got involved in that. Would you be willing to post a reminder that you need mentors on the CESU website. Is that something that you do? [Cross-talking]

>>Teresa Mourad:
Currently, because it's a pilot program, we really have a very small number of students at the moment, but we are going to be recruiting a few more. Again, open up another round of mentors, but right now we already have more mentors then we need. But as we grow, and so that's why I was here yesterday to talk to the other national partners to look at the possibility of growing beyond the DC Baltimore region -- because that's where the pilot is -- to other regions, and once we do that we are definitely going to be needing more help.

>>Eric Davidson:
Thank you. I think we need to move on. Joe?

>>Joseph Pitula:
Very good. I'm going to present some summaries of work we've done with another CESU, which is the North Atlantic Coastal Ecosystem Study Unit. I'm grateful that I was invited to join the Chesapeake one. My university, Eastern Shore, actually represents

Eastern Shore of Chesapeake Bay, and the western shore, then, obviously is the Baltimore DC side. We obviously have a connection as well to Chesapeake Bay.

The project that I've been doing in collaboration with the National Park Service at Assateague Island for maybe almost 10 years now has been working on this parasite that you are looking at here called Hematodinium perezi. On the left are some stains of hemolymph from the blue crab when it's infected. On the right here is a life cycle, and basically the question we've been asking over these years is whether or not the dinospore, which is released into the water column in the infective stage of the parasite. This project has been carried out mainly by my previous master student here, Whitney Dyson, and this was the PhD student Kristin Lycette [phon] who followed up on her work. What we would do is we would go into the Maryland coastal bays or principally Chincoteague Bay, but some other smaller northern coastal bays and we would sample the water column here. You can see Kristin over here on the left taking samples from the water. Also, sediments we looked at. We used PCR based analyses to do our quantification. I'm not going to go through the data here. This is just basically to summarize that we are able to correlate the parasite in the water with seasonal cycles of disease in the blue crab, and also our ability to detect the parasite in alternative host.

Again, I emphasize this is work we did with the Water Quality Monitoring Program at Assateague Island. There was a picture of it in an earlier presentation with the wild ponies. That's where that is located.
Another question that we are asking is whether or not the blue crab needs to go out to the inlets. There's an inlet by Ocean City. There's another inlet down at the southern part of Chincoteague Bay. You might think well of course they would go to the inlets because that's what the Chesapeake Bay population does, but you have to keep in mind they are moving from very low salinity waters down to high salinity waters. The Maryland coastal bays are always saline so we had a hypothesis that may be that would not be necessarily the case, that maybe they could spawn in location.

What does that have to do with this particular slide? Well this is from money through our Coastal Ecosystem Study Unit Project and I want to point this out from something Eric had mentioned earlier. Since I'm the Director of the CESU, what I did is I don't have the ability to do this kind of work. This is modeling of how wind affects the flow, the current flow of the water and I went down to the end of the hallway. I didn't just delete the email. I went down to the end of the hallway and said to one of my colleagues, "Hey, I think you have the ability to do this kind of modeling work." So, it was his laboratory that generated all of this data that you are looking at here. The take home of it is though -- this is where it's interesting where that project meets mine. The take home is that the water flow seems to be going out of the Ocean City Inlet during the precise time of year that we see the majority of our female sup [phon], which are the reproductive crabs, migrating toward that location. So it helped me form a hypothesis that maybe the difference between 25 and 30 parts per thousand really is important.

Maybe those crabs really do need to get to the ocean to get their juveniles out and then to complete the lifecycle.

On that I want to end just by acknowledging some of my partners. And, again, just one final comment I want to make is down here, which is that, you know, part of these, we all know the term of matchmaking has been used a lot today. It's not just our work with DNR and they National Park Service that gets our work done. It's even our collaborations with our fellow colleagues within the University of Maryland System. I'm big on collaboration, so if you want to do any kind of matchmaking, me or my friends at UMES are available. Thank you very much.

>>Eric Davidson:
[Inaudible]. Okay. Joanne.

>>Bob Sonderman:
If you haven't figured it out, I'm not Joanne, I'm a Bob. Although I like Joanne very much, Joanne works for me. My name is Bob Sonderman. I'm the Regional Curator for the National Capital Region and the National Park Service, and I also manage that building on your far right. The Museum Program with the National Park Service bridges all of the disciplines in this room. We have museum collections. We have blue algae in museum collections. We have historic furnishings. We have dinosaurs. We have every imaginable plant species. We have every imaginable archaeological specimen you can gather. So what I'm going to talk about is our Museum program and how the CESU students work with us. We call them project interns. Sometimes they don't like being called interns because they are a little more sophisticated than interns. Typically mine are masters degree people.

This is the National Capital Region and I know we've gone through this but it goes from DC all the way out to Western Maryland, and it covers lots of ecosystems and lots of cultural resources.

I actively work with four CESU agreements right now. Each of those agreements bring with me students that have skill sets that we need to manage our museum collections that cover the breadth of what every museum has. So at the top the University of Maryland Department of Anthropology, they provide us students with the skill set in archaeology and collections management. Also at the University of Maryland is what they call the iSchool which is their information management school and one of the largest issues the National Park Service faces right now is a massive backlog in the assessment and understanding of archival records, and you all create records. The National Park Service has billions of them. University of Maryland iSchool, we have a new agreement with them and they are helping us assess what we call resource management records in the National Park System, and particularly in our region. A very

successful operation and we could not do what we are doing now without these you, brilliant students.

At George Washington University, they have one of the finest museum studies programs in the United States and we bring in students that have backgrounds in museum studies and they provide great services for us, not only with managing the millions of objects that I manage at the Museum Research Center, but also they provide great skill set in writing. We have required baseline documentation for our museum collections and these kids learn how to write these documents.

The last one is George Mason University where we have a group of students or two students that work with us on our natural history collections. It's a great blending of young people in our building. It's a pretty active place.

This is the Museum Resource Center. This is the central curatorial facility for the Park Service in this part of the country. We have millions of objects there and it spans natural history, historic furnishings, archaeological specimens and each of those CESUs help us manage our collection.

Kids get to do a lots of things. We try to get them out in the field as best we can. Sometimes for the archival people, they don't go out very much, but they go to the parks to work with the archival records in the parks. The archaeologists do a lot of [inaudible], public outreach and kids learn how to do all kinds of things. Not only do they learn the academic part, they learn how to speak in public. It's a great marriage that we have. To me, it's just a blessing. It's a wonderful opportunity to work with these young people. And, they all work together. It's not unusual for the George Mason, GW and the University of Maryland kids all to be working on the same project because the collections bridge all the disciplines, and they work with big things and small things.

This is a giant flag from Clara Barton's house on your left-hand side and Johnny is working on some pre-sort material from [Inaudible] Park. I guess for me, I am going to be doing this job for seven more weeks, and Joanne is going to be taking over this job for me, at least this part of it. I'm the agreements technical representative for our CESU agreements and Joanne will be -- sadly she couldn't be here today, but gladly I could be here today, so thank you.

>>Eric Davidson:
Bob or Joanne.

>>Speaker:
Hi Bob. I teach data analytics. I'm curious. Does National Park Service have a lot of retrospective data available for data geeks to look at, or is it mainly -- is most of your archival collections tangible objects.

>>Bob Sonderman:
I think I'll leave that question for Joanne. So the answer is yes. One of the things we're doing in the National Capital Region right now is we're doing an assessment of close progression of each of our parks in what we call the resource management records and identify all the work they've done on the cultural resources, with natural resources and to understand the management of the park and making those things more accessible. Right now, they are basically in files in indiscriminate locations throughout the park, and we are trying to get all that together, provide the park finding aids that could be available to the public so you could do much -- I mean we are expanding the research opportunity for our collections at NCR exponentially by doing this. Does that sort of answer?

>>Speaker:
Yes. Thank you very much.

>>Bob Sonderman:
So we do lots of paper, lots of three dimensional objects. Yes?

>>Speaker:
Do you do work with students or any other internships or programs were not part of those university so students from other universities interested in the [inaudible] studies?

>>Bob Sonderman:
Sure. Danny knows I've pestered him heavily about getting Morgan State involved. Morgan State has just a tiny beginning of a new museum studies, so I want to get them involved. I would be happy to work with any number of universities. Part of the issue is proximity, being able to get -- because most of the work is done not necessarily in our parks, but much of the work is being done at the Museum Resource Center which in Landover. We're right near a Metro stop, which is sweet, and it makes it easy for the students to take the Metro and they can take a bus or almost walk from the Metro station, so that makes it very convenient.

>>Speaker:
[Inaudible].

>>Bob Sonderman:
Yes.

>>Speaker:
We have other vehicles for bringing interns in that are through other agreement processes. One was mentioned earlier, the National Council on Preservation Education, which draws from universities all over the entire country.

>>Bob Sonderman:
[Inaudible] and we also, I mean even though I don't have an agreement on Howard University we have Howard University students work with us all the time.

>>Speaker:
Okay. Then [Inaudible] can speak about the [inaudible].

>>Speaker:
Oh yes, we've had a partnership with [inaudible] foundation and we are able to bring in civil rights interns, so those are students who work in all different the disciplines of cultural resources on projects [inaudible] civil rights, and we students who are also at the Museum Resource Center with [Inaudible].

>>Bob Sonderman:
Our interns, we have far more interns that we have staff.

So thank you. Did I have to go until 2:30 p.m.?

>>Eric Davidson:
No. I want to -- yes.

>>Rhonda:
We have one comment from online related to Teresa's presentation. Melissa Welch is commenting perhaps there's a way to indicate in the expert database that an individual would be willing to be a mentor.

>>Speaker:
I want to make a comment overall based on Bob's [inaudible] that I saw a theme through all these talks is everybody talking about highly collaborative multidisciplinary projects involving students, answering applied questions, opportunities to enhance diversity and some great science opportunities. This is really -- Bob's just encapsulated what I saw was happening throughout all those talks. There were really exciting to see. I'm glad you guys chose this format so we could get a taste test of a variety of different projects.

>>Eric Davidson:
I want to thank all of the speakers for sticking to their five minutes. Thank you very much. Let's give them another round of applause.

So before we adjourn today, I'd like to get a little bit of feedback of the format of today's meeting. Of course, you can also think about it and send us an email or whatever it later. But this meeting we've had here, every other year, largely because the national CESU meeting has been held here every other year for a period of time, and it seems

like a good opportunity to tag this on. It's a great venue. In alternate years we have held our annual meeting, we have sought one of our members to host it, and last fall we were again in this community at Shepherd University which was one of our new members last year who hosted it. Next year, we would be looking for someone to volunteer to host this meeting next year, or if there is overwhelming support for coming back here, we could see if that's possible. I don't know if it is, but I want to kind of plant that seed in your minds right now. Especially to our new members, if you want to kind of show off what you've got, we'd be delighted to move to a new venue. We do have to think a little bit about proximity. It's unlikely we are going to go to Blacksburg, Virginia because that would be the farthest south that we go, so we have to think about a reasonably central location, but that's -- yes?.

>>Speaker:
[Inaudible] it's really gorgeous and might invite more federal partners, so it's centrally located.

>>Eric Davidson:
Okay. So that's a good suggestion. We will follow up on that.

Another thought I had about this structure was it's great to have 11 speed talks like this. I think maybe next year we might see if we could get some students to do some of those talks. But the problem, of course, is that that means if you all come, you also have to find money to fund your students travel, so there are trade offs. I think that is something we might attempt to do next year. I've opened the floor to comments about the meeting in general. We've got four minutes left.

>>Speaker:
You're going to need a bigger room.

>>Eric Davidson:
We need a bigger room. Teresa, did I see your hand?

>>Teresa Mourad:
You said what I wanted to say, but I could also say if you do have a student component I'd be happy to work with putting on a student program so that they're not just here and then do that and then a five minute talk in there [inaudible] so maybe some program for them.

>>Eric Davidson:
Any others? Yes.

>>Speaker:

I just want to say that Ohio University, we are in a school, we're actually sort of outside the region, but to get support at my institution I think what's been very helpful today is I didn't realize the diversity of disciplines that are represented in CESU's work, and I think one thing we are fighting with is that when you talk with people about this is a National Park Service and immediately people think of it's ecological studies. There's nothing wrong with ecological studies. Some of my best friends are in ecological studies. I do think that one of the strengths of this program is I'm amazed by the diversity of disciplines that are represented here, and so when I go back to my university I think I have a good argument based on [inaudible], so I could say, "Look, you name it. Whether you are in information studies or cultural studies or you're a basic biologist, what have you, there is something for everyone here, and I really appreciate that about these quick presentations.

>>Eric Davidson:
You can copy a line from Tom Fish, anthropology to zoology.

>>Speaker:
Maybe that needs to be elevated a notch. This is something that we get kind of pigeonholed in more on the biological, ecological, physical science things, but it does cut across all different disciplines, and it's expanding.

>>Eric Davidson:
Gina.

>>Speaker:
We're 400 national parks and virtually everyone has a museum collection.

>>Gina:
I just wanted to add to that, because I don't know for those of you who didn't know it yet, I learned about this from my sister who works with the National Park Service who introduced me to Dan and then said, "Well, you have fun," and left us to our own devices. When I went to the Office of Sponsored Research and said I want to do this thing because I'm missing all these opportunities, she said, "What does that have to do with you?" because I'm in the studio art program at [Inaudible] State, and I said, "Are you kidding? Do you know what we are missing?" and so it's kind of similar to what we discussed where people don't actually understand how the interdisciplinarity of real life actually works, but when you get out there and start working everybody really does work together. In the universities we think of it as it's this and this and this. I've actually spent my year pulling in people from different departments because they think about how artists can come in and help you because they can help you visually represent, but they did not think about the fact that I had projects going this year, one of them on Frederick Douglass, so I pulled in people from history of government and also because she always worked at the Frederick Douglass site when she first started with the Park

Service and had them come in and do programs and presentations, because the best art comes when it's informed by real stuff. Even with the ecologists -- we talk to them sometimes -- but it helps you to create artwork that's based on something more than just what you think about. There's a lot of real information out there.

>>Speaker:
Two comments on that. One, when we had a live national meeting two years ago we had a session on STEM to steam. It was kind of like art and design into the STEM equation, and this year, we've just done a paper -- it hasn't really fully formed yet. We're putting together a subcommittee, a working group on the science of communication. So, if you're interested in participating in that conversation, we'd love to have you.

>>Gina:
Thank you.

>>Speaker:
Maybe we should have like a call sign or on the CESU that says like [inaudible] to zoology, just to kind of highlight that.

>>Speaker:
Actually, we could [inaudible] arts.

>>Speaker:
[Inaudible]. We left out accounting on purpose.

>>Eric Davidson:
On that note, accounting for the fact that we are two minutes past our adjourning time, I want to thank you all for coming. It's been a great session, I , and look forward to hearing from you before next year's meeting. I hope you get in touch with us frequently, and if not, Danny will come visit you and make sure you do. So, thank you very much for coming and for the federal partners, we'd ask you to reconvene here in another 15 minutes. Thank you.

>>Danny Filer:
Also, there will be a survey coming from Rhonda or I to gather your feedback. It will be coming out in about a week or two. Thank you.