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Partners' Meetings
Transcription of 2016 CNHP Partners Meeting, break-out groups

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BEGIN TRANSCRIPTION

00:01:51:14 - 00:02:06:25

Unknown

All right, everybody. We're going to kick this off here. First we have surveys and monitoring. And Brad is here.

00:02:06:27 - 00:02:36:21

Unknown

And Alyssa's your spokesperson right. Are you the spokesperson. Cool. Okay. And we have Rob first. And Rob said Tyler is going to be a spokesperson for Group one. Are you are you good to go, Tyler. Okay. All right. We're going to turn the. Oh, let's get you.

00:02:36:24 - 00:02:46:26

Unknown

Hey, Joe. Joe taught. Do you know where the mic is? Okay, cool. Let's bring that up here.

00:02:46:28 - 00:03:23:12

Unknown

All right, so Tyler's going to go first for group one of surveys and monitoring. And everyone else who's still hanging can continue to do that while Tyler talks. Hi, everyone. So we did surveys and monitoring and kind of as you would expect, a lot of it was data centered. Kind of how data gets in was a lot of what we kind of talked about as a critical need, and then what it means when data comes out, because a lot of, you know, monitoring plans, management plans, they just throw this thing of monitoring and they're reflexively we got to monitor.

00:03:23:12 - 00:03:46:28

Unknown

We got to monitor. But it's like restoration. If you don't have a goal you're just restoring. You're just monitoring. If you don't know what you're trying to get out of the thing. And so you can't say if you're successful or not. And so that's one of the things that we kind of identified as a critical need is just identifying that ahead of time, and then noting the steps that it takes to get from data in to success out.

00:03:47:01 - 00:04:10:13

Unknown

A lot of the data in part is a critical need. Ended up talking a lot about methods and goals to spend enough time in room with ecologists. There's going to be a methods fight over who's the best way to measure birds or plants or whatever. And so one of the kind of critical needs is just when we're talking about common organisms is having common monitoring.

00:04:10:15 - 00:04:29:03

Unknown

And a lot of that has to do with the ability to scale. So if you're only interested in one county, the occurrence of a species in one county, if you're measuring it different than everyone else does for the whole range of the species, it's a little difficult to scale up. And so the idea is just to get those things in common.

00:04:29:03 - 00:05:01:20

Unknown

And that's a need that we have. We identified some needs for data sharing, basically how we get everyone's little fiefdoms data out and making meaningful contributions, dealing with monitoring of infrequent versus common species. We actually tend to prioritize monitoring infrequent species, because we've got laws and regulations that say that we should. But common species need to be monitored to how you deal with negative data.

00:05:01:22 - 00:05:24:19

Unknown

If a blank spot on the map, does that mean you looked for the species and didn't find it, or does that mean you didn't? Look how you go about interpreting that and under sampled groups. So invertebrates, things like that that aren't fins for and feathers that everyone loves to monitor, kind of how you go about doing that. So those were critical needs, existing resources.

00:05:24:21 - 00:05:48:04

Unknown

One of the things we kind of identified is that we all speak a common ish language. We all speak conservation, we all speak biology for the most part. So that's a resource that we've got. We have general generally pretty good coordination within our groups. The Native Plant Society meets every year, the Wildlife Society, the Fisheries Society that we do fairly well within our own groups.

00:05:48:07 - 00:06:17:25

Unknown

One minute she's sorry about that. In conclusion, so another resource is this Elk network. The landscape conservation cooperative is kind of the goal of that group is to get all this data into one place and out in a meaningful manner and new resources. We talked a lot about technology. There's apps, there's data sharing, all that kind of stuff.

00:06:17:25 - 00:06:48:16

Unknown

There's big opportunities there, and it's only going to get better new partnerships that are needed. Basically, the idea with that one that we came up with was getting existing ones on the same stage, speaking the same language, and how CNP can help data warehouse and recognizing the limitations of data sharing that we all deal with and facilitate meetings like this, helping out the Native Plant Society, talk to the Fisheries Society to talk to the Wildlife Society and that's it.

00:06:48:19 - 00:06:53:04

Unknown

Fantastic. Thanks, Tyler.

00:06:53:07 - 00:07:15:08

Unknown

And sorry to broadside you. At the time. I forgot to say that that we we have about 5 to 7 minutes for each group to give us a download, and if we do that, then we'll have enough time at the end to, to have a discussion. So all right Alyssa, for group two surveys and monitoring. Well this was the survey monitoring group B I'm going to hit you with two points.

00:07:15:14 - 00:07:39:18

Unknown

Keep it short. Basically a lot of the stuff that was already talked about with Group one. And then also we talked about the need for coordination for like common priorities between agencies and then, you know, making some new nontraditional and private partnerships.

00:07:39:20 - 00:07:54:19

Unknown

Survey monitoring the goal o goal monitoring to action. Yeah. Oh.

00:07:54:21 - 00:08:05:15

Unknown

Okay. All right. Anyone else from Group two have any any thoughts to add to Alyssa's shockingly brief summary?

00:08:05:18 - 00:08:24:02

Unknown

No. Yeah. Sorry to give you a hard time. No. That. Yeah. That's good. So we were speaking from one mind in those two groups. Kind of came up with similar ideas. That's that's encouraging that we might have a handle on this. So I'm going to I'm going to steal it just for a second, because I did cut Tyler off a little shorter than I should have.

00:08:24:06 - 00:08:45:21

Unknown

There was an idea that came up when it was their last idea about what teenage role seniors can play, and I was really interested in this idea that somebody suggested is having a forum for talking about conservation in Colorado that's broader than just species specific groups, the native plants and the wildlife society. We kind of each approach conservation in our own group.

00:08:45:21 - 00:09:07:18

Unknown

And so there was mention that creating a forum for getting together and talking about these conservation issues that extend beyond the species and starting by ecosystem level conservation in Colorado might be something of interest here. That to you I got I got one. So we're here. Give it Joe will take it to our next speaker. So okay. Well thank you that that's wonderful.

00:09:07:19 - 00:09:35:02

Unknown

I'd like to think that that's kind of what we're doing right now. So climate change, vulnerability and adaptation. Group one, who is your speaker? You amalgamated is Bruce. You're speaker. I am the speaker. Sorry. Okay. I speak for all, how much time do I actually have? You actually, you get a little extra because you're two groups.

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Unknown

I'm two people. Yeah. Okay. Yes. So, yeah, we're the climate change vulnerability and adaptation group. I'm Trevor with the. And we talked about too many things. We had to stop short. And really the broadest kind of themes that came out of our discussion was first, the first thing that came up, of course, was how do we start integrating, you know, the social element of conservation work more, more actively?

00:10:06:10 - 00:10:30:27

Unknown

How do we start understanding the changes that are going to happen within human populations as a result of climate change? How is management of sort of protected areas, public lands, all of these things going to affect people? How are those changes in turn going to affect the sort of landscape for conservation workers? These are things that we identified as needs along those lines.

00:10:31:00 - 00:10:52:19

Unknown

Kind of drilling down a little more. We talked about the values that are being involved on all sides of the sort of conservation equation, as in what are the values, say, for the species or ecosystems we're concerned about? What are the values for the land users and how can people, how can we elicit those and what really are they?

00:10:52:19 - 00:11:17:12

Unknown

And then, you know, kind of reflecting on what the rest of what we were talking about, it's almost as if we also need to identify our values as people concerned about ecosystems and species. What do we want and what is the intersection of those three different sets of values, so that the land users, the conservationists, the species, maybe the governments, you know, the jurisdiction involves?

00:11:17:13 - 00:11:45:22

Unknown

Where can we find that intersection and how can we use the values of the people say we're trying to transform the behavior of in order to get the values that we need, you know, starting to find a sort of combined benefit as opposed to either or when it comes to land use. Along those same lines, there was a need still to better define what we mean when we're talking about resilience and adaptation.

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Unknown

What is what is resilient? What is the nature of that resilience? Is it merely the continuance of an old regime after a shock? Is it the ability to transform after that shock? Is it the ability to maybe exist in a more whatever, you know, beneficial or biodiverse environment as a result of shocks or something like that? Still need a definition.

00:12:09:02 - 00:12:47:04

Unknown

Nobody's got one. That's not really a new problem, though. We also talked a little bit about needing to educate everybody, the community at large, about what disturbances mean and how we think about them. My interpretation of that was starting to understand disturbances as processes, and what we're going to see, say, after a big forest fire, how that emerges, how that changes in the landscape as opposed to seeing them as they sort of full stop ecosystem destruction type events, that a lot of the public still sees wildfire as and doing that.

00:12:47:06 - 00:13:22:21

Unknown

How do we embrace change in the process of all this work? You know, because change is going to come. We have to figure out how to keep going. In the midst of that. We also talked a little bit along the same lines about the need to be careful about the the idea of the range of historical variation and its use in future conservation or, you know, biological monitoring processes, because we're stepping out of the historical range of variation in a lot of places, especially in Colorado, where we'll see maybe, you know, different ends of the spectrum happening at the same time within the same state.

00:13:22:21 - 00:13:44:08

Unknown

So, that was another issue that came up. Let's see, we talked a lot about, you know, resources that are out there that exist, and almost all of them seem to come down to the need to better collaborate and coordinate across all of the different many organizations. There are some tools that we listed, such as Crave or Revamp.

00:13:44:10 - 00:14:09:25

Unknown

There's also cake, I believe, calling that right, different clearinghouses and sort of, you know, collaborative networks and the need for that, the need for more concerted effort on that front. And that really kind of brought us to our last point, which is, you know, somebody brought up how the sage grouse, the fight over the sage grouse is a

really united, you know, a lot of communities caused a lot of really good work.

00:14:09:25 - 00:14:45:14

Unknown

And the idea that came out of that was the need for another kind of big, you know, goal, a big project that can unite these different kinds of communities and really get everybody sort of working together to reach a tangible outcome, you know? And I guess if that's something that can benefit our land, users benefit, you know, the communities that rely on lands and things like this and something that gets us to a more adapted and, you know, climate wise way of living, that's something that we need.

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Unknown

So, yeah, we need to save the world and be better at it along the way. So so yeah, that was I don't know, am I missing anything? Where's my. Everybody in my group disappeared, it seems. Oh, there you are. Anything else? Bruce? No. Good. All right. Time. The timeline. Oh. Oh, yeah. That's right.

00:15:12:19 - 00:15:42:00

Unknown

Yes. Okay. Yeah. I actually forget what this point was about, but something about a timeline. About. Really? Yeah, about about looking at umbrella projects with a short timeline so we can deliver kind of tangible benefits to real people living in this world, you know, this generation, so that we can get out of that, like, you know, nine generations from now, kind of thinking that doesn't really seem to work particularly well with, you know, Americans.

00:15:42:02 - 00:16:13:13

Unknown

I guess that's kind of a thing. Short term short term goals, short term plans and short term outcomes that hopefully have very long term benefits. That's kind of some of the thinking that we're operating around and also really understanding and, you know, taking the opportunities where we find them when it comes to connecting the work we do within Colorado, two groups outside of Colorado, you know, climate change doesn't care about our jurisdictional boundaries, and our jurisdictional boundaries certainly don't care about ecosystem boundaries.

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Unknown

So, you know, as I'm sure a lot of people know. So finding ways to continue to work within these national frameworks and everything. So, yeah, if I have more time, I could, you know, I know if this guy wasn't sanding here with a Nerf gun, we'd be all. Yeah, well, I think I'll. I think I'll leave it at that.

00:16:31:13 - 00:16:54:16

Unknown

One thing I wanted to mention, though, is that you're about who's not here, who's not in these circles and in these things. People brought up

the DoD, which we do have some representation for. But, you know, the DoD is a real ally when it comes to, you know, the Department of Defense is one of the first government branches to come out definitively saying climate change is a big deal.

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Unknown

And if you don't do anything about it, you're going to suffer. And that they're not here is, you know, in a more visible fashion is interesting. Colorado Department of Public Health and Environment is another one that brought up FEMA or emergency Management is another group of people who are concerned about landscapes, climate change impacts on communities, ways to make those landscapes more healthy and able to soak up water mostly, and yeah, local governments being more involved.

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Unknown

Cities, municipalities, these are groups that often have a lot of land, often have a lot of sway, and can make really seemingly minor decisions that have a lot of effects on land use. So, yeah, that's pretty much it. Thanks. He was getting it out. No. Thank you so much.

00:17:44:02 - 00:18:04:10

Unknown

You guys did a great job. That's those are that's great stuff. Okay, let's let's let climate change monitoring and research tell us what they came up with. And that's Jill's group. So I don't know who your speaker is. Jennifer. Okay. Jennifer Kessler, thank you.

00:18:04:13 - 00:18:33:25

Unknown

I don't know where my tabs are, but Joe took notes for me like 5 to 7 other down low. Okay. So, yeah, we were monitoring in regards to climate change, but the monitoring folks said a lot of what we said we need more monitoring. But more specifically, we need monitoring for what ecosystems and species might be more vulnerable to disturbance regimes.

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Unknown

And then potentially looking at refugia for species that are, sensitive. I think we need to identify what the question is for monitoring for climate change. You know, we can all run around and do lots of monitoring, but what what are we answering and and how can that be applied on the ground? And there was definitely a lot of discussion in our group about, well, there's tons of research out there, but it's all in different hands.

00:19:05:08 - 00:19:32:18

Unknown

So we need to compile that into a more readily available place and have the same kind of lingo in the same methods of entering all that data and getting the funding. I think I'm surprised no one else has already said that. More funding available, please, for all of these things. So I guess I'm moving on to what new resources are needed.

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Unknown

So we need more funding. We need more public awareness. I think, monitoring group also mentioned, you know, we need the Kim Kardashian's of botany and climate change to get some social media out there to make what is geeky, introverted scientists do interesting to the rest of the world? And how does it how is it relevant to, you know, your days of driving to pick up your kids or taking them to soccer or whatever you have to do as a parent or just a person to survive?

00:20:06:19 - 00:20:15:06

Unknown

So trying to make that kind of public outreach available to,

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Unknown

Take our monitoring data, make it relevant to your lives, and have better communication between within our own departments, with our in our own organizations, outside our organizations. So that people understand why it's important that that visibility over there, which rare plant is important to my life today or in the future? So public awareness, more work to get citizen scientists involved.

00:20:54:04 - 00:21:16:27

Unknown

You know, we all feel like our data is really vitally important and we get really worried about are they entering that data accurately? Well, how accurate does it have to be to be relevant to climate change? So that's that's one of the things that we discussed.

00:21:17:00 - 00:21:50:03

Unknown

Yes. I'm going to move on to partnerships. I think we were talking about interagency communication and partnerships, more outreach to public schools, because we had some folks who had experience with, counselors at high school level telling kids they don't want to go into this field because there's no money. They should do other things. So more more communication and more education outreach.

00:21:50:06 - 00:22:14:24

Unknown

Let's see how can and help and others here help you better. So how can CNP help us do a better job at what we do? We thought today is a great example because there's definitely a lot of people here that seen some of these faces around, but there's definitely a lot of people out here I've never seen before, and I've been in this area for my whole life.

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Unknown

So, that, so continuing what you're doing is awesome. NP definitely has a lot of great stuff going on. I think one thing we wanted was more greater, greater data clearinghouses, you know, more compilation of data, either with you guys or in cooperation with you guys. And then perhaps

acting as subject matter experts in local meetings, local policy, that type of thing.

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Unknown

And think what I missed. Oh, I missed what what existing resources can be devoted to needs for this topic. So I think swap and BLM, I guess there's something called Gloria and Neon that I'm not familiar with. So maybe some of you more familiar with that. You can start talking to each other about those things. Herbarium specimens are a great resource that probably most of us don't think about and go to.

00:23:24:26 - 00:23:48:10

Unknown

And then again, there's this huge public domain of data that needs to have bodies and minds focused on and compiling it into how it is relevant to climate change. And what does it mean, or how can we use it to better direct our actions in the future?

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Unknown

Wow.

00:23:52:16 - 00:24:23:24

Unknown

Thank you Jennifer. It's a lot of great stuff. And I think Pfizer Belly's important because it's really cute. I love that plan. So let's move on to avoidance and mitigation. That was Patrick's group okay. All right okay. Well roughly handle these in order. But first I'll say, you know, mitigation. There are billions and billions of dollars spent on this every year.

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Unknown

So resources were not a problem for my group. So in your face all you other groups. All right. So the problem is is how the money is allocated. So there's a lot of inefficiencies just in the process. I was explaining to one of the conservation leadership students not from America that, you know, it's a process that's evolved over decades.

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Unknown

So there's not like some grand central organizing body for efficiently getting mitigation done in this country. It's kind of a mess. I think everybody knows that. So there's a lot of efficiencies to be had in the process of developing the data that we need to assess impacts and find good places to do mitigation. In figuring out how much mitigation is needed and where to do it and who should do it, and then actually implementing it and monitoring it.

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Unknown

And there's all the finances that flow through that whole process. So plenty of work to be done on that. That brings in the role of

partnerships. So one of the questions we were asked and again, in general, there's just a lot of different groups involved in mitigation. And people tend to not coordinate. They tend to look at their little slice of what's needed and they focus very much on that.

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Unknown

So we really need to pull these different groups and actors together. So we think about major categories like the big impact generators, looking at U. Transportation, the regulators. So thinking, you know, primarily Army Corps and Fish and Wildlife Service. But there are others, the conservation implementers. And this is where, you know, I think we could think broadly about instead of just, you know, professional mitigation banks, how do we bring in the different land trusts and easement groups and so on that are starving for dollars to implement their conservation priorities when there's billions of dollars getting spent on the cattail pond next to the highway.

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Unknown

So some obvious opportunities there and again with partners, the data developers and data providers or exchangers. And then, of course, the financial people that need to make all those deals work. So we did spend quite a bit of time talking more with Ted Toombs about the habitat exchange and the work they did to bring a lot of these groups together, but focused on sage grouse and a few other things, and how that might be a very good model to build upon.

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Unknown

And I know that Ted just hasn't gotten enough of that. So I think he might have mumbled, bring it on. Is that all you got? I'm just kidding. He didn't actually say that. He said, please, no more, no more. So roles for CNP, you know, could certainly is more support for data generation. And there was a lot of talk about the need to integrate these different databases in the state.

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Unknown

So it's a more seamless experience for the people that need to access the data. And then role was brought up for CNP in terms of mitigation monitoring. So after the mitigation is put in place in the field, it needs to be monitored so that we know if the credits that were given are actually being generated. And then we only had time to touch on a few of these other key issues.

00:28:02:10 - 00:28:29:19

Unknown

So how should climate change be considered in this entire process? There are challenges in quantification, both at the impact level and of course that's tied to data, but also just how we think about the the different values that might be impacted, as well as quantifying benefits and how to deal with wetlands. Colorado, maybe generally in the West. But this is Colorado.

00:28:29:19 - 00:28:54:03

Unknown

So we talked about issues like water rights and how that affects wetland mitigation. And then just the issue of how we get ahead of the curve of always thinking about regulating or, sorry, mitigating regulated features. Right. So before we mitigate, the thing has to be on the brink of extinction. And if we keep on that path, we're just going to keep creating more and more regulated features.

00:28:54:03 - 00:29:12:13

Unknown

So how do we consider more of an all biodiversity approach in the whole mitigation hierarchy? Any other contributions from my group in the back?

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Unknown

Other other segments or data sharing data should be talked about data sharing, private land status. And they don't like to share their data. And yeah, data security issues around data collected on private lands. And again, the the impediment for the very large number of actors involved in mitigation, how we deal with that issue. Anything else? Okay. Thanks. Fantastic.

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Unknown

Thank you Patrick.

00:29:45:18 - 00:29:54:27

Unknown

Okay. Data development and sharing is that I'm sorry. Modeling habitat distribution.

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Unknown

You're one step ahead of me, Gordon. Thanks.

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Unknown

So yeah. So the modeling habitat and distribution group, the first question, what are the current critical needs for this? The first idea that was thrown out was we need completed models for both common and rare species and communities. We need increased knowledge of the existing models that are out there. So maybe some sort of library or repository for such information.

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Unknown

We need integrated and statistically collected observation data. So that maybe is a step back before we have the models. We need to improve the data that are used to develop the models. And that goes that's the same idea behind we need improved habitat data. One specific habitat data that was out there was we need increased and improved vegetation data.

00:30:53:08 - 00:31:04:16

Unknown

There are a lot of vegetation data sets out there. We don't know which one is the best a lot of times. And so some work needs to be done on that front.

00:31:04:19 - 00:31:33:08

Unknown

We need models projecting change with respect to climate change and with respect to land use and land cover change. The idea of funding that was that was mentioned in our group as well. And understanding habitat limiting factors. And the example thrown out here was with relation to ungulates. The second question, what existing resources could be devoted to these needs?

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Unknown

Most of what we talked about was regional knowledge. So regional climate science centers could be a good source, an existing source. And then we talked about collaborations between and amongst agencies. And that kind of opened the floodgates to death by acronyms. And maybe I can even like test you guys a little bit. We start with easy ones. Elk.

00:32:05:04 - 00:32:17:08

Unknown

Neon. Another one that was out that we have thrown out there was Ray rapid eco regional Assessment and I.

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Unknown

NWP, aACM Avian Knowledge Network and then of course CNP.

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Unknown

The third question, what new resources are needed to move forward? Most of the ideas that we had here were related to data. So we for modeling habitat and distribution, we need functional up to date databases of data. So metadata more or less we need landscape use prediction models, improved access to climate projection data. And my interpretation of this was maybe like regionally downscaled climate data, regionally categorized climate data.

00:33:00:01 - 00:33:38:14

Unknown

So one of the initial talks that we had this morning, they showed a scatter plot of the GCMS global climate models relative to one another with respect to temperature and precipitation. So maybe some library of information that shows for a particular region and many particular regions, how those global climate models relate to one another in space. And along the lines of those two habitat, those two variables temperature and precipitation, we can we need improve soils and geology data.

00:33:38:16 - 00:34:04:18

Unknown

Also new resource would be data validation and maybe somewhat ingest. But in ideal world, access to military satellite data could be useful. What new partnerships are needed to address this? The first idea thrown out there was partnership between CNP and Bird conservation. Conservative Conservancy of the Rockies.

00:34:04:20 - 00:34:36:04

Unknown

Another idea that we discussed was improved horizontal and vertical communication within organizations. So here we were thinking communication between and among scientists and between and amongst those who were on the ground, and then the vertical communication between those two groups. We talked about needing new partnerships on the state and federal levels. And then we also that brought up a discussion about private landowners.

00:34:36:04 - 00:35:05:18

Unknown

So I saw this as a triangle between those three groups. Maybe, maybe mandates are required to bring those partnerships into existence. And then I think the last idea, if I'm not mistaken, that we talked about here, was maybe there's some potential for collaboration with cultural and data from paleontology paleontologists that can be used for habitat modeling and distributions.

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Unknown

Now, maybe those that group the cultural and paleontologists would have some some new information that could be useful with respect to geology. And then the fifth question, how can CNP and others here help you better? So we just one of the topics was increased capacity with respect to data processing. We talked about CSU Geospatial Centroid Data Warehouse, which I'm not familiar with.

00:35:35:08 - 00:35:46:26

Unknown

Also computing power I guess CNP has a supercomputer. We have a supercomputer at USGS here in Fort Collins and I think.

00:35:46:28 - 00:35:58:04

Unknown

I think we do have some access to that. It's considered the Ram Room. It's called the Ram Room at USGS Fort.

00:35:58:07 - 00:36:12:06

Unknown

We also discussed CNP maybe behaving a little bit more or seizing opportunities to facilitate discussions amongst the partner groups.

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Unknown

And then one last point on that topic was CNP and maybe others. Increasing transparency of the models that are developed. And I guess NP and end product of all the work is a report. But the possible benefits of

coming out with maybe a two page report. So a cliff notes of sort on on those research projects. So is there anything else in my group emphasis on maps as a patient tool.

00:36:48:20 - 00:36:55:07

Unknown

Oh yeah, I missed that.

00:36:55:10 - 00:37:02:03

Unknown

So that's all I have. Okay. Thank you so much. That's fantastic.

00:37:02:06 - 00:37:25:09

Unknown

Okay. Data development and sharing is up. Thank you. I'm going to wander over by our. Okay. Well so for hours we looked at data sharing and development. And as far as critical needs we spent a lot of bandwidth talking about data sensitivity. And that comes from the sensitivity of having private lands data. It comes from collecting pressures for sensitive resources.

00:37:25:09 - 00:37:48:13

Unknown

And it comes even from the sensitivity of different agencies being grippy on their own data and not being comfortable sharing it, and how to work through those sensitivities. There is the data integration that has been I mean, really the commonalities are just incredible. As I'm listening everyone talk, it seems like we're all saying the same things, but integrating data and getting data sets from, say, the Forest Service in BLM to talk to each other.

00:37:48:13 - 00:38:10:22

Unknown

And then, you know, the role CNP can play and help to integrate those data sets into a common sort of format is a really strong need right now. And I just want to make sure capture everything as far as that there is. Yeah, there's there's not really a single agency, except maybe for CNP that's trying to integrate that.

00:38:10:22 - 00:38:32:19

Unknown

And so what existing sorts of resources can be devoted to the need for this topic? We have various databases out there that already exist. I think the key is getting them to talk together. And we kind of ended up merging our final questions, because this kind of just brought us right to what new partnerships and existing partnerships and how NHP can help.

00:38:32:19 - 00:39:02:04

Unknown

But really, there needs to be even a legislative mandate sometimes for agencies to want to work with us in that. That might be one step of it. CNP can play a unique role in actualizing a vision to help bring these different, disparate data sets together, and to integrate them to be useful to all the agencies. And we talked about how CNP almost like the

great data normalizer, we we sort of bring it all together, and it may not be 50 pages deep when we get it out into our science.

00:39:02:04 - 00:39:21:09

Unknown

It's more of the really most important basic things that have been put through a repeatable methodology in that for certain things that's really, really helpful. There's the other evolving critical need is just the increase in technology. And it's hard to keep up with data delivery systems. And that right now in this state, getting data out is a critical need.

00:39:21:09 - 00:39:55:27

Unknown

And a lot of private landowners don't have it like those of us in this room do, and that there's a strong need for a more friendly format. And that's a great segue into as far as new partnerships and how to move forward, is that it was suggested that CNP can play a role in helping to bring these things together and maybe create a vision then to have a site like that that can basically serve as not just an environmental review tool, but something that various roles you can have a super user that has access to all the sensitive data through agreement, but you also have the general public that goes in and can get the

00:39:55:27 - 00:40:18:15

Unknown

information that they need as well. And how do you integrate all those different data sets together and get over the sensitivity issues of everyone worried about the data in that? Now, with our experience with sensitive data and computer is also in this realm because different issues of land trust and whether or not people think that private land that has an easement on it is now public, because I see it on a map.

00:40:18:15 - 00:40:39:08

Unknown

And how do you get past that sensitivity piece as well? And as far as you know, moving forward, I think that the the idea is just that we need to continue to build the capacity to, to crosswalk this data and to use the established methodology that nature serve has to sort of bring it all together into one place where everyone can use it.

00:40:39:08 - 00:41:04:04

Unknown

And getting a robust online data tool that can can do that for us. And so anyone in our group one, I'm going to look at the sheet, want to speak up as far as anything else I might be leaving out. Oh right. And we had go go in our group and she brought up the point that it does take a lot of money to do this kind of work, and that the Conservation Excellence grants are an excellent source of money.

00:41:04:04 - 00:41:18:18

Unknown

That's a rare source of money to do that kind of integrative work. And I think we also mentioned the LCS is another place, which of course was

mentioned by other groups. I'm trying to think of other things we said that was unique, that hasn't been repeated. Let's see.

00:41:18:20 - 00:41:49:14

Unknown

And then as far as the subject of citizen science, and that kind of came up at the end. But as a challenge of how do you integrate citizen science data in and use it in a way that is scientifically accurate and trustworthy? And how do you develop quality assurance and QC to be able to trust those data? But also it's a great potential source because one of the really big needs that I failed to mention is, is that we often get funding for the first survey, but the second survey to go back and make sure the plant is still there is very difficult to get.

00:41:49:14 - 00:42:13:03

Unknown

And a lot of times sites may only be visited once every ten years or something like that, and that citizen science can play a role in that. But then it brings up a whole new host of issues of trampling and access and things like that, but that there are protocols that are being developed through tools like iNaturalist and PSI that take into account those issues, and that that's an area that really needs to be looked at into the future.

00:42:13:03 - 00:42:39:18

Unknown

As far as how do we take best advantage of citizen science and maybe fill in some of those data gaps that we just don't have funding and still manage to protect the resources and not trample them to the death as we send the public out to check them for us. Anything else from the group? All right. Well, with that then, thank you very much, Michael.

00:42:39:20 - 00:42:54:00

Unknown

Okay. Looks like Becky Pierce is our wetland person. Okay, that's. That's good. Okay. So Wellens woo. Yeah.

00:42:54:02 - 00:43:22:28

Unknown

That's all I do. So you got to get excited about it okay. What are the current critical needs for this topic. The first one here in my opinion is the most major which is water. Sorry. Go ahead. You got it. I'm done now. And a couple of folks have already talked about having a central clearinghouse. And really what that means is the state of Colorado is lacking an agency or any group that is sort of the the empire for wetlands.

00:43:22:28 - 00:43:51:19

Unknown

And so a lot of us meet on the side and we have these trainings and we share information and we fund each other's projects. But a central clearinghouse of sorts would be a place where everyone could go to learn about things like training and someone mentioned linked to public

notices, commenting on core permits where wetlands are involved. It would just be a place for information sharing.

00:43:51:19 - 00:44:24:15

Unknown

Everything. Everyone's mentioned to this. This topic to some extent also would be a list of players, like maybe some diagrams about who does what. For each agency and group nonprofit central email list. I mean we society wetland scientists has one, but a main email list for central communication would be great. Also, to share a place or an agency that could could share landowner resources.

00:44:24:18 - 00:45:08:16

Unknown

In my example is Montana Linda Sol Montana. She's pretty much what I envision that Colorado needs. And then we also discussed we discussed water quantity a bunch. So just like what Dave just said, water is important for wetlands and critical need is to engage more discussion about water quantity from the wetland community. And I brought up water rights during our discussion because I never get a single I never get the same answer from from anybody when it's just want to talk about water rights and wetland wetland mitigation.

00:45:08:16 - 00:45:34:04

Unknown

I don't do restoration, I do mitigation or for or for for CDot. And so I never get the same answer. So it would be nice to have a one voice or at least one answer from like the AG's office, water resources, the core EPA, whoever has a hand in it, which seems to be everybody. And then we talked about watershed based tools, which, you know, a lot of folks are working on some of those.

00:45:34:08 - 00:45:52:25

Unknown

So so that's probably more of a maybe an existing or upcoming resource. We talked about prioritization of some of these watershed based tools and management strategies, getting more agency support. And.

00:45:52:27 - 00:46:25:13

Unknown

Does that say I don't know what that says? I'm not going to read that last one. Sorry, Joanne. And then topic number two, what existing resources can be devoted to needs for this topic? We talked about there being something in the wetland community similar to what we have. What has been formed after the 2013 floods. If any of you have been to the the Colorado Stream Restoration Network meetings, it'd be really nice to get something specific to wetlands like that.

00:46:25:13 - 00:46:56:08

Unknown

Having consultants and agencies and academia and everyone there at the table just share information. And then we also talked about ditch companies as a resource. We're just talking about preserving wetland vegetation and fish, fish passage passages and movement through the

through those features. Since there's a lot of ditches in Colorado wetland mapping, CHP is developing more and more wetland mapping.

00:46:56:08 - 00:47:19:09

Unknown

And then my agency cdots also now putting we're going to be digitizing all of our wetland delineations soon here. And also we're doing a Fen mapping project. So all of this kind of wraps up into as an existing resource and also an upcoming one. CNP is also working on the Watershed Toolbox, which is in progress, and that'll be fabulous when it's done.

00:47:19:12 - 00:47:48:12

Unknown

Conditional assessment data, methods and tools. We've got a lot of those. And then we talked about academic research and how some of it may be scattered and not necessarily available in one location for everybody. And so it would be that would be nice to kind of pool that which all comes back to this kind of central clearinghouse, agency type type idea.

00:47:48:14 - 00:48:03:16

Unknown

And then also another thing that we find sort of scattered is funding. There are some listservs you can get on or some email lists that summarize some of those funding funding.

00:48:03:18 - 00:48:24:27

Unknown

You know, grants and stuff. But everyone doesn't know about all of them. So like I said, just all comes back to the central clearinghouse and then what new resources are needed to move forward. I kind of actually just tied those into the existing resources, trying to think of, of any that we might. My other cheat sheet is not up here.

00:48:25:00 - 00:48:27:25

Unknown

Oh.

00:48:27:27 - 00:48:56:10

Unknown

Sorry about that. I already mentioned getting more mapping and like our delineations into GIS and then also trying to link core information like actually having Army Corps permits or their mapping into GIS. I don't know if that will ever happen, but that would be helpful. And then we mentioned having a reference network. So having like reference sites like what is a reference wetland in this, this one ACM class and what that would look like.

00:48:56:13 - 00:49:01:08

Unknown

And then.

00:49:01:10 - 00:49:10:28

Unknown

Updated mapping NY but CHP is working towards that. So and then let's see here new partnerships.

00:49:11:01 - 00:49:35:22

Unknown

We kind of hurried up on these last couple because we spent so much time on critical needs. But keep wetland group like Brian Sullivan's group his and then go in there and riparian restoration and then CWC be healthy rivers. So I guess those aren't really three groups that have been in cahoots in the past. So hopefully that will be a partnership that will get charged.

00:49:35:27 - 00:50:03:19

Unknown

And then someone mentioned linking more with local and county staff rather than commissioners, because sometimes you can get a little more action from those folks. And then C.D.. C.D. fee and everyone. I think that could be part of partnership. And then CWC with water quantity. The water quantity thing is tough. I don't I don't know. That's such a caustic subject.

00:50:03:21 - 00:50:32:14

Unknown

So then the last thing, how can CNP help and others help here? You're doing a lot. I don't even know. I mean someone wrote I guess Johanna wrote multi-agency wetland strategic plan. Oh yeah, we talked about that the very end. We kind of rushed through that. So CHP has had a a state wetland plan for I don't know how many years every five years, but they did it 2011, 2011 was the last one.

00:50:32:14 - 00:50:42:14

Unknown

And the other agency folks represented here weren't involved, at least not officially. So one of the.

00:50:42:16 - 00:50:52:27

Unknown

One of the goals is to is to bring everyone else to the table and get other agency involvement, other folks.

00:50:53:00 - 00:50:57:12

Unknown

Can anyone think anything else? My group.

00:50:57:14 - 00:51:07:06

Unknown

Okay. That's fantastic. Thanks. Thank you so much.

00:51:07:08 - 00:51:27:04

Unknown

Our last group is invasive species. Cecily is here. Thank you. All right. I hope you all be patient with me, because I didn't exactly volunteer for this. I was just the last one to run out of the room. So, Stephanie,

we're going to go over here. And we brought in our papers in Stephanie
CNP intern is our lovely Vanna.

00:51:27:06 - 00:51:53:13

Unknown

She's going to put up our first piece, and our group had more of a free
flowing conversation and dialog on these topics. So this is what we did
after everybody left. We owe not on this one. She'll hold him. So stick
it on here. Okay. So this is what we came up with. This is what got
synthesized after everyone left the room.

00:51:53:15 - 00:52:21:08

Unknown

Critical needs. The current ones are real. So first of all, the issue
invasive species that has so many impacts on rare species. Rare plants in
particular. So we talked about what are the critical needs. First of all
prioritization of the areas that needs to be addressed, where these
invasive species are affecting the rare species. How do we know where
they are?

00:52:21:10 - 00:52:49:00

Unknown

How do we prioritize the resources that we have to deal with them? And
then next is the awareness and knowledge for these rare species. There's
a lack of it. There's a lack of money, just landowners in general,
citizens in general. And even with conservation practitioners, sometimes
we don't are not very familiar with all the rare species. And another
critical need is comprehensive planning.

00:52:49:00 - 00:53:24:18

Unknown

Before we take action, don't just jump out there and do something,
because sometimes the things that we go out there to do could actually be
harmful. So how can we, you know, get all of the various disciplines
together to come up with a comprehensive plan and come up with something
that can be addressed through adaptive management to look at these issues
of invasive species and how the decisions we're making are actually doing
something meaningful and beneficial for the resources we're trying to
protect.

00:53:24:18 - 00:54:16:22

Unknown

So then we move on to the existing resources. There are great databases
out there, especially put together by the sea and with information about
where some of these rare species are located. But then how do we get that
information out? That's part of the new resources need. How many people
know about these databases that CNP has? How do people know how to apply
those, the information coming out of this database, and then having
knowledgeable people to consult with who knows this information and can
give good advice on what to do with that piece of information and turn it
into management on the ground, and then getting the training and the
education across disciplines to go

00:54:16:22 - 00:55:00:02

Unknown

address these invasive species issues, and then the networking and dialog that allows for all of this to happen, this exchange of information. And then finally, I was sharing with folks that I'm working on a new project, and I'm really excited to be partnering with the CNP on that. And it's some recommended best management practices for addressing the management of noxious weed species on sites with rare plants, because there isn't such a document that currently exists to talk about things comprehensively, in a way that's kind of a bit of a checklist that can be customized to your specific site and location in the rare species that you're dealing with.

00:55:00:02 - 00:55:23:25

Unknown

So we're trying to take this on to come up with some best management practices, and we're hoping that that timeline will be pretty quick. We started on some brainstorming sessions back in September. We came up with a draft in December. I'm hoping that next month, in February, we're going to be able to bring together different partners to talk about it.

00:55:23:25 - 00:55:46:08

Unknown

Both invasive plants managers, botanists, agency land managers and private landowners. To be part of that dialog, to look at these recommended practices, to come up with a checklist that we can all think about as we move through invasive species management.

00:55:46:10 - 00:56:19:24

Unknown

And so, finally, the partnerships and things that CNP can do, or we can all do as professionals in this field to forward this, the need to manage invasive species. So we talked about these new partnerships, more dialog and collaboration between invasive species managers and botanists and other people who are specialized in rare species, landowners and land manager engagement.

00:56:19:26 - 00:56:40:06

Unknown

You know, these folks have the data and the information and the know how these folks who are managing the resources, do they know how to tap into the knowledge? Do they know how to apply to the knowledge on the ground? How can we further these relationships? And then.

00:56:40:08 - 00:57:21:14

Unknown

Good data that's always so important. These reliable scientific information, reliable procedural processes, knowing what these processes are, because some of us who work on within government agencies, these procedural protocols are so complicated, sometimes dotting the eyes, crossing a tease before certain things can happen out on the land. How do we go to for this information to make sure we're doing everything that is what's best and recommended on the land, and then just informal dialogs amongst professionals so that we can all kind of be hooked in on the same information.

00:57:21:15 - 00:57:37:27

Unknown

So any other things I missed from our group? Any other contributions?
Thank you. Wonderful.

00:57:38:00 - 00:57:55:09

Unknown

Thank you so much, Cecily. So that gets us through all of our sheets. I have a request to the groups before we kind of take all these down that that the groups could write, if they could write what group they were on these sheets. Because I think when we take them down, they might start to get hard to remember that.

00:57:55:09 - 00:58:18:12

Unknown

And we want to type up everything that's on these sheets and share it with you. So it's wanted to say that before we move on. But so the rest of our time here really we have 45 minutes right now to kind of kick this around and discuss what we just heard and talk about.

00:58:18:14 - 00:58:43:00

Unknown

How we can kind of pull all this together and float some opportunities and leverage our resources to get get these critical needs met. Does anyone have any any epiphanies or. Yes. Hi. Using drones for some of your species?

00:58:43:03 - 00:58:48:07

Unknown

Hit. Yeah, you should talk.

00:58:48:09 - 00:58:52:15

Unknown

I recently just purchased one.

00:58:52:18 - 00:59:17:01

Unknown

The intent though I'm not sure it's going to come to fruition. It was originally purchased as a way of trying to get access to bats that might be roosting in crevices along cliffs. I think that's going to be a challenge, but I think we're exploring other avenues for using that. You just want to play with drones? Yeah, you can come play with drones with us.

00:59:17:03 - 00:59:41:00

Unknown

Raise your hand and we'll bring you a microphone. So the BLM Alaska is using drones for vegetation mapping so they can tell you about problems encountered cost benefits, efficiencies. So if you want more information on that let me know. Cool.

00:59:41:02 - 01:00:11:16

Unknown

I was I was just gonna follow up. That's awesome. And I just think it might be nice to connect that monitoring to your vegetation modeling eventually. Like using that fine scale imagery to try and better map some of your species distributions and stuff. Yeah, I love that idea. I don't know how far you want to go down this rabbit hole, but I think we're still trying to explore what are the limitations of using those and over what land and who's reporting, I think.

01:00:11:19 - 01:00:34:26

Unknown

Forget the name of the acronym, another acronym for Monitoring aircraft. FAA recently released their requirements for licensing to be using those commercially. So we're still waiting through that to figure out how we can do that and be as least disruptive as possible. Do our applications in conservation count as a commercial use? Do we come under that? I think as we ask those questions, they get answered.

01:00:34:27 - 01:00:53:12

Unknown

I don't think they've been answered already unless somebody out here in the audience has tried this already and has uncovered. That's a really smooth pathway to be able to use these for doing the kind of monitoring. Jennifer Kessler, Boulder County Parks and Open Space As a matter of fact, last night we just had a UAS public open house.

01:00:53:15 - 01:01:25:10

Unknown

So Boulder County is already trying to do UAS policy that, you know, has to go through commissioners. But yeah, we have to you have to follow FAA regs. And there's definitely been positive and negative, public comment on the UAE's systems. So if you go to the Boulder County web page, you can probably look at some of those public comments and what the policy is.

01:01:25:10 - 01:01:30:06

Unknown

So if if you're interested that's there.

01:01:30:08 - 01:01:34:01

Unknown

Well yeah.

01:01:34:03 - 01:01:55:18

Unknown

Well I heard one word spoken by every single one of these groups, which was data. So I don't know. There's a I think that that seems like a common thread that we can collectively work on to me. Oh.

01:01:55:20 - 01:02:20:08

Unknown

Yeah. I had a question on data. One thing that seemed to come up on almost every group is a data clearinghouse of some sort. And I'm wondering, Dave, what's your thoughts on CNP capacity? Or if you think, since P is a good vehicle to be sort of a data clearinghouse on rare

plants and animals and communities and forestry data and all, all that sort of stuff, we love having that role.

01:02:20:08 - 01:02:49:24

Unknown

And we, we like very much that we can provide a stable home for data and have the resources to be able to share those data and make them accessible. So streams is a really good example of that, where we we're kind of venturing into new kinds of data, but providing that kind of service. So that's very much something we would like to do more of in a role that we would love to expand.

01:02:49:26 - 01:02:52:19

Unknown

So.

01:02:52:21 - 01:03:16:19

Unknown

And the the less I I'm hearing another common theme of that. There's a lot of disparate data sets. And yeah, and that clearinghouse piece of just how do we connect all these things together so that we can answer the big questions? Because when we are, you know, trying to cross these themes to accomplish conservation, then that becomes necessary.

01:03:16:21 - 01:03:57:26

Unknown

But I guess a follow up to that is how far away? Do you think CNP is to being able to start collecting data from lots of other agencies? And being that clearinghouse, we're able to do it right now and we're doing it quite a bit. It looks like Michael. Yeah. So I think the only thing stopping it is just, you know, just that those conversations and making it happen and, and funding to get it in place, a lot of these things may not require much funding or might fit into existing efforts that we already have going.

01:03:57:26 - 01:04:23:13

Unknown

So I think there's a lot of ways to make that happen. And I just wanted to share some comments from our group. One of which I thought was really interesting is just how it almost takes a champion from every agency that's willing to go through the bureaucracy on your side to make that clearinghouse viable. And, you know, the Forest Service, BLM, whoever have all been great champions of making this happen to the extent it has to this point.

01:04:23:13 - 01:04:46:15

Unknown

But I do think CNP is a great vehicle to do this, but we can't do it without the folks in agencies. Champion the idea that we need to have this clearinghouse and to wade through the bureaucratic red tape, frankly, to be able to get the okay from their agency to exchange data with us and to set up the protocols, we have methodologies developed on the international level that are fantastic to integrate data from disparate data sets.

01:04:46:15 - 01:05:06:13

Unknown

But you need full political buy in. And that's something that's outside of the purview sometimes of C and be. And that's where you all in this room can really help us is just voicing the support for that and helping us to build the capacity of some of these really big dream projects, like having an online data portal that can be relevant from the citizen to the land manager and everyone in between.

01:05:06:13 - 01:05:29:20

Unknown

So that was just one thing I wanted to throw. Yeah, yeah. The modeling group had a very interesting conversation about this that Gordon shared with us of wanting to kind of aggregate these things and figure out what we even have. I mean, I think a lot of people are making models that somebody already made, and we can if we can bring that effort together, we could be a lot more effective.

01:05:29:22 - 01:05:37:02

Unknown

So I really like that idea, Betsy.

01:05:37:04 - 01:06:06:26

Unknown

With the recent Paris Agreement, there's a lot of interest in using nature based solutions to reduce emissions or greenhouse gases in the atmosphere. And I was wondering, I didn't hear it specifically if the Climate Change Monitoring and Research group came up with any ideas about assessing our ecosystems here in Colorado or the West, to look at the opportunities for carbon storage and sequestration.

01:06:06:28 - 01:06:30:22

Unknown

We're starting our organization, starting to do this on a global level and national level. But I'm interested in looking at it more at the state level. And I was wondering if anyone in this room is working on that, or offer that out as a possibility for the heritage program to look at that along with all the other, yeah, biodiversity values.

01:06:30:28 - 01:06:51:26

Unknown

I would love to be able to say how much carbon is stored in our ecosystems, like how much are we storing in our fins? I mean, that's just that's another huge reason to be doing the work that we're all doing. If we can link it to these global carbon goals. I love that idea. So I have a thought about that.

01:06:52:02 - 01:07:16:10

Unknown

I'm over here. I'm working with a private landowner in Garfield County that wants his land to become useful to carbon or to climate change research, and I've been working with David and others around the campus here to come up with possible research projects there. And this landowner

is a very influential funder in environmental projects around the country, maybe the globe.

01:07:16:12 - 01:07:42:26

Unknown

He was in Paris and he we've been talking about he's very interested in helping to fund carbon. He when he found out that soils under sagebrush ecosystems, if they're healthy sagebrush ecosystems are huge carbon sinks. He got really, really excited. And he's like, wow, how can my land be helpful in that research? And so my name is Sarah, and if you want to talk to me later, please do.

01:07:42:26 - 01:08:11:21

Unknown

And he's inviting proposals and ideas of how to people in this room and beyond might be able to implement his acreage 500 acres in Garfield County. So.

01:08:11:24 - 01:08:51:09

Unknown

Yeah. And so and that's a major component of tax strategic plan now is bio sequestration. And it's I think it's a very exciting frontier. And so how do we manage our rangelands to to accomplish those kind of goals. And that's something that I think we all could work, work on with, with landowners like John. So.

01:08:51:11 - 01:09:18:25

Unknown

Oh yeah. Sure. Yeah. So Patrick Crist with Nature Served just wanted to let people know we put on an annual conservation conference. This one's pretty far away. But if you're looking for a vacation opportunity as well, it's in San Juan, Puerto Rico, the third week of April. It's a full five days of these kind of conservation topics. So if you just go to nature reserve, it's right there on the front page.

01:09:18:25 - 01:09:36:18

Unknown

You can check it out. Yeah. Thank you. Yeah, I think that ties into our conversation here in the communication piece, and that I think just about every group talked about that element as well.

01:09:36:20 - 01:09:55:18

Unknown

So anyone else have something else that came out of our group that there was a lot that came out. So it's hard to include everything was this idea that we want climate. Our group was a climate change monitoring and research group, and we were talking about data and all the same things that we've been talking about. But it was if we want to be able to do it, we got to have funding.

01:09:55:18 - 01:10:27:22

Unknown

And if we want funding, we have to to convince people to think it's cool. And that brought up making all this data and research relevant to

somebody besides us. And, and we were a concept that came up that I think it might be really valuable. And my background is all in education and interpretation is why aren't the interpreters and the educators hearing the conversation of all the work you guys are doing so that they can make it relevant and get people like these incredible funders excited so that they.

01:10:28:00 - 01:10:48:05

Unknown

And maybe one thing that cap can do in the future is invite interpreters from public land agencies to this event or other events to bring them into the conversation so they can start to see the stories that are so valuable and exciting. I mean, if it's all about wetlands, let's get excited about it and, and and hear that story and so that it it goes further.

01:10:48:07 - 01:11:09:16

Unknown

Yeah. Love that idea. I was just going to say in our group, we talked about the same subject and that a lot of times with data, besides having quality issues, you also have issues that people using the data don't understand the data. And how do you get people to really understand on various levels? And we're sitting here in a university talking, and it all a sudden just dawned on our group, you know, why aren't some of those folks involved?

01:11:09:16 - 01:11:28:13

Unknown

And next time we need to get them here, of the people who just really specialize in education and passing this information on helping us to tailor our message so that when we get these tools out there, that people of all different backgrounds can use them and understand what they're looking at and not make bad assumptions about good data.

01:11:28:15 - 01:11:56:02

Unknown

Yes. And putting this into the context of people's lives, I think there's a flier back here about the project. We just finished up with Wetlands in Denver that Pam did, where we we kind of looked at those urban wetlands through more of an ecosystem services lens and connected them to people's livelihoods. And I think we still suffer greatly from the problem that that these challenges are not.

01:11:56:04 - 01:12:18:01

Unknown

The public does not understand how they are connected to their livelihoods. That's actually a great segue for where I actually had that happen. When I was doing photography for that Denver Wetlands project. I was in the neighborhood and a really economically depressed area, and I had, you know, \$10,000 worth of camera equipment hanging around my neck. And I'm going around this wetland trying to take pictures of tiny little pieces of pond scum.

01:12:18:01 - 01:12:40:12

Unknown

And there's these very rough looking kind of ruffians in a little group, kind of looking over at me like, what is he doing pointing a camera at Pond Scum, you know? And they came up to me and as they walked up to me, I have to admit, I sort of looked at my gear and my escape route, you know, because I was in a not very safe neighborhood, but they'd literally asked me, they're like, what in the heck are you doing?

01:12:40:14 - 01:12:59:27

Unknown

And when I explained to him that this is the smallest flowering plant you can find in Colorado, and it's right here, and this is one of the two places we even know in Colorado that it's at right now. These kids got so excited about it and they're like, wow, that's really cool, man. I never knew I thought that pond scum meant that it was just a really unhealthy lake, and they just got fascinated by it.

01:12:59:27 - 01:13:18:24

Unknown

So I think just, you know, it's so true. We have to get that piece out there and make it relevant to people besides this room. Yeah. And I don't think I bet a lot of us in this room have had an experience like that where, you know, when people realize what they have right in their backyard, they're always excited about it.

01:13:18:25 - 01:13:42:22

Unknown

They don't have to care about the environment one bit. But, you know, every time we've found something really cool on private lands, the landowners been ecstatic about it. It's just like, oh my gosh, wow, that's so cool. And so I think that's that maybe that's that's part of the solution of helping people know what they have. And we have we had another one back here.

01:13:42:28 - 01:14:05:08

Unknown

Another question. Me again. Oh please go ahead. I was just going to ask because a couple groups mentioned citizen science. And we're talking about collecting data and more monitoring. And I'm just wondering from CNP point of view, what sort of data would you be willing to throw out to a citizen science type of effort in terms of collection?

01:14:05:09 - 01:14:29:14

Unknown

Like, would it be like a climate change indicator that was pretty widespread or obviously, you know, this is sensitive data. Do you really want it being collected by citizens? We are so excited about citizen science. And I think that Rob. And if Patrick, if you don't mind, I'd love to put both of you guys on the spot for that question, because I think that is part of the formula of what we have to figure out.

01:14:29:16 - 01:14:37:24

Unknown

And Rob is doing some citizen science right now.

01:14:37:26 - 01:14:58:27

Unknown

I don't think this is going to address your question specifically about climate change, but the venture I've had in trying to address a citizen science project for conservation was recruiting rock climbers to tell us where they see bats, because we struggle right now of locating large enough colonies to monitor with the biggest threat that's hitting bats, that's moving its way west white nose syndrome.

01:14:59:04 - 01:15:22:14

Unknown

So where those are, population declines are typically occurring, are at higher vernacular. And we just don't have a huge number of those in Colorado to track to find out if the disease even makes its way here. And so it's a very limited citizen science project to recruit a very specific group for understanding the biology of bats. It's it's probably not as as broad as what you were painting.

01:15:22:16 - 01:15:38:03

Unknown

But I don't want to speak for Dave, but I think there's avenues for us trying to work with communities that are interested in supplying those kind of data. The thing we will have to struggle with, we talked about this in in our group to some degree, is is what do you do with those data? How do you interpret the quality of those data?

01:15:38:03 - 01:15:59:01

Unknown

What can they tell you about what you're trying to monitor, and what does it mean for future projections from those data? Well, and actually, before we put Patrick on the spot, I would love to put Denver Botanic Gardens on the spot about this too, because we're we've have a long running citizen science partnership with them.

01:15:59:03 - 01:16:06:16

Unknown

Is that okay, Jenny or Becky?

01:16:06:19 - 01:16:35:20

Unknown

So we have a couple of different citizen science projects at Denver Botanic Gardens. Becky will talk about one, but in partnership with the heritage Program, we revived the Adopt a Rare Plant program several years ago. And that is one where we did do a training and talked a lot about sensitivity of data. And Jill actually is the one who does the hard part of going through the different species to pick out which plants we actually want to have people go look for.

01:16:35:22 - 01:16:56:06

Unknown

They're usually G2, I think we go for and we do provide people with the data. We do give them element occurrence records, but we have them sign a sensitivity form. And then we do actually ask them to return the sheets

if they're not going to be doing the program anymore, which may or may not have been successful. And then Jill processes the data.

01:16:56:06 - 01:17:20:21

Unknown

And the Native Plant Society has actually been provided some funding to help get the data process and into the database. So that's been one we've started small and then in collaboration with the Natural Areas program, over time, we've had the Rare Plant Monitoring Steward program, and those folks are generally volunteers who come out with us, but we have had them assist independently on seed scouting efforts, not just seed collection, but we do the collections, but they help with scouting.

01:17:20:22 - 01:17:43:06

Unknown

They've helped build fences with the Natural Areas program. They've helped obliterate roads, those sorts of things. But again, it's still kind of small scale. And then Becky can talk about another program we have. So I would say for all citizen science programs, how much quality control that you need and how you use those data really depend on the type of data you're asking folks to collect and how much data there are.

01:17:43:06 - 01:17:59:25

Unknown

And so the programs that Jenny mentioned, those are all programs where we actually have trainings for folks. And then some of them, we're actually out there with them as well. So we're having them help us. An example of a program where you're not with the volunteers and they often don't have much training at all, is the National Phonology Network.

01:17:59:25 - 01:18:20:07

Unknown

So we partner with them to do phonology data collection. And I would say for most of those collections, the utility is in the sheer numbers of data, right? So you have so many people collecting data across the country that really if there's one data point that's wrong, right, it actually kind of gets a wash the rest of the data.

01:18:20:14 - 01:18:38:15

Unknown

And also it's a lot easier to learn how to use those methods. You can go online and learn how to use them. And there's guides, and you don't need to have a workshop in a day long training to give you data collection. And so I would say it kind of depends on what your focus and goal is. If you have a lot of data that volunteers can collect and it's easier, doesn't really matter as much.

01:18:38:15 - 01:18:50:14

Unknown

And if you have data that's a little bit more sensitive and requires a lot of training, then you need to think about how are you using the data the other end, and how well trained your volunteers are.

01:18:50:16 - 01:18:54:21

Unknown

Thank you very much.

01:18:54:24 - 01:19:24:18

Unknown

So just jumping back to the idea of lack of awareness. When I talk to people, I think people are oftentimes very surprised that there's not any state level protection for any plants in Colorado. And certainly it's been a big advancement to have the state wildlife action Plan. The addendum that was is on the way to being accepted, including a list of plants that are of greatest conservation need for Colorado.

01:19:24:18 - 01:19:50:13

Unknown

But the state doesn't have an endangered list of endangered plants or any kind of legislation at all that protects plants in Colorado, and people are usually pretty surprised of that. And I don't know how it fits in with all of what we've talked about. But it occurs to me that perhaps even in a future year, we might consider a breakout group that would address legislative needs.

01:19:50:15 - 01:20:34:10

Unknown

That approach biodiversity conservation needs in Colorado, because I think there are certainly other things maybe related to weeds or mitigation policies or a lot of different things, but certainly the rare plants would certainly benefit, I think, from a state level protection. And in the the, the statewide strategy that we worked on and published in 2009 with The Nature Conservancy and the Rare Plant Conservation Initiative, there's a chapter in that book that addresses the legislative needs for rare plants in Colorado.

01:20:34:13 - 01:21:03:19

Unknown

Yes. Is anybody here good at writing bills? Do you know a bill writer? We need a bill writer. And and and we were going to have Patrick. I would love it if you said just to go back to citizen science real quick. If you could tell us a word about nature, serves citizen science strategy or not. Really. Okay, okay.

01:21:03:21 - 01:21:30:19

Unknown

So citizen science, I had some material on the backbench, but if you go to the Rocky Mountain Research Station's website, on the front page, there's a link to the let me get the name right, National Center, National Genomic Center for Wildlife and Fish Conservation. They're using citizen science to basically go out and get samples, because one of the tools that they're using is environmental DNA.

01:21:30:19 - 01:21:54:03

Unknown

And if you can collect water, you can collect information on presence, absence of aquatic organisms. And we're using that both for identification of presence and absence of sensitive species, but also for

invasive taxa as well. And depending on your appetite for scat, you can also use forensics DNA to determine the presence and absence of wildlife of other types.

01:21:54:04 - 01:22:25:25

Unknown

So. And since Patrick wouldn't speak up, I'll just say the nature serve does have an excellent citizen science strategy that's available on their website. And, you know, it's really pretty in-depth. Look at the benefits of using citizen science moving in the future with biodiversity conservation work. So it's it's excellent. It's really well done. Yeah. And we have a partnership with iNaturalist through that.

01:22:25:25 - 01:22:51:21

Unknown

And in Colorado, our programs actually set up a group in iNaturalist, the floor of Colorado. So if you make observations of plants, you can submit them to that working group. And yes, yeah, I'm with the National Park Service and with the centennial coming up this year, we're knee deep in citizen science with the BioBlitz. So they've been going on annually.

01:22:51:21 - 01:23:29:02

Unknown

And this year National Geographic has been heavily involved in general. But there's kind of a national BioBlitz events going on. And if you can imagine the kind of citizen science challenges we are facing, a lot of these issues right now, I'm not part of that work group, but I'm familiar with some of the issues. All these things are coming up and we're working hand in hand with iNaturalist, and some of the interesting insights that have come, come out through the BioBlitz, as in previous years, is that not only the citizens citizen science initiatives, but the public outreach and education component that comes out of it is almost more beneficial, really, than some of the the

01:23:29:06 - 01:23:53:15

Unknown

data per se. There's different flavors of, of of science. So depending on the questions that you're asking. But the real benefit that we've been seeing is the outreach and education component, which just about every group talks about. And then I participated in the Colorado Partners in Amphibian and Reptile Conservation. I think I got that acronym right. Is there anyone here from that?

01:23:53:16 - 01:24:19:15

Unknown

So there was a herp blitz that was done as well. So there's kind of these interesting citizen science initiatives within Colorado nationally, and it would be an interesting breakout group session as well. But just wanted to mention that the Park Service is needed or up to our ears in it really right now handling some of this stuff. Thanks.

01:24:19:18 - 01:24:42:20

Unknown

So I think that I think that citizen science has a huge role to play. It is under leveraged. I'm wondering if Eric or someone could talk about any opportunities we might be missing to collaborate on citizen science with the state through education programs in schools and things like that. If we're missing something we could leverage with the state a little more closely.

01:24:42:20 - 01:25:03:03

Unknown

And also, I just want to underscore the sensitivity discussion that Jenny talked about. I remember being part of that training in some of the years signing your name, you know, and to the sensitive plant locations and the EOS, and they get into a GPS unit that you own or whatever. Just to underscore that, that is really important for the rare stuff.

01:25:03:03 - 01:25:29:26

Unknown

And I think that there's lots of room for citizen science activities to occur on the not so rare stuff, specially monitoring inventories, habitat, typing, whatever it is, it doesn't have to be the super, super rare stuff. And I can tell you, I watched three sites be extra painted in my career of rare stuff from citizen science, and I don't think writing your name on a piece of paper necessarily works anymore.

01:25:29:27 - 01:25:57:04

Unknown

I hate to say that, but I think there's that unscrupulous element. So commercially, you know, commercially prized stuff like carnivorous plants, cacti, orchids, those kinds of things. Lots of room for citizen science. But please be diligent about the super sensitive stuff. And did you have are we missing something, maybe with schools or with the state that we're not capitalizing on?

01:25:57:07 - 01:26:26:13

Unknown

I, I think so, and I just to reflect on what you said and what Becky said, that I think it's incumbent on this group to figure out what that sweet spot is of where we can collect data that are so easy to collect, and we can get people plugged into things to do that, and that we can manage the sort of the user error factor and still come out of it with something meaningful and just.

01:26:26:14 - 01:26:52:06

Unknown

And like we just said that that public engagement piece needs to be part of the metric. And how we gauge whether it's worthwhile to do because of the power that that has to turn people into people who care about the environment. Sorry. Go ahead. Eric. Well, certainly there's, you know, on the invasive side, people people can get engaged in that in a variety of different ways.

01:26:52:06 - 01:27:25:13

Unknown

And there are apps and online web programs that folks can contribute to, which could be very untargeted in terms of, oh, I saw candidate. This will or more targeted in the sense of for Colorado, we have the noxious weed list, but we also have a watch list where we're actively trying to figure out is this species becoming more common, or are the the instances where we have found them complete one offs and they're really not going to be able to invade a given habitat type in Colorado.

01:27:25:15 - 01:27:46:01

Unknown

So those could be structured. And then also along the same lines, we're developing a framework for early detection, rapid response. That's a select number of species, which I think is much better than saying, well, here's the state noxious weed list of 87 species or whatever it's at. Have fun. You know, here's an instance of cheatgrass, bindweed, Canada thistle.

01:27:46:02 - 01:28:10:21

Unknown

Probably not terribly useful data. And my impression is that people who volunteer really want to feel like they are making a contribution. So I think the burden is on us as people who want to engage citizen scientists to structure those opportunities so that not only do we derive maximal benefit, but they feel like they are able to contribute to something meaningful as well.

01:28:10:21 - 01:28:29:22

Unknown

So rather than just saying, you know, collect whatever you can to really structure in a way that works well for them and works well for us. And there are other opportunities in different fields. I mean, the Christmas bird count is a great example. I don't think anybody called them citizen scientists 80 years ago or whatever when we started that.

01:28:29:22 - 01:29:15:17

Unknown

But that has created such an enormous database, not unlike the phenology work that was that was mentioned before, that has been utilized and analyzed to provide really clear trend data on species across the US in terms of geographic distributions changing because of climate, etc.. So we certainly don't have to reinvent the wheel. And even within our field of invasives, there are some real leaders in different parts of the US, like Georgia and the Bay area where the tools have been created and some of the issues related to data sensitivity or data verification, quality control have been tested and some of the obstacles surmounted.

01:29:15:18 - 01:29:51:22

Unknown

So there are good templates, I think, for us to utilize. And the only the only real challenge, I think, like we're all facing are resource limitations of being able to to allocate sufficient staff time to set those protocols in place, provide the training if necessary, and to vet the data that are coming in so that we can we can have a quality control.

01:29:51:25 - 01:30:09:08

Unknown

Another another theme that came up that I'd love to bounce off folks in here is just the sort of the conversations we had about climate data. I forget which group that was in, but we were talking about the need for.

01:30:09:10 - 01:30:33:07

Unknown

Broader scope of climate data and how we might collect that. And I don't know if there's a citizen science role there, but yes, we were talking about snow data and how great that is, but that we just don't have those kind of data in most places. So, and that really hampers our ability to generate the kind of models that we would like to make.

01:30:33:09 - 01:30:39:08

Unknown

Sarah.

01:30:39:10 - 01:31:19:27

Unknown

So neon offers teacher professional development and so neon the helped me out here. National Ecological Observation Network observatory network based out of Boulder gets a lot of money from NSF, and they have done an incredible job with their citizen science teacher, professional development programing. And I've taken a couple of those online classes, and not only are they introducing everybody to project, but Burst, which is another phenology project, but they're introducing teachers to all these other like iNaturalist and I Bird and Frog watch and I don't I don't remember all of them, but it was just a very well done program that's very accessible.

01:31:19:27 - 01:31:50:27

Unknown

You can get graduate credits from school mines. And it's it's a it's appealing to teachers and then they can do it. And when coming back to your comment about climate data, the Coco Roz program, I think is what it's called, is another one of these things that you can be a family and put out a rain gauge in your backyard, or you can be a teacher or so there's some excellent programs, and there's access to training teachers and enabling garden clubs and whoever, Kiwanis clubs and the list goes on.

01:31:50:27 - 01:32:16:03

Unknown

So and also, I can't help but mention Colorado River watch is a tried and true test of how you can get students and teachers collecting data that's very viable, and it's going into all kinds of repositories of data. And so don't forget about that one. Yes. Thank you. Yeah, it's an exciting citizen. Science is such an exciting frontier.

01:32:16:03 - 01:32:59:21

Unknown

And we're we have we have about 12 minutes until 4:00. And does anyone have any other things really that kind of jelled in your mind as we were

having these conversations? I mean, I feel like data how we how we aggregate data and how we kind of make that available to key stakeholders is something really important that all of us can think about and figure out and how do we fund and, you know, leverage sort of, you know, surveys and monitoring and the collection of data that enables us to roll things up to the to these products that people really want.

01:32:59:22 - 01:33:17:12

Unknown

Now, I think we're we're feeling that it's, you know, that actual boots on the ground part that's critical to having quality data is it's quite difficult to fund and find partners to help make that happen.

01:33:17:14 - 01:33:40:28

Unknown

And we we'd also talked about vegetation maps and the need for for better maps. That's something that our program has been thinking about quite a bit. I know our partners at nature Serve and the other heritage programs are working really hard on figuring out how we how we can pull data together. You know, Forest Service in our CS, BLM, have all of these data sets all over the state.

01:33:40:28 - 01:33:56:04

Unknown

And maybe there's a way that we can pull all that stuff together to start making a more comprehensive map. And I feel like there's some really sweet spots there that, that we can work on.

01:33:56:07 - 01:34:00:07

Unknown

Seth. Seth.

01:34:00:09 - 01:34:17:09

Unknown

Well, since you're mentioning the vegetation coverage data sets, I mean, the big issue there that I see is money. I mean, CBW, when it was CW used to do that, but we had two main funding sources. We had a funding source through the feds for The Gap and regroup, and then we had a funding source through Goku at the time.

01:34:17:13 - 01:34:37:01

Unknown

But those efforts were multi-million dollar efforts. One one 2 million basin wide was almost four. And we have the technology now to do a much better job than what we did back with basin wide, with the remote sensing technology and with the imagery that's out there. But the issue of how you because a lot of that was ground crews as well.

01:34:37:01 - 01:34:57:15

Unknown

But you need to fund remote sensing people and you know, how do you I mean, because that's where we are. Our resources are at a level we don't have 2 or \$3 million that we can pull into a project over, say, 3 or 4

years. Yeah. And it doesn't seem like anyone else does. The Forest Service is doing land fire, but that's focused more on trees.

01:34:57:18 - 01:35:19:16

Unknown

That's why one of the reasons why our basin wide vegetation layer that we did back from imagery from 98 through 2000, continues to get used all the time, is because we put a lot of time and effort into try and get shrub communities, which are pretty tough. Yep. And but if you don't have the money to, to to go there to do a statewide thing, the Forest Service does their mapping.

01:35:19:16 - 01:35:38:14

Unknown

They're happy with their mapping. Someone else over here does a map for them. They're happy with their mapping. But to get the money to do a comprehensive and how you pull together partners and having people give Forest Service gives us much or BLM gives us much, because if they already have a product, they'll say, well, we're covered for our land, so we're good.

01:35:38:16 - 01:36:16:15

Unknown

Yeah. You know, the presentation about Browns Canyon this morning got kind of got me thinking about that, though. We have two different agencies, and we have kind of a need for a vegetation map of that, of that monument. But we're kind of speaking two different languages across these different jurisdictions. So, I don't know, it feels like there's this huge opportunity to try to aggregate some of these things and pull the signals out of these different kinds of maps to create something that that can meet multiple needs.

01:36:16:18 - 01:36:34:02

Unknown

So, I don't know, I think it's anybody else have have thoughts you want to kind of put out there while we have all of us together? I, I saw Steve and Mark.

01:36:34:04 - 01:37:03:25

Unknown

So I don't know if this is an exercise that is worth doing if it needs, if it's something that makes sense to do or if it's just creating more work. But perhaps if everyone in this room were to send a central person at CNP, a list of the data needs that they thought would be useful to them that CNP is not providing currently, maybe that would amount to a common theme that would help guide your strategy for what services you might offer and out yours that.

01:37:03:25 - 01:37:29:24

Unknown

Thank you, I would love I think we would love that. Yeah. Email. You can email me can email Michael anybody at the program. Mark. Sure. And then my piece was was loud. Just kind of thinking about the citizen science element again. And because we were part of extension or several of us in

here are we've got access to 10 to 11,000 for across the state and located, you know, it's not just the kids, it's also their families.

01:37:29:24 - 01:37:54:03

Unknown

So you're probably multiply that by another 2 or 3 at least that we can have a kind of a contained group that we can send stuff out to create programs, competitions and contest whatever you want to that we could use again to collect certain pieces of data that you might want to gather. That's a giant opportunity. Yeah. Thank you Mark, that's a really good idea.

01:37:54:04 - 01:37:59:21

Unknown

That's we need to think about that.

01:37:59:24 - 01:38:26:00

Unknown

Well, I wanted to probably kind of start wrapping it, wrapping us up here. I wanted to just tell you that in the middle of working on a new strategic plan, we're planning to take your input from today and really make that a cornerstone for developing a plan that we intend to really meet your needs and move us into the future, the next several years.

01:38:26:02 - 01:38:51:10

Unknown

So I wanted to really extend a heartfelt thanks to you for for all of your input and thoughts and creativity and information today and for all of your partnerships, this is going to really help propel us forward. And and the idea for this meeting was that it would be useful to all of us. And so we'll share the outcomes of this meeting with you.

01:38:51:13 - 01:39:09:26

Unknown

I'll be we'll be preparing some notes from the meeting that I'll email to you. We'll have all of this on our website. And all the sessions today, including this one, will be streamed for you to share with anyone back at your office that didn't get to come.

01:39:09:28 - 01:39:34:04

Unknown

Are there any I think you know, just thanking you for coming and being grateful for for all that you all did today, especially our speakers who worked really hard to keep us on track and really give us the key exciting pieces to get us inspired about our work. But thanking all of you for for being here and for your thoughts.

01:39:34:07 - 01:40:06:15

Unknown

And that I will also be sending you a survey to just ask you a few short questions. We did this last time and it was extremely helpful for setting this meeting up. We would really like to get your thoughts on this meeting, and on how we could do it better, and whether you would like to do something like this once a year or every couple of years, or starting

to kind of think about timing and how often we should do this, because this time we took two years in between.

01:40:06:18 - 01:40:16:22

Unknown

So we'll be asking you a few questions here. And.

01:40:16:25 - 01:40:21:08

Unknown

So.

01:40:21:10 - 01:40:42:03

Unknown

So yeah, so this is kind of what we have. We're going to send you the notes and a link and a short survey. Oh I already said all that. Okay. And if you have any thoughts about this meeting, anything you just wanted to while you have it in your mind. Give me a call or talk about. Please feel free to do so.

01:40:42:04 - 01:41:06:07

Unknown

This is my cell phone and Lee Grinnell was very was instrumental in getting this off the ground to. And so either she or I would love to talk with you. If you have have thoughts that you want to share with us about this, and the fun is far from over. We can you guys all see that. Are these things blocking it?

01:41:06:09 - 01:41:08:27

Unknown

We.

01:41:09:00 - 01:41:29:15

Unknown

Have a happy hour scheduled at the Mayor of Old Town, which is a bar and restaurant nearby. This is how you walk there. From here we have the front of the restaurant reserved for us, and if you get there before anyone else from our group does, you should see they said they were going to kind of put signs or rope it off somehow.

01:41:29:15 - 01:41:54:28

Unknown

So it was obvious where our spot was. And I know a bunch of CNRP people are going to go over there and they can walk with you if you want to just kind of have a nice walk through campus to get over there. 632 self okay. 632 South Mason. So if you put that in your iPhone, it'll take you right there.

01:41:55:01 - 01:42:16:09

Unknown

So I hope that there were some people who responded to the VP who said they wanted beer. So we have provided it through the mayor. So we would love to just kind of keep the conversations going there informally. And thank you so much for coming to Fort Collins and being with us today. This is wonderful.

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