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Colorado Natural Heritage Program
Partners' Meetings
Transcription of 2020 CNHP Partners' Meeting

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BEGIN TRANSCRIPTION

00:12:10:16 - 00:12:24:10

Unknown

Good to see you. Yeah. Got a real good turnout. I'm so glad that you noted that. Like this next week. Yeah.

00:12:24:13 - 00:12:44:22

Unknown

I.

00:12:44:25 - 00:12:54:10

Unknown

Scramble that.

00:12:54:13 - 00:13:00:10

Unknown

We give him a little heads up with, like, a two minute.

00:13:00:13 - 00:14:38:06

Unknown

Hello? Can you hear me? Okay. It's working. Welcome to the CPP partners meeting. We're going to get going in about a minute and a half. So if you want to find your seat, we'll let you get comfortable and fill up your coffee. And then we'll go ahead and get started with the program.

00:14:38:08 - 00:15:05:10

Unknown

Yeah. Here you can be. You can be here. I'm just gonna I'll just do a quick intro of things and then turn it over to you. Thank you so much. I'm so happy to do this with you. This is awesome. It's a pretty good. It is. I guess people haven't gotten completely freaked out. Yeah, yeah. Virus. So that's good.

00:15:05:13 - 00:15:14:03

Unknown

Well, I think we'll just go ahead and get started here. As people find their seats.

00:15:14:06 - 00:15:45:19

Unknown

Welcome to the fourth biennial CNP partners meeting. We are absolutely delighted to be here with you. And that you have come despite global pandemics. Means really means a lot to us, and you're probably safer here than you were wherever you came from because, you know. But so Griselda and I are going to demonstrate the official 2020 CNP partners meeting handshake.

00:15:45:21 - 00:15:52:20

Unknown

So broke that it's hard to break those habits. And.

00:15:52:22 - 00:16:18:26

Unknown

We I think we have hand sanitizer at the table. We encourage you to wash your hands a lot and to not have any hard feelings. If we don't shake hands today, we can still be good partners without shaking hands. So, and CSU is really paying attention to the Covid 19, and we're doing the universities doing a great job of staying on top of this.

00:16:18:28 - 00:16:36:13

Unknown

So wanted to make sure everyone knew where the bathrooms are. So if you go down the hall, there's some to your right and some to your left. There's also when you take a left, there's also a lactation room over there that's really nice.

00:16:36:15 - 00:16:56:15

Unknown

There's ads down the hall that way too. Hopefully we don't need those, and you can feel free to get up and get coffee and food whenever you feel like it. And a few of you have told us that you need to come and go for classes or things you have going on, that's fine. Do whatever you need to do inside the room here.

00:16:56:15 - 00:17:16:24

Unknown

We've got a couple of tables back here where if you have brought things and haven't put them out yet, you're welcome to do so on those tables. We have a lot of free stuff from CNP there for you as well. We also have a couple of videos and a couple of story maps on the computers in the back for you to look at during the breaks.

00:17:16:26 - 00:17:43:27

Unknown

We're also streaming this live right now on a YouTube channel. And so welcome to all of you online. When I was back there about ten minutes ago, there are already four people online. So thank you for joining us remotely. If anyone online has questions for us during the day, you can

go ahead and email Janet Miller. And her email is on the YouTube landing page there that I sent out to everybody before.

00:17:44:00 - 00:18:12:00

Unknown

This is the first year of the Western Conservation Collaborative Networks Confluence Conference that's hosted by the center for Collaborative Conservation. So we're partnering with them to host the partners meeting in connection with the Confluence Conference, which starts today, this afternoon. And you're all invited to participate in the confluence sessions. And I'll show you how you do that in a couple of minutes.

00:18:12:02 - 00:18:37:28

Unknown

And they are also invited to come and join us for our workshops. So we're really excited to be partnering with the Confluence Conference today. And that conference continues in this room, and ballroom C, which is next door on this side. Over the next two days, and we'll be serving lunch over in the ballroom next to you here. And that's also where a couple of our workshops will be.

00:18:38:00 - 00:18:42:13

Unknown

So I'm going to.

00:18:42:15 - 00:19:05:12

Unknown

Just quickly introduce you to what we're doing today. We're going to do our overview. And Griselda Land Opposes is going to offer us a land acknowledgment. And then you're going to hear from our dean of the Warner College doctor, Doctor John Hayes. And then we'll do some networking fun things together. So I'm going to go ahead and turn it over to Griselda.

00:19:05:13 - 00:19:24:24

Unknown

Now, Griselda was one of our interns this year, and she is absolutely wonderful to work with. So take it away. Well thank you Dave. That's a good start to the day. You make me feel good. Okay.

00:19:24:26 - 00:19:52:16

Unknown

So Colorado State University acknowledges with respect that the land we are on today is the traditional ancestral homeland of the Arapaho, Cheyenne and the Ute nations and peoples. This was also a site, a site of trade gathering and healing for numerous, numerous other native nations we recognize.

00:19:52:19 - 00:20:29:06

Unknown

We recognize the indigenous peoples as original stewards of this land and all the relatives within it. As these words are spoken and heard, the ties of nations to their traditional homelands are renewed and reaffirmed. CSU is founded as a land grant institution, and we accept

that our mission must encompass access to education and inclusion, and significantly, that our founding came at a dire cost to the native nations and people whose lands this university was built upon.

00:20:29:08 - 00:20:48:07

Unknown

This acknowledgment is a education and inclusion that we must practice in recognizing our institutional history and responsibility and commitment. Thank you.

00:20:48:09 - 00:20:54:07

Unknown

Thank you so much, Griselda.

00:20:54:09 - 00:21:14:14

Unknown

So this is our agenda today. I'm not going to go through it. And you probably pick that up at the registration table. But in all of these materials are also on our website. But wanted to point out that the agenda set up to build time in for you, for networking and meeting everybody who's here at the partners meeting.

00:21:14:16 - 00:21:20:19

Unknown

And so everything in yellow is time for you to do that.

00:21:20:21 - 00:21:34:03

Unknown

In order to keep an ambitious agenda like this on track. We have a timekeeper. Who is Rob Shaw? Rob, would you. Okay.

00:21:34:06 - 00:22:16:26

Unknown

Yes. That's right. So. So Rob will get. Yes. Rob's going to get going after the panel since our facilitator will keep that on track. So wanted to offer some acknowledgments to the folks who are helping us to host this meeting. First to our dean of the Warner College, John Hayes. Also to Bryce Maxwell and Alan Cox at the Montana Natural Heritage Program, who instilled the idea of doing partners meetings here at CNP, and also for Gary Beauvais, director at the Wyoming Natural Diversity Database, who's also doing partners meetings and from whom we've learned a lot about doing this and with whom we love to collaborate.

00:22:16:28 - 00:22:38:24

Unknown

Gary is here today as well, so you'll get to meet him. I wanted to thank all our speakers today and our students who have been able to join us and really wanted to thank our conference services partners who are making everything run flawlessly here. And they are Jessica, Andrew and Ashley and all of the catering and event staff.

00:22:38:24 - 00:22:51:10

Unknown

And in the room with us right now are Jason, Kelby, Lars, Haley and Ryan.
And thank you all very much for.

00:22:51:13 - 00:23:19:13

Unknown

And wanted to especially thank CNP donors who have been funding a lot of wonderful work at the program, some of which you're going to hear about today. And of course, you for being here with us. So partners meeting is a biennial tradition. This is our fourth one. Over the years, it's grown and is hovering now at around 150 ish people who are paying for it.

00:23:19:13 - 00:23:50:08

Unknown

And the purpose of doing this meeting is has there's several purposes for doing this, one of which today is to bid farewell to one of our staff, Kelly Anderson, who is leaving our program to go and join Florida's Natural Heritage Program, which is called the Florida Natural Areas Inventory, as a botanist. So that's I'm really happy that she's staying within our network of heritage programs, and maybe we'll get to work with her in that new role sometime.

00:23:50:10 - 00:23:56:25

Unknown

And also wanted to.

00:23:56:27 - 00:24:00:08

Unknown

Just.

00:24:00:10 - 00:24:26:00

Unknown

Kind of go through some of the reasons that we started doing this are to connect the key members of Colorado's conservation community, recognizing that that's surprisingly hard for a lot of us to do, providing a forum for communication across different conservation efforts and enhancing our collective effectiveness by strengthening our network and ourselves and leveraging work that we're doing.

00:24:26:02 - 00:24:56:02

Unknown

And we'll we'll be highlighting successes and important developments in conservation in Colorado today, and we'll identify priorities that we can address together in ways that we might do that. And also wait, come back. We're also celebrating caspase birthday today. We have turned 40 years old, and as probably happened at this party, you all get a present for joining us.

00:24:56:02 - 00:25:22:18

Unknown

Our present is that you are here at the partners meeting. So we have a gift for you. It is a beer cup, a pint glass. And because of rules for conference services, they ask that you take it when you leave because it can't be used here in the student center. So but please be sure to grab one of those before you go, whenever that might be.

00:25:22:20 - 00:25:49:07

Unknown

And they're going to be in the back here by the tables. And so some of the things that happened over our 40 year lifetime is that we were founded in 1979, and we were called the Colorado Natural Features Inventory as part of Colorado's DNR. Then then in 1992, we got established as Colorado Natural Heritage Program at the University of Colorado Museum.

00:25:49:07 - 00:26:20:09

Unknown

And Chris Page was our director at that time. And then in 1994, The Nature Conservancy helped CNP move to CSU. And that was led by Rick Knight, Dave Armstrong and Chris Page. And Rick and Chris are both here, which is wonderful today. So it's nice to celebrate our birthday with with them and with all of you. So we have we currently have a strategic plan which is on the back table that we're very proud of.

00:26:20:10 - 00:26:40:10

Unknown

We wrote a new mission statement for that actually, in honor of Saint Patrick's Day, I wrote us another mission statement in Limerick form. The singular work of our group is to keep all our friends in the loop by mapping rare creatures based on their features, and sometimes based just on their poop.

00:26:40:13 - 00:26:48:20

Unknown

But our actual mission statement is thank you. And.

00:26:48:22 - 00:26:59:26

Unknown

So we advance the conservation of Colorado's native species and ecosystems through science, planning, and education for the benefit of current and future generations.

00:26:59:28 - 00:27:27:07

Unknown

So our program is part of the Nature Serve network. We are in nature Serve network member program. And as with the National Park Service, there is a Washington Office of Nature serve here in Boulder. And Pat Comber is here from that program to represent nature serve today. And the nature serve network is big. It includes over 80 programs throughout the Western Hemisphere.

00:27:27:09 - 00:27:37:19

Unknown

And we're actually housed at CSU. We are part of the Warner College in.

00:27:37:21 - 00:28:13:26

Unknown

At at Colorado State University, and we are called a sponsored program of the university. So over the years, we've played some foundational roles

and some big things, and all of our achievements have been in science and convening roles with you. And so what better time to reflect on that than this decadal birthday celebration? Our core mission is to document what we have in Colorado, figure out what is rare, find out where the rarest elements are and how they're doing, and identify the best landscapes for conservation action.

00:28:13:26 - 00:28:44:13

Unknown

And so these are three of the biggest conservation success stories in Colorado over the last 40 years. And CNP played a role in all of those. We we helped to catalyze partnerships and conservation on private lands in southeast Colorado and the upper left. We did field work supporting the creation of the Great Sand Dunes National Park and Preserve on the upper right, we collected data to characterize the importance of conserving the Red mountain open space and soapstone prairies in the bottom left.

00:28:44:13 - 00:29:18:04

Unknown

And so our core mission work supported the success of these efforts. And all of these projects involve diverse groups of stakeholders coming together to implement a common vision. And so our fieldwork and data provided a quanta by which we collectively could articulate and measure the the impact of these big projects. And in that way, the work that CNP does is unique.

00:29:18:07 - 00:29:39:16

Unknown

We are as part of the nature Serve network. We are based in a university, which makes us different than most other heritage programs. There are 15 throughout North and South in Latin America that are part of a university.

00:29:39:19 - 00:29:42:09

Unknown

So.

00:29:42:12 - 00:30:11:07

Unknown

In the hoops come back here. We're a soft funded part of Colorado State University and and we have a very small amount of dedicated annual core funding at CNP. Most of our core funding comes from the Warner College of Natural Resources and The Nature Conservancy. Relative to all of the other programs, we have a relatively small, dedicated annual core budget.

00:30:11:09 - 00:30:34:27

Unknown

So comparing us to other programs, here's looking at Montana, montana's at unique program and that they're they have been connected to the University of Montana and Montana State Library, their core, their dedicated annual core funding is a little south of \$500,000 a year.

00:30:35:00 - 00:31:10:12

Unknown

And our neighbors in Wyoming also receive core funding for their work of about \$340,000 from a state appropriated block grant. And these these funds core fund, these fund, core program operations, services and staff at those programs, they our our neighbors are doing really amazing things with these funds. They they use these as resources with which they can proactively address state priorities and really be the go to source in many different ways in their states.

00:31:10:12 - 00:31:36:04

Unknown

And so we are seeking your help to fix this in Colorado. We are hoping that you might be able to help us create flows of annual dedicated core funding to CNP through connections you might have. Are there funds out there that that you think might be able to get directed to helping us accomplish this? And so once we get core funding, we have a few ideas of what we'd like to do with that.

00:31:36:07 - 00:32:09:10

Unknown

We'd like to more proactively conduct investigations of priority species, landscapes and systems. We plan to host an interagency wetland Council for Colorado, provide more data and services to you. Start creating special reports, including an annual state of the state report on Colorado's conservation, and come back here and make maps and conduct analyzes for Colorado's municipalities, governor, legislature, counties, all sorts of partners.

00:32:09:12 - 00:32:29:18

Unknown

So we're inviting you to share your ideas today, and we've set ourselves up for success in doing that, I hope, and I'll let Andrea or Sarah tell us how that's going to work.

00:32:29:20 - 00:32:59:01

Unknown

We decided to join you. So in recognition of the wonderful brain trust that we have in this room and all the great ideas that you bring from your respective organizations, you'll notice on your tables there is a nice 11 by 17 sheet. And then at the back of the room you'll see some brainstorming boards. And we'd love for you to think about ideas and response to these questions, or any other ideas on kind of role in conservation.

00:32:59:02 - 00:33:19:16

Unknown

Future conservation needs across the state and share them. And ideally during the social breaks. We'd love for you to brainstorm together as well. And you'll also see some sticky notes that you can put up on the boards in the back. And if you really like someone else's ideas, feel free to put a checkmark or a star, a smiley face or something next to that as well.

00:33:19:16 - 00:33:43:13

Unknown

So thank you for all being here. Great. Thank you. Yeah. And Sarah and I will take turns in the back to help place those things up there. But we're we're really hoping that we can all benefit from this brainstorming session and sharing of ideas. So so we look forward to hearing what you guys have to say. Thanks.

00:33:43:15 - 00:33:55:06

Unknown

Thank you, Sarah and Andrea, we're going to welcome our dean, John Hayes, up to the podium here.

00:33:55:08 - 00:33:58:14

Unknown

Sure.

00:33:58:16 - 00:34:24:28

Unknown

Well good morning. I'll try to be brief. I know you've got a lot of exciting conversations to have later on today, and I know I'm just sort of the road bump on your way to those conversations, but I do want to say a couple of personal notes before we get started here. You know, Dave mentioned at the very beginning of his presentation that he suspects that you probably should feel safer here than wherever it is you came from.

00:34:24:28 - 00:34:44:00

Unknown

And I can assure you, as a dean, dealing with tough issues, being a month amongst a group of conservationists, I definitely feel safer here than where I came from. At least I did until Dave started lobbying me for more core funding. I.

00:34:44:02 - 00:35:08:15

Unknown

The. But anyway, it's great to be here and this beautiful setting here in this in this great room overlooking the foothills. Hopefully you'll get a chance to get outside a little bit today on this this great spring day, I guess I can call it. There's a bit of symmetry in this for me. I've been here for six years now, and the first time I met Dave, he gave me a pint glass.

00:35:08:18 - 00:35:33:12

Unknown

So there's something really nice and symmetrical about this. It was celebrating, celebrating the CNP when I arrived with that glass. But yeah. Happy birthday to the CNPC. We're so proud to have the Colorado Natural Heritage Program as part of the Warner Call College. And you know, for me, I was attracted to this position and this university for a couple of reasons.

00:35:33:12 - 00:36:02:19

Unknown

One is that I feel like if you look across the country and maybe across the planet, I'm not sure about that. But if you look at natural resource

programs, I think we have a particularly strong one, not only because of the strength of the individual disciplines, but we're we're a little bit unique in that we've got strong programs in physical sciences and social sciences and ecological and biological sciences all under one umbrella.

00:36:02:19 - 00:36:34:12

Unknown

So that gives us a certain core strength. But the other thing that really adds incredible value to that is the programs like CNP that are I think about as our nonacademic programs that are an integral part of our college. And so we've got CNP, the center for Collaborative Conservation. John Sanderson, our new director, is here representing that program, the center for Environmental Management of Military Lands, the Colorado State Forest Service, and a number of other centers and programs that are embedded within our college.

00:36:34:12 - 00:37:06:24

Unknown

And one of the things that I had set as a personal goal and in this position for myself, is doing what I could to link those programs together, both within the university and within our academic programs and our academic departments. The in addition to that, the the nonacademic programs linking those more tightly with our academic programs in both directions to add value there as well as to outside partners and stakeholders.

00:37:06:24 - 00:37:30:13

Unknown

And so this is a great example of of some of that work. So thank you, Dave, for pulling pulling us all together here. I really feel like this sort of meeting is, is really is central to what we're trying to accomplish through those connections that you all are making today and have made in the past.

00:37:30:15 - 00:37:55:19

Unknown

I thought, you know, in thinking about this morning and the 40th anniversary of this amazing program, it caused me to think back a little bit. And, you know, Dave showed some great highlights of what what the program has accomplished in the last 40 years. But it's really been a pretty amazing 40 years from a conservation and environmental science standpoint as well.

00:37:55:19 - 00:38:25:19

Unknown

And it's almost hard to imagine what it was like 40 years ago. And so, you know, I was thinking back personally, you know, I was just about to enter graduate school at that time, and I completed my master's thesis using a typewriter, you know, which is kind of amazing. You know, in some ways it wasn't that long ago, but technologically, how far we've come in that length of time.

00:38:25:21 - 00:39:02:04

Unknown

The Vietnam War had finished about five years before this program was established again. In some ways it feels like ancient history, but had such an amazing impact on so many of us in the room here and in our society. And but on an on a conservation standpoint, it's really been a time of amazing change. The the theories of island biogeography and and metapopulation biology theory was was only about ten years old when when CNP had established.

00:39:02:04 - 00:39:42:15

Unknown

And we were really just beginning to think at that time very deeply about larger landscapes and conservation at at larger scales. The term global warming had only been coined five years before CNP was formed, and at that time it was sort of an issue that, you know, was a bit theoretical and maybe it was going to have some impacts to future generations and the speed at which the impacts of, of climate change has occurred is pretty remarkable.

00:39:42:15 - 00:40:15:13

Unknown

And as impacting everything that that we see around us, and certainly from a conservation perspective, the term conservation biology was only two years old when CNP was formed. And although the the basic foundations for technology like GIS had already been been formed, there was no commercial software available to actually do GIS work at the time CNP is formed.

00:40:15:14 - 00:40:54:08

Unknown

So an awful lot has changed in the last 40 years. And so, you know, when I think about those sorts of things and I think back about, first of all, what we've accomplished, but the incredible challenges in front of us, and you think about the amount of change that we've seen in that length of time. And I'm absolutely convinced that that amount of change, both in our thinking, but also that the issues and the concerns that we're facing that are facing us, although they have been great in the last 40 years, they pale in comparison to what we're about to face in the next 40 years.

00:40:54:08 - 00:41:22:22

Unknown

So what do we do in light of that? How do we position ourselves to address these incredible conservation issues and challenges that will be facing us in the coming decades, with the level of uncertainty about how those things are going to unfold? We're right now, you know, on the front edge of a pandemic, it's a little hard to know what all the impacts of that are going to be.

00:41:22:25 - 00:42:16:08

Unknown

But but a couple of weeks ago, a month ago, this was on nobody's radar screen. And to me, it's it's a piece of the story that's almost forgotten is that this pandemic, in all likelihood, it started because of the way that individuals in China were engaging with wild animals by bringing them into the marketplace and eating them, possibly pangolins, of all

things, you know, a serious conservation issue with that species and the way that we've interacted with that species is resulting in this incredible set of health issues that we're all thinking about probably multiple times every hour right now, how that will play out.

00:42:16:09 - 00:42:49:03

Unknown

Who knows what's going to happen in the months and years to come? It's easy to get, you know, a sense of panic or pessimism around that, and I don't really feel that. But what I do feel is that we need to be thinking deeply, not about how to address the conservation issues that are facing us today, but what are the likely challenges that we're going to face tomorrow, and how do we position ourselves today so that we can address those?

00:42:49:04 - 00:43:18:19

Unknown

So as you're going through your meeting today, I'd encourage you to from time to time, think about that. It's so easy for us to look back or look here today and try to think about how are we going to address these problems. Probably equally important, or I would argue, probably a lot more important is how do we position ourselves to address those future changes that are undoubtedly going to come with a lot of uncertainty.

00:43:18:20 - 00:43:44:13

Unknown

So how do we create our networks? How do we create our organizations? How do we position ourselves in a way that enables us both to address the current issues we're facing, but with the degree of nimbleness that positions us to be able to turn on a dime to address whatever that next big conservation issue might be. So with that, I want to thank you for being here.

00:43:44:13 - 00:44:09:04

Unknown

I wish I could spend more time with you this morning. Actually, the the issues with coronavirus are hitting us hard here at the university as we think about how are we going to position ourselves with all of our students departing next week for spring break, going wherever they're going to go to and then presumably coming back after that?

00:44:09:04 - 00:44:31:16

Unknown

And so the universities really struggling with that right now. And so unfortunately, that's eating up a lot of my time. And I'm not going to be able to spend much time with you today. But I will make a connection later on with the confluence Group. And with that, have a wonderful meeting and enjoy the beautiful day outside today when you get the chance.

00:44:31:16 - 00:44:48:00

Unknown

Thanks a lot!

00:44:48:02 - 00:45:11:26

Unknown

John made me reflect on my training when I first got to see N.P. and Jill. Handwork trained me how to punch out the dots and glue those on to 7.5 minute quads to put element occurrences into CNP database, which we had backed up on paper. All of the spatial part of that happened on paper at that time in 1999.

00:45:11:26 - 00:45:17:24

Unknown

So we've changed a lot. And so.

00:45:17:26 - 00:45:21:16

Unknown

I.

00:45:21:19 - 00:45:50:06

Unknown

Wanted to kind of start off with, with this fun tradition that we do at the partners meeting of helping everybody get to know each other in the room. And I thought I'd start off with our staff. This is kind of an old staff picture. We kind of need to take a new one. But with the CNP staff stand up so that everyone can see who you are.

00:45:50:08 - 00:46:01:19

Unknown

And they're here to help you with anything that you need today, and to talk with you and hear your ideas. So.

00:46:01:21 - 00:46:29:02

Unknown

And I really like to talk about the topology of social networks, because the partner's meeting is kind of all about that sort of understanding our role within networks and, and recognizing the importance of networks, and that we are much more effective when we have enhanced connections ourselves and and that we're more effective when all of our colleagues and partners have better connections among themselves.

00:46:29:02 - 00:46:55:22

Unknown

And the size of the network that we exist in makes a huge difference for us. And so I like this diagram a lot. It's a very old diagram of different types of networks. And the centralized one kind of represents how governments work. Decentralized is kind of like how Facebook is and distributed network is how the internet works. And and all of them are kind of weak in some ways.

00:46:55:22 - 00:47:19:26

Unknown

Any one node on these diagrams doesn't have very many connections. And for us as professionals, it's better to have way more connections than any of these diagrams have. And some of you may sometimes, or more than you want, feel like the independent diagram where you're all alone. And

that's if you feel that way. Then we are extra glad that you are here at the partners meeting, because we're going to fix that problem.

00:47:19:26 - 00:47:49:27

Unknown

And so I'm curious how many of you are already know five other people in the room. Raise your hands. Okay, that's pretty good. How many of you already know ten people in the room? Wow. How about how about 20 people in the room? And how about 50 people in the room?

00:47:50:00 - 00:48:21:18

Unknown

I should have, yeah. Okay. Yeah, yeah. Denise, I believe that. Or everyone does it. Anyone in the room know everybody in this room? So therefore, there is a huge opportunity for us to strengthen our networks. And so we've left time in the agenda for us to go around the room and introduce ourselves. And we think that will help you see, like during the break, I've really I've been emailing with that person for five years and now I can actually go talk with them.

00:48:21:18 - 00:48:37:21

Unknown

So let's go ahead and we can start with this table in front. Andrea, human wildlife ecologist with the National Heritage Program.

00:48:37:24 - 00:48:41:25

Unknown

After.

00:48:41:27 - 00:48:58:22

Unknown

Do you want to just go back that way maybe we can zigzag through.

00:48:58:25 - 00:49:20:18

Unknown

Know all of this.

00:49:20:20 - 00:49:27:22

Unknown

Trails.

00:49:27:25 - 00:49:31:29

Unknown

Or.

00:49:32:01 - 00:49:39:08

Unknown

System systems.

00:49:39:10 - 00:49:50:04

Unknown

And director of conservation at.

00:49:50:07 - 00:49:57:02

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Conservation Scientists Conservancy.

00:49:57:04 - 00:50:11:13
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On the invertebrate Zoology.

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University of.

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Executive director.

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Conservation.

00:50:58:13 - 00:51:19:07
Unknown
And.

00:51:19:09 - 00:51:27:10
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Landscape.

00:51:27:13 - 00:52:01:16
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Extension. But I don't worry about.

00:52:01:19 - 00:52:05:08
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Field of the.

00:52:05:10 - 00:52:21:14
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National district collections of the different but personally assistant curator.

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And manager.

00:52:26:06 - 00:52:31:22
Unknown
I am Director of Arts and recreation for.

00:52:31:25 - 00:52:58:01
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Celestron and.

00:52:58:03 - 00:53:19:19

Unknown

I am also.

00:53:19:21 - 00:53:26:21

Unknown

In September 2015.

00:53:26:24 - 00:53:31:24

Unknown

And.

00:53:31:26 - 00:53:35:00

Unknown

Also.

00:53:35:02 - 00:54:44:00

Unknown

I love and.

00:54:44:02 - 00:55:50:15

Unknown

Landmark program.

00:55:50:18 - 00:56:10:19

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In Colorado.

00:56:10:21 - 00:56:15:20

Unknown

And.

00:56:15:22 - 00:56:52:09

Unknown

For.

00:56:52:12 - 00:57:07:02

Unknown

The city letter of the Program Manager for the Colorado State Conservation Board and the Department of Agriculture, and also the climate and also some health programs that could be used for our initiatives.

00:57:07:05 - 00:57:18:09

Unknown

Or.

00:57:18:12 - 00:57:27:21

Unknown

The environmental scientist would be.

00:57:27:24 - 00:58:00:19

Unknown
Director.

00:58:00:22 - 00:58:11:12
Unknown
For.

00:58:11:14 - 00:58:16:24
Unknown
Jessica Smith on The Botanist, with.

00:58:16:26 - 00:58:25:13
Unknown
Director, stewardship the Bird Services. With our.

00:58:25:15 - 00:58:30:08
Unknown
That on our website.

00:58:30:10 - 00:58:34:26
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I say in the.

00:58:34:28 - 00:58:46:15
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Program.

00:58:46:18 - 00:59:04:00
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With the.

00:59:04:02 - 00:59:11:27
Unknown
Be here. I came to Colorado 25 years ago, the Colorado National Park.

00:59:12:00 - 00:59:23:19
Unknown
And six months into my new job as director of the center for
Collaborative Conservation. Also, shameless plug we did.

00:59:23:21 - 00:59:26:27
Unknown
Your job.

00:59:27:00 - 00:59:52:13
Unknown
But we also had both days, and we had next couple of days that you go to
the website, you'll see that registration is closed, but in fact it will
be open by starting this afternoon. We'll be in this room and after the
next door, and it's going to be another, I think, tremendous opportunity
for networking among many people across the West.

00:59:52:15 - 00:59:57:09
Unknown

And there will be a lot of.

00:59:57:12 - 01:00:24:18

Unknown

Thank you, John. I should also mention we have the confluence program here that will be back on the partners table and back and lots of great stuff. Yeah, yeah. Go ahead. You want to go ahead Michael Michael program in the distribution and review for I have written.

01:00:24:20 - 01:00:28:01

Unknown

In the in the back here.

01:00:28:03 - 01:00:43:26

Unknown

Conservation work work.

01:00:43:28 - 01:00:59:26

Unknown

Okay okay I see I just joined us to tell us who you are. You would you introduce yourself.

01:00:59:28 - 01:01:10:15

Unknown

Here? I did my last summer and I will work with the.

01:01:10:18 - 01:01:25:09

Unknown

And. Yeah. And back we have Janet.

01:01:25:12 - 01:01:34:26

Unknown

And John's front. Do you want to introduce yourself John Bowers with the rifle Ranch.

01:01:34:28 - 01:01:54:15

Unknown

Anybody else not introduce yourselves yet? Looks like we got the whole room. And sorry for those of you on the phone that we aren't able to have you introduce yourselves. Unless Janet do know. Has anyone announced themselves?

01:01:54:18 - 01:02:01:01

Unknown

Okay. Jackson Moller. Glad you're with us. Jackson. With TNC.

01:02:01:03 - 01:02:25:09

Unknown

Okay. And to everyone else, welcome. And so I like to imagine that what we're going to do here is, is increase the strength of our network. And so another partners meeting tradition is that now that you know who everyone in the room is, you know somebody here that you don't know that you should know. So let's take three minutes right now and get to know that person.

01:02:25:09 - 01:05:27:25

Unknown

So go ahead and spot someone you don't know and introduce yourself and have a quick little conversation.

01:05:27:27 - 01:05:52:12

Unknown

All right. Let's take about 30 more seconds to get to know folks.

01:05:52:14 - 01:06:02:14

Unknown

There's some over there by revealing.

01:06:02:16 - 01:06:16:12

Unknown

All right. Let's let's come come back together here. And let's take a look at our new network.

01:06:16:14 - 01:06:39:12

Unknown

We just turned into this super connected, Uber powerful network. So I'm very excited about that. Thank you. That was good fun as always. And so I'm going to take a few minutes to introduce you to a few other people who are either here in the room or not, and kind of chart out the rest of our day. And then we'll get started with our panel.

01:06:39:16 - 01:06:54:00

Unknown

We've gotten a little bit behind in our agenda, so I'm going to go through this pretty quick, try to try to catch us up a little bit, but I wanted to ask all of our students in recent graduates to go ahead and stand up now.

01:06:54:02 - 01:07:20:27

Unknown

Sorry for making everybody stand all the time here. But these these are our folks who are truly exceptional. They've worked with us and you should give them really good jobs. They all come with incredible recommendations from CNP. So thank you very much. Yeah. No kidding. Thank you.

01:07:21:00 - 01:07:31:02

Unknown

That's one of the wonderful things about being at CSU is that we get to work with some of the most amazing students, and.

01:07:31:04 - 01:08:10:27

Unknown

Keep them around as long as we can. And so another way that we work with students is through the Linda Hamilton Conserving Colorado Award. This was funded by an endowment gifted to CNP by Linda Hamilton. It's just started to work as an endowment and these are our first two Conserving Colorado Award members. Nina Phillips was the first one, and she has

graduated and has moved beyond CSU and did her her honors undergraduate thesis, working with Rob on occupancy modeling for oven birds, and has submitted a publication about that already.

01:08:10:27 - 01:08:41:00

Unknown

And Emily Fitzjohn is still working with us. She's working on the Pagosa Skyrocket, a G-1 rare plant down in Pagosa Springs. And so that's one flavor of structured student program that we have at CNP. This is the other big one. This is the conservation science internship. These are our interns from 2018. And these are our interns who just finished up, most of whom didn't actually successfully leave CNP.

01:08:41:01 - 01:09:11:02

Unknown

They're still volunteering hanging out with us. Some of them are working with us this summer. It's really glad that they never left. And on the right you can see Bill and Diane Segal, who are funding part of this internship along with John Powers. We have a lot of service learners working with us through the S4 40 class. The ones that are working with us this year are helping us out at Rifle Ranch.

01:09:11:04 - 01:09:37:11

Unknown

They're working on a prairie dog conservation project, and they're helping us with a carbon challenge. We have another donor who is helping CNP become reduce our carbon footprint. And so we're calling that the carbon challenge because it's competitive within our our program for us to try to reduce carbon as much as we can. And so the students are helping us do that, helping us measure our carbon baseline.

01:09:37:13 - 01:09:58:22

Unknown

Things a little touchy. So we had a lot of volunteers help us out at Crazy French Ranch last summer, and we had a whole bunch. We had 43 volunteers help us out at the Rifle Ranch restoration event that Lisa Tasker organized. I'm sorry, there were 49 of them there.

01:09:58:25 - 01:10:26:01

Unknown

And there were 43. Sorry. And then we've had a whole lot of other volunteers working with us since we last saw you in 2018. So we depend on our volunteers to get our work done. And so every year we give out a volunteer of the year award to three people. This last year, we couldn't quite narrow it down to three because there were so many.

01:10:26:02 - 01:10:40:10

Unknown

These these four students did such amazing volunteer work with us and one of them is here, Alex is one of our award winners. So thank you, Alex.

01:10:40:13 - 01:10:52:28

Unknown

Oh, and Emma is here. Emma is here too. Sorry I didn't see you, Emma. So. And then another one of their projects is in back. Some fliers and a story map that Renee Lyle made.

01:10:53:01 - 01:11:32:07

Unknown

So that brings us right up to our panel now. And so maybe we'll just take a quick minute here to get our panelists to come on up to the stage, and we'll get that rolling. That's going to be facilitated by Chris Page. And I'll go ahead and let Chris introduce our panelists once once they all get up here.

01:11:32:09 - 01:11:44:13

Unknown

Okay. That yeah, that's probably the right spot for you to be.

01:11:44:15 - 01:11:59:16

Unknown

Took that. Exactly, exactly.

01:11:59:19 - 01:12:04:25

Unknown

And you could come up with.

01:12:04:27 - 01:12:17:12

Unknown

You want to introduce everyone? Chris. Yeah. Just briefly I'm gonna let them introduce themselves. Excellent. Okay. Okay. I'll just start off just the right. Give the comments. Sure.

01:12:17:14 - 01:12:43:20

Unknown

Good morning. What a pleasure to be able to see people that I don't see often enough. And to see some new faces, which is always great. And so I'm going to lead off this. I'm going to be the moderator. The group has agreed that nobody will go over ten minutes. Yeah. We'll see. I, I do have a watch to keep going here, and I'm fairly brutal.

01:12:43:20 - 01:13:11:24

Unknown

And here's the reason why this topic is a really important one. And I would say that the science community didn't get ahead of this curve we have. We've always had this challenge of we're doing such great work. And of course, every science project has the next question and the next question about the same thing is we dig deeper and deeper into trying to make things better, to understand deeper what's really going on.

01:13:11:24 - 01:13:37:18

Unknown

And then all of a sudden we realize, wow. If we'd just been able to get ahead of that curve on this issue. Well, recreation and conservation together are one of those big issues. I really appreciated Doctor Hayes comments about this perspective, and I've heard him several times. He

relates several points in his life. I also used a typewriter for my master's degree, so I'm very familiar with that concept.

01:13:37:20 - 01:14:24:14

Unknown

But but also just his perspectives about where do we need to be looking? In addition to providing great information from today, recently it was described in 5280 that this issue about conservation and recreation was an inconvenient truth, and I love that. But ten years ago, I'm not sure. In spite of Rick's great compilation of pulling together a bunch of people to talk about recreation, we were actually ready to admit that our presence and I'm not going to restrict this to recreation, but as birdwatchers, as botanists, as recreation, as kids hiking and screaming and yelling in the woods, we impact the thing that we love.

01:14:24:20 - 01:14:50:19

Unknown

Now we have to confess. And one of our speakers, Courtney's, going to give us a kind of the broad picture from a global perspective of just what that means. We're in a world where the economy really does rule much of what goes on day to day. More than \$63 billion of contribution to Colorado annually. Think about that. 63 billion.

01:14:50:20 - 01:15:14:19

Unknown

How much? Never. I'm not going to ask you what your budget is, but it's a tiny, tiny fraction of that. My point being that this is a huge issue, you know, the increasing population of people using the outdoors is going up. The densities are going up because of trail limitations from 39,000 to 42,500 miles needed in the next decade estimated.

01:15:14:21 - 01:15:37:01

Unknown

We have to remember that trails get people in. As a kid, I was a terror in the woods. I didn't know I was having an impact, or at least I couldn't perceive it at that time. But it also made me who I am and allowed me to get into a conservation career. Isn't that the challenge? And now we have a challenge connecting people with nature.

01:15:37:03 - 01:16:01:26

Unknown

We want them to get outside. We want them to see things. We want them to become active participants in conservation, but they get to choose the means by which they want to do that. And that's some of the challenge. But we have to remember that every person getting into the woods has an impact. Science and conservation is informing and advocating, and we're going to hear some of that.

01:16:01:26 - 01:16:33:04

Unknown

But one of the things that we need to do is we scientists have rarely been able to really move society forward very much. It takes other advocates. It takes people that we have convinced through the science and perhaps through some of the socio ecological concepts that are emerging

now, like the last kid in the woods, that we need to actually have a partner, and recreation could be the biggest partner that we could do to achieve our successes.

01:16:33:06 - 01:16:53:04

Unknown

So with that intro, I'm just going to say I'm going to ask each of you just one sentence where you came from, etc. because I think we've already done the brief introductions and rather than me, Babylon about that, you already know who I am. We're lucky to have as forming a basis for this. What is the science behind this?

01:16:53:06 - 01:17:21:02

Unknown

Courtney Larson, doctor Courtney Larson, excuse me. Also have Doctor Rick Knight, who's been thinking about the foundations of the philosophy about this for a long time, as well as the details about what really happens. We also have a local case, event or case study that's coming up. Crystal drilling will lead in a discussion or a presentation about the project at the Crazy French Ranch, more appropriately called Fisher's Peak Ranch.

01:17:21:04 - 01:17:43:03

Unknown

Not to insult any of our French relatives. My name is of that origin, so I've insulted my great grandmother. So. So we're going to have a great case study at this scale. What about a property level decision? And then we're going to have a landscape level discussion with Tom Cartman from Aspen area talking about how do you think about this at a landscape scale?

01:17:43:03 - 01:18:01:04

Unknown

So with that, I'm going to introduce Doctor Larson again to come up and get us started on this. What's the science foundation behind this? Thank you, Chris, for that great introduction to this topic. Oh, oh.

01:18:01:07 - 01:18:27:13

Unknown

Oh, you got to switch it over. Okay. Well, while they do that I can just introduce myself again. My name is Courtney Larson and I'm now with The Nature Conservancy in Wyoming. But as of pretty recently, I was here at CSU doing my graduate work in the ecology program and focusing on effects of recreation on wildlife. And so that's kind of what I'm drawing from for this talk.

01:18:27:15 - 01:18:53:18

Unknown

And I'm going to focus on a literature review that I did. And kind of looking at my, from my view, what the state of the science is on this topic. So as all of us in this room know, putting land aside into protected areas is one of the primary strategies that we use to conserve biodiversity. And now we're up to about 15% of the terrestrial land surface in protected areas.

01:18:53:18 - 01:19:24:14

Unknown

So we've made a lot of big progress in that area. But it's important to keep in mind that once those boundaries are drawn, the areas aren't completely free from threats. So as one example, 95% of the world's protected areas are open to recreation, and recreation has been estimated at 8 billion visits per year in total worldwide. And like Chris was just saying, recreation is a key part of the social and economic health of our society.

01:19:24:14 - 01:19:53:16

Unknown

And just as one example, recreation is a particularly important part of economies, especially here in the West. You can see that states like Colorado, Utah, Wyoming, Montana are some of the states with the highest amount of their state GDP that comes from outdoor recreation. And then the missions of recreation and conservation are often just built right into the way that our, our agencies and our protected lands are created.

01:19:53:16 - 01:20:13:20

Unknown

So just as an example, the mission of the National Park Service is to conserve wildlife and also allow people to go out and enjoy the parks in their wildlife. And this kind of dual use mission is really common from the level of federal agencies and down to state and local level agencies as well. So that kind of brings us to the oath.

01:20:13:20 - 01:20:39:14

Unknown

And then people really value both of these objectives. And I've stolen from those of you from Jefferson County, Colorado. I stole a bit of your of a survey that was done almost ten years ago now, but I think it's really illustrative. So the survey question here asked, what should the focus of the county open space program be? Is it more towards preservation or protection on the left or more towards outdoor recreation on the right?

01:20:39:14 - 01:21:00:00

Unknown

And you can see that by far the most common answer was that people wanted an equal balance between the two. So that really kind of begs the question, can we achieve that balance and how can we achieve that balance? So that's something that I started to work on with my graduate work here at CSU and with my coauthors.

01:21:00:07 - 01:21:34:28

Unknown

I worked on a literature review of 274 scientific articles on the topic of recreation, effects on wildlife. And our sort of big overall result was that 93% of those articles found at least one statistically significant effect of recreation on wildlife. And furthermore, most of those effects were negative effects. And so I'm going to just to show you some examples of what those effects kind of look like, I'm going to go

through a couple examples that I've drawn out of some of the literature that went into that review.

01:21:35:01 - 01:22:00:12

Unknown

So one of the really common effects that recreation has on wildlife is altering their behavior. So in this example, elks spent more time being vigilant and less time foraging when there was higher levels of human disturbance. And that may not be a big deal if it just happens once in a while. But if the disturbance is chronic, that can really add up to a lot of lost foraging time and a lot of lost productive time for these animals.

01:22:00:14 - 01:22:25:26

Unknown

And then recreation can also affect animal health. So this example is from a study done in Switzerland on black grouse. And they were documenting increased stress levels when the grouse were being flushed by skiers and snowboarders in the winter time. And again, maybe this isn't a big deal if it just happens once in a while, but when it becomes a chronic effect, then those elevated stress levels can really become a problem for animals.

01:22:25:28 - 01:22:50:15

Unknown

And then recreation can also work to fragment habitat. So in this example, wolves avoided areas around roads but also around recreational trails. And so that's just sort of another layer of chopping up that habitat. If animals are avoiding areas near trails, and then that's just less space for them to use to meet all of their life history requirements.

01:22:50:18 - 01:23:15:13

Unknown

So one of the things that I looked at in my review was differences between types of different recreation activities. And so this figure is just looking at how commonly different types of recreation are studied. So just the prevalence in the literature. And so the top the blue bars are aquatic forms of recreation, the green are terrestrial. And then the really small little turquoise ones are winter or snow forms of recreation.

01:23:15:13 - 01:23:35:07

Unknown

So a lot of the research has gone into terrestrial recreation. And that one long bar is for hiking. So that's the most commonly studied type of recreation. And then I'm going to add to that this figure that shows now the proportion of significant effects that were found for each of these activities. And I know there's a lot going on here.

01:23:35:07 - 01:23:55:13

Unknown

So I'm just going to highlight a couple of key points. So the first one is these highlighted bars are for the motorized activity. So aquatic

terrestrial and winter motorized recreation. And the point I want you to see here is that those bars on that right side graph are actually shorter or similar in length to a lot of the other bars.

01:23:55:13 - 01:24:19:13

Unknown

And so that means that motorized effects of motorized recreation were either similar in frequency or actually less frequent than than effects from non-motorized activity. And I have a couple of thoughts about this before anyone gets mad at me. So we were not able to account for the spatial extent of recreation. And so but if you're on an ATV, you're probably covering a lot more ground than you are.

01:24:19:14 - 01:24:40:25

Unknown

If you're on foot. So that's one thing that we weren't able to look at. And it's also important to keep in mind that this is the frequency of effects, not the severity effects. So we weren't able to look at, well, are the effects of motorized more severe than those of non-motorized. But I think this does point out that, you know, maybe we can't draw a conclusion that like, oh, motorized recreation is fine.

01:24:40:25 - 01:25:05:04

Unknown

That's certainly not what I'm saying. But I think it points out that non-motorized recreation is something that we should be also taking really seriously. And then I'd also like to point out those turquoise bars, which are for the winter or snow activities. And even though the sample size is really small on that left side graph, they actually have more frequent effects on wildlife than many of the other types of activities.

01:25:05:04 - 01:25:16:10

Unknown

And for me, I think that kind of makes sense, because a lot of those activities are occurring during the winter when animals are at their most vulnerable, vulnerable time of the year.

01:25:16:13 - 01:25:33:09

Unknown

Okay, so I'll just pull out a couple of other key results from our literature review and kind of highlight what we know and what we still don't know, because there is a lot on this topic that we don't fully understand yet. And so we found that most studies focused on birds and mammals, and there's more of a need to focus on other taxa.

01:25:33:09 - 01:25:56:12

Unknown

But also those are really broad groups. And we still need to know, even within birds and mammals, which species are the most sensitive and why. A lot of the studies focus on level effects of recreation at the level of the individual animal, so those behavioral and physiological effects. But realistically, we do most of our conservation and management of wildlife at the population or the community level.

01:25:56:12 - 01:26:17:16

Unknown

And so that's kind of the level that we need to understand. Effects of recreation. A lot of studies focused on hiking, which I showed you. And then we need to know more about other types of recreational activities, especially maybe those winter activities that haven't been studied as much. A lot of studies, about 80% measured recreation as a categorical variable.

01:26:17:16 - 01:26:41:20

Unknown

So what I mean is, like they compared areas with our recreation and with recreation or low recreation and high recreation and that's that's good. But I think we need to kind of push beyond that and look across a broad gradient of recreation and try to identify where are those thresholds that trigger responses in wildlife, and then not really that many studies were experimental in their design or tested management strategies.

01:26:41:20 - 01:26:52:18

Unknown

And I think that's really key, because if we want to be able to do something to minimize these effects, we have to know what the management options are and how effective they are.

01:26:52:20 - 01:27:25:16

Unknown

Okay, so I've just highlighted sort of some areas where we don't know. But the other problem is that some of the literature that does exist, there's inconsistencies even within the literature. So one of the things that I'm asked about a lot is about the effect of dogs. And this one is so in one example that I'm showing here, looking at bird detections, this study from Australia found that birds were detected the most frequently at the control sites without people, and then less frequently when there were people walking, and then even less frequently when there were people walking with their dogs.

01:27:25:16 - 01:27:53:25

Unknown

So in this case, dogs amplified the effects of people. But in other studies, it's sort of a different case. So this study looked at carnivore scat abundance in the Bay Area of California, and they found pretty equal effects for dogs and people together and people without dogs. And both of the the abundance of carnivore scat was way lower and about the same in all of those treatments than it was at the control treatment where there were no dogs or people.

01:27:53:25 - 01:28:17:07

Unknown

So in this case, it was really the people that was the main source of disturbance, and dogs weren't really making things any worse. So this is an area where there's there's studies on either side of this question, but you might be saying to yourself, well, okay, you're comparing birds and carnivores. That's not the best comparison. But some of these inconsistencies exist even within the same species.

01:28:17:09 - 01:28:46:28

Unknown

So as one example, I'm looking at bobcats here. And this is a study that I focused on for some of my dissertation work in the San Diego area. And I found that a decline in the probability of habitat use of bobcats when there were more people walking trails each day. But then a very similar study in the same state, the Bay area, instead of San Diego looking at bobcats, found no association between recreation and habitat use by bobcats.

01:28:46:28 - 01:29:09:15

Unknown

So this is sort of illustrating, even within a really similar context, same species. There's these different findings, and that makes it really hard for managers to sort of know is this a problem or not? And so I have a couple of and then also of course the recreation context can be really variable. So that refers to the intensity of use the numbers of people per day.

01:29:09:16 - 01:29:31:21

Unknown

There's spatial distribution their timing. And that could be time of day day of the week seasonal. The different activities that I talked about before and then also visitor behavior is really variable. So and there's a lot of variables kind of caught up in that. So are they going fast or slow. Are they approaching wildlife. Are they being loud or are they being quiet.

01:29:31:24 - 01:30:11:21

Unknown

But then kind of through a lot of that complexity, there is a there are a few things that seem to be kind of in common that the literature mostly agrees on. And one of those is that if recreation is predictable, it allows animals to adapt and know where the people are going to be. And so this can mean that recreation that's confined to a trail, for example, can be less impactful than recreation that's dispersed over a broad landscape, like backcountry skiing might be another kind of generally agreed upon truth in this field, I guess, is that animal sensitivity varies throughout the year, and for most animals, their most sensitive during the breeding period when they're

01:30:11:21 - 01:30:29:09

Unknown

birds are nesting, they're caring for their young. But it could also be during seasons when times are hard for animals, like during the winter, and then the way a lot of people tend to deal with this is by using seasonal closures during sensitive periods, like during the nesting period.

01:30:29:12 - 01:30:48:28

Unknown

There's been quite a bit of research showing that a lot of mammal species will tend to be more nocturnal when there's more people around. And this

is, for me, is kind of an interesting one, because maybe it's a way to temporally partition the habitat and have people and animals both use the area. But it also could be we don't really know all of the effects.

01:30:48:28 - 01:31:11:16

Unknown

So it's causing animals to overlap when they're not used to overlapping with each other, and could have implications for predator prey dynamics or for competition between species. And then this is kind of just going back to a principle idea from conservation biology, is that we want connected habitat to allow species to move and meet their life history requirements.

01:31:11:16 - 01:31:32:12

Unknown

And then I guess I'm just sort of adding to that the idea that those corridors also we need to think about disturbance within the corridors. A lot of times, a really nice place to put a hiking or a biking trail is along a riparian corridor, and that's also areas that animals tend to rely on to connect between different habitat fragments.

01:31:32:14 - 01:32:03:08

Unknown

And then, of course, human values matter in all of this. And there's a lot of people that feel very strongly about this issue and about having access to public lands that the taxpayers pay for. And so I think it's important to just kind of keep the conversation going on this and realize that people are coming at this from different angles, but also that we can't necessarily just make this assumption that recreation and conservation are entirely compatible.

01:32:03:10 - 01:32:20:04

Unknown

And so with that, thank you to my collaborators and organizations that have helped support this work. And I will pass it along to I believe Rick is next. Thank you.

01:32:20:07 - 01:32:26:13

Unknown

Thank you. Thanks, Courtney.

01:32:26:15 - 01:32:31:24

Unknown

Am I doing something wrong here?

01:32:31:26 - 01:32:59:26

Unknown

Were you doing the up and down or the right and left? Courtney. Oh, okay. Did you say it's live? Dave. Okay, so Wallace Stegner. Hi. And I'm from CSU. Wallace Stegner, once upon a time wrote that the worst thing that can happen to a piece of land. And I think he was talking about public land is to be left open to the unmanaged public.

01:33:00:01 - 01:33:34:16

Unknown

And as Chris said, I have been focusing on the impacts of recreation on wildlife for, I guess, over 30 years now, probably because as a recreation, as I was noticing, we were disturbing wildlife, but we also didn't particularly seem to care about that. And I was being a wildlife biologist, I was somewhat taken back. And what I have come to realize over the years is that we justifiably so, because we're looking through the human dimension lens, our own lens.

01:33:34:18 - 01:33:59:25

Unknown

We believe outdoor recreation is benign, that we're not affecting wildlife. And I could go on and on to illustrate how pretty much all of us feel that way. But as Courtney beautifully has just demonstrated, and as previous studies have demonstrated on public lands, outdoor recreation is the second leading cause for the listing of threatened and endangered species from one study.

01:34:00:01 - 01:34:33:02

Unknown

Another study looking at public and private lands. It was the fourth leading cause for the listing of threatened and endangered species. So it helps. And this is this is obviously a generalization, but it helps to understand the actual origins of wildlife when they do respond to us. And there's obviously an evolutionary component to this, of course, but dare I generalize and say it is largely the result of the outcome of interactions between wildlife and people?

01:34:33:08 - 01:34:59:20

Unknown

And if there's a positive stimulus associated with that outcome, we'll see attraction. And all of you have participated in that and all you have to go to any national park. In fact, you go up to a Rocky Mountain National Park, park on Trail Ridge Road, get out of the car and look out for the gold mantle ground squirrels, because there's a stampede of them coming to you and they expect to be fed.

01:34:59:22 - 01:35:30:25

Unknown

But but if, if if there's a punishment associated with that, then we'll expect to see a version. And again, being an elk hunter and hunting on national forest lands and hunting for an entire season and never seen an elk, and then going on to a national park just immediately south of the National forest. And again, they are either completely indifferent to you or in other words, they are fully Abitur.

01:35:30:27 - 01:35:56:12

Unknown

But it's quite a different behavior if you're slinging lead shot at them. So if there's a negative reward, expect to see a version. And then for all those species of wildlife that we interact with and there's neither a reward or a punishment, they they show obituary and they'll show obituaries, not completely, but as much as their genetic makeup actually allows them.

01:35:56:14 - 01:36:21:18

Unknown

So kind of sticking my neck out a little bit. But as a generalization, I think this concept holds true. The human dimension. Yeah, the human dimension. In wildlife conservation, we always focus on the ecological dimension, and we leave out the the livelihood, the economic dimensions and the human dimensions, and conservation that ignores those is going to be in perpetual conflict.

01:36:21:20 - 01:36:50:22

Unknown

So this is just some study, some some data. And I apologize for the absence of variance estimates on this. But Audrey Taylor, a former student of mine, was studying the impacts of hikers, mountain bikers and equestrians on bison, mule deer and pronghorn on Antelope Island State Park in the middle of the Great Salt Lake. And this, this these results are in a paper an ecological application.

01:36:50:22 - 01:37:24:01

Unknown

So look at this. The the dark bars are the perception of these different types of recreations of the, of of the distance. And we averaged there. They're estimates that bison, mule deer and pronghorn flee to their approach. So they're on. That was interesting. They're on trails. And this is this is their perception of the distance in which bison, mule deer and pronghorn are fleeing to them.

01:37:24:01 - 01:37:50:20

Unknown

And then the light bars are measured distances that they are actually fleeing. We don't have the data for equestrians because we didn't have a horse for the study, but we had our feet and we had mountain bikes. So so as you can see, the public's have a very inaccurate perception of the distance that wildlife is fleeing in their response.

01:37:50:20 - 01:38:21:04

Unknown

And and that's understandable as well, because there are some recreations that go to view wildlife. But many people just go out there to be with friends and family. And then the other thing we also and this was Audrey's genius. She thought, well, let's ask the hikers, the mountain bikers and the horseback riders who they think is actually disturbing the bison, the mule deer and the pronghorn.

01:38:21:04 - 01:38:50:15

Unknown

And and not only was that brilliant, but the editor of Ecological Applications was generous enough in those days to include some human dimensions, empirical evidence instead of just the ecological data. So the hikers were pretty unequivocal. It was the mountain bikers and the equestrians who were causing the disturbance. And then if we go to the middle set of bars, we look at the mountain bikers.

01:38:50:16 - 01:39:20:12

Unknown

They were pretty darn certain it was the hikers and it was the equestrians. And being a mule rider, I guess I'm I'm my chest is swelling with pride. We were unequivocal. It was the darn hikers in the mountain bikers who were actually disturbing wildlife. So a couple of simple take home messages on this is our perceptions of how we disturb wildlife differ from reality.

01:39:20:15 - 01:39:47:13

Unknown

I hate to say that's a little harsh, and then that we believe what we do is benign, but the other recreation is not so, so pure. So here's Wallace Stegner as a younger person. He passed away in oh three from a car accident in Santa Fe, an amazing thinker and writer about the West. But that, again, that quote, you know, the worst thing that can befall a piece of land is be left open to the unmanaged public.

01:39:47:18 - 01:40:26:15

Unknown

Managers are going to have a challenge because the public doesn't believe what they do is actually disturbing wildlife, the thing that somehow or another, through the power of the human dimension, the authority of the resource, we have to we have to subtly convince people that we have the capacity to over recreate. And so many Americans, so many urban, suburban Americans, know for a fact that we can over graze and we can overlook and we can over develop energy, and we can over dam rivers and divert water, but not what we do.

01:40:26:16 - 01:41:01:14

Unknown

It was kind of like this inconsistency between the hikers, the mountain bikers and the the equestrian. So so we have to somehow or another, we have to get to the point where we're willing to sort of balance our rights. And Americans are obviously overly obsessed with our rights, with our responsibilities, because what we want to do is get to the point where we can recreate on a sustainable basis, and that's going to that's going to call on something that I believe is in reserves.

01:41:01:14 - 01:41:30:04

Unknown

But we don't often ask for it, and that's what are our obligations. And if, if we can, if we can somehow or another draw those out of us, we can probably recreate going into the future indefinitely. I think that's my lesson. Thank you very much.

01:41:30:07 - 01:42:07:01

Unknown

Hello again. So thanks to the introductions, I know that there are so many scientists in this room, and I'll just come out and say that I am not a scientist. My undergrad is in poly sci, so I feel a little bit intimidated right now. But regardless of my undergrad, once a park manager gets or even a park ranger gets to the park r training and our

schooling kind of falls to the wayside, and we get into what he was just talking about, which is managing public to the best of our ability.

01:42:07:02 - 01:42:25:18

Unknown

So again, my name is Crystal drilling. I'm a park manager at Trinidad Lake State Park. I work for Colorado Parks and Wildlife, and I'm going to talk about the Fishers Peak property, also known as Crazy French and.

01:42:25:20 - 01:42:43:18

Unknown

Sorry. So I do want to just make a little note here that we are using Fishers Peak State Park as a working title. It's probably not going to be the final name of that property, but that's what we're calling it right now. So the danger of having me come up here and talk about this project is that it is gigantic.

01:42:43:19 - 01:43:07:10

Unknown

There are so many pieces, there are so many partners as we'll find out. And my head spins when somebody asks me to provide an update about this project. Because I work in the law enforcement aspect, the where are the bathrooms going to go aspect, where are the people going to go, obviously, which is what we're talking about today and many, many more pieces.

01:43:07:10 - 01:43:26:06

Unknown

So forgive me if I merge out of my lane a little bit, I'm going to try to stay to the topic. So that's what Chris is here for, to keep me on topic. All right. So I'm going to talk about this as a case study. I'm here learning today. And this has been such a learning process for me.

01:43:26:08 - 01:44:02:07

Unknown

Every once in a while I have to ask Chris to dumb down what he's talking about for me. Again, going back to my education, because park managers have to be generalists, right? And so for this specific conversation and for this project, we really get into the nuts and bolts of of recreation and conservation and how can we take what we know and what we're learning from, from folks that are up here at this panel and probably all of you in the room, and how can we apply best management practices and how can we work toward the best outcome for this particular property, and what are we going to learn along the way?

01:44:02:08 - 01:44:33:10

Unknown

So oh, this is tricky, Holy Moses okay. Heavy handed over here. So this is an image of the property. This is 19,200 acres. This is south of the city of Trinidad. It touches the New Mexico border. It's only about 2 or 3 miles from the other park that I manage, Trinidad Lake State Park, as the crow flies. Couple of miles.

01:44:33:10 - 01:45:01:14

Unknown

So really awesome opportunity for the local citizens in Trinidad to not only have two state parks in their backyard, which is fantastic, but also be able to touch this iconic property that is containing Fishers Peak and one that they've seen as their backdrop and their sort of mascot for their hometown. For generations, it's been private property and generally inaccessible to so many folks.

01:45:01:14 - 01:45:30:02

Unknown

So lots of fantastic energy and support for this project around the city of Trinidad and of course, around the state as we're learning and for conservation purposes, provides a linkage between the mountains, the mesas and the plain. So habitat connectivity, it's also touching two state wildlife areas like Dorothy and James M John, and very close to Sugary Canyon State Park in New Mexico.

01:45:30:02 - 01:46:02:16

Unknown

And so we've got the potential for some expanding connectivity for habitat. We talked about the view sheds for the city of Trinidad, and the challenge is how to assure conservation success and recreational success at the same time on this property. So I also want to talk about the fact that for all of our state parks and we do open a new state park, a lot of times we have something like five years to open a state park, and during that time we're doing our master planning process.

01:46:02:16 - 01:46:29:28

Unknown

We are doing our environmental assessment and and learning what there is there to conserve and what the recreational opportunities are. And so I don't want to suggest to the room that this is a novel concept that we are just now talking about recreation and conservation, merging on our properties. But this definitely is a different way of doing it with this project, I would say.

01:46:30:01 - 01:46:59:01

Unknown

So we've talked about the impacts recreation has on a property, on our conservation values. And then also we talk about the fact that getting people out on the landscape and allowing the public humans to touch the outdoors and to take a hike and to sit with stillness in the forest, like these are all very important things for all of us and for our neighbors, for our physical health, our mental health.

01:46:59:01 - 01:47:27:00

Unknown

I don't think there's any question about that. And so this is our endeavor is to make sure that we can put people on the landscape, teach them about what's out there, let them stay connected to the natural environment, but also protect our conservation values out there. Some of our challenges is the timing of this process. Like I said, we normally have about five years to open up state park.

01:47:27:02 - 01:47:54:13

Unknown

We're comfortable in that, and we've been challenged to open this property within a year or two. And so the governor, when he announced that this was our next state park in Colorado, he said that we would have it open by January of 2021. And so it's a much quicker timeline. Not only that, but it would be this would be the second largest state park in Colorado and the first largest state park that we would own.

01:47:54:15 - 01:48:18:22

Unknown

So lots of challenges there with the timing, lack of information, which we've been trying to hurdle over for the last year, year and a half, with the help of so many people in this room and people that, you know, the ownership situation it's currently looking to switch from ownership of under TNC and TPL trust for public lands to.

01:48:18:25 - 01:48:37:28

Unknown

And so there's a chance that will own this property by the end of March. And obviously, we've been in this conservation planning process from the day that we had access to the property, which was a year ago at the end of February.

01:48:38:01 - 01:49:00:14

Unknown

The partners in this are a key conversation, I would say. So the main partners of the city of Trinidad, Goku, the Nature Conservancy Trust for Public Lands, and of course, Colorado Parks and Wildlife. And so from the very beginning, our partnership identified that we wanted to.

01:49:00:16 - 01:49:21:28

Unknown

To keep both conservation and recreation at the forefront and figure out how we can, with all of our powers combined, create a fantastic model of how this can be done and then maybe a template for future projects. And surely we will learn some things along the way that maybe we will do differently next time. If we're not learning and changing and evolving, then we're not doing our jobs right.

01:49:22:00 - 01:49:43:20

Unknown

I will have to say so. We've been involved in a rapid ecological and recreation assessment again, from the very beginning. The property has been very busy with with people, with volunteers and, and scientists and then people like me who are just trying to figure out where the trails are going to go and how we can do that best.

01:49:43:24 - 01:50:15:07

Unknown

There's that picture of me up on the screen. I guess I can look that way. I love that picture. Chris was nice enough to put that on the the slide show. So that's on Fisher's peak at a higher elevation, obviously. But what I'm pointing to you down there is Trinidad Lake State Park. So for

me and for a lot of people who are working this, this is sort of a dream come true sort of scenario for I've looked at Fishers Peak for years, being down there for six years, and have always wanted to have this property open to the public, and we're finally getting there.

01:50:15:07 - 01:50:21:26

Unknown

So no pressure there, but super exciting.

01:50:21:28 - 01:50:24:16

Unknown

Wow.

01:50:24:19 - 01:50:52:27

Unknown

Okay. And so I guess the, you know, the Nature Conservancy folks from all, all different walks of CP and CNP have been out there. There's not a day that I arrive on the ranch. You know, during our warmer days, there were there wasn't some volunteer group at our bunkhouse sleeping over, cooking in the kitchen, ready to go out early morning, stay out there until the sun goes down.

01:50:52:27 - 01:51:25:02

Unknown

So it's been really amazing to be a part of this, this process and to see so much energy and interest and enthusiasm and really hard work, lots of passion out there. So we've had, we will have two seasons of field recon out there. And, and our goal is to not measure all the conservation values and think about those first, and then bring in recreation at the end of the day and then try to fit that in.

01:51:25:02 - 01:51:34:20

Unknown

Our goal is to try to blend these together at the same time, and that's what we've been doing in earnest for quite a long time now.

01:51:34:22 - 01:51:59:10

Unknown

This is just a few of the species that we found out there in speed species have mentioned. So we do have the New Mexico meadow jumping mouse out there, which is an endangered species. We found that in a couple of our drainages and confirmed that with DNA. And so, you know, in my mind, what I thought would be a fantastic headquarters had to change very quickly because of this mouse.

01:51:59:10 - 01:52:20:01

Unknown

And so going back to being nimble in this process, right, and being creative and, and thinking outside of the box. So we have we suspect that we've got peregrine falcons out there. We've got some things that have surprised us out there and we still have more to learn. And so this is just a sample of some of the species that we're seeing out there.

01:52:20:01 - 01:52:31:20

Unknown

We have more than 50 game cameras out there that are capturing images. And then other studies that have been taking place there.

01:52:31:22 - 01:52:50:12

Unknown

And so like I said, we've brought in folks from the recreation industry, Jason Bertolucci is in the room. And I do have to say that I'd love to learn constantly learning new things. And at the beginning of this, when I heard we were going to bring people from the rec industry in, I was like, well, they can't really tell me anything that I don't know.

01:52:50:16 - 01:53:25:19

Unknown

I've been managing recreation for 15 years. I've been watching people respond to recreational opportunities, you know, authority of the resource, all of these things we've been talking about. I feel like I really know my job. But even from Jason, you know, and from the wrecking history, learning fantastic things. So we'll continue to learn. But it has been really rewarding to honestly bring in not only the the scientists, but the rec enthusiasts in the industry and try to merge these, these things that we know.

01:53:25:21 - 01:53:35:07

Unknown

And so what we've endeavored now, we just recently started the Open Standards. Well, I guess my.

01:53:35:09 - 01:54:00:26

Unknown

Participation in open standards for conservation planning, this is very new for me and for some of us who we are, you know. Identify what our conservation values are. What condition are they in, what condition do we want them to be in? But we're also sort of experimenting with with rolling in the recreation values. And what do we want out of recreation?

01:54:00:26 - 01:54:24:01

Unknown

And how can we look at how recreation is going in Colorado and maybe even across the country, see where we're loving areas to death, to death and and how can we take what we know and, and turn those into recreation values and, and something on the other end will spit out and it will tell us how we're doing with recreation or what we can do with recreation.

01:54:24:01 - 01:54:31:24

Unknown

So, let's see.

01:54:31:26 - 01:54:56:12

Unknown

And so this is I guess this is where we are, you know, we're we're talking about what our recreation goals are, what what our conservation goals are. And then ultimately we will come up with some with some concerns and some maybe threats if that's a word to use. And then also

strategies, of course, and how we're going to move forward, how we're going to mitigate for some of these concerns.

01:54:56:14 - 01:55:17:00

Unknown

We this is just an example of one of our maps. This is not a final map by any means. But this you know, through our process, we've got folks who are very familiar with the property and very familiar with their their own particular specialty of science. We get them all in the same room and talk about we'll put it on the map.

01:55:17:00 - 01:55:37:22

Unknown

This is literally what we did with Chris and a couple of the people put on the map where our conservation values, what do we you know what? What is sacred? What what do we need to protect above all of the things on this property and then work our way back from that? And what can we maybe open up a little bit for public use?

01:55:37:24 - 01:56:09:01

Unknown

So this has been some of our process, I guess we believe that this process can bring adequate science to define terms of success, building on parks, methods of incorporating recreation as a part of the conservation planning is novel and promising. So again, just sort of taking what we've done with state parks in the past and evolving it a little bit more into this new process with The Nature Conservancy and CNP.

01:56:09:03 - 01:56:38:18

Unknown

And also, you know, setting the stage for research starting now and into the future, knowing, like I said before, that we do have a lot to learn. And we have talks right now of so many different research possibilities. I certainly couldn't go into that right now. But just to express that, we all see this as a valuable opportunity to learn more about what we're talking about today, which is the impact of recreation on wildlife.

01:56:38:18 - 01:57:01:19

Unknown

And so we're setting ourselves up to learn more in that process. How is my okay. Thanks, everybody.

01:57:01:21 - 01:57:31:10

Unknown

Courtney, Rick, Crystal, and Chris for your wisdom and insight. And I'm Tom. Great to be with you all. First thought I had went back to the 40 years I spent at the helm of the Aspen Center for Environmental Studies with my wife, Jody, and our office is all entered into a central room where we did have staff meetings, but we tended to gravitate there and and compare and talk and then go back to work.

01:57:31:10 - 01:57:57:04

Unknown

And one of our board presidents who like to come in and kind of see what was up with all of us, dubbed that central room the the cauldron of ideas. And and when whenever I'm at a conference, I think that that it really is to confer with everybody in the room and not just to push information out in the direction of, of of recipients.

01:57:57:04 - 01:58:43:03

Unknown

But we're all participants. And I'm anxious to to compare and discuss ideas with you. We do seem to have a nut to crack with this. Our common interest in conservation and wildlife and, and and our enthusiasm for recreation. I think of talking speaking of birthdays, happy 40th birthday. I remember that we put somebody on the moon about 51 years ago, and they took a picture and all of a sudden we saw that we were on a single planet and started a year later with Earth Day, thinking of ourselves as all in it together, not tribal and separated, but all in it together.

01:58:43:03 - 01:59:20:21

Unknown

And and that's been, I think, driving a lot of our thinking. We have a tendency to slip back into tribalism and be register ourselves as in one tribe or another. But I but I do believe we're all in it together. And and I'm going to I'm going to speak to some of my experiences at ACS and then move to, to my current work with CNP on the Watershed Biodiversity and Connectivity study.

01:59:20:24 - 01:59:33:04

Unknown

And and if I don't mention the ice age and where, where we cut our teeth and how that plays in. Somebody asked me about that and I'm going to attempt to.

01:59:33:07 - 01:59:38:03

Unknown

Okay, I'm not well.

01:59:38:06 - 02:00:06:02

Unknown

This isn't exactly the order I put them in, but they're so few that I that that that it's fine. The Aspen Center for Environmental Studies started at Hallam Lake, 25 acre wildlife preserve in two blocks from the Hotel Jerome in Aspen. And and our approach to introducing people to nature. There was to allow people to have about 10% of the property and the rest for wildlife.

02:00:06:02 - 02:00:26:04

Unknown

So we would have opportunities to actually see things. And and there was a bit of habituation that would happen. And there were quiet times so that it was a great site for environmental education because we were, as we talked to the preschoolers and the in the 80 year olds and everybody in between were visitors were guests and sort of developing that mindset.

02:00:26:04 - 02:00:48:14

Unknown

And in each of our sites, which we collected over the years, we also created this sense of portal. And you're moving from if you're two blocks from the Hotel Jerome, the walk down to the place required parking your car a fair distance away and walking through overhanging cottonwoods and kind of getting yourself into a different frame of mind.

02:00:48:21 - 02:01:10:14

Unknown

So rather than just getting to the trailhead and jumping on the trail, you had to go through some period of change. It was a psychological approach we took. Well, let me back up. So Northstar Nature Preserve, which we managed for 20 years, it's actually a property of the Nature Conservancy, helped acquire long ago. And the County Open Space and Trails program now manages.

02:01:10:16 - 02:01:36:26

Unknown

But Northstar Nature Preserve is all together. I look at it as about 300 acres, 15% for people, 85% for the wild, and it's conveniently situated with the two lane highway 82 and then right next to it, paralleling it a bike path, and then the Roaring Fork River, which is a good barrier. 15% is on the highway side of the river, the 85% on the other side.

02:01:36:27 - 02:01:57:26

Unknown

It's a place where you can go in September during hunting season. It's not a national park, so the elk are being hunted, but you can go there and September and sit in the evening quietly and hear the elk calling and and watch them come down and assess continues to run a program where they bring people out there at dusk and, and have that experience.

02:01:57:26 - 02:02:30:13

Unknown

So that's, that's one model that that is illustrated at the North Star Nature Preserve, a property we acquired 21 years ago, Rock Bottom Ranch. At 113 acres, 70% of it is cottonwood jungle braided stream. It's a it's a hugely popular, highly visited center for environmental education. And a new strain of that that we've kind of developed called environmental agricultural education.

02:02:30:15 - 02:03:03:07

Unknown

There's some very intensive agriculture that goes on on the property. But we've again applied. I would say I can't do the math quickly in my head, but 85% for wildlife, 15% for people. Everybody's pretty happy with that arrangement because they get to interact with wildlife and see them at a comfortable distance. And and again, they're, you know, elk and deer and fox and coyote and mountain lion that come down and eat the domestic animals from time to time are all there.

02:03:03:09 - 02:03:27:08

Unknown

And it works quite well. Our, the, our original property. Hallam. Like this. Two blocks from the Hotel Jerome. That's where we established the idea of having again, very little for people, mostly for, for the wild, developing the sense of this is a place where you're a guest and a common theme that we that we all are familiar with.

02:03:27:08 - 02:03:57:04

Unknown

But by actually experiencing that as part of your weekly environmental ed program and your field trips, if you're a school kid or your common visits when you're as a resident or a visitor, it sort of generates a a mindset that that's helpful. Spring Creek is another property that ACS still has still uses. The ownership has changed, but that's 160 acres or 165 acres.

02:03:57:07 - 02:04:30:03

Unknown

Five acres is is usable by people and the rest is for the wild. Again and again, we've applied that approach and this winter range for and mountain lions that come up and sit on people's porches like they do in Boulder and probably in Fort Collins. Follow, follow people around. And it's a great place where that interaction happens. So, so just cementing the idea, going, going.

02:04:30:04 - 02:04:58:01

Unknown

I would say we've gone far beyond nature needs half. We're we're saying nature needs 85%. That's on these smaller properties. I think the number is we don't have to land on a number, but the concept of maybe at least half and and I'm just going to leave this slide up here for the rest of my comments.

02:04:58:03 - 02:05:33:08

Unknown

So aces as a model. Censuses. I stopped going to work there every day in 2013, and since then I've been involved with setting up an educational program around the ice age fossil discovery nearby and Snowmass. Probably most of you are aware of that. And and then more recently, out of a conflict between tribes, I would say a proposed trail and wildlife advocates I was invited to to be in the wildlife advocacy tribe.

02:05:33:08 - 02:05:56:03

Unknown

But because I helped establish the Open Space and Trails program that was interested in the trail, I decided that there was some. There was a middle ground, a needle to be threaded there, and what I quickly discovered as I made the rounds and talked to everybody involved in the debate or discussion, was that we all had a common interest in wildlife.

02:05:56:06 - 02:06:41:03

Unknown

We all we had adopted as a community a biodiversity policy. The the county, the Open Space and Trails program has a biodiversity policy that that is a priority. And and what I found was that everybody wanted to to

to everybody represented both, both interests. And so I ended up on the phone with, with David Anderson, who said, you know, what you really need is a landscape scale biodiversity study, so you can understand where the high wildlife values are in ecological values are and what areas to prioritize for protection and restoration.

02:06:41:03 - 02:07:05:03

Unknown

And then you can understand where best to site trails. And and that idea sort of cooled off the temperature in the room, so to speak, in the debate. And everybody said, yeah, let's let's do that. So year ago we, we embarked on the Roy Fork Watershed Biodiversity and Connectivity Study. CNP is doing the work. It's a million acre watershed.

02:07:05:03 - 02:07:33:28

Unknown

So it's a big bite to to to take and chew on. And and in two years get to some form of conclusion. But but just the idea of doing the science and and discovering where the most important habitat was and then by process of elimination, seeing where trails may be best sited to avoid the high priority wildlife areas.

02:07:34:01 - 02:08:24:06

Unknown

Everybody seemed to agree to that. And so we're on that trajectory. And it's my I, it's my conviction that that we have embedded in our genes out of the Pleistocene an affinity for wildlife. And we and we just care deeply about wildlife. And we're all recreational enthusiasts because we love the outdoors. And if we can be informed about how and where recreation is best suited and where maybe quiet zones, sanctuary zones, temporal, spatial are best situated, then I think most of us depending regardless of which tribe you might put yourself in, we'll start shifting away from the tribal thinking and saying we're, you know, we're Earth Day people, or we live all together here and

02:08:24:06 - 02:08:42:10

Unknown

we're going to be cooperative. It may be a bit Pollyanna to think that way, but I find that that, that if I just keep repeating myself, people start agreeing with me. And so I just keep keep doing that.

02:08:42:13 - 02:08:53:26

Unknown

Maybe in the in the panel this afternoon or in the questions and answers, I can get into some more detail, but I would leave you with.

02:08:53:28 - 02:09:27:12

Unknown

A couple of thoughts. One is that that what we're finding is that and this we're not at a conclusion of the study yet, but what we're finding is that a lot of the work we did last field season was on private ranch land, about 30,000 acres altogether, mostly private ranch land. And the reports were getting from the landowners and land managers is that the

wildlife are staying on their ranches year round now, elk and deer primarily, rather than leaving in the spring and coming back in the fall.

02:09:27:12 - 02:09:55:25

Unknown

And it suggests that that sanctuaries are attractive to to those animals. And that and irrigated alfalfa undoubtedly is attractive. And and it also suggests that we can't well, you could assume that we can't rely on those ranches to stay in ranching. We we hope they are. And land trusts and other groups are working to, to ensure that that can happen.

02:09:55:27 - 02:10:13:08

Unknown

But so much of our landscape is public land. That same concept of refugia applied to public land and and respected not through regulation, but through.

02:10:13:10 - 02:10:41:00

Unknown

Through our own behavioral change informed by science. Is is part of my thinking is that we all care about wildlife. We love to recreate. But if we know where to to focus our activity and we're well informed about that, we will we will do that. And a couple of examples, maybe to get to a close. I got a call from.

02:10:41:02 - 02:11:09:20

Unknown

The publisher of Trail Runner magazine this summer, and he was concerned because he's both an elk hunter and he publishes Trail Runner magazine. He encourages people to run on trails and to run everywhere on ridges and with their GPS units and, and, and and wherever they choose to, they can run and it morphs into winter ski touring all over the countryside.

02:11:09:22 - 02:11:34:25

Unknown

And he was truly concerned. And so we sat down and he wrote a column based in part on an interview with me, and he said to his tribe, he said, we need to get informed by this kind of science so that we can alter our behavior because we all have wildlife as a common value as well as loving our recreation.

02:11:34:25 - 02:11:59:06

Unknown

And and we can probably do both if we're well informed and and are willing to alter our behavior. On my way home from that interview, I called a woman I know who's an elite athlete, and I said, Kristi, could you could you see yourself being a spokesperson for.

02:11:59:08 - 02:12:35:24

Unknown

For biodiversity and protection? As a, as a as an outdoor enthusiast, you're a ridge runner. You're a peak bagger. You're you're you're an awesome skier. And you do all these things in the backcountry, but you're also a bird watcher. Can you see yourself doing that? And she said,

absolutely. And I'll give you a list of a half a dozen other people who are well known who will stand up and be a part of this effort to shift behavior towards our common interest, both in loving our out of doors and and caring about biodiversity.

02:12:35:26 - 02:12:47:24

Unknown

When this guy stands up, that's my signal that I'm out of time. Thank you all.

02:12:47:27 - 02:13:16:15

Unknown

Started a little late. You want to keep going with questions or how do you want us to proceed? I think we could push it at least five minutes. Okay. You each get a minute and a half, right? Then that's great. So first of all, thanks to the panelists, it was fantastic to have this kind of perspective going from academic and hard science all the way down to practitioners and having Crystal here is, as a park planner and manager is really a great opportunity.

02:13:16:15 - 02:13:42:27

Unknown

So I suspect that there are questions. If not, I have a list. So you probably want to ask your questions rather than hear what I think on this. So let me just open it up and we'll do the best I can. There are there are microphones here that you guys can share and push around there. Okay. Questions over here.

02:13:43:00 - 02:13:46:09

Unknown

Speak up please.

02:13:46:12 - 02:14:13:28

Unknown

Can you can you walk to the mic here. Are they going to use this I guess. There you go. I know you can speak louder. Come on. I'm deaf. And so that makes me talk softly for some reason. So in studying these issues for quite a number of years, it feels like there's not a lot of attention to one of their variables and understanding the trail impacts.

02:14:13:28 - 02:14:54:04

Unknown

And so there's a lot of interest in volume, noise, dogs frequency duration, but not well studied. But hopefully these venerable panelists can tell me otherwise. Is mileages of the different trail uses. So for example, some of the research shows that hikers the average and then how does that get translated into habitat fragmentation. Like if you're a hiker and you're going to use to go 2 to 3 miles an hour and you're going in one day's experience, you're going to maybe go five miles versus you're a mountain biker and you you average 8 to 12mph, three times more than than hikers.

02:14:54:04 - 02:15:21:25

Unknown

And you're going to go an average of 15 miles a day. And my, my group has done some mapping of this. And so those different mileages in a given polygon of habitat, how much fragmentation and human disturbance linear human disturbance does that add. Great. Thank you Ross. So who wants to take a step? Courtney, it seems like you started that approach on that is the the length.

02:15:21:25 - 02:15:50:00

Unknown

And Rick you did too. So either of you or both of you. I mean, I think it's a terrific question. I agree that it's not really been very well studied. And I think one of the reasons for that is a lot of the it's kind of the methods that we have to use to study this topic. A lot of people are using something like a camera trap, which is at it's at one spot on the trail, and so it just captures what goes by that one spot.

02:15:50:00 - 02:16:15:01

Unknown

And it's not looking at the spatial distribution across the landscape. I have seen some literature more recently that where recreation are asked to carry a GPS device with them, and that then collects their entire route information. So I've seen some of that work for backcountry skiing and it's really interesting. You can get kind of a this map like 3D map on the mountains of where people have been skiing.

02:16:15:01 - 02:16:37:07

Unknown

So I think that's an approach that people are starting to use. There's some people that have been using things like Strava or apps that people use to track their recreation to get that data. Although there are a lot of tricky complications with getting access to that data. But that kind of approach, I think is really promising for answering your question.

02:16:37:12 - 02:17:03:04

Unknown

But I don't know that there are a lot of good approaches that have been done as of yet. So I could say say one thing on that because unfortunately, well, well, fortunately, I guess in a way, as Courtney's data showed, and as our studies have shown, there isn't any difference. There's virtually no difference in flushing distance of wildlife to hikers or to mountain bikers.

02:17:03:04 - 02:17:29:00

Unknown

But then an advocate for one will try to diminish the importance of the other by saying, well, but the mountain bikers, you know, as Ross was just pointing out and Courtney was saying, they're covering a lot more ground, so they're taking that impact over a much greater proportion of the protected area. That gets us to the point where it's like what Tom was saying, it's tribal again, and that's really interesting.

02:17:29:00 - 02:17:46:10

Unknown

I'm not sure myself what the answer to that is. Are we going to start allocating? You only have so many miles, no matter how you get about covering those in a day. But yeah. Other other questions.

02:17:46:13 - 02:17:49:24

Unknown

Yes, sir.

02:17:49:26 - 02:17:54:10

Unknown

You got it. All right.

02:17:54:13 - 02:18:17:10

Unknown

Thank you very much. Good morning. I'm Jeff Morrison, I'm with the National Invasive Species Council. And so my questions tend to go towards invasive species. And I think we've considered a lot about humans or recreation being a an impact or a stressor. But I haven't heard much about it being human and recreation being a vector. Certainly quagga mussels, zebra mussels and boaters and the seeds that are going to be on hikers.

02:18:17:13 - 02:18:39:26

Unknown

So any comments about addressing the invasive species vector and what we can do, and I think I would point to the North American Invasive Species Management Association and some of the branding they've done to help reduce the impact of recreation spreading invasives. But I'm curious what you all have thought about with respect to invasive species and recreation being that vector.

02:18:39:28 - 02:19:15:22

Unknown

I can say something on that. So those two studies in bioscience that had outdoor recreation is the second leading cause for the listing of species on public lands and the fourth leading cause on all lands, public and private. If you actually look at the breakdown of those listed species, the majority of them actually are plant species. And then if you look at and this is fairly easy to study in, David Cole's done a lot on this where he can look at the impacts of invasive species, perpendicular distances like an edge effect along recreational trails.

02:19:15:22 - 02:19:43:06

Unknown

It's important and not not surprising, because humans and mountain bike tires and all those are faux mites for the the inoculation and then those invasive species just spread outward. And so you have this depth of edge effect on those things. So I mean, it is it's very important. One positive thing about that it's concentrated. But then of course, if you're a botanist you realize plants are not static there.

02:19:43:09 - 02:19:56:24

Unknown

They are capable of incredible movement in those invasive species will probably continue to increase that depth of edge effect along the trail.

02:19:56:26 - 02:20:22:02

Unknown

So again, I use different words as a bird manager so I can talk about what we do at Trinidad Lake State Park and a lot of our other state parks is, you know, anticipating that humans are vectors and horses are vectors where there's equestrian use and so on, and vehicles and all that. So, you know, Trinidad Lake State Park, we're constantly looking for new invasives on the landscape and in the reservoirs.

02:20:22:03 - 02:20:46:18

Unknown

And where we find them, we treat them. We can you know, a lot of what we do is to intercept and educate the public, especially with our vessel inspections. Of course, a lot of people in the room with that and we, you know, and so we continuously monitor our landscape, our waters, we where we find problems, we address them.

02:20:46:18 - 02:21:10:01

Unknown

So we'll treat the invasives. We where we know there's a problem. For example, at Fishers Peak, at the Fishers Peak property, early on, we identified some some weedy patches and wanted to make sure that we were not taking those seeds and transferring them around the property. And so started to talk about invasives very early on with this property.

02:21:10:01 - 02:21:42:18

Unknown

And we'll continue to talk about invasives. But in terms of managing even further, you know, there's new programs out there that I've seen where you have a sort of boot scraper somewhere along the trail. If you if you know that on your trail you've got invasives or you know that you don't have any invasives and you want to encourage people to scrape their boots before they go any further, these these installations are popping up around the nation.

02:21:42:18 - 02:21:58:12

Unknown

And I think that that's definitely something that I would consider for, for crazy French, depending on where we put trails and all that stuff. So it's a multi-pronged approach. It's certainly something that's high on our radar, though, if that helps.

02:21:58:14 - 02:22:09:13

Unknown

One more to another one. All right. Question back here. Let's get a mic over there. Yeah thanks.

02:22:09:15 - 02:22:31:04

Unknown

I think a lot of this is focused on protected areas and how recreation has increased there. And that leads to habitat fragmentation. I'm also

wondering if any of you panels could speak to other land use changes, maybe not on protected areas that are also having an impact, whether that be development roads, those kinds of things that are also pushing pressure onto those protected areas.

02:22:31:06 - 02:22:37:07

Unknown

And yes, other land use comments.

02:22:37:09 - 02:23:02:25

Unknown

Where everybody's shying away from that one. I can speak to it. Yeah. So I mean, if I understood the question. So we were talking about one of the principal land uses on public lands. So are you referring to the private lands or other uses being used differently but private land or how that's being.

02:23:02:27 - 02:23:38:04

Unknown

Just other threats? I think kind of getting a little bit at what what Tom was saying to is sometimes these public lands are making us view private lands with multiple uses or sometimes agriculture now as sanctuary resources. Whereas historically, you know, those were were historically thought of as what's pushing more use on the public lands. This is just an opening for a metaphor that I, that I thought of, which is called the windshield metaphor.

02:23:38:07 - 02:24:04:12

Unknown

If you've ever had a rock hit your rent, the whole thing just turned into tiny little pieces is the end point. But our watershed, if you if you map the human development land that's covered by buildings and highways, it's tiny. It's less than 1%. But if you started mapping all the things and then, oh, the windshield does have a crack all the way across it called highway 82 with eight foot fences.

02:24:04:12 - 02:24:40:21

Unknown

So so there's a few bug spots and in the crack across, but the windshield is generally clear if you look at our whole watershed. But if you if you start tracking everybody by the little devices they carry in their pockets and where they go, all of a sudden the entire watershed is tiny little pieces where where the pathways of human travel, whether it's in a car or on foot or on a bicycle, all of a sudden the watershed looks quite different and sort of getting a sense for that.

02:24:40:21 - 02:25:10:24

Unknown

And what the impact of that is in creating a way to visualize that. And I know Ross McClelland Group is working on showing us that. I think it's just a helpful way for me to think about the landscape that looks so open and pristine. But once I start thinking about where I go on the landscape, I love going off trail because there aren't people there and I'm starting to rethink my own behavior.

02:25:10:26 - 02:25:32:10

Unknown

I guess just one of the ways that I think about recreation, kind of in the context of all of these other threats that wildlife are facing, is that, well, is recreation the most pressing threat to species that's out there? No. You know, we have habitat loss from oil and gas development, from residential development, from all these other land uses.

02:25:32:13 - 02:26:02:01

Unknown

And I guess the way I think about it is that recreation is the one that occurs kind of in the, the best natural spaces that are left. And so I think of it as an important thing to study, kind of for that reason, that it takes place in these lands that are protected from those other threats. So I don't know if that kind of gets at your question about kind of where it sits in relation to other threats to biodiversity.

02:26:02:03 - 02:26:32:22

Unknown

So let me wrap up. We're going to be able to talk about this some this afternoon in a working session. So please don't let any questions you may have just slip away. And I'll just say this is it's a real challenge. And for some of the reasons you've heard people say is recreation is one of the key ways, no matter if you define it broadly, that we connect with nature, it is what in some form or another, probably created most of you being interested enough to come to this session.

02:26:33:00 - 02:27:08:10

Unknown

All right. Now it reminds me, though, of multiple use conservation 60s and 70s. When it was created, multiple use wasn't a bad concept, but it was implemented very poorly. And so what we ended up then is having 25 to 35 years of debates and fights about how are we going to make those uses compatible with the resources. So this discussion kind of reminds me a little bit of that, except that now we know we have the time to decide what we'll do on private and public lands.

02:27:08:12 - 02:27:31:00

Unknown

We have to figure out who's going to do it. And a leader in the mountain biking community at a recent the Orrick workshop. Jason, you'd know more about all the people than I do, but what he said was what the comment that I'll leave you with, he says the mountain bikers and other recreation have to make good stewardship of our natural resources.

02:27:31:00 - 02:27:54:21

Unknown

Rad. Now that's not even a word I knew, but but my point is, is that's the answer is we've got to make the recreation community and the conservation community sing in harmony and make stewardship real, I agree.

02:27:54:24 - 02:28:18:07

Unknown

Thank, thank you so much to all of our panelists. I think you all are rad, and I couldn't be more grateful for what you've brought to us today. This is really wonderful, and it's thrilling that we can keep this conversation going this afternoon in our discussion and workshops this afternoon. So thank you so much, and I think we'll go ahead and take a break.

02:28:18:07 - 02:28:57:15

Unknown

Now, let's, let's it's about 1118. Let's take a 15 minute break and we'll get back together at a little bit after 1130. Okay. And please don't forget the brainstorming board in the back. There's a lot of great ideas floating around, so please share them. Yeah. All right. Thank you.

02:28:57:18 - 02:29:31:13

Unknown

I'll get you.

02:29:31:15 - 02:29:51:25

Unknown

Good. Because the rest of us up here are largely an academic background or semi academic. And so I think it was really a good color. Glad I could represent a little bit more layman's or.

02:29:51:27 - 02:30:35:09

Unknown

Well. And this is this is the hard part we've got now. Right. Is what are we going to do. That's not mine. Oh I already have mine. Gotta watch that. I left it in a restaurant last night.

02:30:35:11 - 02:42:33:22

Unknown

And.

02:42:33:25 - 02:43:04:16

Unknown

All right, we're going to reconvene and.

02:43:04:19 - 02:43:38:01

Unknown

So next up we have got presentations from two of CNP teams. Those are going to be done by Joanna Lumley, our wetland team leader, and Jeremy Simmers, our zoology team leader. About towards the end of Jeremy's presentation, the conference services folks are going to open up this air wall. And while they're doing that, they asked us to remain seated so that I guess you don't want to get caught in the air wall.

02:43:38:02 - 02:43:54:14

Unknown

So and then our lunch is going to get served over in ballroom see next door to us. So with that, I'll go ahead and turn it over to Joanna. Thank you Joanna.

02:43:54:16 - 02:44:16:01

Unknown

Well, thank you guys. It was a really interesting panel this morning. Helped me think about some new things in some things in a new way, and I hope that was the same for you all. But right now I'm going to kick off a round of presentations, both before and after lunch, that highlight important and new work that is involved with.

02:44:16:03 - 02:44:48:27

Unknown

We're going to start with wetlands and I apologize. I like to load my presentations with lots of pictures of beautiful wetlands, so you can all appreciate the kinds of environments that we get to work in. As Dave said, my name is Joanna Lumley. I'm a wetland ecologist and the team lead for our Wetlands and Aquatics group. One critical thing I want to say first, because I get to kick off this round of presentations, is that all of our work, definitely our wetland work, and I think the work of all of our teams is very interdisciplinary.

02:44:49:00 - 02:45:20:19

Unknown

Many of the projects that I will highlight today are carried out by members of all of our teams at sea, and not exclusively the work of any one team. And we also work very closely with partners from many different agencies and organizations, including many of you in this room. So I get to be up here highlighting certain projects, but know that many people went into all of this work from our wetlands team and across our program.

02:45:20:21 - 02:45:47:02

Unknown

Okay, I've heard this is a little sensitive. Let's see how it goes. I also want to acknowledge I should have put Michael's name on this photograph. Several of these beautiful, the most beautiful photographs you see in my presentation are probably from Michael Menefee on. Our staff is an amazing photographer. These are wetlands in Lake County. So throughout this presentations, you'll hear several similar themes repeated from all of our teams.

02:45:47:02 - 02:46:13:09

Unknown

And I wanted to highlight those. Those themes are robust science, robust scientific information needed to guide conservation and management, the development of tools to put information into the hands of decision makers, which many of you are, and partnerships to achieve shared goals. None of us can do this work together, which is the whole reason that we love hosting this partners meeting every two years.

02:46:13:12 - 02:46:40:14

Unknown

To summarize our wetlands work, I like to think about the questions that guide our efforts in our projects, and I've listed them here. Our work is really guided by these six questions, and it's remarkable. I've been in this position for over 12 years, 13 years now, and the questions have

been relatively stable and consistent. But our tools and techniques and technologies have evolved through those years.

02:46:40:14 - 02:47:03:21

Unknown

But we're still trying to answer these questions, and we'll probably keep trying to answer them for the rest of my career. And maybe beyond that, our guiding questions in the wetlands, in our wetlands work out how common are wetlands on our landscape and where they concentrated, what kinds of wetlands and riparian areas do we have? Which plants and animals depend on wetlands and riparian areas?

02:47:03:24 - 02:47:27:22

Unknown

Which wetlands are the most significant for? For conserving biodiversity? How are our wetlands doing? What condition are they in, and what are the best opportunities for restoration? Another point I want to make before I get into these projects is that actually over the past several years, our work, which is mostly focused in Colorado, has begun to expand beyond the borders of Colorado.

02:47:27:22 - 02:47:42:09

Unknown

So you'll notice in a few of these slides, I'll talk about work that we're doing in the state of Utah or Wyoming, or even as far as California. So that's one one note about our projects.

02:47:42:12 - 02:48:04:00

Unknown

One of the key ways before I get into specific projects. But one of the key ways that we communicate with our partners about the scientific information that we and others have developed is through a website that we first put up online almost ten years ago, in 2011. But we did a major overhaul on this website in 2018, in the fall of 2018.

02:48:04:01 - 02:48:24:16

Unknown

This is the Colorado Wetland Information Center or quick website. If you guys haven't checked it out, I encourage you to Google Colorado Wetlands. This is actually the first thing that now pops up on Google, which is very exciting to most of us who work on this. This website organizes a lot of our work and the work of others around wetland issues in Colorado.

02:48:24:16 - 02:48:34:08

Unknown

And many of the things that I'll talk about today, you can easily find through this website.

02:48:34:10 - 02:49:04:07

Unknown

So the first question I posed, how common are wetlands on the landscape and where are they concentrated? This is a question we've been trying to answer over more than ten years. We've worked very closely with Colorado Parks and Wildlife and many other funding partners to digitize national

wetlands inventory mapping and begin to synthesize and analyze those data. When I first started my position in 2007, we had less than 15% of the state had digital wetland mapping.

02:49:04:07 - 02:49:28:26

Unknown

So it was very hard to answer that question with any precision or confidence. And today we can answer with much more confidence what we generally already know, which that wetlands are very rare on the landscape. There are about 1.3 million acres of wetlands mapped in the National Wetlands Inventory data set, and that covers less than 2% of the landscape.

02:49:28:28 - 02:49:58:06

Unknown

With the entire statewide National Wetlands Inventory data set. Over the past two years, we've did a large scale analysis of those data. We've done some enhancement aligning codes, updating some sections of the state, but unfortunately we can't update the entire state. So some of these data are from the 1980s, 1970s and 1980s. It's a massive effort to map wetlands, but we have recently we are incredibly close to fully releasing this report.

02:49:58:08 - 02:50:19:26

Unknown

The 2020 State of Colorado's Wetlands Report. It's a 200 page report that summarizes and analyzes National Wetlands inventory mapping across Colorado. There is a section for the entire state as a whole and one for each of the major river basins. We hope this report will be very useful in all of your conservation and management efforts across the state.

02:50:19:28 - 02:50:51:07

Unknown

So this is a little snapshot of some of the first few pages of that report. We also have an interactive mapping tool on our website as a way to engage with those data and dive in and get more details about wetlands in any given area. So this is a zoomed in area there around Dylan, you can see not only National Wetlands inventory mapping, but we also have a few other wetland specific wetland mapping types riparian mapping from Colorado Parks and Wildlife, which was done in the 1990s.

02:50:51:09 - 02:51:16:24

Unknown

Fen mapping, which I'll talk about in just a moment. Playa mapping from Intermountain West Joint Venture and Bird Conservancy of the Rockies. So this is one stop shop for understanding the distribution of wetlands across Colorado. And I should also mention that we will be having a workshop on the entire Colorado Wetland Information Center website, the mapper, and some of the other specific elements of that website this afternoon.

02:51:16:24 - 02:51:42:04

Unknown

So if this stuff is more interesting and I'm not going into enough detail, please come to the workshop with us. So far mapping I wanted to highlight this. We've developed quite an expertise in mapping fens. Specifically, those are wetlands with groundwater, groundwater fed wetlands with organic soils. They're very important for conservation. These are old growth wetlands. It can take thousands of years to accumulate the depth of organic matter within these wetlands.

02:51:42:10 - 02:52:07:03

Unknown

And we have carried out a series of Fen specific mapping projects for CDot across the entire state here in Colorado, along the highway corridors for white River and Rio Grande National Forests here in Colorado. And then we are either completed or in progress of mapping all the national forests on region four, which is Idaho, Nevada, Utah and Wyoming.

02:52:07:06 - 02:52:34:18

Unknown

We have a series of reports on these projects on our website. The second question that we address is what kinds of wetlands and riparian areas occur in Colorado. And in this, we've worked very hard on developing detailed descriptions of the major wetland types in Colorado. Those are available on our website. And right now we're actually working to expand these detailed descriptions to include all upland systems, ecological systems.

02:52:34:18 - 02:53:23:22

Unknown

There's a workshop on that project this afternoon as well, improving our classification to make it more usable and easily accessible. For those of you who work in conservation, we also. This is another new initiative that we are rolling out literally today. Live in the workshop this afternoon. This is our Wetlands plot database. This is an online, searchable data of almost 3000 vegetation plots from wetlands and riparian areas across the state that goes back to the 1990s classification of wetland and riparian areas, and really incredibly thrilled to put these data up online and allow folks to use them and interact with them in ways that can help set goals for restoration and management.

02:53:23:24 - 02:53:34:00

Unknown

This is a database where you can either search for specific plots in specific geographic areas, or by certain wetland types.

02:53:34:02 - 02:53:57:18

Unknown

Or. The second option is to create species lists or vegetation summary data where you can say, give me the average species list of riparian areas in Jackson County, and it will aggregate all of the species data from all of those sites and give you a list that says how common certain species are within those types of areas. What's their average cover?

02:53:57:20 - 02:54:20:26

Unknown

And that actually has a mapping interface where all the sites that are located on public land or shown as a point on our mapper, you can click on any one of those points. In bullet, pull up the profile, all the information that we have on that site. So the overview of the site, the species list and some condition data.

02:54:20:26 - 02:54:28:27

Unknown

If we if we have it. I'm really excited to go through this in more detail at our workshop this afternoon.

02:54:29:00 - 02:54:53:08

Unknown

All right. The third question what plants and animals depend on wetlands? I'm hoping many of you guys are familiar with the Field Guide to Wetland Colorado's Wetland Plants, which was led. That effort was led by Denise Culver, who's here has been an incredible resource. This is for sale in the CSU bookstore downstairs. Denise followed that up. Oh, that was the wrong.

02:54:53:10 - 02:55:19:10

Unknown

Denise followed up the the larger field guide with three pocket guides of common wetland plants in our three major ecoregions here in Colorado. These are actually free resources, and we have some of them available at the back table. If if folks don't already have one of these, these are incredible to keep in your back pocket. And then I hope you also all know about the app, which takes all of the information from those guides and puts it right in your smartphone.

02:55:19:16 - 02:55:47:28

Unknown

And what's incredible about the app is that it's searchable so you can search by different characteristics, which is hard to do in a in the full paper guide. So I'm in Larimer County, I see a wetland plant with white flowers. You can do search criteria and and come to a list of your of your species. We are releasing a new update to the app this summer, and some of the highlights include an exportable list of favorites.

02:55:47:28 - 02:56:09:09

Unknown

So if you are doing a species inventory in a particular area, you can star those in your app and then export that, including a bunch of information about each plant. And you can pull that then into a spreadsheet and use it in a report for that, for that site or any other use that you have. So that's very exciting.

02:56:09:12 - 02:56:30:21

Unknown

And of course, we don't only look at plants, although many of us on our team are have a botany background, but we do work very closely with Colorado Parks and Wildlife. And one of the efforts we've worked on over

the past few years with CPW and outside researchers is a series of priority wetland wildlife species, habitat fact sheets and scorecards.

02:56:30:24 - 02:57:03:13

Unknown

These are available both on our website and on website from their wetland conservation program. These fact sheets are just a few pages long, and they describe the species and describe some factors to consider when evaluating habitat condition. So we have them for dabbling ducks. We also have them for priority at risk species. It is sensitive, including things like sandhill cranes, leopard frogs, jumping mice and some of our plains native fish.

02:57:03:15 - 02:57:31:12

Unknown

Now the fourth question is which wetlands are most significant for conserving biodiversity? This is really core heritage program work. We've done a series of surveys, usually at the county level, but not always, sometimes at the watershed level. These are county surveys identifying critical wetlands. Here's some going back to the 1990s, the mid 2000. Recently that Work County and Lake County was actually finished after that.

02:57:31:14 - 02:57:59:03

Unknown

These projects and many others have led in these projects. We're really looking for the most significant wetlands, those that are intact, those that support rare plant populations, and those have led to more than 5000 locations of rare plant, animal and natural communities that are dependent on wetland or aquatic systems. And those are then translated into potential conservation areas.

02:57:59:03 - 02:58:24:21

Unknown

We have over 1000 potential conservation areas in our state that are related to and or aquatic dependent elements. Some of the surveys that we're working on right now that I'd like to highlight is wetlands of the Roaring Fork Watershed. This is actually a project. It's a wetland focused project funded by EPA, but is a companion project to the Watershed Biodiversity and Connectivity Study that Tom cardamom spoke about today.

02:58:24:28 - 02:58:57:02

Unknown

And he's been hugely helpful in connecting CNP with private landowners, which have allowed us access to numerous large properties. And that's allowed for an assessment of wetlands from Snowmass to Glenwood Springs. Throughout this whole watershed. The project team is reviewing and updating for both wetland and upland elements, and over the next year will identify watershed scale, conservation and restoration priorities.

02:58:57:04 - 02:59:30:02

Unknown

Another project that we're working on at a county level, or actually this is a city level, is a study for the city of Aurora, where we're looking at critical watershed critical wetlands throughout the city of Aurora. This is a fascinating project because it is an urban focus project. It's a little bit different than some of our traditional studies where we're looking for more pristine environments, but these are increasingly important studies that we are participating in because they highlight wetlands that are doing an enormous amount of work on the landscape.

02:59:30:04 - 02:59:59:13

Unknown

These studies inform wetland management. They the study team, and this project has certainly found elements of high conservation value, including leopard frog populations. They've also found areas where beaver are still active within this urban and exurban environment. And they're highlighting trends across the watershed for the land managers within the city of Aurora.

02:59:59:15 - 03:00:23:13

Unknown

That study. The city of Aurora is also utilizing one of our tools for assessing the condition of wetlands. That's the ecological integrity assessment framework. We have a manual and resources available on our website, and we've used this in many wetlands across the state. Another project that we've been involved with over the past few years is the BLM Assessment Inventory and Monitoring Program.

03:00:23:15 - 03:00:49:25

Unknown

The goal of the Aim program is to reach across programs, jurisdictions, stakeholders and agencies to inform, to provide standardized information, to inform management decisions is a really if anyone is not aware of the value of this program, I think you should all look into it, because the BLM has done a tremendous job of standardizing data collection and collecting a massive data set of natural resources on their lands.

03:00:49:25 - 03:01:19:04

Unknown

There are methods for both uplands, called the terrestrial Aim program for Rivers and Streams. And now the new program is the aim for wetlands and riparian areas where it is involved in this. In a couple of different ways. We coordinate stream sampling through the to game program in Utah and parts of Colorado and Wyoming. And then we've also played a very big role in developing the wetland Aim or Aim protocol.

03:01:19:07 - 03:01:47:13

Unknown

We've been involved for about three years. We've helped develop the field manual that will be used across the West. We've led a pilot effort last summer in Utah and Colorado to assess wetlands on BLM land, and we'll be expanding that effort to six states across the West this summer. That protocol involves detailed vegetation data collected through line point intercepts, as well as water quality and other hydrologic evaluations.

03:01:47:15 - 03:02:27:15

Unknown

And then the last question is where are the best opportunities for restoration? And there's a few projects I'm going to highlight here. One is our online mapper called the Watershed Planning Toolbox. This is a this is a project that is currently focused on the South Platte and Arkansas Headwaters watersheds. It includes a mapper with more than 80 layers, so going much beyond just wetlands data, but highly detailed maps of wetlands that includes more attributes than our typical wetland mapping, including wetland functions, also stressors and prioritized restoration and conservation areas across those watersheds.

03:02:27:18 - 03:02:58:13

Unknown

Along with the mapper, there's also a page on our website called the Working and Wetlands page that includes detailed information on data and resources and funding opportunities for from funding opportunities to technical guidance, including best management practices for wetlands, another restoration oriented project, or two more restoration oriented projects actually, that will be incorporated into the Watershed Planning Toolbox is a study of beaver restoration potential in Part County.

03:02:58:15 - 03:03:31:01

Unknown

This is exploring the opportunities for beaver mediated restoration in that area, and the maps and priority areas will be incorporated into the toolbox when that project is complete, and then a wetland and riparian restoration database were compiling information about past and ongoing restoration efforts, and we will incorporate those the detailed site specific information within the toolbox so people can see where there have been restoration efforts in the past and learn from those projects.

03:03:31:03 - 03:03:55:08

Unknown

And lastly, we are working on a multi-agency wetland program plan, which is like a strategic plan for wetlands across the state of Colorado, where we're engaging with many different state agencies, gathering their ideas and finding commonalities between the goals and objectives of our different state agencies. When it comes to wetlands. To wrap up, I just want to show a few faces of the folks that are on this team.

03:03:55:08 - 03:04:22:07

Unknown

But by all means, these are not the only people that have worked on these projects. Sarah Marshall, maybe you guys, can you guys stand up if you're here? Sarah Marshall is our eco hydrologist. She focuses on wetland restoration and prioritization. She's been very involved in the Roaring Fork Project, as well as the watershed toolbox. Lori Gilligan, wetland ecologist, focus on wetland assessment and functional both condition and functional assessment.

03:04:22:07 - 03:04:46:04

Unknown

She has worked very hard on the Aurora project this summer, and has a particular expertise in Front Range and Eastern Plains wetlands. Gabrielle Smith, who I don't think is here today, is our wetland GIS analyst and wetland mapping specialist. She has carried out all of the Fen mapping projects, as well as many of our analytical projects on National Wetlands Inventory.

03:04:46:04 - 03:05:09:21

Unknown

And she is the brains behind making the mappers that we have on our website. And then I like to highlight I'm doing this partly because some of our staff now don't even work in the state of Colorado. And I like to highlight these folks because they can't be here in the room today. Tess Webb is an aquatic ecologist based in Salt Lake City, Utah, who works with us on the BLM stream and wetland monitoring.

03:05:09:24 - 03:05:35:03

Unknown

Janet Miller is a new aquatic ecologist on our staff. Janet, I think is in the back manning the questions. She is also working on BLM stream monitoring, as well as new and emerging projects that we have in aquatic macroinvertebrates, water quality and eco toxicology. And Janet wants you to know that there's a mayfly on her, on her finger if you can't see.

03:05:35:06 - 03:06:23:15

Unknown

And then we have two other folks that work on our BLM projects. One will be in the process of moving to Boise, Idaho for 2020 and then Katrina. So Ruth Whittington and Katrina Castro have been essential in our BLM wetland monitoring projects. And so that concludes my update and wrap up for wetlands work. Thank you guys.

03:06:23:18 - 03:06:32:00

Unknown

I do realize I'm standing between you and the taco bar, so I will try to be cognizant of that.

03:06:32:02 - 03:06:53:26

Unknown

I'm the zoology team leader for the PNP, and my talk today is mostly just going to be highlighting some of the projects we've worked on since the last partners meeting. So in the last two years or so, and then also talk a little bit briefly about where we might be headed in the future, I do trigger there it is.

03:06:53:27 - 03:07:25:02

Unknown

So this is our zoology team. And we'll make you stand up as we do this to just to just to humiliate you a little bit. First we have Brad Lambert, who's a herpetologist there in the back, and then Rob Shaw, our timekeeper here in the front, Andrea Shuman and John Sobel is already standing in the back. And then Beth Stevenson is also a zoologist here.

03:07:25:07 - 03:07:52:02

Unknown

And the bullets there below their names are simply just brief, brief things that they've worked on recently. But they all have wide ranging interests and abilities. So I would encourage you to talk to them as well and find out some of their ideas and things that they are interested in. So for zoology, core functions we do for primary things.

03:07:52:03 - 03:08:27:19

Unknown

Of course, this is a broad umbrella for a lot of the different things that we do. But animal conservation ranking and mapping then inventory to find new populations across the state, monitoring the conditions of those populations. And then research of of conservation interest to answer some of those questions that we might have. So to look at some of the conservation and assessments that we've done recently, or some of the core figuring out what's in the state, what's ranked, and how are they ranked.

03:08:27:21 - 03:09:01:21

Unknown

We've done recently a fair amount of focus on some of our charismatic micro fauna, including bees, moths, tiger beetles, dragonflies, damselflies, mayflies and stoneflies and caddisflies. A lot of this work has been facilitated by facilitated by George Doyle of the botany team. So thank you for that. But most of this work is importantly relying upon experts that we are we have to rely on these experts because we just don't have the capabilities within our program.

03:09:01:21 - 03:09:29:26

Unknown

And a lot of those experts are here at Colorado State University in the Gillette Museum of Art and diversity, and those folks are indicated there in the parentheses after each of those taxonomic groups. So we rely heavily on those experts to help us maintain the best information possible on even what occurs in the state, let alone the taxonomic abnormalities that occur on a monthly basis, it seems like.

03:09:29:28 - 03:10:00:27

Unknown

And Andrea Schumann of our program has worked primarily on the bees. We've also tried to better align our tracking lists with the the, the swap lists, the tier one and tier two species. And then we've also been developing data for Codex, which is our online mapping tool that is coming that you will hear more about in the afternoon and in workshops, but to try to develop the data behind behind that mapping tool.

03:10:01:00 - 03:10:30:01

Unknown

So for some brief, brief, brief, brief highlights of of these projects that we've been doing, and the intent is to just help you understand some of the breadth of what we've been working on. And I would encourage you to reach out to those folks that are involved in these projects to find out more details. We recently did a project with Audubon looking at birds and irrigated agriculture in the Colorado River basin.

03:10:30:01 - 03:11:00:06

Unknown

So looking at the complexities of how the water use affects bird communities. And that was and Schumann and working with Sarah Marshall of the wetlands team. And then Rob Shaw is working on a just getting started on a metal jumping mouse regional monitoring plan. And this is to set up the the metrics by which populations will be monitored range wide for that subspecies.

03:11:00:06 - 03:11:05:27

Unknown

And he's working with Paul Lucas out of the University of Montana on that.

03:11:06:00 - 03:11:45:08

Unknown

For some of our inventory projects. We do a lot of these in in a lot of different parts in, at different levels of, of the state. So different government levels. But some of the highlights of some of those that we've done, we've continued to do boreal toad breeding site inventory on mostly on Forest Service property, and then white River National Forest Cave bat inventory, and then also, as was mentioned before, the Roaring Fork Watershed Biodiversity Assessment and then a more localized project on the button Rock preserve for the City of Longmont.

03:11:45:10 - 03:12:06:16

Unknown

Oh, come on, there we go. Okay. And so for some of our monitoring projects, one of the longest running projects that we've had is kind of in a competition here between three of them that I'll highlight, but this is up for a competition for one of the longest. It's and Brad Lambert has been running that project since its inception.

03:12:06:16 - 03:12:42:02

Unknown

And this is for the boreal toad breeding site monitoring. And then we also have the prevalence metal jumping mouse population monitoring on the US Air Force Academy and then the Pawnee montane skipper. We've also been doing white nosed surveillance for bats, which I will talk about in a little bit more detail here. But then John Silver also conducted a reptile monitoring on Pinion Canyon maneuver site in Fort Carson.

03:12:42:04 - 03:13:07:12

Unknown

So with the with the boreal toad monitoring, this primarily occurs in Chaffee County. And it's been a long running mark recapture study of the largest population in Colorado. And again this was for more than 20 years that this has been occurring. Looking at population trends and then also the impacts of chytrid fungus as it moves into a site.

03:13:07:14 - 03:13:43:08

Unknown

Some recent publications down below are highlighted. But this is this is an example that you don't really need statistics to to show what's going on when a site is infected with chytrid fungus. So we've been able to have a long term monitoring project looking at all of these sites. And so as chytrid has shown up at these different locations, being able to see how these populations are affected and then hopefully how they will recover over time.

03:13:43:11 - 03:14:22:09

Unknown

And okay, another one of the long term projects that we've been looking at, and this has been led by Rob Shaw, is the prevalence metal jumping mouse on the US Air Force Academy. And again, this is a mark recapture survey looking at survival recruitment intent trend. So some demographic parameters. And then Rob recently as a publication out to with the base manager at the Air Force Academy Brian Buckler.

03:14:22:12 - 03:14:51:15

Unknown

In addition most of our work recently most of my work has been revolving around bats. And this has primarily been because of the emerging threats associated to this group. So we have the wind energy, which is affecting certain species of bats at a higher proportion than others. And then we also have a white nose fungus, a white nose syndrome caused by an introduced fungus.

03:14:51:15 - 03:15:38:27

Unknown

So as this fungus is moving westward across the United States, which is what the map up there indicates, the cooler colors is where it originated in New York. And as it moves west, some of the warmer colors, it's decimating populations of bats across across the United States. And so out here in the West, we have been focused on getting baseline population levels and getting an understanding of what certain bat species that are affected by this fungus, what their population levels are prior to the fungus showing up in our state, which it has not yet showed up in our state.

03:15:38:28 - 03:16:05:27

Unknown

Right, Tina? No, not still still clear. And so we will maintain that as long as we possibly can. But related to that, we've been doing little brown bat monitoring at a site in steamboat. And these are that two different sites, one on the Carpenter TNC owned Carpenter Ranch, as well as a Yampa Valley Land Trust property that Raider Ranch.

03:16:06:00 - 03:16:31:02

Unknown

They have bats in houses or barns that allow us to go in there. Most people with bats in their houses or barns don't want the bats in their houses or barns, so we get about a two week study period before they say they want to get rid of them. But these are opportunities that we're able to look at bats for a longer period of time because people are not using those structures.

03:16:31:04 - 03:16:47:04

Unknown

And then we are also doing some similar mark recapture work at a mine on the white River National Forest studying Townsend's big eared bat.

03:16:47:07 - 03:17:11:01

Unknown

Another bat project that I have been pretty heavily involved with, as well as Beth Stevenson is working on the acoustic monitoring as a portion of the North American Bat Monitoring project, which is a continental effort to look at bat populations and a.

03:17:11:03 - 03:17:42:22

Unknown

A grid has been set up over the entire continent. And we've been, along with support from Colorado Parks and Wildlife, been looking at this at a statewide, statewide level. And in addition to that, as this acoustic monitoring has been taking place, we've also looked at a more localized areas within the BLM properties on the Royal Gorge Natural Resources Gorge Resource Area, as well as Rocky Mountain National Park.

03:17:42:25 - 03:18:06:28

Unknown

And this is a way to again get baseline information using acoustic methods. So recording, recording the ultrasound of bats as opposed to actually capturing and handling them to get information prior to white white know syndrome showing up. And then to look at effects of other threats to these species.

03:18:07:01 - 03:18:44:22

Unknown

Additionally, some of our bat work has taken us outside of Colorado, and most of this work has been done by Rob Shaw. And so he started a group called The Climbers for Back Conservation, which is a citizen science group that's worked to engage climbers to help survey for bats. There's people going up these very sheer cliff faces that are actually similar to hikers on a on a trail, but they are able to find a wildlife in places that I would say most of us are not going to go to.

03:18:44:25 - 03:19:27:08

Unknown

And so this was a way to engage, engage that group in serving for bats at these locations. And then also one of our projects was down in Florida, which because of some of our connections to different military bases and working with the Semel here on campus, the center for the Ecological Management of Military Lands led us to get involved with a project on Florida bonneted bats, where we're helping with acoustic occupancy and telemetry of an endangered species on a military base in Florida.

03:19:27:10 - 03:19:50:02

Unknown

So for future directions for zoology, where do we want to head next? And these are based based upon things that we maybe have in the hopper that

we're thinking about moving towards, or directions we would like to head, that we don't really know how we're going to get there. But one of those is looking at population estimation of rare species in general.

03:19:50:04 - 03:20:26:14

Unknown

So regardless of the taxonomic group, what are. How are populations doing at particular locations that can be monitored at that level? We're also looking at potentially setting up a regional bat hub. And this revolves around the acoustic analysis for the data that are collected for the North American Bat monitoring program. And then we have a desire to move more into invertebrate conservation and getting a better handle on the status of those species.

03:20:26:14 - 03:20:58:06

Unknown

And one of those taxonomic groups that Andre has been working on primarily right now is looking at bumblebee and bumblebee monitoring and then also invasive species. They're not just for plants, they're also for animals. So we've got bullfrog and reedier slider that are affecting populations of native amphibians and reptiles across the across the state. So we would like to look at those in a little more depth.

03:20:58:06 - 03:21:27:22

Unknown

And then disease ecology, if you want to think of pathogens as an invasive species, that's yet another invasive species that we would like to follow up on a little bit more, both white nose syndrome and affecting bats and kindred Fund. Fungus affecting amphibians have been caused from introduced pathogens. But ultimately, where we head is up to you, our partners, and where you would like to see us go and what directions you would like to see us move in.

03:21:27:22 - 03:21:47:21

Unknown

So we look forward to having those conversations and learning where you would like to see us move in the future. Thanks.

03:21:47:24 - 03:21:51:24

Unknown

Joanna and Jeremy.

03:21:51:26 - 03:22:20:00

Unknown

Let's see. Well, I guess we don't need a slide to announce that lunch is served. Here they go with the air walls and as soon as they get those open, we can go over and grab lunch. There's two lines, so help yourself to an ethical number of tacos if that's what you would like to have. And maybe let's let's push push lunch out another five minutes and come back in at about 105.

03:22:20:00 - 03:22:29:27

Unknown

And we'll get started with our next set of speakers from CNP, starting with Amy Greenwell. And.

03:22:30:00 - 03:28:01:27

Unknown

Okay. Thank you. Enjoy lunch.

03:28:01:29 - 03:33:12:04

Unknown

And.

03:33:12:07 - 03:33:17:10

Unknown

Yeah, so I could just set.

03:33:17:13 - 03:33:21:25

Unknown

It would sit down. Yeah.

03:33:21:27 - 03:33:56:28

Unknown

I brought a mouse to.

03:33:57:01 - 03:43:58:19

Unknown

Something happened with the internet today, just like those services would work. And I did the same thing I did like, get a network recommended to even get on the internet, and then the file still won't load on anything. So I told job, I told Joshua, just not change the number three in here, which should be all you.

03:43:58:22 - 03:49:17:08

Unknown

Like.

03:49:17:10 - 03:51:03:02

Unknown

I have three.

03:51:03:04 - 04:04:45:12

Unknown

Satellite.

04:04:45:15 - 04:05:15:16

Unknown

So I moved it up here, but it just minimizes because I have.

04:05:15:19 - 04:05:22:10

Unknown

Yeah, yeah, just a little bit slower. Okay. Let's try that and then.

04:05:22:13 - 04:12:05:02

Unknown

So okay. That's perfect. I'll just put this over it. When I was having trouble with with this like that's better. Okay. That's a lot okay. Cool. Thank you.

04:12:05:04 - 04:12:38:02

Unknown

You know how to work any of this? I brought some hand sanitizer. Oh, I saw that. I'm going to run mine off of the website. Okay, so I guess they're going to be switching it, but that's what this course. Okay. The yours is going to be the presentation, the clicker that goes crazy. And then you don't need to you should see what I guess you stick with the PowerPoint because they have to do something to put that that laptop PowerPoint.

04:12:38:03 - 04:12:41:04

Unknown

So.

04:12:41:07 - 04:12:55:09

Unknown

I'm just going to go through several online databases and talk about some codec stuff. And then. Okay. Figured it'd be more interesting and.

04:12:55:12 - 04:13:01:00

Unknown

Yeah. How?

04:13:01:02 - 04:13:18:15

Unknown

Works I know hopefully. Yeah, it'll be weird because I can't see it there. I have to see it there. So I think I think the mouse is working. It'll it'll just be a little bit. So hopefully.

04:13:18:18 - 04:16:42:27

Unknown

Too good okay.

04:16:43:00 - 04:16:47:24

Unknown

You didn't hear it. Oh okay.

04:16:47:27 - 04:16:51:03

Unknown

Hey.

04:16:51:06 - 04:17:06:26

Unknown

Tacos.

04:17:06:28 - 04:17:15:13

Unknown

That's one of the.

04:17:15:15 - 04:17:32:02

Unknown

All right, well, let's come back to our seats and get started with the afternoon program. I hope that everybody got enough tacos. And I hope that you.

04:17:32:04 - 04:18:00:24

Unknown

I hope you all got to see the birthday cake when it was still out and got into the celebratory mood that that cake was intended to put us in for celebrating our birthday. And we also want to make sure that you all get your presence before you leave. So Jessica is in the back, and if you're, she'll be ready to give those to you when you depart.

04:18:00:26 - 04:18:34:25

Unknown

So we hope that won't be till after the meeting is over. But if you have to leave early, we want to make sure that you get one. So let's go ahead and hand the mic off to the rest of our CNP staff who are doing their updates. The next person up is Amy Greenwell with Conservation Data Services.

04:18:34:27 - 04:18:48:01

Unknown

Okay, I'm going to be demoing some websites live. So if we can switch over to the laptop.

04:18:48:03 - 04:19:14:07

Unknown

Great. Okay. Well I'm Amy Greenwell, I co-lead the conservation data services with Michael Menefee at CNP. And you know, our main reason, our main goal is to take all the great data that you guys collect and organize it in meaningful ways to answer the questions we all need answered, and then get it out in available for a great conservation work in Colorado.

04:19:14:07 - 04:19:41:08

Unknown

And as other people had mentioned earlier today, we've been working really hard on getting our data out there, upcoming databases that should be available, or the plots database, the wetlands plot database. We also have a restoration database in the works, and we'll be getting our ecological system descriptions up on our website. And we also have Codex, which formerly was known as search.

04:19:41:08 - 04:20:04:25

Unknown

You might have heard is now the Colorado Conservation Data Explorer. We'll be talking about that a little bit more today as well. So I couldn't help but think a little bit about what Dean Hays said to about technology and changes and all this web information that we're putting out there just wouldn't be possible when CNP was just a gleam in the eye.

04:20:04:28 - 04:20:27:01

Unknown

So it's pretty amazing that we have the ability to get information off of people's computers and out into the world, and even more so important in the next 40 years with all the rapid changes in our communities and environment. I'll try not to be too antisocial. I need to look at this monitor on the ground to see actually how I'm navigating.

04:20:27:03 - 04:20:51:09

Unknown

So one of the I just wanted to highlight several of our big projects over the last few years that are involved in databases, databases and online web web databases. And one of our big projects has been streams. It's a species tagging, research and monitoring system. This was a database we put together for the Upper Colorado River Recovery Program.

04:20:51:09 - 04:21:17:19

Unknown

So working really hard with many agencies to secure populations of endangered fish and prevent some fish from getting extinct, and also kind of fostering habitat for native native fish species in the basin. And they were faced with that ultimate conundrum of having multiple partners working on the same things, and everybody having their data siloed on their computers. And there was no central container to access the information.

04:21:17:21 - 04:21:45:28

Unknown

So that's how Stream System was born. The bank got to the database are fish and we have fish. We have all the different ways that they've been encountered. The program is tracking all of their different studies. Like I said, they work with lots of folks and in particular the larval fish Lab at CSU. These locations are permanent antennas on the river, and they're monitoring things like restoration.

04:21:46:01 - 04:22:02:21

Unknown

They're monitoring and training basically any parts of the stream system that people want to delve into deeper. And then they also manage their pit tags and their pit tag distribution information.

04:22:02:24 - 04:22:31:13

Unknown

So if you look at look at the fish page, we're almost up to 1.3 million fish in the database right now. So it's a pretty robust system. Any of you all can register and get access to the information. Now how do we know what an individual fish is? Well we have to create fish using pit tags. So pit tags are key piece of information to know which individuals are unique.

04:22:31:15 - 04:22:53:04

Unknown

If individuals don't have pit tags, they've gone into the system as individual fish because we have no way to know that there's lots of ways you can slice and dice the data. There's quite a list of species in here.

Basically, what's getting tracked right now is any fish that's endangered will go into the database, whether it has a pit tag or not.

04:22:53:07 - 04:23:07:26

Unknown

And all of the other data in the database are pit tagged species. And we'll talk about that a little bit more. We originally envisioned it would be fish, but it has morphed into more things than that over time.

04:23:07:28 - 04:23:32:20

Unknown

I'm just going to bring up an individual so you can see what sort of information is getting maintained in the database. There's a little bit about the the individual itself, how long we've known about it being in the river, some database information. If it's been stocked, they'll be stocking details to help the recovery programs identify successful stocking events and reproduce that.

04:23:32:22 - 04:23:57:08

Unknown

And then if you go down to the bottom, you'll see all the different ways that this individual has been encountered over time. So it was stocked in 2019 and August, and then it was captured again in September. And you can see that it was part of a small smallmouth bass management project. So a lot of a lot of the work that these programs do is for non-native fish removal.

04:23:57:08 - 04:24:24:10

Unknown

And at that time, if they see endangered fish, they'll go ahead and tag them and release them into the river. So the big guts of this, most of the details in filtering options are in the encounter page. So you can see now we have almost 2.9 million encounters of about our 1.3 million fish. So every week we've connected our database to these antennas, these permanent antennas on the stream.

04:24:24:10 - 04:24:45:16

Unknown

So it's getting weekly data readings from the antennas, and that's getting imported automatically into the database. We also, on an annual basis, all of the consortium of agencies that work with these groups submit their data records to database managers, and those get uploaded as well.

04:24:45:19 - 04:25:11:01

Unknown

So as I said, it's fish and also pit tags. And sometimes it's hard to remember that pit tags don't necessarily mean fish. So there's shed tags in the database as well. If people find tags on the river or tags in bird poop, you know those will get in there. Well, Mark and Miss Shed so that when people take their portable antennas out on the rivers, they actually kind of know the complete picture of what they've detected.

04:25:11:03 - 04:25:35:21

Unknown

The other interesting thing we discovered recently is that we have beavers in our database. There is a grad student in Utah working on a beaver project, and her beavers are getting detected on the antennas. So that was this is kind of the first non fish species that we have in the database. But like I said it's really important when people go out and they're remotely detecting these things and they can figure out what it is that they have seen.

04:25:35:24 - 04:25:57:08

Unknown

So the program really does want all the pit tag information to be in the database. You know, sometimes they're find they have like a whole list of shed tags at the bottom of the river too. So all this stuff can be tracked in streams. I highly recommend that you register and check out the data. It can all be downloaded.

04:25:57:09 - 04:26:23:03

Unknown

Of course, the record limit is getting quite large, which exceeds a lot of, you know, our our basic tools like MSL. There is a researcher at Utah State or I'm sorry, the state of Utah that's working right now on connecting the database with R to do some more kind of mega data type analyzes that the Microsoft products are a little bit more limited to on your desktop computer.

04:26:23:06 - 04:26:51:02

Unknown

So another product that we have that I think would be of interest to most of you is complete. Sorry, a little glitch there. I can't see the top of the screen on there. So comb app is the Colorado Ownership, Management and Protected Areas map. We like to call it protected lands, but it really has pretty much everything in the state, whether it's managed for biodiversity or conservation or not.

04:26:51:03 - 04:27:16:22

Unknown

So I tend to think of it kind of as a land status map. We have a website right now where you can log in the log in and the login is free. So come out to free resource. Now for those of you that don't realize that. So if you don't have access to GIS, you can log in and zoom around and identify features.

04:27:16:25 - 04:27:44:25

Unknown

Kind of the main types of information we store in here or who owns it, who manages it, or whether someone holds an easement. So all of three of these can be the same. They can all be different. Land status is quite complex. We do also try to track how it's managed and whether it's managed kind of as a state park or a state wildlife area, and we also track whether or not there's public access.

04:27:44:27 - 04:28:15:02

Unknown

So this just gives you a little bit of information behind the scenes on what's going on on that specific property. If we go to something a little bit different, we can get some information on Table Mountain and tennis site. So over on the left there's more ways to interact with the map. I cannot unfortunately see everything here. I'll do my best.

04:28:15:04 - 04:28:31:02

Unknown

So there are different ways that you can search. The important thing about this if I search on an organization and let me just pick Larimer County,

04:28:31:04 - 04:28:50:14

Unknown

Wow, I'm just going to pick something different. You're going to get everything they own or manage or if they hold it, easement. So any property that they're interested in, regardless of how they're connected to it, you can zoom to those properties and you can also download it. But if you're like me.

04:28:50:16 - 04:29:11:10

Unknown

You probably just want the data. So we also have come up for download. You can get a geodatabase or shapefile to use in your own GIS and do your own searching. And we also have a couple special use cases, really more like if you're teaching and you want to give it to all your students. Because the one thing that we do ask for companies not to redistribute it.

04:29:11:10 - 04:29:30:21

Unknown

So as long as you're registered on the site using it for your good work, that's fine. Any sort of public type of display, we would use a special use case. We will be updating the data in a couple of weeks on the website, so please keep an eye out for that. We'll send an email out to all the registered users.

04:29:30:24 - 04:29:54:01

Unknown

It's going to have updated conservation easements and state lands and BLM land. And I did notice there were a lot of open space managers out here today. So we would love to get your data into map. You could either email it to me or you can email it to map it. Call us state.

04:29:54:03 - 04:30:24:21

Unknown

And our last big web project this year is Codex, the Colorado Conservation Data Explorer. So we're going to bring our our data, our element occurrence data, our observation data models together with CPU in the Bird Conservancy and critical habitat from Fresh and Wildlife Service. And bring all these data sets into one place for you to do your conservation projects.

04:30:24:21 - 04:30:47:01

Unknown

And that's all give us like a much easier way to distribute the information that you're kind of familiar with or environmental review process. That'll be something you can do 24 over seven. Any of the more complex data requests can still go through our staff. And of course, our spatial data sets are still going to be part of the products that we offer for you all.

04:30:47:03 - 04:31:10:13

Unknown

Codex is a partnership with CBW, and we also receive funding from gates. And we had a couple of generous private donors. We had John Powers and Bob Tate generously donate to the tool, and the Forest Service donated some money and some other folks. So it really has been a great collaboration of folks brought together to make this happen.

04:31:10:14 - 04:31:50:04

Unknown

We're going to have a demo today in the library. In fact, we have a test site from Nebraska so you can hands on dive into Codex or Nebraska's version of it and see how it operates. It'll be in the Morgan Library in room 175, and we hope to have the tool out this summer. Right now we have working groups meeting with and land trusts and state and federal agencies, and we're fleshing out all the all these details of what does Colorado need to see and Codex to make it be usable and successful.

04:31:50:07 - 04:32:13:26

Unknown

And with that, I just wanted to talk a little bit about CNP data. We've updated our tracking lists, and as folks mentioned earlier, we've done a lot of work on invertebrates. We've done work on the Eastern plains, looking at some of the plants that might have been overlooked out on Colorado's eastern Plains. And so we've gone ahead and updated the tracking list.

04:32:13:26 - 04:32:40:26

Unknown

This is the version on the website now. I think it's from the end of November. But since 2018, when we last met with everybody, we have added over 4000 map locations to our database. We're working really hard to get everything up to speed for Codex, make that launch successful, and we now have over 40,000 map locations in our database of where plants, animals and unique plant communities.

04:32:40:28 - 04:33:09:18

Unknown

If you go to our tracking list, you can slice and dice this in lots of different ways. If you're interested in certain major groups, that's one filter. You can look at how rare things are. If you're interested in things that have some sort of status, whether it's a state or federal status, or if it's just one of the states tier one or tier two species, you can also look at whether things are wetland related or Colorado endemic.

04:33:09:20 - 04:33:29:24

Unknown

Another way you might want to use this is just say that you're going out into the field and you want to see everything that could possibly be in Larimer County. You can go ahead and just do this filter and download your file. It's going to pop up into a CSV that you could then open up into Excel.

04:33:29:26 - 04:34:00:27

Unknown

So those are just some of the new additions we've added since the last time we've all met here. The other piece I wanted to highlight too is our new potential conservation areas. Johanna had brought that up before. These are areas with high biodiversity in Colorado that are supporting all those rare plants and animals that we all care about, and a lot of the projects.

04:34:01:00 - 04:34:21:21

Unknown

For that. A lot of our projects are on our website. So if you go look at our services or our work, you're going to get a lot of information on the projects folks talked about today. We also have a biennial report. So recently we've been alternating our partners meeting with our biennial report. And that way we can keep everybody up to date every year.

04:34:21:21 - 04:34:42:04

Unknown

So we do have our biennial report up on the website if you want to dive into that a little bit deeper, we've highlighted some projects that we felt like we're pretty critical in the last couple of years. So that's about all I got. I hope you take an opportunity to surf around on our website. There's a lot of information out there.

04:34:42:08 - 04:35:18:22

Unknown

I hope that you take a chance to grab the latest comp data now that it's free, and we'll be expanding upon that in the future, too. We're going to get deeds for the conservation easements and how that all linked and digitized into searchable databases. Comp eventually will be integrated into Codex. When we launch Codex this summer, we're going to keep both of the sites going until we have the opportunity to integrate comb, because some of the searching functionality on that website, we need to build over time on Codex.

04:35:18:22 - 04:35:50:01

Unknown

So feel free to contact our team. We're small but mighty, and we love to get your data out there. So thanks for all you do.

04:35:50:03 - 04:36:07:14

Unknown

It's a really bright up. Here I am Jill. Handwork. As you may know, I'm the botany Vegetation ecology team leader, and I'd like to give you an overview of our team and what we do.

04:36:07:17 - 04:36:40:06

Unknown

Get this. There we go. So our core functions similar to the zoology team. We do rare plant and plant association surveys. We build the database from those surveys we get involved in the county inventories vegetation and rare plant monitoring, habitat modeling. We do climate change vulnerability assessments for all our rare plants, weed research and mapping and outreach.

04:36:40:08 - 04:36:50:20

Unknown

Some of our recent project partners in the in the park is slippery up here to.

04:36:50:22 - 04:37:24:27

Unknown

Recent project partners range from federal agencies to state and local governments, all the way from Bureau of Land Management to the City of Fort Collins, City of Longmont, U.S. Forest Service and all the projects you hear me talk about have been supported by all these partners. So our rare plant database is Amy alluded to is housed in the Biodiversity Tracking and Conservation Data System, which is bionics.

04:37:25:00 - 04:37:54:02

Unknown

It's built by nature, serve our parent organization and it's an interface between Arc View and Oracle. It supports geo databases and shapefiles etc.. So in that for our rare plants, we now have 521 fully tracked plant species and 79 watch listed. Most of our watch listed species were recently added by our team and they're on the eastern plains.

04:37:54:07 - 04:38:23:26

Unknown

Susan Punjabi did a project with the Natural Areas program to review the diversity of plants on the eastern plains, and that list is in the back if anybody wants to take a look. We also have 5500 element occurrences that represent all of these species, including mosses and lichens. And they're represented on the ground by over 18,000 map locations.

04:38:23:26 - 04:38:30:00

Unknown

So we've got the most of all the three of all the teams.

04:38:30:02 - 04:38:35:00

Unknown

So.

04:38:35:02 - 04:39:31:01

Unknown

But we also now have rolled our ecology team in with the botany team. So our vegetation ecology database now has 56 ecological systems in biotic. And they are crosswalk to all of our plant communities which are the same as the US NBC plant associations. So you can see we have 570 of those

that are fully tracked at this time, 235 associations that are partially tracked, which means the best in the county, and 3500 element occurrences and 5100 map locations, lower number of locations there because they tend to be just one big polygon where rare plants can be lots of little spots across the landscape.

04:39:31:03 - 04:40:05:27

Unknown

Our rare plant surveys stay close enough here. Our Rare Plants surveys focus on the State Wildlife Action Plan. Tier one and tier two plants of greatest conservation need now. In 2015, plants were added to the State Wildlife Action Plan, which some of you may or may not know. But we're pretty proud of that. And we work closely with the State Natural Areas program and others to develop the data on these species, which does include the federally listed and agency sensitive plant species.

04:40:06:00 - 04:40:36:22

Unknown

So our surveys, of course, we're always looking for new locations for all these plants we track, and we want to assess the current condition and threats to anything. And sometimes we need new technology. So last year we were able to use UAS technology to get at some inaccessible sites. You can see the drone here in the photo. There's a federally listed plant that grows on those steep slopes.

04:40:36:22 - 04:40:54:03

Unknown

So very dangerous for people to go down there. But we have our drone pilot here, Neil Swazi. So we did our first drone surveys last year. We're very excited to keep moving forward with that.

04:40:54:06 - 04:41:17:19

Unknown

You've seen this map a couple of times, but our county inventories are not just about wetlands. They also include all the other species that the heritage program tracks. And over 40 counties have been visited. And you can see here we have kind of a gap on the plains, which is part of the reason Susan was doing the study with the Natural Areas program to find out what's there.

04:41:17:20 - 04:41:34:02

Unknown

What don't we know about are there areas under surveyed? And as Dave mentioned, our work supports natural areas designation, National parks, soapstone Natural area, etc..

04:41:34:04 - 04:42:05:16

Unknown

Our vegetation and rare plant monitoring tends to focus on the plants of greatest conservation. Need the listed species? We have one project down in Mesa Verde National Park. We have an abstract in the back for Chap in Mesa milkvetch monitoring that's been going on since 2002 2001 one. So the results of that are in the back if you're interested in that.

04:42:05:19 - 04:42:19:15

Unknown

Other vegetation monitoring. Tom Baldwin's has done some general vegetation monitoring in the national parks. And of course these naturally can help guide species conservation.

04:42:19:17 - 04:42:45:19

Unknown

Habitat modeling. We have about 20 of our plants of greatest conservation need, the listed species that we have done habitat models for, and these can help guide surveys to areas to identify new plant locations. And they can also be served on Codex, as you will see, so that you can do some environmental review consulting before you go out in the field.

04:42:45:24 - 04:42:59:02

Unknown

What could possibly be there? Karen Decker has taken the lead on most of this work, and developed the models with Max ENT and Random Forest technology.

04:42:59:04 - 04:43:36:20

Unknown

Our climate change assessments utilize the Nature Serve Climate Change vulnerability index tool, and to date, we've done over 150 of our rarest plant species across the state. Surprisingly or not surprisingly, most all are extremely vulnerable to climate change, primarily because of their limited dispersal ability. So when we know what is limiting plants, then you can help to identify adaptation strategies.

04:43:36:21 - 04:43:46:06

Unknown

So migratory corridors, things like that so plants can move a little bit.

04:43:46:08 - 04:44:18:10

Unknown

We'd we'd research and mapping. Pam Smith has taken a lead on a lot of this work. Assisted with Amy Greenwell. Tom Baldwins is going to take over some of that work this year. But we've done a lot of work since 2002. Mapping to sub meter accuracy to monitor the changes over time. And you can see in this slide from 2002, in the upper left to 2018, how common Teazle has moved across the landscape.

04:44:18:13 - 04:44:35:14

Unknown

It's following the drainage coming in from the southeast there and then moving, moving downstream. It's a pretty dramatic change, not necessarily one you want to see, but.

04:44:35:16 - 04:45:09:24

Unknown

Those kinds of data can help land managers decide when and where to treat. Our outreach includes plant identification workshops, guest lectures at CSU classes, professional organizations. We have an annual Rare plant symposium that we host. We do native plant master classes. We

have an Adopt Rare Plant program, and we also get involved with BioBlitz. Now, I'd like to introduce you to our team members and let you know who does what.

04:45:09:27 - 04:45:30:27

Unknown

So if you have questions, you can talk to them about specific projects. First up is Tom. Tom Baldwin's Tom does vegetation mapping. He's done a lot for the National Park Service. That's not Tom. That is not Tom either. Okay.

04:45:31:00 - 04:46:11:25

Unknown

I'm not the first to have trouble with this mouse today. This is Tom. Okay. Tom does a lot of vegetation mapping. He's been in Texas and Florida for the past few field seasons, done a lot of vegetation mapping for the National Park Service. He also does USMC Plant Association descriptions, and he's an expert at collector for ArcGIS. If you have questions on that and he's going to get more involved this year with understory vegetation analysis for the Colorado Forest Restoration Institute.

04:46:11:27 - 04:46:42:03

Unknown

Okay, Denise Culvert, many of you know Denise. She is on our team now. She's our senior ecologist. She oversees all of the countywide inventories that the program does. She's been the lead on all of those over the years, of course, coauthor on the Wetland plant field guide and the pocket guides and the app. As you heard this morning, she also does a lot of our plant ID workshops specializing in wetland plants.

04:46:42:06 - 04:47:19:14

Unknown

George Doyle, she is our database guru right now. She works on all data, not just botany. She also gets out and does amphibian surveys and was very much involved in the Aurora Wetlands Survey myself. I focus on the species surveys, data development, monitoring with our partner organizations. I do the climate change vulnerability assessments for most of the plants, and I run the rare plants opossum.

04:47:19:16 - 04:47:36:10

Unknown

Deem alone. She's not here today, but she's our West Slope botanist ecologist. She does a lot of our plant surveys and she's an excellent birder. So why? She's looking for plants. She does a lot of our bird surveys.

04:47:36:13 - 04:48:01:15

Unknown

Susan Punjabi here in the front. Rare plant surveys, botanical resource research. Susan's responsible for many of the best management practices that are on our website. And also for the Rare Plant Guide, which is on our website. And her passion is rare plants in their pollinators.

04:48:01:17 - 04:48:23:12

Unknown

Jessica Smith, another rare plant monitoring and survey specialist, also works on natural areas assessments and other projects for the Natural Areas program. Pam Smith What happened to my picture?

04:48:23:14 - 04:48:30:21

Unknown

I'm not sure there's a picture Ken Carroll Ranch there.

04:48:30:24 - 04:48:58:02

Unknown

I don't know what happened. It was fine last night. Pam again, we have a lot of people doing rare plants surveys on our team and looking for plant community associations. Pam is experts in the foothills flora. She's excellent at the wetland plants as well. She teaches some of our our plant workshops, native plant master classes on the side.

04:48:58:02 - 04:49:37:10

Unknown

She does necro search. She does. She's really a plant detective, also involved in the noxious weed monitoring and mapping that you saw previously. And Lisa Tasker. Lisa is another West Slope botanist. Also botanical surveys and Lisa is the primary project right now. Has been working on the restoration plan and implementation for the Rifle Ranch. She gets a lot of volunteers to come and help with that project, and she's done a lot of great community outreach, so that's our team.

04:49:37:13 - 04:49:57:15

Unknown

If you have interest in any of the things we do, feel free to reach out to any of them. Go to our website. I would ask them all to stand again now so you know who they are.

04:49:57:17 - 04:50:21:21

Unknown

And next step will be our conservation planning team.

04:50:21:24 - 04:50:47:03

Unknown

Okay. Afternoon, everybody. Thank you very much for being here for the umpteenth time today. I, I am if you're feeling like you're done sitting in a room quietly in front of a PowerPoint, I'm right there with you. So we'll get through this and move on to our workshops where we can have some real conversation. This is our conservation planning team.

04:50:47:06 - 04:51:27:25

Unknown

There's only a couple of us actually here today. We've got Doctor Anna Davidson, who is a joint faculty at of department at CSU. Karen Decker is here, I believe. Still somewhere. Hey, corn. Michelle Fink and Renee Rondeau are probably names that are familiar with to everybody here and then May. Yay! Let's see which button.

04:51:27:27 - 04:51:31:01

Unknown

Okay. Really?

04:51:31:03 - 04:51:37:00

Unknown

Thanks, Joe. Okay. Pushing all the buttons. Dave.

04:51:37:02 - 04:51:49:10

Unknown

Is over. Happy or not happy at all. All right. Thank you. He's got the. Hey, Dave, you want to just stand here and punch my butt?

04:51:49:13 - 04:51:53:22

Unknown

Why not?

04:51:53:25 - 04:51:58:04

Unknown

These are. These are nice chairs.

04:51:58:07 - 04:52:34:17

Unknown

Yeah. Okay, so when I. When I started to put this together, I was thinking, okay, so I'm going to organize by our major kind of scopes of work that we've been in our team doing the, putting the most effort towards. And those are climate change and species distribution, modeling and other types of modeling analyzes and multi partner collaborations.

04:52:34:17 - 04:53:00:28

Unknown

And it really quickly became obvious that almost everything that we have been focused on in the last couple of years is very cross-cutting across all of those. So I'm just going to run you guys through quickly. A few of the top tier projects that have taken most of our effort and energy in the last couple of years since we last met with you all.

04:53:01:01 - 04:54:03:00

Unknown

This is the first one. This one is a multi-party for public, private, federal, state. All the usual suspects getting together in the Mancos watershed. This one is being run by Renee Rondo out of our office. There's this one is a continuation of a subset of partners that originally came together a number of years ago through some climate change vulnerability assessment and strategy development work, and they have moved on now into some work with the real on the ground people, the ranchers and the farmers and the people who actually are living off the land in this watershed.

04:54:03:01 - 04:54:41:06

Unknown

They're looking primarily at drought as the most likely adverse impact and significant issue that they're going to have to face in this watershed. It's one of the more vulnerable watersheds in our state,

primarily because it's small, it's hot. It doesn't have a lot of elevation gain. It doesn't have a lot of snowpack. So they are they have been developing strategies for the course of the last year or so that the local landowners are in agreement on, and they are going to be starting to implement those strategies.

04:54:41:06 - 04:55:16:15

Unknown

The number one is groundwater retention, and that one is a report due coming out here in another couple of months. Anybody interested in looking at the details on that work. Please press it to me. Really. Here we go. See okay. Roaring fork biodiversity and connectivity study. You guys have already heard about this one. This morning. We're going to have an opportunity to talk some more about what's happening with this project in the afternoon recreation session.

04:55:16:15 - 04:56:04:10

Unknown

If you come to that, I will say this one has a lot a lot of partners involved. The Roaring Fork Watershed, as you might guess, is a very, very educated citizenry over there. They're very interested and they are not on the same page. So there are some interesting sausage making going on in in the fork watershed. The main thing that we really, I'll tell you are struggling with on this work is the idea that we're trying to get a landscape scale answer from field data in a place where there's a lot of inaccessible terrain.

04:56:04:10 - 04:56:41:20

Unknown

So where we are right now is we've got one field season under our belt looking primarily at habitat quality for deer, elk and bighorn as primary species of interest in the in the valley over there with the partners. Not what we normally do at sea and work on Darren Elk and Bighorn. But we're looking at vegetation metrics for habitat quality, with the goal of helping them identify their highest priority conservation areas and also restoration areas.

04:56:41:20 - 04:57:18:25

Unknown

And what we're what we're working on this winter. If anybody would like to talk about this further with ideas, is the best way is to extrapolate a limited number of field sites to a million acre watershed. So we've got Michelle Fink in our office, has done some really good work with figuring that out, and we are developing some draft maps, and we'll be testing in the field this summer how that has worked out.

04:57:18:25 - 04:57:52:13

Unknown

So more to come on that in early part of 21. Okay, crazy French. You guys have heard about this one. Also another really super interesting exercise in sausage making with multiple partners who, let's face it, don't really know what they're doing on. The process that we are using is the open standards planning method that has been developed over many years by The Nature Conservancy and a whole slew of other partners.

04:57:52:16 - 04:58:27:21

Unknown

It's a super cool process, but what we are doing with that process in this instance is roping in recreation as a target. So it's been super interesting. We've got Jason and Crystal, Chris, of course, couple of folks working on this with us. We just had our first meeting a couple of weeks ago, where we started the process of identifying what is a recreation target and how do you measure its viability.

04:58:27:21 - 04:59:09:22

Unknown

So that work is ongoing. Going to, as you heard earlier, going to be back in the field the summer, got a few more workshops going on with a core group of people that then will be developing a synthesis of what the experts, the experts think about the biodiversity values on that property, the recreation values on that property, and how those two are going to become a world class state park that gives everybody what they want and doesn't hurt anything.

04:59:09:25 - 04:59:13:03

Unknown

Right, you guys?

04:59:13:06 - 04:59:19:08

Unknown

Okay? Yeah.

04:59:19:10 - 04:59:56:00

Unknown

Okay. Some some climate change work that we've done. You guys heard last time we met about some vulnerability assessments and some modeling that we had been doing with Colorado BLM for pinyon juniper and some other of the high priority ecological systems in the state. We've continued that work over the last couple years. One of the one of the things that we did last year was try our hand at some fish modeling.

04:59:56:02 - 05:00:26:18

Unknown

Anybody who has ever worked with a fisheries biologist will know that that's a thing. But we did we did some current distribution modeling and some projected future distribution modeling for a suite of cold water fish, both native and sport fish, in the state. With the fisheries group at the BLM. You can get that information off of our website if you're interested.

05:00:26:20 - 05:01:04:03

Unknown

It was a first cut at that. More work needs to be done, but it it got them started. Okay, Dave, you can. Yeah. The Nature Conservancy did a big effort. Lots of folks in the room familiar with this one, doing an assessment for their own office for Climate Change in the state office. We had most of our team members worked on this.

05:01:04:04 - 05:01:41:04

Unknown

It was a multi-pronged multi extravaganza looking at all of the normal components of conservation planning that probably most of you are used to hearing about at this point. But what are the targets? What are the different potential climate futures? We've used this scenario approach, BLM work, the Nature Conservancy work. Most of what we've been doing with climate change has been circling around these, what we call climate scenarios.

05:01:41:07 - 05:02:13:28

Unknown

And they are intended, of course, to capture the uncertainty because nobody really knows the trajectories that climate will take in the future. So this is a good way to identify strategies, ideally for land managers, landowners and so on, to implement that will, in a perfect world or even a good world, work for regardless of what climate ends up becoming ours.

05:02:14:01 - 05:02:45:04

Unknown

Okay. One of the, you know, one of the interesting components of that exercise that you may not have seen is some modeling of soil moisture and departure from historic climate, climate, water deficit, back to that drought idea as one of the key results of climate worsening in some places, drought is going to be a big deal, a bigger deal for Colorado.

05:02:45:04 - 05:02:55:15

Unknown

So we've started to try to get a handle on that, okay.

05:02:55:18 - 05:03:34:28

Unknown

You guys have all heard about Renee's work, the work of partners over in the Gunnison Basin. This project has been going on for a while. It's gotten a fair number of awards and lots of attention in the press. It's it's it's a super interesting thing. We started out in the Gunnison Basin with The Nature Conservancy years ago, at this point doing a vulnerability assessment, and from there the partnership grew and a whole bunch of effort got put into developing adaptation strategies.

05:03:34:28 - 05:04:14:16

Unknown

And surprise, some of those strategies got implemented. Yay! And those are the wet meadow restoration efforts, primarily for the benefit of sage grouse and the brood rearing habitat that was in that we were losing in the Gunnison Basin. So a lot of meadows got restored. And now for a number of years, we've been doing that thing that people put in their plans all the time and don't always do monitoring.

05:04:14:19 - 05:04:48:10

Unknown

So we're closing in on I don't even know how many years Renee has been monitoring the results of that restoration work, but she's been able to

demonstrate that has been very, very, very effective approach to restoration. Real low tech, very, very economical to implement really, really good results from that. So that I think is going to continue for a while.

05:04:48:13 - 05:05:28:12

Unknown

What else do we have here? Okay. So now this one is being led by Doctor Anna Davidson on our team. She is working on a large effort to identify across the North American grasslands the highest priorities for conservation for blacktail prairie dog ecosystems. And this one is involving some heavy, heavy modeling. Michelle Fink in our office is doing that.

05:05:28:14 - 05:06:11:24

Unknown

It is a lot of big data at a very fine scale. So they're modeling the black tailed prairie dog suitability across the whole range Canada, Mexico. And then they will be developing some deliverable maps with climatic future projection component worked in there as well as social, political, economic land use. All of those different confounding factors that influence where conservation can be effective.

05:06:11:25 - 05:06:56:01

Unknown

So that's a that's an interesting one that is got another, I don't know, year ish perhaps before products are available to share on that. I'm pretty sure this is the last one. This is this one is interesting. This is another one of Anna's. This one is a landowner participatory approach to research. They have got ranchers in the Thunder Basin area of Wyoming working with the research team to design the study, implement the study and interpret the results of the study.

05:06:56:03 - 05:07:28:27

Unknown

This is I think there are maybe one year into a couple a few years of study on this one, but this is this is going to be a unique opportunity to get some better sense of how to get the ultimate recipients of scientific data bought into the scientific results, which if you read the news, you know, that's a thing in our country right now.

05:07:28:28 - 05:08:11:04

Unknown

So we're really interested to see how this ends up working out. Having these ranchers in Wyoming, part of the study design. So that'll be coming, I think in another, I don't know, year or so look for that. We've got a few efforts that Karen in our office has primarily taken the lead on, where one of the things that we often deal with in our work is the fact that there's so much information out there, we don't even know where to get it all and what to make of it all.

05:08:11:04 - 05:08:42:28

Unknown

So Karen has done a couple of synthesis efforts towards fragmentation and climate threats to pinyon juniper pen and juniper. Of course, being one of those ecosystems that is considered a bad actor by some, but it's very vulnerable. So we've thrown some extra effort at that. We've got those papers are on the back table. If anybody is interested in looking at that information.

05:08:42:28 - 05:09:25:13

Unknown

And our National Natural Landmarks program in the National Park Service, Karen has been working closely with them on gap analysis for the whole Midwest. And then just quickly, a couple of things to note that are coming soon. We have got another big research project from Anna that's going to be starting a pretty soon, sometime this next year, I think from Nyfa funding that one is another Blacktail Prairie dog project.

05:09:25:13 - 05:10:00:18

Unknown

Looking at the boom bust cycles that are so common in prairie dog colonies, and how that influences livestock production and livelihoods on rangelands. And then she is also, this summer, the North American Congress for Conservation Biology. It's going to be doing a grassland conservation symposium at that meeting. It's down in Denver. Pretty sure this summer. Hopefully a lot of you are going to be going to that meeting.

05:10:00:20 - 05:10:28:26

Unknown

It's good to have it here locally. And then we've got a couple of other restoration climate projects that we've got proposals in we don't know yet, but more work on climate and pinyon juniper and more work on upscaling the wet meadow restoration work that's been going on in the Gunnison Basin for a long time. So that's it.

05:10:29:02 - 05:10:49:01

Unknown

And we'll disperse now to some of our workshops, I think, and let people get up and move around and run their own mouths for a minute. Okay. Yeah. Okay. Yeah. Wonderful. Thank you all so much.

05:10:49:03 - 05:11:19:15

Unknown

Thank you. Amy, Jill and Lee, that was great to get your updates. And they're going to pop a couple of slides up here to help us get where we need to go next. We're going to switch over to the workshop section of the day. And these are our workshops that we are offering at CNP. Understanding Colorado's plant communities is going to be in ballroom see next door at the front.

05:11:19:18 - 05:11:51:18

Unknown

That's led by Karen and Denise. Joanna is going to right here where I am. Do lead a workshop on the Colorado Wetland Information Center. The codex hands on training is in the Morgan Library. I'll show you where that is

in just a moment. If you want to go participate in that. That's led by Amy and Michael. And then the recreation discussion that Lee and I are hosting is going to be in, in ballroom, see next door on that side of the room.

05:11:51:18 - 05:11:57:00

Unknown

So come on over and.

05:11:57:02 - 05:12:24:18

Unknown

We're as I mentioned before, we're partnering with the Confluence Open Spaces sessions, part of the Confluence conference. So this is where those are. There's a problem on this. This is cut from clipped from their agenda. But it turns out there is no such thing as Laurie. Student center room 320. So that one was turning out to be hard to get to that it's going to be in it's actually in room 312.

05:12:24:19 - 05:12:48:09

Unknown

So you can see that they have concurrent open spaces sessions with that conference running from 2 to 3 and then from 3 to 4. They also have Laurie. They also have rooms 308 and 310 open. If any of you would like to have your own meeting of some sort. You're welcome to use those rooms. They're saved for for us all.

05:12:48:12 - 05:13:12:07

Unknown

And so if any of these session topics are of interest to you, you're encouraged and welcome to participate in those two. I'll show you where those are at. So this is here's where we are. This is the mythical room 320 that's actually just a big open space. It's not a room. So 312 is just south of it. Can you see that there?

05:13:12:12 - 05:13:38:21

Unknown

I don't know if I have a laser. There's 312. So you basically take a left out or a left out of here and just go down the hall and you'll get to these. And room 324 is right there. So if you're interested in those, those are an option to here's how to get to the Codex training Michael and Amy will probably assemble if maybe if you gather up with Michael and Amy, you can walk over there with them.

05:13:38:21 - 05:14:02:24

Unknown

But in case you can't do that. Here's how you get out of there. You go out the front of this building and head south into Morgan, and you kind of go around the corner and there's classroom 175. So that's kind of launches us all into those sessions. If you are leaving, this is your fabulous present. You get a cap, logo, pint glass.

05:14:02:24 - 05:14:21:07

Unknown

In keeping with our beer theme that started with Rob's cell adventure with Odell's Brewing. But it says Connecting Conservation Science for 40 years, so please make sure you get one of these there outside. Right.

05:14:21:09 - 05:14:49:15

Unknown

Exit the screen. They are there. Awesome. Thank you. Jessica, make sure you grab one of those and we're going to reconvene back here at whoopsie. We're going to reconvene back in this room at 350 and do a debrief of the day with you. And then we'll all head to the Ram scaler for a happy hour with you. So.

05:14:49:18 - 05:14:53:27

Unknown

There we go. Any questions?

05:14:54:00 - 05:15:06:01

Unknown

Well, okay. Well, let's just I think they're going to open these doors up, maybe so that we can go through the wall here into those sessions.

05:15:06:03 - 05:15:23:26

Unknown

Oh, I, I also meant to impart something to especially to the folks joining us online. We're not able to stream the afternoon sessions. So sorry about that. But do talk with us and we'll be happy to provide the notes about those to you.

END TRANSCRIPTION