



Beth Taylor

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Annalies Corbin: [00:00:12] Welcome to Learning Unboxed, a conversation about teaching, learning, and the future of work. This is Annalies Corbin, Chief Goddess of the PAST Foundation and your host. We hear frequently that the global education system is broken. In fact, we spend billions of dollars trying to fix something that's actually not broken at all, but rather irrelevant. It's obsolete. A hundred years ago, it functioned fine. So, let's talk about how we reimagine, rethink, and redesign our educational system.

Annalies Corbin: [00:00:48] So, welcome to today's edition of Learning Unboxed as always. I am super excited about our guests and our conversation today because we get to talk about one of my favorite places on Earth, Yellowstone National Park. And for those from around the country and around the world, if you've never been there, it's one of those iconic places tied to the American West. And it is just so very near and dear.

Annalies Corbin: [00:01:14] So, I'm super excited that we get to talk about the amazing programming that's happening at Yellowstone. And joining us today is Beth Taylor, who is the Youth Education Program Manager at Yellowstone National Park. And she comes to the park with tons of experience, and really, quite frankly, leads some pretty incredibly cool programs that we're going to talk about today. So, Beth, welcome to the program.

Beth Taylor: [00:01:39] Hi there. I'm very happy to be here.

Annalies Corbin: [00:01:41] So, Beth, let's get started for our folks who may not be familiar with Yellowstone National Park of the place, first and foremost. In our own mind, we believe it to be very iconic. And for you and I who have both spent a lot of time in the park, we love it for obvious reasons. But for folks who are not familiar, give us the 100,000 sort of foot view of what is this place.

Beth Taylor: [00:02:05] Great. Yes. So, Yellowstone National Park is the world's first national park established in 1872, and before the National Park Service even existed. It's mostly in the state of Wyoming. It's 2.2 million acres, but a little bit spread out into Montana and Idaho. And it's an amazing, huge, mountainous landscape. It sits on top of a large volcano. So, there's really unique geology here, geysers spreading hot water out of the ground, myriad hot springs, lots of waterfalls, snow-capped mountains, river valleys with abundant wildlife, huge herds of elk and bison, and even large predators like grizzly bears, and mountain lions, and the gray wolf.

Beth Taylor: [00:02:52] So, it's really got a little bit of something for everyone. The night skies are amazing here. There are some villages with hotels, and eateries, and gift shops, but for large, it's undeveloped. So, the

2.2 million acres is a vast wilderness, practically, with lots of things to explore, to challenge yourselves, and hiking trails. But it's really neat that it has been set aside by people. People chose to kind of say, this is a really interesting, unique place, no one should own it.

Beth Taylor: [00:03:24] So, it will be the people's place, and we will all collectively own it. So, it's public land. It's kind of a destination for a lot of people from around the world to kind of watch wildlife, come here, and look at the weird geology. There are bubbling mud pots and the geysers. Most of them are unpredictable, but of course, you've probably heard of because it's actually fateful somewhat. We have predictions that it erupts everyday. But there's kind of a lot here, a little for everyone, no matter what your interests are.

Beth Taylor: [00:03:58] And what I find really wonderful about it is that I have been here over 20 years, but there's always something new to discover, to get over here. And if you come back over and over, which many people do, you find it different every time. And over the years and the decades, since it has been here for almost 150 years, a park for people to kind of come and just sight-see, it has had different values over time. I think people were definitely intrigued by the geology at first.

Beth Taylor: [00:04:29] But now that we have less and less wilderness out in the West, seeing a herd of bison is a novel thing. And certainly, being in grizzly habitat with our developing cities and things like that, there are not as many places where gray wolves or grizzly bears can live. So, this has kind of become a place now as a wildlife haven. And things like the night sky, I think in 1872, they didn't preserve this place like, oh, wow, look at all those stars.

Beth Taylor: [00:04:58] Across the West, that was something they would have taken for granted. But that has become something very valuable to us these days because we have so much light pollution with our cities everywhere else. So, I think it's neat to think throughout the generations, what will we discover next? What is the next value of Yellowstone and we owe a lot to those who have preserved it, but it's up to all of us to steward it and see what's next.

Annalies Corbin: [00:05:21] And I appreciate that so very much because many of the listeners know that my back story is as an archaeologist, an underwater archaeologist. And what some folks might not realize is that the majority of my archaeological career was actually out west. I studied rivers and marine or water-based ecosystems in Western environments. And Yellowstone was one of the places that I worked for many, many years, off and on, doing a variety of different projects.

Annalies Corbin: [00:05:48] And I can honestly say that it is without question one of the most epic outdoor classrooms that you will ever get to experience. And whether you're there just as a visitor or you're there for research or you're there for learning opportunities, all of which are abundant in the ecosystem and in the space, you are going to learn something. And I can honestly also say that I think I encountered every critter, those large critters of prey, if you will, in one capacity or another over the years. And it's an awing space.

Annalies Corbin: [00:06:27] And when I'm there, I am reminded of how small we are, and yet how mighty humans are as it relates to protecting something so amazing, which I think is the gist of some of the Expedition Yellowstone Program. And so, actually, that's really why we're why talking with Beth today, because we really want to understand the resources that are available from the teaching and learning side of what goes on in your own classrooms around the world and the opportunity to come there in person, but also, for those from other places to get to experience some small component of what Yellowstone has to offer. So, Beth, share with us the sort of mission and vision or the intent, if you will, of Expedition Yellowstone.

Beth Taylor: [00:07:11] Yes. So, Expedition Yellowstone is indeed our curriculum-based residential program where a teacher can bring their entire class, fourth through eighth grade, and they spend a week or a weekend, so three nights or four nights, and they're immersed in what you agreed is one of the best outdoor classroom possible. And so, they come, they stay in our cabins, our dorm, and they have a day in the field every day. And then, they have communal chores at night.

Beth Taylor: [00:07:41] They're preparing their own meals and cleaning up after themselves, but the field day is really where it's at. Being able to learn immersed in nature is so, so valuable. Any visitor to the park is learning constantly when they're in the park and even those of us who work there constantly. But to be able to take your school and expand the classrooms to the great outdoors, the walls of your classroom are now all of Yellowstone and being immersed in place, science is just everywhere around you, and the curiosity and wonder of just exploring and learning about the natural world. So, for a teacher who needs to teach science anyway, this is just so relevant, and distinct for the students, and very exciting.

Beth Taylor: [00:08:23] But obviously, as you know, as an archaeologist, we have a lot of cultural human history here as well. And all of what they're doing is basically that human environment interconnectedness and interdependence anyway. They're learning their role in creating, and discovering, building their own role on the landscape. And so, learning about what others have done throughout the history of the park and before it became a national park, and all the humans that have interacted with this landscape drew them to Yellowstone, and the same things draw us to Yellowstone today. It's just a really great way to learn every subject there is. It's so interdisciplinary actually.

Annalies Corbin: [00:09:03] It is. And there's no reason not to teach that way when you have such an amazing resource, right?

Beth Taylor: [00:09:08] Yes. And obviously, a lot of the things we do in Yellowstone, you can do anywhere in nature, whether it's in the schoolyard, or certainly, a piece of public land nearby, or just natural area with trees and everything up close, whether it's a spider web or a small hole in the ground, and who build the hole, or a gall on a leaf, that kind of discovery and exploration can really happen anywhere. But what's really exciting about Yellowstone is that more and more, we're finding students don't spend a lot of time outside.

Beth Taylor: [00:09:46] And so, when you get to do something like that, spend that much time outside, day after day for a few days, in a place like Yellowstone, it's just amazing because you're seeing prey-to-prey interactions right out in front of you. You can see the animals interacting with each other. You can hear wolves howling. You always have the risk on a hike of seeing a bear. And so, we have to take lots of safety precautions and being in a group like this is really helpful for that. But it's like life enlarged somehow in Yellowstone.

Beth Taylor: [00:10:22] Everything is just so big. And the geology is really wacky. And so, if you're going to learn about chemistry, water chemistry, better place than hot springs in Yellowstone, taking the temperature, and the PH, and learning about thermophiles, like its features that actually thrive, acidic water. So, from minute microscopic organisms to large landscape-level migrations of bison, and mountain lions, or wolves, or bears that might be preying on them, there's just a lot here, and it's a very exciting way to learn.

Annalies Corbin: [00:10:56] It is. And we see that in kids all over the world, when I talk with teachers about their opportunity to get kids outside, and to your point, we are unfortunately seeing a lot of global trends around. Certainly, the Gen Z kiddos do not spend a lot of time outdoors anymore. And it's a shame. But we also see that when you do take advantage of that opportunity and get those kiddos outside, light bulbs go off,

curiosity is peaked. Kids are so wickedly, wickedly engaged. And both of my two older children participated in this program, having been in school in Bozeman, Montana. That was the middle school.

Annalies Corbin: [00:11:36] Their eighth grade big-to-do was you got to go do the program in Yellowstone. And the kids all knew it was coming. And it was a big, fun thing. So, lots of opportunity there. Let's talk a little bit about the fact that during the pandemic, which has impacted all parts of the world, that includes the US national parks, were impacted. But you and your crew sort of took that opportunity to transition and make available, very broadly. And so, I want to talk about what's out there that the park is doing right now. So, if I can't come to Yellowstone, or I'm from Europe, or I'm from South America, and I'm listening to this and I just really want to grab a hold of some of the things that you're doing, how is that possible for me?

Beth Taylor: [00:12:24] Right. Yes. Well, Yellowstone is still open for visitors, but you're right, we have had to postpone our residential school-based in Yellowstone. So, we have tried to make Yellowstone more broadly available the way everyone else is online, and through the internet, and through video conferences, and basically distance-learning-type programs. And we've had a distance-learning program for quite a while, mostly for schools where you can interact with a ranger, live.

Beth Taylor: [00:12:54] You can invite a ranger basically into your classroom via video conference. And of course, that looked a little different this spring. And sometimes, this completely online, where all the students are actually at home learning, but you can still invite a ranger to participate as well in your class. And so, we can bring a little bit of Yellowstone to the classrooms that way. For our expedition Yellowstone schools, that we've had to cancel the residential program or postpone it for a little bit, we're doing some special distance-learning programs for them uniquely.

Beth Taylor: [00:13:22] And then, the spring, we also created a series of educational videos where our rangers were out in the field in just kind of very short videos, but show a little piece of Yellowstone and various topics. And many of those were posted on Facebook, but they're also on the park's website, on our distance learning. So, teachers or families, anyone can use them. And I have to say that we try to gear our stuff for children in the youth program's office. But I think everyone turns into a novel learner to Yellowstone, and they're fine for adults, too. Pretty much any age would find something interesting and possibly new just by tuning in to educational videos.

Annalies Corbin: [00:14:05] Yeah. And as the students work through these different pieces, there's also that opportunity for us to be able to think about where or how teachers can tie what they experience through the Yellowstone programming into what's going on in their local communities, and their local backyards, and their local parks because I think that that's that great opportunity in the sense that it provides context for things outside of what I can see right here surrounding me in this moment. And I assume that you've sort of found the same sort of experience when school groups come in, especially for the first time into your program.

Beth Taylor: [00:14:49] Yes. And it so much is relatable. We kind of use Yellowstone as this amazing hook to get them really excited because it is so like larger than life, amazing everywhere you turn. But we find that once they have gone out on a hike all day, it's not like, hike, that sounds scary. Like no, it's just walking. And they think it means they're going to need ice axes to climb up that high peak over there, but really, it's just a walk-through nature. Whether it's a valley, or there's sagebrush, you walk together and you kind of discover things along the way.

Beth Taylor: [00:15:21] And they realize that if you've ever spent much time in nature, the physical benefits of that, the mental and emotional benefits of that hit some of these students kind of for the first time. Like, oh, wow, I feel so relaxed or I'm on edge because I don't know where that bison went that we saw from this—but

it's an exciting on edge, and in general, like I just feel comfortable after a while. There's just something to release that nature can give you.

Beth Taylor: [00:15:53] And so, that transfers anywhere and they can get into the curiosity and wonder of exploring something like a crack in the sidewalk, and what is going on, why do this plant come up through this small hole in the concrete, or looking at spider webs, even in the house, if they can't go out to the yard or they don't have a lot of trees, and leaves, and grasses around them or something like that.

Beth Taylor: [00:16:19] But the things that they do in Yellowstone and the things that we can show them as we are wandering about and exploring, they transfer anywhere. And just getting into that, asking questions like that, why does it look like that? Who put this here? Whose exoskeleton is this? Who shed this? Or, the life here, let's really get around them and explore. And that sense of discovery, I think, does transfer just about anywhere.

Annalies Corbin: [00:16:46] It does indeed. And I also think that the other thing that folks might not realize about Yellowstone, and this was a lesson that was brought home to me very clearly at this point. Now, it's been many years, I have to admit. While I was working with a group of kiddos, I was excavating with the Midwest Archaeological Center. We were excavating the Marshall Hotel on the banks of the Firehole River. And we brought in a group of a teacher and, I think, 12 high school kids from Lincoln, Nebraska Zoo School to be our excavation team.

Annalies Corbin: [00:17:18] And what was really fascinating in the space of that project was, A, that we had the kids actively engaged as part of our research team. And so, they were truly, truly, to your point, just like the Expedition Yellowstone, they were immersed. They were with us for a week, immersed in the environment, camping out in nature, experience, but the other things that they got to do, and so this was, I guess, circling back around really my point is that, we know a lot about Yellowstone, but there's a lot we don't know about Yellowstone because it's a very unique environment.

Annalies Corbin: [00:17:53] It doesn't look like any other place on Earth. There are a few intriguing corollaries around the globe, but nothing quite like Yellowstone. And there's just a lot that the scientists are able to learn all the time. During our project on the Marshall Hotel, the students discovered a new sulfate-reducing bacteria that had not been identified ever before, and that was their science project for the whole year. They took all the samples that we collected. We made all the arrangements with the park. Everything got to go back.

Annalies Corbin: [00:18:23] That was their work. So, not only did they have the experience in the moment, but they were able to then translate that into an ongoing research project that kept them tied back to the park at every turn. And if you read the research journals coming out of Yellowstone, and I do, when they come every few months, there are new discoveries happening all the time. So, as the resident educator, how do you incorporate those types of things into your ongoing thinking, and planning, and scaling the work that you're doing?

Beth Taylor: [00:19:00] That is so true. There are things being discovered in time. And we try to empower the students. We give them the tools and show them what some of the researchers and scientists are doing. And they're taking PH and temperature of the water. They're using telemetry equipment, the dropped radio caller from, say, a wolf. And they're learning what the scientists do in Yellowstone. But we're empowering them as scientists. Everyone is a scientist.

Beth Taylor: [00:19:25] We're all exploring our world. And what is exciting about Yellowstone is it is all unknown. We are so learning new things all of the time. And the research is continually happening with many,

many people. Even NASA does research here. The earliest forms on Earth might come from some of these hot springs or still live here today in some of these weird acidic environments in Yellowstone.

Beth Taylor: [00:19:49] And that you're going to look for life on other planets, maybe you're looking for similar things. So, the students get to learn about some of the research that's going on. They get to hold some of the tools and use some of the tools that researchers use. And then, they realize that we don't know it all. We don't have the answers. That's the most exciting part, is that we won't.

Annalies Corbin: [00:20:08] That's the most empowering part, right? I mean, because that whole aha is empowering to students, right? That not only is it okay for the adults around you to not have all the answers all the time, but more importantly, you can actually make discoveries and know stuff that the rest of us don't.

Beth Taylor: [00:20:26] Yes. And I think it's more important for them to learn these skills of science rather than any facts that we already come to know. Those are certainly important, too, but giving them the tools and the understanding of what science is, and if I don't know something, how would I go about learning more about that? How would I set up a way to observe that more intrinsically? What more questions do I need to ask? And learning how they might come about finding answers to the questions rather than just asking someone who's already discovered that. How would I set up an experiment to determine if this is true or not?

Beth Taylor: [00:21:02] And it's exciting because Yellowstone is one of those places where there's so much being discovered all the time. Yeah, it's visible. So, the wolves. Wolves were reintroduced in Yellowstone after being exterminated probably in the '20s, but they're reintroduced in the late '90s. And we're discovering so much about that animal, the biology, the pack structure, the behavior, the dynamics of the predator-prey interaction, how they interact on the landscape because they're so visible in Yellowstone. There are wolves around the world, but they're not quite as visible as they are here. They're in the open valleys and you can see what they do from day to day.

Annalies Corbin: [00:21:41] They're a keystone species in Yellowstone and removing them had a detrimental effect on the ecosystem. And bringing them back has caused this whole chain reaction that has been, to your point, incredibly visible, and highly studied, and understood.

Beth Taylor: [00:21:57] There are so many research projects related to all the species that are interacting with that.

Annalies Corbin: [00:22:04] Yeah. I remember when the wolves were being brought back. That was right when I was doing some of my research in the late '90s. And I remember literally sitting on my excavation site in the Lamar Valley, across the road from the big open valley for the first time, actually, watching one of those new packs come down the valley, and track an elk and her baby, separate the baby out, circle of life going on, just literally being—and my entire crew, we stopped work. We sat down. It was close to sunset and we just watched. You couldn't hear a sound from the team because they were so enthralled by what was happening in real time, right in front of them.

Beth Taylor: [00:22:49] Yes.

Annalies Corbin: [00:22:50] It's amazing.

Beth Taylor: [00:22:50] That's the gift of Yellowstone.

Annalies Corbin: [00:22:52] I will carry that with me forever. Yeah.

Beth Taylor: [00:22:54] Yeah, it's so visible. Nature and science is so visible in Yellowstone. And so, it's just immense of what you can really observe here. And to just kind of sit in a spot and look at something really small or look at the landscape-level things happening, but there's so much science that is going on. And I think it allows us to realize that we're all scientists. It's just a matter of learning to ask questions and to see about how you might answer them.

Annalies Corbin: [00:23:22] Yeah, absolutely. And I think maybe that's really the key, because especially in the US, for our listeners here in the United States, a lot of places, especially an elementary school, which is one of the reasons why I like the fact that the program taps into that upper elementary and really sort of moves through that middle school space, where we lose a lot of kids. We know we lose a lot of kids in middle school who don't believe that they can be involved in a variety of different STEM opportunities specifically, but even more broadly in terms of the way they're thinking about future careers.

Annalies Corbin: [00:23:57] But the thing that I also like about that is that it empowers students to believe they can be part of the solution, right? So, that because of their curiosity and because they've learned the skills of being a scientist to ask a question, to be natively curious, that they actually have the ability to solve real-world problems because Yellowstone, what's going on there, it's very, very real. I love the way you talked about making science visible. That's fabulous.

Beth Taylor: [00:24:30] Well, I think they also feel empowered because—so, Yellowstone's the first national park. No one gave us a handbook. Here's what to do. Here's the instruction book. And we, as the American people, are right as we go along. We are deciding every day what we want from our national parks. How do we want them managed? How are we going to do science? Are we going to cull the species? Are we going to put a fence here? Like Yellowstone doesn't have a fence.

Beth Taylor: [00:24:56] So, in addition to us, the rulebook here as we go along, what happens in Yellowstone stands and affects the larger region. There aren't fences to keep the bison in, or the bears in, or the elk in, or the wolves. So, it's part of a larger landscape. And the students themselves, as people who live here are helping decide what we want from the park in the future. Are we going to exterminate wolves one day? Are we going to cull elk herds by basically taking out elk because we've removed maybe their predator of wolves or will we bring wolves back?

Beth Taylor: [00:25:34] Those kinds of decisions happen all the time. Even with hot springs, hot spring movements change. Geysers become dormant or active again. Sometimes, they become active right under a boardwalk or a hot spring is going to flood a historic building. And then, we've got cultural resources and natural resources. Do we allow the natural resources to do what they do and jeopardize losing that historic home. Those kinds of decisions, the managers have to decide all the time.

Beth Taylor: [00:26:04] And people are basically the managers because it's public land. So, I like the idea that the students can become empowered with an idea like Yellowstone because it truly is owned by the people and it is the people who decide what we will do with it in the future. Will we have geothermal energy here? Will we tap into the geothermal features to create energy? Will that be an issue in the future? Do we decide that millions of people come to Yellowstone just to see geysers acting naturally? Maybe that has a value in and of itself and we should find—just so we don't damage the geysers.

Beth Taylor: [00:26:39] But the students, they come to know that they own Yellowstone and that they can decide what happens here, but I think it also, they become stewards out into their lives, wherever they are. And they realize that they have a voice, they have a vote, they can become scientists, they can become managers,

council people, board member, whatever it is to influence what they think should happen and to show the values of our society and to shape those values of society. They are completely empowered. And it doesn't stop at Yellowstone stores. They take that into their communities, and realize, they have a voice to decide what happens next.

Annalies Corbin: [00:27:19] They do. And it's a wonderful experience. And I agree. It's that great opportunity to help these young folks become full-participating citizens in everything that our country has to offer, which includes the natural environment, our national parks, managing resources. I tell folks all the time when they ask me about why having X, Y or Z come and participate in any of these field programs, and I said, I'm not in the business to create this fleet of archaeologists back when I was doing so much of that, I said, but I have a responsibility to help create a fleet of stewards out there in the world who are conscious about and advocating for our cultural resources, our natural resources, and protecting our environment.

Annalies Corbin: [00:28:08] So, it's a great opportunity for students to have. I always like to close the program with a sort of a last lob. So, I'm a teacher sort of in isolation. I don't have a Yellowstone Park anywhere near me, but I really, really want to take some of what I heard Beth talk about today, and make it my own, and incorporate it into the teaching and learning that my students get to experience. So, do you have one piece of advice for someone to get started with how to bring science into your classroom and make it real?

Beth Taylor: [00:28:41] Well, yeah. I think even bringing something out from nature. If you can't take your students out into nature, bring something from the outside in, and really, just let them observe full with curiosity, not to name or ID what it is, but to fully, just completely observe what the thing is, what it's doing, what it looks like, what shaped this, and then ask questions, why would it look like—what is happening over time? Where do you think it came from? What created this part of it?

Beth Taylor: [00:29:09] And just kind of spark that curiosity, but somehow create ways for them to work both individually and collectively in teams. So, their own personal observations first, and then somehow to work into teams, and to share what individuals learned, and to have to work together. That team building, that building of community, the learning other's perspectives, and how it might be different from yours, but they could expand your own, I think it's so, so important, especially when we talk about stewardship.

Beth Taylor: [00:29:38] We have an individual responsibility, but we're all going to be working in tandem with each other to get things done. And so, kind of bringing in opportunities for students to observe nature, ask questions, formulate studies to answer those questions or how would you answer those questions, but also, to work together and to share their observations with one another, and their perspectives, and even their values, so that collectively, we learn that we're part of a community.

Beth Taylor: [00:30:06] We built that community. And that's how we're going to shape everything going forward, is working together, even when we have differences of perspective, potentially. So, getting students opportunities to get some of that to understand what side it is. And that way, when they read a newspaper article, they can actually decide for themselves. Wait a minute. Do they seem to know the facts? Did they set up that study correctly? How do they know that? Or, to at least ask the questions.

Beth Taylor: [00:30:37] And they can absorb media events much more honestly and with a more informed disposition, understanding what science is, and who makes the decisions, and who is at the table, and who wasn't at the table, that kind of thing. And then, they'll be the managers of everything in the future and they'll be good teachers because they'll have a better understanding and they'll know how to work together. They know how to ask the good questions.

Annalies Corbin: [00:31:02] They will and that is perfect advice. So, thank you so much, Beth, for giving us a little bit of your time today and sharing the story of what's going on at Yellowstone in terms of education, and outreach, and the opportunities that folks have to bring the natural environment into their own classrooms. So, thank you so much for joining us today.

Beth Taylor: [00:31:24] Thank you so much for this opportunity.

Annalies Corbin: [00:31:28] Thank you for joining us for Learning Unboxed, conversation about teaching, learning, and the future of work. I want to thank my guests and encourage you all to be part of the conversation. Meet me on social media @AnnaliesCorbin and join me next time as we stand up, step back, and lean in to reimagine education.