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Greetings and good evening everyone, and welcome back to the Mark Fraley podcast.

Today is Friday, May 18, 2018.

Summer has certainly arrived here in Nashville.

We've had our first few days of 90 degree temperatures, and the garden could certainly use a little bit of rain.

I've had the privilege of traveling quite a bit in my life.

A lot of travel throughout Tennessee, of course, a good bit of exploring in the Southwest and Northeast.

I even did the coastal drive from Seattle to San Francisco.

I don't know about you, but when I travel, I, and have the opportunity to look at the landscape, I often wonder about the impressions the early explorers had of our American landscape.

It is a rare place indeed where you can look at that landscape today and be assured that you see the same picture, which our ancestors must have seen.

Yesterday I traveled from Nashville to Clarksville to Austin P. State University and spent some time visiting with biology professor Dwayne Estes, a botanist.

Dr. Estes has spent a great deal of time and thought researching that historic landscape.

And, of course, what has changed since the historic times.

His observations may surprise you.

Dwayne and I discuss his relatively new organization called the Southeastern Grasslands Initiative

and the activities that this organization is doing to raise awareness of the, of the role of grassland ecosystems and the maintenance of biodiversity.

I must tell you that it is rare that I've encountered an individual who was so exquisitely knowledgeable and as energetic and as gifted in communication as Dwayne Estes.

At a great time and learned a lot doing this interview and I sure hope you will also enjoy and be inspired by his energy.

Dwayne Estes, welcome to the Mark Fraley podcast.

It's good to be here, Mark. Thank you for having me.

I'm thrilled to, that we've got together. Dwayne, I've heard you appear on the native plant podcast

a year or so ago with Mike Berkeley and you talked eloquently about different kind of seducrasses, right? All the different varieties that you might recommend to home gardeners and that sort of people. And so I was very impressed and thank you for letting us come out here to Austin P to interview you.

It's great to have you guys here and thanks for coming up.

Well listen, before we go too much deeper, I want to talk about your project that you're calling the Southeastern Grasslands Initiative. But first of all, let's talk about you and how you got to where you are today. I know you're a Giles County native as well.

I am, yes sir. Tell us about that.

Yes, so I was raised in a little community called Bunker Hill down in Southeast Giles County.

I went to school at Giles County High School and in fact last night on Facebook, one of my former librarian of my middle school posted on a video that I had done and she said, you know, your passion is contagious and thank you so much and I hope your visions come true.

And it really resonated with me that she had a profound impact on my development as a botanist and as a conservationist. And I've often thought about those days but really began to put it into words last night to thank her for that. Her name is Mrs. Brenda Curtis.

And I remember just being inspired by her as a sixth grader, probably my fifth grade year, about how kind she was and how patient she was with all the other students.

And so we were in this library and I kind of grew up in a house where we didn't have many books

and reading was not something I regularly did. But seeing her and going to the library once a week,

I decided at the beginning of my sixth grade year that I wanted to really just try to start fresh and new. And so I went over to this bookshelf and I said, you know, I'm going to read every book in this library.

And I pulled the book off the shelf to change my life. And from then to the time I went through high school

and on into college, I basically dedicated my life every day, multiple hours a day to the study of botany.

So what was that book? That book was, the subject of it, and I can't remember the title exactly, was about Native Americans usage of wild plant foods. And I actually have the book. Mrs.

Curtis actually sent me

that book two years ago. She pulled it off the shelf and just sent it to me and took it out of the library.

So the anthropology of Native plants. Yeah, I can still see the images burned in my mind of Native Americans,

the Chippewa tribe, and the Great Lakes, harvesting wild rice and beating it into the canoes.

And for all these years that have gone by, 28 years, I remembered that image. And then when she sent me that book,

I reconnected with it because I couldn't remember the name of the book. And when I saw that, I just like seeing an old friend. That's so fun. So you then went on and got really serious training in botany and field biology.

Yeah, I mean, essentially self taught in botany until I got to graduate school where I began to learn new techniques

that propelled me to a new direction. And so I got my undergraduate at Milton C. State. I went to Columbia State before that.

And then I went to do my PhD at the University of Tennessee. Most of my graduate training was in molecular systematics.

I used in DNA to understand plant relationships. And then I got out of UT and applied for the job here at Austin P.

I've been here 11 years. And I'd say a few years ago, I was sort of a typical whack of admission.

I liked to publish and advise grad students and do research projects. But then just maybe 2013, 2014, something changed.

And I realized that as I was nearing the first decade of my career here at Austin P, that I wasn't making the kind of impact in conservation that I thought I needed to be making.

And I don't know if you call it midlife crisis or something, but something happened to where I

said, you know, there's got to be more to this.

And so I began thinking about what that impact was going to be. And my love was grasslands. And I knew something major had to happen.

And so that's kind of how the southeastern grasslands initiative came into being. So we went away.

You know, this podcast has listeners of all varieties. And from not just from Tennessee, but from around the nation.

And some people interested in gardening. And some people interested in just nature and that sort of thing.

So when you speak about grasslands, what are you really talking about?

I'm talking about everything that most people envision, right? The great plains is what most people think about or the great prairies of Illinois.

Those certainly are included. Savannah's like you would think about in Central Africa with scattered trees. In our case, they were scattered post-oaks and pine trees rather than oaks.

And we're talking about small scale grasslands, meadows and various types of open wetlands, rocky grasslands like glades and barrens.

And then some are on the tops of mountains, like up in Ronemountain in Northeast Tennessee that is basically a remnant of a former Alpine tundra that was opened during the ice age.

So all these things are, yeah, bald. And all these things really are types of grasslands that mostly are small scale here in the southeastern.

So you have within the organization here at Austin Peak created this entity called the Southern Grasslands Initiative.

So Southern, what states are you targeting?

Yeah, so it's a 23-state region. And it's a tricky thing because we think about the cultural style and that's not necessarily the same as the geographic climatic or biogeographic style.

So we get all the way up to Wright to New York City and we go to Columbia, Missouri, South to Miami and to Corpus Christi.

Well, that's a lot of different types of ecosystems.

Right. So it's largely east of the Great Plains and south of what would have been the southern boundary of the ice age, glaciation.

So the, what we call the northern tier of Pennsylvania and across that way.

Okay. Wow. That's a great big area. It's a big area. So you must have partners in these various regions.

We are definitely developing partners in all these regions. North Carolina Botanical Garden, part of UNC Chapel Hill is a developing partner.

Lady Bird Johnson, Welfare Center in Austin. And I mean, it goes on and on that we're developing formal partnerships.

You know, but the one thing I'd say is that, you know, in just knowing that something had to be done, when we first started figuring out what to do,

our first inclination was not to create a new organization. It was to bring people together.

And so SGI was sort of born accidentally out of what initially was intended to just have a big conversation.

And so back in at the end of 2015, I approached my director here, Dr. Steve Hamilton with the Center for Field Biology and said, you know, we've got to do something.

We've got to, there's this growing interest in momentum, recognition that grass and conservation is urgently needed.

And I said, you know, how about we host a symposium? He said, all right, what do you think? And I said, what do you think of 50 people?

Yeah, 50 sounds good. By three, four days later, I sent an invitation over 500 people. And I knew then that damage could be done if this wasn't pulled off perfectly, that we had to either perform or fail a business.

So we decided to host the Mid-South Person Posing, and we created it, and over the series a few months we planned it, and in May of 2016, and we held it right here.

And we had 175 people, 50 organizations came for three days, 30 speakers. And the last person to register for that event was a guy named Clark Mitchell, who's a member of the Band Foundation, a philanthropic foundation in the Mid-Atlantic.

He came, had a great time, we interacted very little amount. And at the end of that experience, he wrote to me, and he said, "Do I?" and he said, "I was blown away by the message."

And his blown away by the experience had a great time. And he said, "What I want to know is, what role can probably philanthropy play in your missions or restore to the Southern Rassets?"

That's then what paved the way for us to think big about a new organization.

That's fantastic. Let's back up just a second. And I've heard you talk before, and one of the things you talk about, in fact, I would encourage my listeners to go to the website for the Southern Grasslands Initiative, and watch and listen to a really, really powerful film that you made that sets out the reason for this.

But one of the things you talk about is the myth of the squirrel. Tell us the myth of the squirrel one more time. You've said it a thousand times.

Yeah, you know, the myth is that Eastern North America was so forested and dense that a squirrel could travel from the Mississippi river to the Atlantic Ocean through the tree tops and never touched the ground.

Right. And I think most people growing up in the east have this perception that that's the way it was. We all love big trees, we love forests, they're cool, they provide refuge.

If you look at your illustrations in American history books from the colonial period, one thing they mostly have in common, is they show these black and white line drawings of a small cabin in a small sun spot in the middle of the dense forest.

American Indians are peering behind trees sort of ominously, and you've got stumps left over.

That's the version of in people's minds, I think, of what the east and the southeast, in particular, was like. And it's a lie. And it's a lie that's been told for too long.

And it's a lie that has direct real world implications, because it affects our view of what the landscape should be and has direct conservation implications.

So the historic landscape consisted of what? If it wasn't trees dominated by forests.

In one word, it was a mosaic. Mosaic is the best to define it. So in contrast to Kansas and Nebraska, which were part of this immense biome that stretched from northern Mexico to Canada, that's what people think about as grassland.

ours were small scale. So we certainly did have grasslands like here in the Clarksville area. We were on the southern end of a prairie. It was the size of Connecticut and Rhode Island combined.

It wasn't continuous. There were certainly stretches that would have gone for 20, 30, 50 miles even, with very future ease inside.

But most of the southeast, being this kind of a choppy nature with rolling desected landscapes. But some areas of broad flat plains, you would have had this sort of interplay between forested ravines.

And then as soon as you got up onto a broad rich top, you could have had open grassy

woodlands. And the very broadest rolling landscapes would have been scattered with trees and grass will call Savannah.

But the flattest and most extensive landscapes, those today that are the big cotton fields and corn fields of the south, in most cases, were big prairies.

Just or big meadows. Big open prairies. Yeah. Well. And most of that's been lost.

In general, more than 90% of all types of grass has been lost. But many individual types, and there are dozens and dozens of types, have been lost by greater than 99.9%.

And what have we lost with those? With the loss of those comes the massive loss of grassland birds, pollinators, insect diversity.

So in the case of birds, things like Bob White Quail, right now Brandy reported, just came out a couple years ago, suggested the modern US population of Quail will cut in half in 11 years by the year 2029.

It's going to cut in half again by the year 2036. We're looking, you know, functional extinction of a bird that was common just a couple decades ago.

And then multiply that by all the other thousands of species in the southeast, about 50 to 60% of which need prefer or require grasslands.

And so we're losing half of our biodiversity if we don't work out.

So it's not necessarily the grasses and the prairie flowers and those sorts of things that you might see in the prairie.

You'd lose in some of those certainly. But it's the ecosystem that supports the birds and the bugs.

Yeah, you know, you think about it. The wildfires provide the nectar. The grasses provide the cover. The shrubs provide nesting sites for a number of bird species.

It just goes on and on. You're right. It's a whole trophic system. It's a whole ecosystem. And all that structure depends ultimately on having the right combination of plants in the right structure on the ground.

So your organization can a person sign up and become a member of it?

Absolutely. Okay, how do you do that? So you can go to our website.

And right there on our homepage at segrasslands.org, you'll see a button in the corner says take action.

If you click take action, you can sign up to become a member of our site that way.

I think there's also a link right on the homepage itself to, for example, receive our newsletter.

Well, I would encourage my listeners to, again, go to Facebook and become a friend of the grass southern grasslands initiative Facebook feed.

You are gifted, Dwayne, and your ability to present in that sort of forum.

You present every week or so some new vignette that you invent to talk about your subject.

And I didn't realize the power of my video clips are probably too long.

Some were three to seven minutes, and I didn't realize the power of that, but I'm starting to.

And I think I'm going to try to increase doing those. I like doing them. I think they help carry that message.

So you do a good job with it, and I will tell you, as a, I'm a person that has traveled a great deal around the state of Tennessee.

And, you know, I'm not a trained scientist to buy any means.

Be learned from watching and people telling you what they're observing, and you learn.

But I've learned a great deal by listening to your presentations.

You know, it, which brings up an interesting topic to me.

And we have an awful lot of people who would think of themselves as environmentalists or

concerned about conservation and the environment.

But like myself, have very little information about what we're seeing when we go out on the landscape.

Exactly. Is part of your mission to raise awareness of, so that people can actually understand what they're seeing when they drive around or walk?

Absolutely. It's a multifaceted, multi-pronged mission that we have.

So first and foremost, education is key, right? As an educator, somebody has been teaching for 11 years. It's exceptionally important.

But public education is more important in this case. Because you're right.

There's a lot of people who are concerned about the environment in some ways.

And I think we all, if we see a clear cut, you know, we have a negative reaction to that.

In some cases, if we see a single tree cut, if it's the right kind of tree, we have a negative reaction.

But sometimes there's the lack of awareness that not every landscape should have a forest on.

In fact, a forest can be detrimental to certain regions, especially where the biodiversity is clinging to life.

And then the most precious elements don't need trees. In fact, that's the worst thing you can do to them.

These precious birds and insects and small mammals and hundreds of species of wildfires will disappear with a forest can be able to.

That's an interesting topic. You know, we, it's recognized, well recognized that we have urban sprawl happening in two or three counties or maybe four counties in Tennessee.

But what I think a lot of people don't realize is that we're actually gaining forest land in Tennessee and have been for the last 15 or 20 years.

Absolutely. So we have a reforestation happening, which has been caused by the abandonment of marginal farmland.

So this is having an adverse impact on what you're trying to do.

It's like quail, you know, the fact that everybody, either a lot of people, want to either mow their fields incessantly to the point where they're six inches high all the time.

Or they just let them grow up. There's no that middle ground brushing this is gone.

Right.

But you know, our grasslands in Tennessee, the reason that they, you don't hear about them.

And we talk about this in our, a lot of presentations I give, I start out by saying that with the squirrel example.

Okay.

For me personally, that squirrel myth came from my sixth grade Tennessee history teacher, guy named Mr. Tommy Johns.

And, you know, that, that idea of the squirrel likes it, it pervades all of our thinking.

Well, I've also often asked the question, well, why is it that growing up in Tennessee, I've never heard about these grand prairies or these grand savannas.

Why have you not heard about them?

Why has 99% of Tennessee has not heard about them?

The reason is that they were gone before the camera was invented.

Sure, before they could be painted or drawn. And in, in this case, they were gone before, in most cases, before the first trained naturalist set their eyes on them.

And so the first people really, in many cases, the state to come on, actually, who had them know

how to describe what they were looking at,
didn't come into after civil war.

That was already 70, 80 years after they had already begun to change.

And so they disappeared within the span of human lifetime in some cases, and by the time people started recording them, they were recording forests.

And for the next, that set the precedent for the next 150 years about what the Tennessee landscape should be.

Well, that's just fascinating.

So let's go around the state of Tennessee and talk about what you see, and you know, people learn the grand divisions of the state, and they learn the physiographic regions of the state.

But there's a whole lot more.

There's a lot more to it.

Let's start with West Tennessee.

Okay, West Tennessee tends to be last, and when people think about Tennessee, I think the flatland and the extensive agricultural districts, it doesn't have that same appeal that the hills and the mountains of East Tennessee has.

West Tennessee, actually, if you'll forgive me, let's start with East Tennessee.

Because the story of Grassland laws coincides with Westward expansion of the settlement by English of Anglo-Americans.

And so just looking, you know, we used to be part of North Carolina.

Right.

North Carolina lost its grasslands about where Raleigh, North Carolina, Chapel Hill are.

By 1750, they were gone.

There's a great quote.

The Grasslands, as you get to the Tennessee line, we had these mountain top grasslands.

The balls have grown mountain, for example.

They've been open for tens of thousands of years.

But then, as you drop off into the Great Valley, the Ridge and Valley, where Bristol, Knoxville, and Chattanooga are, you know, just in this sort of ranges of Ridge's separable valleys.

Right.

Most of that was a great grassland highway that spread from Birmingham, Alabama to the Hudson Valley of New York.

There were bison trails that would have gone up that.

In fact, Fernando de Sotas expedition, just something I learned just a couple of weeks ago, documented what they called hens near Chattanooga.

Most certainly would have been greater prairie chicken in the Southern Ridge and Valley.

And these were described by English missionaries and your Telecom planes, for example, at the western base of the Smokies, were extensive tens of thousands of acres of Savannah and Prairie habitats.

Today, all the remains in that region are largely those that are confined to the rockiest or west of sites.

And so, if you go near Knoxville or near Chattanooga, you have these rocky glades, which are the last sort of refuge for grasslands.

And for a long time, you know, say up until about the 1770s and 1780s or so, that was the part of Tennessee where people lived.

You had the French, you would occupy Memphis area and you had some people who, you

know, the Frenchmen who had moved into what is now Nashville.

But largely, the plateau west was mostly uninhabited. And even there were no permanent Native American settlements now.

So as people began to expand, thanks to the Longhunter's expeditions over into Milton C., across the plateau and through Cumberland Gap.

As soon as they topped out above Harriman and Kingston, they topped out on the plateau, just east of Crab, Orchard, and Crossville, they described vast savannas with what they call "gambling herds of buffalo and elk."

And in fact, the western American western novelist Lou Lemur, in his research, in his Sacket series, even references those sort of grasses.

So this would have been pine grasslands?

These would have been short leaf pine savannas and open bogs, too, which are type of grassland.

But they would have dominated the plateau surface, and you know, they were important as fueling a whole industry, the Turpentine Industry.

And so, the plateau largely was wild well after the Civil War. And so a lot of those grasses probably persisted well into that period.

But as you move west, and you drop off the western plateau to Cookville, there's a great description from '17, either '69 or '79.

The first exhibition of the Longhunter's in the middle Tennessee came down from Kentucky, out of Wayne County, Kentucky, through Livingston, Tennessee, down through Cookville to the Caini Fork River.

And they said, "All the ground through which we passed was covered with pygras, which seemed inexhaustible." Of course, on paraphrase.

That was related to the state's first historian, a guy named Haywood, John Haywood, I believe, if you published in 1823, the first history of the state.

So they had these immense prairies that would have stretched from the Kentucky line all the way down past Huntsville around.

Nearly a million acres of prairie and savannas habitat.

Today very little that's left, mostly an Arnold Air Force base.

And then finally, you get off in the middle Tennessee, you get through the air around Nashville. And it was the bison meadows that first brought in people like Thomas Bigfoot Spencer, the Longhunter.

And so, Bell Mead, for example, beautiful meadow settled, I think, about 1807. It was named for the grasslands that abounded around the Nashville area.

And of course, we'd be remiss if we didn't mention the fact that there's a global unique grassland type in middle Tennessee, around Nashville.

They're called limestone glades. And there's thousands of these open rocky grasslands, and they support about 30 species of plants not known from anywhere else except for the Mid-South.

And I was in Cedar's 11th and State Park last week. They had a seminar up there. And the state has several of them there that you can actually go and visit.

And those are to describe them, the really, really shallow soils. They're called Cedar glades because Cedar's predominate, the juniper tree.

They predominate today, but they didn't predominate 200 years ago, which is something that's quite interesting.

So what made that change happen?

And this is something we only recently have come to know.

Some historians out of the Gallatin-Hinderson-Millair published the first land grant maps of all the revolutionary war soldiers who were granted lands in the 1780s and 90s.

And what that shows is when they were, the first survivors were coming over laying out those new tracks for these veterans, they would note which tree species were at the corners of their pride.

And so anytime you get around the glades, it was always post-o, post-o, post-o.

Never once, rarely ever, maybe 1% of the time that they mentioned Cedar.

Now the post-o is a very odd oak tree.

It is, and it's a grassland type of tree.

Sure.

It tends to be no greater than maybe 10-foot tall or maybe you can get, they can get 80 feet.

But rarely, they're more than 40 to 60 foot tall.

Squat, scrubby, fire-adapted.

Sure.

And not a leaf that you would necessarily, I wouldn't just as a layman, that doesn't look like an oak leaf to me.

It's sort of cross-shade.

Yeah, it's a cross-shade leaf.

But they're fire-tolerant species.

Sure.

Those would have been an open grassy transition.

And there were extensive savannas.

And with fire suppression, after the first settlers moved into this region in the 1780s and early 1800s,

they, through building roads and planting non-native grasses, there were deputy cool season climates, the state green, they changed the way fire moved on the landscape.

And of course, then they kicked out the Native Americans who were routinely set fire.

And so, gradually then, Cedar encroached and became the dominant.

Well, by the time the first naturalist described that landscape in the 1860s, they described a landscape dominated by Cedar.

Isn't that interesting?

That set the trend for ecologists like Vanderbilt ecologists who came in the 60s and 70s and beyond.

Right.

To say, Cedar could have...

Dr. Corman and those...

Yeah, they should have Cedar trees around.

I got you.

Yeah.

That's just fascinating.

Well, we're doing a tour of the state of Tennessee.

We were.

And I remember the other day that you posted something about May Prairie.

Tell us a story about May Prairie.

Yeah, May Prairie is a fascinating place.

It's a 13, 14-acre pray room in coffee county in just southeast of Manchester.

It has...

It's a virgin site.

It's never been ploughed that we know of.

And it was discovered in the 60s when a couple University of Tennessee bought in this Dr. AJ Sharp and some others stopped at a cafe along Highway 41.

And it was called the Prairie Cafe.

And they're sitting there eating and they said, "Ask the waiters as bought in this."

You know, "How does this thing get the name of Prairie Cafe?"

Right?

She said, "Well, it's because right over there through those woods is a prairie."

And so after eating, they went over and hiked through these woods into this Garden of Eden as they opened up.

And they found plants there that had never been documented in the state like the snowy orchid.

And to this...

And then so finally, 60s and 70s roll around and it's beginning to get really thickety because it hadn't had fire on a long time.

And finally, it was protected and they started going in and burning it again.

And that site is exquisite to this day.

Right.

Yeah, I can remember in the early days of the Tennessee Natural Heritage Program, there was a botanist by the name of Paul Summers.

I don't know if you ever knew Paul talking about that site quite a bit in going to visit.

I believe it's managed by state parks now.

It's a Heritage Program which is now in the Division of Natural areas.

Yeah, they managed it. Right, right.

So that's not a place that the public really is encouraged to go to just on their own.

Today you can.

Up until about seven or eight years ago, there was no public access officially.

Now there is a public parking area in trail.

Okay, yeah.

Well, I was working with the impression that it had to kind of be an arranged tour.

They did that routinely and we're glad to do it, but they wanted to be there with you when you were there.

You know what, that is entirely possible.

And so your listener should check in on the Tennessee Division of Naturalist website.

That's right.

And I think Old Stone Fort State Park has a role to play in the management of that particular site.

They very well know that.

So continuing, continuing around in the vicinity of Clarksville in this area that's the Upper Highland Rim.

I guess you'd call it.

You had something the other day on that you called Penny Royal.

Penny Royal, yeah.

No, tell me.

That's the term that I had never, ever heard of.

Right.

What is that?

So the Penny Royal is a plant.

But the Penny Royal Plane is a landscape.

And so basically Northern Middle Tennessee, parts of Sumner, Robertson, Montgomery and Stewart County are on the southern end of this large crescent-shaped plane.

It starts up in Southern Indiana where it's called the Mitchell Plane.

It crosses the Ohio River about where Louisville is.

It comes down through Elizabeth Town, through Bowling Rain, barely clips Clarksville and goes on over to Paduca.

And so it's about 220 to 250 miles long and up to 40 miles wide.

That was the prairie that was 3.7 million acres as of 1800.

Well.

And that was the most open and largest nearly treeless prairie east of the Mississippi or in the southeast.

Yeah.

And early settlers would call it the Big Barrens or the Kentucky Meadows.

And everybody who came, so when you came to Nashville, for example, when James Robertson and John Donaldson found it Nashville.

Donaldson came by a river, but the Robertson Party came over through Cumberland Gap and then came across the Big Barrens.

And it was well known to people coming to say from Lexington to what would become Nashville that you better have some water with you when you crossed it.

Because it's a car's plane and there's no surface drains. They all drain.

And it's a dry, it was a dry, formidable, inhospitable landscape with dozens of miles of open grassland.

Yeah.

Right.

And still are some remnants there?

No.

No, there really aren't.

That system has been wiped out 99.9%.

You have to drive 40 miles to find a site that would be a tenth of an acre.

But fortunately, the remnant that does persist, so it's a little bit of a misleading response, is that fortunately Fort Campbell Army base exists.

Okay.

So at 104,000 acres, roughly a quarter of Fort Campbell is grassland, including a 25,000 acre contiguous prairie, seven miles long, three and a half miles wide, that is the base's impact zone.

And so no one can go in there, but that's the biggest prairie east of the Mississippi.

And what is there that's important?

Well, because it is off limits, we really don't know.

Okay.

But the 5,000 or so acres that are scattered across the rest of the base, we do know.

Okay.

There's probably at least a dozen to two dozen species of rare plants.

It's one of the only three places in the state for the rare hen's low sparrow.
Many species of grassland birds, grassland mammals, like the southern bog limming, grassland reptiles.

There's grassland owls and hawks.

I mean, it's an incredible place.

Well, and it is the only place in the state.

There's one area called the drop zone, soup john drop zone. It's two miles wide, two miles long.
It's almost perfectly square where they drop in and do parachuting.

It is the only place in the Tennessee possibly the southeast with exceptional sites in Florida,
where you can see a rolling treeless landscape with not a tree in your view.

And it looks just like you're in Nebraska.

Wow.

And it is 20 minutes from you and me right now.

Well, it literally will make the hair on your neck stand up.

So we started our tour.

We were going to start the tour in West Tennessee and then you took us over to East.

And we're working our way across.

Yeah, let's work our way.

So what's unique as we move to the West?

Yeah.

So you can think about then as these settlers were moving into Nashville 1780s through about 1810.

Now people are beginning to want to push West, right?

About the, you had a wild land in the Western Holland.

Places like Lewis County and Dixon County, Perry County were really just off the track.

And about the only road through there was the Natchez Trace.

And so people would come up.

But that really, you know, had some grassland, some big ones.

So places like Lewis County and your home wall was an open prairie.

Lawrence bird was a massive open prairie.

But there's very few documents, documents, records of them.

Dixon County had a bunch of grasslands.

So as you, you know, move West from there, you raised the Tennessee River.

And those were by, by the way, largely were post blackjack oak savannas with some prairie.

A lot of those stream valleys out through there.

The deeper in size valleys we believe were beaver meadows up until probably about 1750 when beaver was wiped out.

As you cross the Tennessee River, and settlers really were not crossing the Tennessee River until West Tennessee was purchased from the Chickasaws in about 1819, 1818.

When they purchased that, you had a land rush.

And there's descriptions of wagons and settlers crossing the Tennessee River in droves.

And the very earliest descriptions talk about how they settled upon the open grounds first.

What they call thinly timbered lands, the barons.

And that term baron was largely applied by English speaking people for a landscape that basically just didn't support forest.

And so, as soon as you cross the river, you get into a line of hills around McKenzie and some

big valleys.

All that was open savanna and prairie.

All the way over to about Jackson.

And when you got to about Jackson, you encountered probably the second biggest prairie in the southeast.

So get this, it was about 800,000 acres.

Today, I'll ask you, how much acres do you think exist?

Oh, probably less than 100.

You're right, less than 10.

Well, less than 10?

Less than 10 is now.

Yeah, from about 800,000 to less than 10.

And it is the most imperial grass than probably in the southeast.

And it's stretched from the Ohio River at Paduca down barely into northwestern Mississippi below Memphis.

And it's gone today.

You know, that's an interesting area because it would include, if I'm getting you right, what's now the national trace state park and forest.

Yeah, right.

Which was a WPA CCC project for recovery of a really ruined landscape in the 30s and 40s.

People had gone in there and tried to do row cropping.

And the soils were so fine.

Yeah.

It's that chalky, ultra fine soil that just will, if you bust it, it washes away.

Yeah.

And so that whole landscape had been completely eroded.

And so they went in and planted loblolly pines at, you know, every 25, you know, in straight rows.

And that's what we have growing today.

Yeah.

So if they, I guess if they really wanted to recover that land properly, they would have resold it in prairies.

Well, so that area with more rolling topography would have been that mosaic.

Okay, so you have the deeper ravines over there, which would have been forest, white oak till popper beach, you know.

And the streamboat, the bigger flood plains like along the Big Sandy River would have been largely bottom and hardwood, Cypress 2+1.

But when you get in the--

They say wet about half of the year.

Yeah, yeah.

But when you get in the larger rolling uplands, it would have been short leaf pine, post oaks, savannah, with little blue stems, the dominant grass, and an amazing diversity of wildflowers.

And there's some great quotes from-- you know, there's one quote that says, "It's in the history of Carroll County."

It's sort of genealogical, but it says, "Before Mackenzie was a town, this was the vast grazing place for bison and tall grass."

And it was just these amazing quotes from that region.

But largely, once you got just West Atlanta Hills to the east of Jackson, then you would have hit a large flat agricultural plain.

That was mostly prairie until you got just West of Jackson, then it became dense, dense forest. So there was some kind of magical transition, and that's where the forest continued all the way to the Mississippi.

Well, the Wolf River runs through that region, and I presume that it was flooding about half of the year, and that's what supports that forest down through there.

Of course, a lot of that's been channelized.

Yeah, and the uplands above the Wolf River on the north side were prairie and savannah.

So there's a big place called the Ames plantation, in Fayette County, right?

It was one of the biggest refugia left for Bob White, and that was mostly open prairie and savannah.

And then just to the south of the Wolf River, we just found some what are called GLO maps, government land office maps.

So when they were laying out the state, I mean, the evidence for Grasslands comes in various cool forms, right?

So one of the way we look at it, we can go back to the early surveyors of the state boundaries, and they would mark a tree at every mile post.

And sometimes, like when they were laying out the boundary in 1818, between Chattanooga and Ducktown, over on the Georgia line, they got to a section just east of White Oak Mountain, where there was not a tree in a three-mile stretch, you know.

Or every tree was a post oak and a short leaf pine, which indicates it was savannah.

But that area just south of the Wolf River in East Memphis had lots of references to little prairies over there.

- Really? - Yeah. Duane, it's so interesting to hear you talk about your specialty in botany, of course, but you're informed by the history.

And you seem to have a passion for finding that history and to support what you're thinking about.

That's just fascinating.

Let me change a subject just a little bit. And talk to me about what your hopes and dreams are about the relationship of your organization with the state governments in your region and the organizations and the state governments.

- Yeah, so what we hope to do with the Grasslands Initiative is raising awareness is huge, but we also want to make a big impact on the ground.

And that impact, we hope, will come in three different ways.

So the first way is we want to have coordinators working throughout our 23-state region. For example, this summer where we got a grant, we're going to hire a coordinator who will work across Middle Tennessee and Central Kentucky to restore 7,000 acres of grasslands on private lands in conjunction with 10 other partners.

Those partners include Tennessee Wildlife Resources Agency, Kentucky Department of Fish and Wildlife, Bridgestone America's Corporation, Arnold Air Force Base, so it's putting together these multi-collaborative teams to tackle these complex problems.

One thing we realize is we can't do it all, and we don't want to do it all, and it can only be accomplished through collaboration.

So we're actively trying to build very strong genuine partnerships with so many different

organizations that really hopefully will better bridge the gap between even organizations that rarely would work together with one another.

So we're just as concerned about high-quality natural intact prairies that would support say 300 plant species and dozens of grass and birds. As we are, in which case, we probably form a partnership with the Tennessee Division of Natural Affairs.

We're just as concerned though about reaching out to organizations like the Society for Range Management, which is concerned with range land conservation, which of course gets into things like sensible cattle grazing and making sure that we have working lands for wildlife.

So incorporating sustainable agriculture to the benefit of conservation. So it's a multifaceted aspect and we have a lot of collaborations we're trying to build.

You know, there are numerous organizations that are out there, as you know, that are actively involved in the conservation of the landscape.

Some that come to mind are the Tennessee Parks and Greenways Association and these nature conservancies.

Each of them have their own sort of methodology for identifying what their priorities are. And I suspect what you're trying to do is inform them a little bit better so that they can have a little more insight into arranging their priorities.

Yeah, I think part of it is, is I think until we started preaching the prairie. About five or six years ago, it's all driven by the historical references. They mean everything to this.

So for me, history is just as much part of it as the biological diversity, those two are critical components.

But until we started ringing that bell and preaching that message from the mountain tops, they're really, I don't think was a lot of dedicated, concerned statewide.

We had some great localized initiatives going on by various agencies. So TWA for example, you know, has long been a leader in restoring Savannah.

They did a great job. We could do some wildlife management area on the plateau and bark camp barons and coffee county.

Tennessee division natural areas, they maintain catchable glades and barons and mapror and so forth.

But as a whole, the conservation community, I think, was rather uninformed about just how important these grasses were to our landscape.

So that's part of what our major mission is. And then secondly, we get a lot of questions from people to say, well,

why try to become a new conservation organization? Why don't you just work under the umbrella of somebody else?

And a response to that is, we're unique. And the mission that we have is unique.

Our breadth of coverage across multiple states across multiple regions is unique.

And our message is one that we think is novel. And there's not another conservation organization out there that's attempted to do what we are.

But we also realize that we can't do what we want to do without partnering with them because they each bring a unique aspect to the table as well.

You know, TWA is great at having fire teams manage sites. Well, that's not part of what we want to do, but we want to partner with them to burn sites.

TNC is great at major outreach and networking and large-scale fundraising for big-scale land acquisition projects.

You know, that's a natural partnership that we need to continue to cultivate.

So, yeah, there's a lot of, I mean, everybody brings together critical component. And what we want to do is sort of be the hub of that component.

Well, and be there at the table when the people are talking about priorities. Well, don't forget this one.

The other challenge I would say is that because so many of our sites now are tiny, so like, you know, you asked me about where are the remnants of the pinnacle of the left.

Other than the Fort Campbell, the nearest room is 10 miles away, and it's a eighth of an acre site between a railroad and a highway, 41.

Well, that's a site that's partially owned, partially within the Department of Transportation right away. It's being mowed five, six times annually until we raise the point that it's a grassland, in which case we work with TDOT and CSX Railroad to alter the mowing so that the prairie could grow.

But still, it's significant in that it's the last room, right? But it's not significant enough, and it's not big enough to justify some of our big partner agencies to say, "Yeah, sure."

We'll come and buy or we'll expand our resources on it.

So the only viable solution is that we then have to cultivate an army of volunteers.

Of local volunteers. A neighborhood watch program to say, "We'll go out there and we'll do what's necessary to keep this site viable."

So that was going to be my next question. Yes, how can the citizen, you know, other than being a member and obviously supporting you financially?

Are there opportunities for the citizen interested citizen to participate with you?

Absolutely.

And I didn't quite realize the significance of how much we needed everyday citizens as part of this until I went to Chicago last year.

I went up to visit with a foundation called Boba Link Foundation. Boba Link is a rare grassland bird. And Boba Link Foundation, they work with a citizens group in one of the western suburbs of Chicago called the Citizens for Conservation.

And before going, they gave me some literature to read, which was how to work with volunteers.

I thought to myself, "Well, I'm going up there to look at their prairies, you know. I want to hear what you're doing prairie-wise."

So I read it and got there and they put me to work. We went out and had a work day pulling invasive weeds.

And I learned three critical lessons.

Number one, we in the south could learn a lot in terms of how to restore prairies by looking at Chicago.

The reason being is they are doing it better than anybody.

When it comes to taking what used to be a prairie that's now cornfield, they have figured out how to recreate it to the best of our ability.

Really? Wow.

So they're using species mixes, seed mixes of between 200 and 450 species.

And they're not only able to recreate 50 acres here and 75 acres there, they've been able to do it at larger scales.

So the second point is they can use that model and scale it up and have done 3500 acre blocks.

But third point is, it's mostly volunteer driven.

And in that area, volunteers are making a real difference.

So, you know, we want to bring that model, not just the Nashville area, but to all the major communities of the south.

And so recently, we've been putting together a call for action.

And so we have a team now developing in Charlotte and a team developing Tallahassee and one in Beaumont.

And all the communities of the south, we're beginning to develop and cultivate these grass and conservation teams.

And so volunteers can go to our site and they can self-identify with one of about 10 roles they want to play.

And I urge them to check that out.

Communicate with you.

Yeah.

So if they like research, we've got something for you.

If you want to help treat invasive, we've got it.

If you just want to be eyes on the ground and make a phone call, if you see that an extremely important prairie on your back road,

in Lewis County is about to be sprayed by the highway department, you're part of our team.

Terrific.

Yeah.

I wanted to, we're about to wind it up here.

We've been going for 45 minutes.

I told you.

I talked for a while.

You're doing terrific.

And I'm learning so much today.

I saw the other day, two things that I wanted to talk with you about.

On the way over here today, Beth and I stopped at Dunbar Cave.

Yes.

And the Ranger was nice enough to show us the area up above the cave where you all had participated in a restoration of a meadow.

Oh, good.

You got to see that.

Awesome.

And it looks really nice.

It's looking.

Yeah.

It's greening up nicely.

Yeah.

So you were involved in that just by facilitating a donation of some seed, I believe it was.

You know, that probably is really what got this all off the ground.

You know, I told you about our, the way we formed SGI was about forming and having conversations.

Right.

But before the conversation was had the thing that led me to realize the kind of conversation was needed, really began with my children and me.

And so during the winter of about 2012, 2013, just these were long winners.

And, you know, I'm not sure why, probably because I was trying to get tenure and other things. But there were long winners.

And I remember just yearning for those days in March, where it was 45 degrees in sunny. Right.

So where we would go is up in New Kentucky, near Ruseville.

There's a little city, Prairie Amendment called Baker Prairie Natural.

My kids and I would go there was, you know, I've got an 11 year old, 9 year old now and a 3 year old.

So they were young enough then and we could get up there on a sunny day and they would crawl through the grass.

And we would just reimagine we're like little rabbits and stuff.

And it just had a great time.

It occurred to me that there's not a place in Clarksville, the fifth largest city in the state, where young kids can go and just play in a former grassland.

So I went to up near Mammoth Cave and talked to my good friends, Randy and John Seymour, around Stone Native Sea.

They're the leaders in the southeast and Prairie Restoration.

So I talked to them about my vision of wanting something in the community.

And at first, again, it grew selfishly out of the desire to have my own kids a place to play.

And Randy Seymour, the patriarch of the family, said, "Tell you what you're doing."

He said, "I'll give you everything you need to do.

15 acres of Prairie, high quality.

I'll give you up to 50 species.

We'll give you all the herbicide you need to prepare the site and we'll come and plant it."

It just so happened at that time that Dunbar Cave State Park was looking at a 30 acre addition right next to the park.

15 acres of which was a hay field.

I mean, it's like the stars aligned.

So we worked it out. They gave this donation.

And I just had to sort of take the responsibility of implementing it.

And so everything from designing it to spraying the herbicide on a tractor to helping bush hog it, we put it in.

Let's interpret that for our audience as a minute.

Because the use of herbicides is going to turn a whole lot of people off until they understand why you're doing that.

And please, don't let me insinuate that.

I didn't mean to insinuate that.

I didn't have hell.

Because certainly.

No, no.

Exactly.

And there was a friends group involved.

Absolutely.

And a big time.

But when you get a field that had been used for hay or for dairy cows or cattle or whatever grazing.

The grasses that you're going to see on a field like that are not native grasses for the most part. Yeah, in the 40s, there was a major campaign to improve pastures. And there were other campaigns before the 40s dating back into the mid 1800s to bring in Eurasian, European grasses to replace the ones we already had.

You know, thinking that they put more poundage on cattle and be better forage, right?

And so this happened in the 40s.

And most of our fields now in military part of what we call the Fescue Belt.

Right.

And so that field was all mostly Fescue, Johnson Grass and Purple Top, which is a native.

But it was mostly these just kind of ratty grasses or invasive grasses.

And that's what typical middle to sea is.

Now, if you want native grasslands, then you have to get rid of those.

Because they're going to dominate.

Well, they're going to dominate and they're terrible for biodiversity.

Okay.

You know, Fescue forms a side.

There are no hallways through which mice and quail can walk.

And that's probably the greatest reason for the demise of quail.

If you want to get rid of it, there are multiple strategies.

But the most effective way is to use herbicide.

Right. Right.

If you try to, say, burn it and moat to death, you're just going to spend a lot of time energy and money when you can just knock it out quickly.

Exactly. Exactly. Exactly. Exactly.

So a success story here at Dunbar Cave in Clarksville.

Now, more recently, I saw that you were involved at Fort Negley.

Yeah, just yesterday, right.

And so tell us what's going on at Fort Negley.

Yeah, I got a call from...

We have a really strong development partnership with Nashville Metro Parks.

And so there's a couple other priorities in the works too.

But Fort Negley is one that I had just only casually been introduced to.

I had driven by there a few times.

And, you know, it was always this hilltop that was shrouded in bushes, right, in a thicket.

And so I went down there yesterday and got out to see this pleasant, open grassy hilltop.

And I was like, wow, this was different from just last year.

And so we met with Carol Ashworth, who's a local landscape architect and built fruit with the city there.

And Andy Sudbrock with Nashville natives.

All of these folks had had a history of that site, both in its design and maintenance.

And also we met with the gentleman who runs a company called the Nashville Chew Crew.

He has a herd of sheep, that's right, that's right.

And so they explained the history of the site and how it went through thickets.

And then they used herbicide and they used the sheep.

And so the idea now is to figure out how do we make it look good?

They had a bunch of homeless people living up there under that thicket.

Yeah, in my version of the site was going to be potentially developed at one time.

Well part of the site right now, maybe not that far.

So the idea was how do we restore it?

How do we restore it to where it's historically accurate?

And how do we make it look good and also secure the earthwork so that they don't need road and those kind of things?

Sure.

And so we went out there and it's mostly non-native European species, this common weeds.

And just as soon we started walking, we found it.

McGregor's wild rod, this native Nashville basin grass that was in these big stands here and there.

And with a little bit of tender love and care, that site can once again be a tremendous medic.

Well that is a terrific observation.

I had not heard that.

Of course he was yesterday that you discovered that?

No, I'm just there yesterday.

Yeah, if you look in the face, but you'll see a picture of the Nashville skyline.

Right.

You can see the grass in a bed of McGregor's mom.

Okay, well I saw that picture, but it didn't put two and two together.

We were all so static about that.

Oh, that's just fascinating.

But listeners to this program will go back to the archives of this program and find my interview with Dr. Zeta Law from the Middle Tennessee State, who is an archaeologist.

We did an interview last year about the proposed development of that site and the adverse effects.

I would definitely go back and check that out.

So she's definitely a person you should get to know.

Absolutely.

She's a terrific person.

You've been terrific to spend this time with me today.

I hope my listeners will again check out your website and check out your Facebook page.

Communicate with you and interact with you.

And Dwayne, thank you so much.

Thank you, Mark.

I appreciate it.

It's been a pleasure.

[Music]