**Introducing… Introduced Bluestems! S1E4, Dr. Megan Clayton.mp3**

**Dr. Sandra Rideout-Hanzak** [00:00:03] Hello, welcome to A Talk on the Wild Side! Your biweekly tour of all things wild in Texas. I'm your host, Dr. Sandra Rideout-Hanzak.

**Rebecca Zerlin** [00:00:29] And I'm your co-host, not a doctor. Rebecca Zerlin.

**Dr. Sandra Rideout-Hanzak** [00:00:33] Today's episode features an interview with Dr. Megan Clayton about introduce bluestem grasses that have been impacting ecosystems all over Texas.

**Rebecca Zerlin** [00:00:42] Yeah, we have quite a few species that don't really belong here. And what we mean by that is they...they weren't here when the European settlers came around.

**Dr. Sandra Rideout-Hanzak** [00:00:53] Right. We have a lot of introduced species and some of them are grasses. Dr. Clayton conducts research on various methods for controlling them. And she's going to talk specifically today about her work with introduced bluestems. So I'm looking forward to that. Yeah, but we always start with a little bit of news. And today we have Andrew Lowery for todays "What's Wild and New" segment.

**Andrew Lowery** [00:01:17] Howdy. Howdy.

**Dr. Sandra Rideout-Hanzak** [00:01:19] Hi Andrew. Tell us what is wild and new right now.

**Andrew Lowery** [00:01:23] Well, you guys are familiar with the specialized license plates we have here in Texas, right?

**Dr. Sandra Rideout-Hanzak** [00:01:28] Yeah.

**Rebecca Zerlin** [00:01:29] No.

**Andrew Lowery** [00:01:29] These support particular wildlife species or wild places like Big Bend, adopt a beach, or the ocelot plates you see driving around. There's a new design this year. And Rebecca...this one's for you.

**Rebecca Zerlin** [00:01:42] What?!? Tell me more!

**Andrew Lowery** [00:01:44] The new license plate has monarch butterflies on it.

**Rebecca Zerlin** [00:01:47] Oh, I've heard of them!

**Andrew Lowery** [00:01:48] Yeah, once or twice.

**Rebecca Zerlin** [00:01:49] They're pretty. They're pretty cool.

**Andrew Lowery** [00:01:51] All right. Well, this new license plate with four beautiful monarch butterflies on it is a part of the Texas Wild license plate series. It costs thirty dollars additional to your vehicle registration fee. And twenty two of those dollars go directly to Texas Parks and Wildlife to help fund the Texas Wildlife Action Plan. The monarch plate will be in the group of plates that help fund non-game wildlife conservation, along with the Hummingbird, Rattlesnake and the Texas Horned Lizards plates. These license plates have helped fund conservation projects for the Texas bumblebee, ocelot, attwater, prairie chicken, whooping cranes, alligator snapping turtles and several other species. You can order yours today at conservationplates.org.

**Dr. Sandra Rideout-Hanzak** [00:02:34] Yeah, you guys, I already ordered one. I just ordered one this weekend and it was really easy. You don't need to know your VIN number, your registration number, or anything like that. You just go to conservationplate.org, order that, and when it comes in, you'll you'll pick it up at your local license office. And I can't wait to get mine, drive around with butterflies on car.

**Rebecca Zerlin** [00:02:54] Your gonna be so stylish and you're going to just have to drive me around everywhere; so I can be cool.

**Dr. Sandra Rideout-Hanzak** [00:03:00] OK, well now it's time for Rebecca to break it down for us as an introduction to today's guest experts. So here's, Becca's breakdown.

**Rebecca Zerlin** [00:03:14] Today, we will be talking about introduced grasses. Listeners, meet Harry Grama, Harry Grama, meet the listeners. Now that you're introduced to, my breakdown is over. I'm sorry, what? That's not what we're doing? No? she told me introduce grasses, introduced grasses.... Ohhh, ok. Let's try that again, introduced grasses are non-native species of grass that have been integrated into an environment that they weren't originally found in. They can go by a lot of terms, actually, like exotic, invasive or non-native. Here in North America. All of these terms generally mean species that weren't found in this area when the Europeans arrived. But since scientists have to be particular on everything, we'll clarify this some more because all these words can be a bit confusing. Let's take the word "exotic." Ooo-la-la! In conservation, exotic generally means non-native. Again, in our part of the world, something that wasn't here when Europeans arrived in North America. But someone who isn't as versed in conservation terms, might just think exotic means fancy, elaborate, or colorful. Much like the way I dress. So that's not a very precise word for what we're trying to talk about. Then there's the word invasive. Invasive is another one of those terms. That usually means it wasn't here when the boat stopped, way back when. But invasive is really more describing a behavior, not necessarily a place of origin. And plant-people know, that a native plant can behave in an invasive manner in certain situations. For example, many junipers and other tree species are native to the Plains region. But historically, they were much more rare. When we removed fire from the plains and began overgrazing, our native trees became invasive and now they're taking over grasslands. So invasive isn't quite the right term here either. Now, some ecologists may tell you that an exotic grass is one that's found outside its native homeland but isn't causing any damage to its new ecosystem, while an invasive species is one that is causing damage to its new habitat. This is an attempt to distinguish between that fancy grass that you planted out front that has stayed put and that pretty grass you planted that has now taken over your entire subdivision. Sorry, neighbors. Don't tell the H.O.A. But that assumes that we know the implications of each individual non-native species well enough to determine whether it is causing any harm or not. That's pretty iffy...and it's still dependent on the behavior of that new species, in its new area. The term non-native, works pretty well for these species, but what is non-native in one place is native in another, and some non-natives have only moved next door, while some are bonafide world travelers. So take a plant that was native to Louisiana, but is now found in the wild in Texas too. Do we call that native, or not? We could spend all day debating these, terms only to come up with more what ifs, and what abouts. Science is fun, isn't it? (laughter) So, for today's discussion, we're going to try to stick with the term, "introduced." We'll be talking about a group of grasses called Bluestems that have all been introduced to Texas in the past two or three hundred years and have found it a pretty nice place to live. Must be all the good food. They all grow wild in Texas now and not to be too confusing, there are native bluestems as well. So keep that in mind. Oh,, and just to make things even more fun, we're going to completely avoid common names because, well, we don't want to even get into that mess. And just remember, when you're on the wild ride of wildlife, it's either gas, cash, or invasive grass.

**Dr. Sandra Rideout-Hanzak** [00:07:14] Well, we're talking to Dr. Megan Clayton today, and she is an associate professor, and Extension Range Specialist with Texas A&M Agrilife Extension in Corpus Christi. Dr. Clayton, welcome to our podcast. Thank you so much for being here.

**Dr. Megan Clayton** [00:07:31] Oh, my goodness. Thank you so much for having me. It's really my pleasure.

**Dr. Sandra Rideout-Hanzak** [00:07:34] Oh, good. Well, tell us about yourself first. What do you do in your work at Texas Agrilife?

**Dr. Megan Clayton** [00:07:41] That's a great question. It's kind of a mystery to a lot of people with the entire Extension Service does. But we're basically the agency from the Land Grant University, Texas A&M, who is charged with taking research and taking that out to the public. So anybody getting that research in the hands of anybody who could really use it. So instead of educating classes and students, I mostly educate landowners. And I'm assigned to the research extension center in Corpus Christi. It's out near the airport. If anyone's familiar with that field farmland. And I do research in south Texas and along the coastal bend, working with private landowners to do this research on their place, and anything dealing with range management. And a lot of my work focuses around noxious or invasive plants and how we can go about controlling those.

**Dr. Sandra Rideout-Hanzak** [00:08:34] That's terrific. It sounds like this fits right into your objectives then.

**Dr. Megan Clayton** [00:08:41] It does, yes, ma'am. Yeah, thanks for having me today. Such a pleasure to help people understand, you know, how we're not only researching these invasive plant species that we know are affecting others out in the state, but also try to, you know, work together to come up with solutions.

**Dr. Sandra Rideout-Hanzak** [00:08:57] Oh, absolutely!, Absolutely. And that's what we want to talk to you about today. You've done a lot of work on introduced bluestem grasses. So let's just start with that. What is an introduced bluestem?

**Dr. Megan Clayton** [00:09:12] Yeah, well, pretty much anything that's not originally occurring here. And in Texas, we have six introduced bluestems that have graced their presence in our state for one reason or another, but basically just anything that non-native or classified as an invader.

**Dr. Sandra Rideout-Hanzak** [00:09:29] OK, and. You mentioned one reason or another, what are some of those reasons why are these introduced blue systems here, how they get here?

**Dr. Megan Clayton** [00:09:41] Oh, well, a lot of times there are characteristics in these introduced grasses that someone thought could be beneficial for one reason or another. And one of those might be forage for livestock such as Ingleton Bluestem, which we might be familiar with ecotypes, people like Gordo and Medio. Many of those came from India. They're very salt tolerant; so they happen to do very well here along our coast, especially on our clay soils. They're not so good at cold tolerant. So that's kind of limited to the southern part of the state. But nonetheless, people really look at those if their primary reason for owning land is to run high numbers of cattle. But others of these bluestems were brought in because they may be drought tolerant and they notice these characteristics and thought they would work very well in Texas. Some were brought in for erosion control. In fact, I know a story about one introduced species being seeded by what used to be called the Soil Conservation Service, (now, USDA/NRCS). Along riparian zones. Because it held the soil. So, it did a great job of doing what it was intended to do, but they didn't realize the lasting effect. You know, hindsight is 20/20. And now we know that it does too good of a job, and it moves into pastures and tries to do a good job there, too. And so we find ourselves with these introduced bluestems on rangeland that add a whole new level of challenge for management. Then what maybe our grandfathers used to do on these lands. But some plants are brought in for ornamental reasons. Some of these introduced bluestems actually got their start at Research Station. And they were being studied and bred to be released as a cultivar for these certain advantageous characteristics. So yeah, they were brought over for a purpose. It's just that those purposes don't necessarily align with what we want to do on these rangelands today.

**Dr. Sandra Rideout-Hanzak** [00:11:40] OK. And you know what? I just realized that my usual sidekick, Rebecca Zerlin, isn't here. Rebecca is my graduate student and she's in the field today. And I just realized that I didn't introduce my co-host today. But we have Andrew Lowery with us today as a co-host. And Andrew is one of our technicians. And so he usually makes all the magic behind the scenes happen. But he's standing in for Rebecca today. So Andrew's here. Sorry about that.

**Dr. Megan Clayton** [00:12:13] Fantastic!

**Andrew Lowery** [00:12:15] No, no, it's all good. So I heard you mentioned salt tolerance being a factor at why these guys have been so prevalent and invading non-native habitats. Do you think you can touch on some of the other factors that have helped them be such good invader's?

**Dr. Megan Clayton** [00:12:29] Sure, yes, but with Angleton, it has that great salt tolerant, but each one varies a little bit, you know, maybe I can't completely understand the exact genetic mechanisms that produce these traits, but we know that they're very hardy. They're tolerant of a wide range of conditions. Most of these species, I think all of these species really, reseed very easy. They adapt to disturbances well. Such as grazing, fire, flooding, mowing...heck, even broadspectrum chemicals have a tough time alone controlling these species, and they grow very quickly. So, they kind of outcompete our native species for taking hold of bare ground and then they seed-out very quickly to add more seed into the soil. So, over time, you could see how they could really take over a beautiful native pasture and create this monoculture of grass.

**Andrew Lowery** [00:13:25] Wow! That's that's kind of scary! How effective these guys can really be at what they do.

**Dr. Megan Clayton** [00:13:33] It is kind of a game-changer, for sure.

**Dr. Sandra Rideout-Hanzak** [00:13:35] They sound like...I mean, they're just perfectly adapted to take over places.

**Dr. Megan Clayton** [00:13:39] Right.

**Andrew Lowery** [00:13:41] So what's some of the impact from these introduced bluestems? You know, from wildlife - to ecosystem health? What do we see in the areas where we find these?

**Dr. Megan Clayton** [00:13:52] Sure, and I should say that in some areas, which we've noticed, maybe sometimes on sandier soils, the world where they aren't able to most aggressively become monocultures, people have had more luck of managing these. But in general, our biggest concern with these introduced bluestems and most introduced grasses, I guess, is that they tend to produce monocultures of just that one grass. And we know wildlife do best with a diversity of plant species. So, the diversity of plants are providing different functions throughout the season. Some of these introduced bluestems are a bunch grasses. So technically, they could be used for grazing. Sorry for nesting, but technically that's only in lower densities, which are very difficult to maintain on the soils where they do very well. And those usually are more clay soils. And, you know, having a grass monoculture is beneficial if they're good grazing grasses. And there you're you're only -or primary - goal is just to raise cattle; quite frankly, it's easier in some cases to manage a field of one grass and properly graze a native field. You really have to know what you're doing to manage it properly. But some of these introduced bluestems are better than others for forage grasses. And I think even our researchers who brought them over would admit, that there are some that livestock tend to avoid unless they're made to eat them. So if they're classified as a poor-to-fair grazing, then they tend to grow quickly. Therefore, they get "stemmy," and then cattle avoid them. So they seed-out and add their seeds to the soil. And while other plants that may be more beneficial, And they, you know, they play well with others, (they're staying in that native plant community) are grazed harder. And so these plants, unfortunately, have roots that are overused. And over time, your plant communities shift to this one grass that's been avoided; so, it becomes a monoculture. So it's kind of a lose, lose, from either a wildlife - or a livestock standpoint - when you lose those better grasses and then eventually your livestock are forced to eat this poor grass, which further spreads it. Not to mention, when we have these monocultures and they ebb and flow, we're often left with areas of bare ground, or soil loss, or root systems that aren't as deep as what our native grass species might be providing. So we lose that water infiltration and a lot of our topsoil that's so important we probably would never see replaced in our lifetime. So the effects of these introduced bluestems, I think are very far reaching and it's much more than just seeing a plant community shift on top of the soil.

**Dr. Sandra Rideout-Hanzak** [00:16:41] Yeah, so things so things change above ground, of course, but these guys are even impacting what's happening below ground, right?

**Dr. Megan Clayton** [00:16:52] Sure, yeah. I mean, the root systems are so important for allowing that water to infiltrate. And you know, a lot of these bluestems do have decent root systems when you compare them to something like a Bermuda grass. It's fairly shallow. But nonetheless, the microbial communities and everything underneath could certainly be impacted by having this monoculture of plants as opposed to the vast diversity that we tend to enjoy seeing on most of our wildlife lands.

**Dr. Sandra Rideout-Hanzak** [00:17:23] And, you touched on something that I...I just wanted to quickly ask you about. Of these of the bluestems, these introduce bluestems, they were all brought over here on purpose. Nobody was like an accidental hitchhiker, maybe somewhere.

**Dr. Megan Clayton** [00:17:40] You know, that can never be ruled out, and there's people who debate if a plant is non-native or if it was introduced, and truthfully, I think all of these plants were identified for one purpose or another, not that some of them could not have come over as hitchhikers. But they they have these characteristics that I believe people saw something in them that they thought could honestly be a savior for a lot of our lands that go through these tough droughts or tough conditions. And it just didn't work out like we were hoping. And I think the foresight to see how it would affect our native plant communities, just wasn't quite there or not fully understood at that time.

**Dr. Sandra Rideout-Hanzak** [00:18:25] Sure! Well, most of your research has been examining various ways to control these introduce bluestems, and other grasses. Can you tell us which methods have been proven to be the most successful in your research?

**Dr. Megan Clayton** [00:18:39] Oh, man. This is where things maybe get a little bit depressing. (Laughter) There's no single method that has been successful long-term. So there's so many factors to consider. You know, we can kill the introduced bluestem with plowing, or multiple discing, and then applying high rates of broadspectrum chemical. We know that it could be many, many follow ups needed, but we could make it happen. There's even soil active chemicals or pre-emergent chemicals that would sterilize the seed that's there. But if there's introduced bluestems in the roadsides or pastures, or continuously brought in by vehicles or equipment, then it's going to reestablish quickly without constant follow-up practices. That makes sense. Yeah. So it's like the best the best we have now is a total renovation, which is very time and money consumptive. So controlling these introduced bluestems may need to be even considered, killing them off and then planting a cover crop or an annual for a year or two in order to kind of farm out the seed, introduce Bluestem seed that still there and the topsoil, before reestablishing that with a nice native mix. So it could be a quite lengthy process that's going to be very intensive while defending those borders against neighboring pastures or roadsides that have introduced bluestems. But there is you know, there's evidence, like I kind of alluded to earlier, that on sandier soils, maybe repeated discing efforts could starve-off the introduce bluestems, and then give other plants the opportunity to establish. So, you're basically in those situations kind of making it play well with others. So technically, technically, if you could mow it often enough, like you could maybe in your yard so it doesn't go to seed, you could eventually work that seed out of the seed bed. But things like that just aren't very realistic when we're talking about a rangeland scenario.

**Dr. Sandra Rideout-Hanzak** [00:20:43] Right, over thousands of acres.

**Dr. Megan Clayton** [00:20:46] Yeah. So basically any single treatment that we've thrown at this plant has not been successful long term. OK, so it's going to take a lot of commitment in order to get something done.

**Dr. Sandra Rideout-Hanzak** [00:21:00] Hmm.

**Andrew Lowery** [00:21:01] On that note, you mentioned before, genetics. Has genetic modification through tools like CRISPR ever been considered for controlling introduced species?

**Dr. Megan Clayton** [00:21:11] No, actually, that's a fantastic question. In fact, landowners have brought that up before. "Like, can't you get in there into the genetics and really figure out what you can do to change this crap, so that it kind of kills itself out? It can't breed anymore, or something?" And, you know, I'm certain that there are some geneticists or some people much smarter than I am that could do that. But at this point, we're just sort of trying to figure out management strategies with the grass that we currently have. But, you know, that's that's not something to rule out. I think there's that's another field of study that would be important to look at. Great question!

**Dr. Sandra Rideout-Hanzak** [00:21:50] So, you're using the word 'control' a lot, which is a word that I'm careful to use with fire, too. You're not using the word I haven't heard you say eradicate or get rid of or anything. Are these guys here to stay?

**Dr. Megan Clayton** [00:22:06] Oh, I hate to be a negative-nancy here, but they're here to say.

**Dr. Sandra Rideout-Hanzak** [00:22:11] OK.

**Dr. Megan Clayton** [00:22:12] I think we have a few different options. You know, eradication is pretty much impossible because there are so many different lands. And, you know, Texas is, what...96% privately owned? You're never going to get everyone on board with getting rid of this crap because, quite frankly, there are some people who don't seem to mind it.

**Dr. Sandra Rideout-Hanzak** [00:22:33] They like it, right.

**Dr. Megan Clayton** [00:22:34] Yeah, it's working well for them. So who's to argue with that? But it's the goals of other people. So you're looking at a few different strategies. So you could most certainly think about creating some kind of diversity in your community. I think that would be something to strive for, and that's just knowing that eradication is not possible. But you could certainly manage this plant, and I call it control, because when we talk about a single plant species, if you're trying to kill that single plant, that's different than suppressing it. We do have some options out there that claim they can suppress the grass, but with something so aggressive as an introduced bluestem, I don't think that's going to be a big bang for your buck, you know, to try to just push it out of the way and hope the natives take control because the characteristics in those plants are just so much more aggressive. But you could do some things like spot spraying individual plants to try to control individuals, or doing multiple discings, especially you know sandier country, or broadcasting herbicide repeatedly. So maybe a couple of times throughout the growing season in the worst location. So you wouldn't want to do that over all of your land because then you're going to be forced into that total renovation mode. But if you could take out where it's getting the most. That way, you're maintaining some of the diversity of your native plants in play. There is another option that I really people have varying responses to, but I call it passive management. So basically it's doing nothing which can be better, a better way to go, if you're not really willing to put time and effort into it, that's necessary to keep it down. So single treatments have been shown over and over again to spread or encourage you to plant. That includes mowing, discing, burning, or even plowing over time. So if you just leave it alone, there's a better chance that you're not going to spread this grass and just focus on keeping a good coverage of natives in other areas. Or I recommend putting your money and time into areas that are not yet invaded or that have low populations of introduced bluestem, because prevention is much more logical at this point than trying to control a whole field of an introduced bluestem.

**Dr. Sandra Rideout-Hanzak** [00:24:48] That makes sense. So it's a really good point.

**Dr. Megan Clayton** [00:24:51] Not very cheery, though. (Laughter).

**Dr. Sandra Rideout-Hanzak** [00:24:53] No, I guess not, but I mean, it's not it's not total. It's not total doom and gloom. I mean, you know, there are there are ways to improve it. We just have to we just have to figure out how to work with it. Well, you know, it's here to stay. They are here to stay. We got to figure out how to work with them and how to manage them to meet our objectives.

**Dr. Megan Clayton** [00:25:14] Thats exactly right.

**Dr. Sandra Rideout-Hanzak** [00:25:14] Yeah. So you recently coauthored a book titled Bluestem Grass's in Texas. Tell us about that book and your coauthors, why you write it. What's it about?

**Dr. Megan Clayton** [00:25:28] Oh, I'm glad you brought that up. I'm smiling so big right now because that book was so much tears and blood, literally. (Laughter) So I wrote it because Bluestems are very confusing to me. And there are people that would talk about, "Bluestems are good," or, "bluestems, are bad." And there's so many different bluestems in Texas that we really can't use terminology like that. It's just not fair. So I sort of hated myself once I got into the middle of this book because they are so confusing and they do look so much alike.

**Dr. Sandra Rideout-Hanzak** [00:26:03] They Do.

**Dr. Megan Clayton** [00:26:04] But, I worked with my coauthors, who are the doctors, Suzanne Contreras Walsh was she was also Cesar Clayburgh, Wildlife Research Institute graduate Larry Redmon, who is a Forage Specialist at Texas A&M Extension, and Robert Shaw, who's retired now. But he was with Texas A&M. And, you know, we talked about how to lay this out, and we ended up with 27 bluestems that are known to occur in Texas. Only six of these are introduced. And I think that's a big misconception that most of our bluestems are are not really native to this area, but they are. They span four different genre, which is crazy, because we think of them as all in one family, but they're actually from four different genre... Even though they look very similar.

**Dr. Sandra Rideout-Hanzak** [00:26:51] Yes, that is crazy to me! So, I mean, there are a couple that you have to use a microscope to tell them apart and they're in different genre, like you say. So yeah, that's crazy!

**Dr. Megan Clayton** [00:27:02] You are exactly right! Yeah, the two that popped into my mind are completely different genre, but...

**Dr. Sandra Rideout-Hanzak** [00:27:06] Exactly!

**Dr. Megan Clayton** [00:27:06] But with the naked eye, they look identical.

**Dr. Sandra Rideout-Hanzak** [00:27:08] Right, right!

**Dr. Megan Clayton** [00:27:10] When we start talking about the introduced bluestem, there's actually 10 additional ecotypes, or varieties within those. So a lot of times people would say like, you know, oh I don't, I don't have Angleton, I have Gordo. Like Gordo's really an eco type of Angleton's. So to me it was just important to kind of classify everything and lay it out so that we could understand this group of grasses a little bit better. And I think that would help from not only an education standpoint, but on making management decisions. Like, gosh...Like how do you know what to keep or what to get rid of if you don't even know their value?

**Dr. Sandra Rideout-Hanzak** [00:27:45] Exactly.

**Dr. Megan Clayton** [00:27:47] I'm also am not a big fan of technical language in plant I.D. books. When you're standing in a field, I like plain language. I want to talk in inches, because that's what I know.

**Dr. Sandra Rideout-Hanzak** [00:27:59] I think I need this book. I think I need this book in the field.

**Dr. Megan Clayton** [00:28:04] Oh my gosh! It's just to me...I wanted to simplify things, and make it doable for people to grasp it. And so we even put like a measuring tool on the back cover. We included the uses of these plants, and any management options that are known, and then kind of like their look-alikes. Because, so many plants that look almost exactly alike. It's like, OK, what page should I go to to see if that's it; instead of this one. We had the range maps for each species are actually able to take mostly what was already done in the Grasses of Texas book that Dr. Shaw did, and then we made a list of occurrences of Bluestems by county. So of course, it's not perfect because it's only what's been reported in counties, but it's somewhere to start when you're like, I know this is a bluestem, but which one could it be? And then, you know, the last thing I like that we did is at the back of the book, I put a picture of every seed head, it looks like. So if you've got a seed head that looks similar, you know, OK, these five grasses all have a seed head that looks just like this. So let's just check those out, see which ones occur near me, kind of start narrowing down the list and then decide which one it can be.

**Dr. Sandra Rideout-Hanzak** [00:29:18] That sounds great. OK, I'm ordering this book today.

**Andrew Lowery** [00:29:24] You would say, who could benefit from this book? But I can answer that. It's me. I can benefit from this book!

**Andrew Lowery** [00:29:34] Well, where can we find this book? Where could we pick it up?

**Dr. Megan Clayton** [00:29:37] Oh, I'm so glad to hear you say that, because it really was a labor of love, because I felt like that was such a confusing thing. But definitely we sell the book. You can buy it from our Extension bookstore online, or you could shoot me an email and I'll give you a link to a marketplace where we sell it directly from our Corpus Christi research center, and then that will save you a little bit of money on the shipping dollars. And my emails, just megan.clayton@ag.tamu.edu.

**Dr. Sandra Rideout-Hanzak** [00:30:08] OK, and Clayton is C-L-A-Y-T-O-N, right?

**Dr. Megan Clayton** [00:30:13] Yes. Thank you. I have a terrible accent. So smart to spell that out. (Laughter).

**Andrew Lowery** [00:30:17] I think we're all southerners.

**Dr. Sandra Rideout-Hanzak** [00:30:18] Yeah. Yeah.

**Andrew Lowery** [00:30:20] On to a slightly different subject. Do you have a favorite plant to study? And what if you do, why is that your favorite plant to study?

**Dr. Megan Clayton** [00:30:33] Oh man. You know, have a bad list, more than I have a good list, because I work so much in the role of getting rid of noxious and invasive species. But it's kind of funny because as an undergrad, I wasn't too interested in plants, truthfully. I studied wildlife because I was trying to avoid working with plants or people, which I didn't really work out for me because I'm an extension service and I work with plants. But one that interests me a lot kind of came from my graduate days. We did a project where I havested wild turkey crops during the winter during a mast failure, and we were looking at their contents and what those turkeys for utilizing. And one of the major forbes species that kept coming up was Queen's Delight. Queen's Delight is actually a really pretty little forbe species and it's got its seeds all kind of all clumped together. And so those turkeys will just strip it off. But in my range position, I've come to learn what we call Queen's Delight, is actually three different species. And they technically should all not be called Queen's Delight, but that's one of the problems with our our common names, which I most definitely prefer. But that is an example of our most difficult things when we start using these common names to refer to them. But they're all genus, Stillingia, and one of these, Stillingia treculeana, I always mess up that name, but it's basically trecul queen's delight, it's been identified as being potentially toxic to livestock, particularly sheep. Although truthfully, there's not much of a record of it really causing a lot of problems. But this species has much wider leaves and very sharply lobed leaves. It looks very different than our other two queen's delight species. And those are not the ones that I collected, by the way, that the turkeys for readily eating. But, you know, when landowners often find out they have queen's delight, their first reaction is to try to control it, because it is a potential toxicity problem. But the only time we would see that as an issue, right, is if you were putting your livestock in a situation where they had nothing else to eat and they were forced to eat this relatively unpalatable plant. So through my studies of sketching-out that queen's delight is actually three species. I had no idea , it's been kind of a good way for me to educate landowners that, "Why would you kill that man? Do you like wild turkey?".

[00:32:56] Exactly!

**Dr. Megan Clayton** [00:32:56] "Yeah! I love seeing them!" Like then, don't kill that plant because the chance of it being toxic to your livestock is so much lower than the high use that it will get off of our wildlife species. So I guess I would say queen's delight is kind of one that's near and dear to my heart.

**Dr. Sandra Rideout-Hanzak** [00:33:14] So can you spell that genus for us?

**Dr. Megan Clayton** [00:33:17] Sure! Stillingia is, S-T-I-L-L-I-N-G-I-A. And no promises on if I said it right. (Laughter) My southern accent comes out.

**Dr. Sandra Rideout-Hanzak** [00:33:31] That's cool. That's one reason why I wanted you to spell it so that we could for those of us who are interested in looking this up now, because that's where I'm kind of embarrassed. But that's kind of that's a new plant to me. So.

**Dr. Megan Clayton** [00:33:43] Well, in Texas stillingia, and queen's delight, the actual queen's delight, which is species, sylvatica, those two have long linear leafs and they're kind of cool. They're kind of like serrated on the edge, like they have a little demple, and the other one has a fat leaf; so you can definitely tell the one that suspected of toxicity apart, even though, you know, I would use that very loosely because they don't seem to be a huge concern. But, yeah, it's kind of a neat little species in highly desirable livestock. I mean, for a while I wildlife.

**Dr. Sandra Rideout-Hanzak** [00:34:16] Cool.

**Andrew Lowery** [00:34:17] So with working outdoors, as I'm sure all of us can attest to, things do not always go as planned. We have a little micro section we like to call "Biology Bunders." So we were wondering, do you have a blunder you might be willing to share with us today?

**Dr. Megan Clayton** [00:34:37] (Laughter) Yeah, OK, Andrew. There are so many stories because I've had so many blunders, but I'm going to be OK. I'm going to go with one. When I was in graduate school and I was out harvesting the wild turkeys, actually that led to where I was collecting the crops where we found the queen's delight. So we're going out, we're going to harvest wild turkeys so that I can look at what they're eating over winter. Right. Because normally they eat a lot of mast spieces. But the live oak acorns, which are one of the main mast producers in that area, that was kind of a mast failure that year. So what else were they eating that made them thrive so well in this area? Well, I go out with my adviser, who is Dr. Dave Hewitt, and I think I told him the story, or at least I hope I did. He doesn't hear it on here for the first time. (Laughter) But this is pretty embarrassing. So he harvested a turkey out of a flock. He said, just go, go, go!!! If you can get more. So I followed this flock, and I swear they would like see me and duck down and they must have been like crouched walking or something. And they were like pop up in another area, like a really bad video game. And so I was following them into the brush, this really thick brush. And all of a sudden I realized that I didn't have a clue where I was, and which way the truck was. And I was supposed to hurrying. So I'm like, OK, I'm going to walk in one direction and just see if I recognize anything. Well, I run into this old fence, all right, that just stops. I'm like, I don't remember a fence we were driving on the road. I don't I don't remember any of this. So I was like, OK, just think through this. I have my shotgun, right, but I only had two shells in it. I'm thinking very systematically, like, how am I going to survive if I have to stay out here all night? I look down and there is this giant indigo snake that is not too pleased, but I'm right there in front of it. But I didn't see it because concentrating on this, the fence line kind of backed up like my heart's racing, because it scared me, it came out of nowhere. I backed up and a coral snake crossed right over the path where I was. And so I was like, oh, OK. That's probably why he's not happy. That was maybe going to be his meal... So I was like, oh, my gosh, I'm an idiot. And I ruined your day and my day. So I, I kind of walked over to the tree where I'm sad to admit I'm in grad school. I'm like, I'm going to have to spend the night out here. I'm going to sleep in a tree. Mind you, all of this happened in like maybe five minutes. And then I realized all of a sudden that this nilgai bull, run from the other side of the tr, and had been standing there the whole time. So at that point, I was like, that's it, I'm going to die in the brush...this is how I go. And then I heard the horn honking on the truck for my adviser had to honk to help lead me back to where I should go. So it probably all happened in five minutes. But to me, like, I really thought I was going to die. So I just did what we needed to do for the turkey collection. And I got the truck. And I think I only said something like, wow, I really got lost back there in my head. I was like, I will never see my friends and family again. (Laughter) So that was one of those moments in the brush that I hope never repeats again.

**Dr. Sandra Rideout-Hanzak** [00:38:04] That's funny. I'll tell you one thing that's funny about that is, yeah, I have a I have a biology blunder that's very similar to that. When I actually thought that I was going to spend a night in the forest, I was in a state park and completely lost when it got dark, just completely lost. So, yeah, I went through the whole this is going to be so embarrassing. They're going to send the Rangers to find me and I'm going to be so embarrassed and I'm going to spend a night out here and supposed to get below freezing and. Yeah.

**Dr. Megan Clayton** [00:38:34] All right. So. And how did that end? Now I have to know how that ended.

**Dr. Sandra Rideout-Hanzak** [00:38:37] And you know what? That's that ended. It's kind of a cool story because I wasn't alone. I was with my field technician who was in very good humor about the whole thing. And I also felt really bad about him because he only had short sleeves on. I at least had long sleeves on. And I was like, oh, my gosh, this guy is going to hate me. This guy is going to kill me. This guy's no good. I want to talk to me again because we're going to have to spend the night out here. And we just started walking and talking and walking and talking for what seemed like hours. We eventually hit a road. And there was a third person with us and that person pulled up in the truck right as we hit the road. And the guy I was with whistled. And so the truck turned around to pick us up. But that guy that I was with, he's my husband now. So that's how that turned out. (Awe! Laughter) Yeah, that's how that turned out.

**Dr. Megan Clayton** [00:39:43] Awe! That went really well.

**Dr. Sandra Rideout-Hanzak** [00:39:44] Yes, it worked out well. We were forced to just walk and talk and walk and talk. And he told me I was impressed. You were keeping up with me step for step. And I was like, oh, I just thought you were going to hate me after that.

**Dr. Megan Clayton** [00:39:56] So you're like, I was scared and cold.

**Dr. Sandra Rideout-Hanzak** [00:39:58] Yes. Yes. And very embarrassed because I did have a crush on him, so. Yeah.

**Dr. Megan Clayton** [00:40:03] Oh, yes. And you understand, I was thinking, like, how am I going to explain? I never find it back. Why I just ditched him in the middle of this ranch. Well, all is well, I did eventually get a real job. So good. That's great. And you got married? (Laughter).

**Dr. Sandra Rideout-Hanzak** [00:40:20] Yes, I did. I got a husband out of my biology blunder. There is these things can turn out OK. So. Well, Megan, thank you so much for spending time with us today. I really enjoyed learning more about the bluestems, and your new book, and and more about you, too.

**Dr. Megan Clayton** [00:40:44] Great. Well, thank you for having me. I really did enjoy it. And I think these podcasts are so important and I'm so glad you're doing it.

**Dr. Sandra Rideout-Hanzak** [00:40:51] Good. Yeah, I hope everybody likes them.

**Dr. Megan Clayton** [00:40:56] All right, nice to meet you, Andrew.

**Andrew Lowery** [00:40:58] Thank you so much. It's been so much fun.

**Dr. Sandra Rideout-Hanzak** [00:41:00] Thanks so much, Megan. We'll talk to you later.

**Dr. Megan Clayton** [00:41:03] OK, bye bye.

**Dr. Sandra Rideout-Hanzak** [00:41:04] Bye bye.

**Andrew Lowery** [00:41:12] Wow. Well, that was pretty interesting and it's encouraging to know that some people are working really hard to figure out control methods for these introduced blue systems.

**Dr. Sandra Rideout-Hanzak** [00:41:20] Yeah, it is. I'm also encouraged to know that I'm not the only one who's gotten lost in the field. So but in my defense, it was dark when I got lost. (Laughter) So anyway, we'll wrap it up now and we'll talk to you all again in two weeks. I want to encourage all of our listeners to subscribe to our podcast and please tell all your friends about it. Also, you can email us directly at wildpodcast@tamuk.edu. That's wildpodcast, one word, @tamuk.edu. And you can suggest topics for us or just tell us, you know, just just talk to us. Anyway, thanks so much for listening.

**Andrew Lowery** [00:42:03] Yeah. Thank you guys so much for listening. And as always, remember, don't feed the wildlife.

**Dr. Sandra Rideout-Hanzak** [00:42:09] Talk on the Wild Side is a production of the Caesar Kleberg Wildlife Research Institute of Texas A&M University-Kingsville. Funding for this project is provided by the Harvey Weil Sportsman Conservationist Award. By the Rotary Club of Corpus Christi. Editing was completed by the talented Gabby Olivas, Andrew Lowery and Tre' Kendall. We thank the TAMUK Distance Learning Lab for all their help and cooperation.