

Tree and Landscape Advisory Committee Meeting

Thursday, June 15, 2023

10:00 a.m.

305 SW A Street, Bentonville, AR

Zoom Meeting – the public and non-committee members may contact chyatt@bentonvillear.com to request participation via Zoom.

Zoom Link:

<https://us06web.zoom.us/j/82341556426?pwd=clgwVWsxTWNMWWs3bVZkeDR4ekZTd09>

Mission Statement: The City of Bentonville Tree & Landscape Advisory Committee serves as an advisory committee to the City Council and to City Staff working to maintain, improve, renew and protect the urban forest in public rights-of-way, as well as to share information with the public, enhance appreciation of trees, promote proper tree care, and encourage participation in the development of Bentonville's urban forest.

Tagline: Grow with trees.

Members

Gulizar Baggsen, 12/31/23
Nathan Lembke, 12/31/23
Jessie Wagner, Chair, 12/31/23
Ralph Weber, 12/31/24
Mark Lankford 12/31/25
Mark Bray, 12/31/24
Ashley Harris 12/31/25

Ex-Officio City Council

Holly Hook, 12/31/27

Staff

Geoff Braga, Urban Forester
Emily Krol, Horticulturalist
Christopher Hyatt, Planner

AGENDA

OPEN MEETING - Meeting is being recorded.

1. *Meeting Summary Approval – May 18, 2023

OLD BUSINESS

1. Landscape Awards
2. Pedaling for Pollinators

NEW BUSINESS

1. Fall Tree/Shrub List
2. 150th Anniversary Trees
3. June Landscape of the Month Nominations

ADJOURN MEETING

* Attachment

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AGENDA

OPEN MEETING - Meeting is being recorded.

1. ***Meeting Summary Approval –April 20, 2023**

OLD BUSINESS

1. **Spring Tree Giveaway Recap**

NEW BUSINESS

1. **Landscape Awards**
2. **Tree and Landscape Manual Update**
3. **Guest Speaker: Laurie Scott**
4. **Pedaling for Pollinators**

ADJOURN MEETING

** Attachment*

Christopher Hyatt

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08:14

Morning, everyone.

Ralph Weber

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08:16

Morning.

Christopher Hyatt

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08:17

Sorry, I was having some connectivity issues. Had to dial in, so might be a bit of a delay talking.

Ralph Weber

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08:32

Okay, so I'm sitting in a car here. I'm kind of on the road.

Christopher Hyatt

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09:00

I know Jesse said she wasn't going to be able to make it today. Yeah, holly had to leave early. So with that, it looks like we have just about everyone else. I know Ashley is connecting. I think we're waiting on Mark. I guess first thing on the agenda. Got our meeting minutes from the last meeting. Does anyone have anything that they needed amended or anything?

Nathan Lembke

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10:08

No, I don't see anything.

Christopher Hyatt

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10:11

Okay.

Christopher Hyatt

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10:14

Are we good to approve with a motion and a second?

Nathan Lembke

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10:20

Motion approved.

Ralph Weber

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10:23

Second.

Christopher Hyatt

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10:25

All right, next up on our agenda, just a quick recap on the tree giveaway. I think it went really well. The location seemed to be set up well for the event to kind of roll through pretty smoothly. I think the only real issues were the very beginning before we got the gate open and just kind of the backup there. And then once we had the free for all after 10:00, so things we'll try and adjust for the fall giveaway. I did talk with the crew at the Compost Facility, and they seemed happy with how the event went, so they were good with us hosting the next giveaway there. But when we left, I think there was only one dead tree left, so everyone was happy. That worked out pretty well. If you guys have anything, any ideas, feel free to let us know now or shoot me an email and we can kind of begin to work on the plan for the fall giveaway.

Ralph Weber

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11:41

The only thing I could suggest, Christopher, is we have a police presence there right at 08:00 when we open up.

Christopher Hyatt

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11:51

Yes.

Ralph Weber

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11:54

Not a drive by, which you did this time, but maybe yeah, I think.

Christopher Hyatt

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11:59

There was a little confusion when we reached out. We were planning on them being there. So, yeah, we'll line that out next time to try and get an officer there a little bit longer and not just driving by.

Ralph Weber

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12:14

There was just two times when we needed him. At the very beginning, at the very end.

Christopher Hyatt

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12:26

Anybody have anything else for it?

Nathan Lembke

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12:29

No, I thought it went well, especially for our first run through there. I'm sure we'll get better next year, but in the fall. But, yeah, it went well. The only issue I ever really kind of saw was a little bit of bottleneck as we tried to find some people's names on the list. So we worked through those pretty quickly.

Christopher Hyatt

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12:49

Yeah.

Shelli

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12:52

Hi, Christopher.

Holly Hook, Bentonville City Council

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12:54

Yeah, I just want to make sure you can hear me. Two things. I loved the smaller trees. I felt like that was definitely more easily to load the trees. And also, I like keeping people in their cars at the end, like, where they had to drive through to pick up the extra trees. We've done it both ways, and I felt like this one was smoother and actually felt a little more fair.

Christopher Hyatt

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13:28

Yeah, I think it definitely keeping them in the cars. I thought we had a good flow going, just kind of funneling through. I mean, were able to work three or four cars ahead as they were kind of loading, so that worked out really well.

Ralph Weber

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13:42

I like shrubs. I like to see shrubs there too.

Christopher Hyatt

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13:46

Okay.

Christopher Hyatt

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13:47

We do have a meeting, I believe it's next week, and we'll start going over kind of what we're hopefully going to target for the fall giveaway, so we'll have a better idea pretty soon on what we can get ordered.

Nathan Lembke

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14:02

I talked to Megan Love on Saturday. They had an event over there at Compton. I went to and talked to her briefly, and she said that she's going to help with the tree selection. I understand someone and give us some recommendations with more of a focus on natives, which makes sense.

Christopher Hyatt

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14:24

We'll talk with her next week, and she sounded like she already had a good idea of what we did need, so it'll be interesting to see what she has for us next week and should be able to share that pretty soon.

Nathan Lembke

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14:36

Okay, great.

Christopher Hyatt

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14:40

All right.

Ralph Weber

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14:40

And she's going to Forest Keeling, isn't she, for those trees?

Christopher Hyatt

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14:46

She hasn't officially told me, so I'll be sure to ask next week and see. I think she was looking for a change, but we'll find out, and I'll let you all know. Next up, set time of year for the start with Landscape Awards. So we did get a few nominations. We're able to go grab some photos, kind of throw them into a Word document. We have two residential ones.

There's a few photos for it, and then 905 Southeast Fifth. I think we only got one photo for that. And then seven Gorman Gate. And then we got a couple of commercial with Bentonville Brewing Co. I was able to grab a couple of photos and Skylight Cinema. So I was gonna after the meeting, I'll send this out to you. If you all could just give me your vote for each. We'll do a residential and commercial, and then I'll kind of compile everything and announce the winner. So if you guys could get that to me the end of the day tomorrow, then I can start kind of putting that together, and we'll announce the awards.

Ralph Weber

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16:15

Could you send those addresses to us?

Christopher Hyatt

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16:18

Yes, I'll send the Word document with the pictures and the addresses for it.

Ralph Weber

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16:24

Didn't the Fifth Street property win at the very end of last year?

Christopher Hyatt

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16:34

I'll double check with Bailey. I'm not sure if it did or not.

Ralph Weber

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16:42

And then the Bentonville Brewing is right next to Climb Bentonville, isn't it?

Christopher Hyatt

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16:50

Correct.

Ralph Weber

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16:54

I think Climb Bentonville may have won it once, too.

Christopher Hyatt

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17:00

Okay, yeah, I'll confirm with Bailey just to make sure and adjust the list if we need to before I send it out.

Nathan Lembke

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17:07

I don't know if there's any issue if they win multiple years, we probably wouldn't want to award somebody back to back, but I don't think there's any real issue, somebody winning multiple years.

Christopher Hyatt

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17:27

Yeah, I'll double check and make sure. And then if it did win the last award we gave out, we can push it out, keep the nomination active, and then later in the year, if it still is good.

Nathan Lembke

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17:45

And I'd encourage everybody on the call because we don't always get a lot of nominations from the general public, so to speak. But as you drive around or in different parts of Bentonville and see something, encourage us all to nominate both commercial and residential opportunities.

Christopher Hyatt

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18:05

Yeah, absolutely. All right, next up on the agenda, we have a tree and landscape manual update from Shelli.

Shelli

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18:18

Good morning, everybody.

Nathan Lembke

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18:20

Good morning.

Shelli

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18:25

Yeah, I need to can you all see my screen? The tree preservation?

Christopher Hyatt

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18:33

Yes.

Shelli

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18:35

Great. Okay, so this presentation is actually more than just the manual we've been talking about putting together, more of like a package because there's so many different things that need to be addressed. So what I'm going to be presenting to you today is a high level overview of sort of the tree preservation package that we'd like to propose. Some of it includes the manual, some of it includes some changes to our regulations and our codes. So what I'll do is I'm going to kind of run through this, and then I'm going to send this presentation along with kind of a summary and then all of the kind of proposed language that we're talking about. As well as the manual to Christopher for him to provide to you all so that you can take a look at it and provide us some feedback. Our timing on this right now, we'll probably start trying to move some of these items through probably midsummer on this. So the first. Okay, great. We're talking about kind of nine different items here. The first is that tree preservation protection manual. The second one is to address street tree plantings. We've had some issues with them kind of growing out of their grates that we've got for them. So we need to kind of better define what's going to work for planning in streets or along the streets and then addressing the tree maintenance guarantee, looking at a tree inspection program. Number five is a tree removal mitigation program. Six is to look at our incentives and credits that we currently have for tree preservation. Seven is to establish some tree funds. Eight is working on the city complying with these codes with their infrastructure projects. And the last one is really zoning related to cluster development.

So the first one we want to tackle is really getting that tree preservation and protection manual adopted. We do have a draft ready, and I'll send that out, but what we want to do is make sure that the regulations, first of all, require that we have one. So that makes sure that we're continuing to keep it updated, getting the manual adopted, and then requiring that manual be followed. So it requires a

couple of adjustments to our codes in addition to adopting the manual itself. And all these links on here, those are the documents that I will send you. It's going to be a lot, but we're not necessarily in a rush, but that way you'll have it to kind of review. The next one is regards to tree maintenance guarantees. Right now, we have just some general information about the landscaping needs to be maintained. We are looking at some other municipal regulations about how to require more of an agreement and a monetary guarantee that those are maintained. Right now, most of the other cities that we're looking at require this for street trees. So those that are within our bridge of way. And you'll see I've highlighted and private trees because I think that's a bigger discussion that we want to talk about. So we're kind of leaving it in there and seeing where that might go with those discussions. The next one is really more of an internal kind of procedural that we really need to set up a process for inspecting trees. One, when they're planted during construction, we need to schedule some annual inspections. And then the other thing is really having the staff to be able to do that. Right now, either we need to include it in part of somebody's job description or we need to look at additional positions in order to really give this the attention that it needs.

Nathan Lembke

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22:43

Shelli today, if somebody has a concern about a development going in and let's say whether or not they're following the plan for landscaping that they submitted.

Shelli

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22:58

No, not this committee. If it's in the middle of development, the best approach for them is to reach out to the development services team, the planners, any of the senior planners would be able to go out there and kind of follow up. Because they're going to be more familiar. With what was approved through a large scale development. And double check it against the plans that were approved. So, yeah, during development and that's kind of the discussion is we do some of that during construction and development, but what kind of happens after the fact is what we're trying to focus. On a little bit.

Ralph Weber

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23:31

Shelli or would the inspectors look just at where a tree is placed or would they also look at the variety of trees?

Shelli

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23:47

I think that's one of the things that we're talking about is, like you said, there's a difference in saying yes, here's the tree. It's here. We need somebody that is knowledgeable about trees to do these inspections, to know if the right tree was planted that was on the plan, and also that the tree is in good condition to even start with. So that's where this is something that needs a little bit more kind of time and effort put into it to determine how we want to do these inspections. Are we looking at hiring

somebody that has that background? Do we have anybody on staff that can do that? It's a bigger discussion, but it's kind of part of the overall package to make sure that all these other regulations we're putting in place are actually that we have some way of enforcing them. and making sure that they're continuing.

Ralph Weber

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24:35

Yeah, because I think in the past we've noticed that the plans call for a native trees, but that's not what gets planted in the end.

Shelli

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24:46

Yeah, that's part of the discussion that we're talking about internally.

The next one is when we're talking about like a tree maintenance guarantee, some of those type of things that we would need to establish some type of tree replacement fund that requires the city to establish kind of a fund for tree replacements, particularly those in the right of way. But also if we start going into kind of mitigation for larger trees that are removed, do we require there to be a fee in lieu? And if we do, where do those funds go and how are those funds to be expended? So that's another thing that we need to look at as part of the overall package. Talked about this. We need specifications on tree grades. One of the things that I mentioned before is that as they grow, the roots are coming up and they're kind of busting out of those grades.

There's some new options available for either removable rings or I think there's some that are more expand. They can expand. So we just need to be able to provide that within the tree manual. And then the other piece to that is that within our code require that those trees that are planted within those tree grades meet the specifications within the tree manual. So we have to kind of get what we want done and then we need to make that a requirement of the development code. Oh, the next one is for incentives. And this is an area where we felt like we really needed to emphasize a little bit is to get how do we get the development community to want to preserve more trees on their site? So we are looking at kind of revising what we have currently for a schedule for the tree credits. They're pretty small. We're not requiring much. So we're talking about kind of beefing. that up a little bit.

We're also discussing some type of option for parking spaces. So if they're preserving that, we may be able to do a small reduction on their parking spaces. And then if they could reduce the required open space required that's particularly with the planned unit developments, planned residential developments, reduce that a little bit if they are preserving significant trees or very mature trees.

All of these we've got kind of draft language ready for that and that's what we'll send out and get your feedback on as well. This one, I think, is one that we need to think about a little bit more when it comes to enforcement. And this is requiring a replacement ratio when significant trees are removed from development sites because what happens a lot of times is that they're kind of removed before they ever get to us, so we wouldn't even know that they were there. So there's a little bit of an enforcement issue with that, but it's something that we're doing a little bit more research on and we'll send that to you and get some feedback on that as well and then we just want to make sure that within our

regulations that we're making sure that like street projects, water, sewer, all of those projects are really meeting the intent of the tree preservation and protection regulations. So that if we are having to remove that, we're planting a comparable tree in its place as part of our capital projects.

Nathan Lembke

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28:44

How does that relate to the electric company pulling something out or is that the same?

Shelli

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28:52

It would be the same and that's what we're hoping to like. Each of these items as part of this package are going to require almost like a separate little meeting and discussion. But this is something that we need to talk about with some of the other departments to see how we want to address this because I know trees are going to have to be removed for a lot of utilities and things like that. So how do we want to handle that? Do we want to put that into the tree fund so that we can plant trees elsewhere or what's their other location for planting trees, which becomes a bit of a challenge too.

Little bit bigger discussion, but that is the intent. Finally, the last one is one that our director Tyler Overstreet is working on, is to look more at our zoning districts. One option is for cluster development and basically that's allowing little smaller lot sizes, smaller setbacks in development. If they are going to be preserving significant trees or large clusters of trees.

Christopher Hyatt

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30:05

Or something like that. That's why it's called the cluster development.

Shelli

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30:08

So we are actually working on that as well. And I think he may be wrapping up a draft of that. So if we've got that, I'll send that to you as well so you so we can see how that happens. So we're really trying to address a number of different items because we can't just do one thing, like adopt the manual and then just let it sit out there. So we're trying to be a little bit more proactive on some of these things, but because it is a big package of changes, it's probably going to take us a little bit of time to get through it. But we're going to start with that tree manual first and trying to get that adopted and getting those into the regulations and then just kind of work through these.

Ralph Weber

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30:49

Shelli, what is Metro plan?

Shelli

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30:54

It's an organization out of Little Rock that has a model development ordinance in regards to cluster development. And so it was just using that kind of as a standard to start.

Christopher Hyatt

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31:06

From in development of this particular regulations for cluster development.

Ralph Weber

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31:11

So it's like what, a consulting company?

Shelli

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31:15

Yes. Metro planning landscape. It's the Regional Planning Commission down in the Little Rock area.

Ralph Weber

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31:22

All right. There are probably a couple of those out there.

Shelli

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31:34

Yeah. I don't think that this was just kind of as an example. I think what we do a lot of times is we look at a lot of different models and then we try to pull from those what we feel like fits best for Bentonville's development community. That is all I have. there.

Are any other questions on that? We'll get that information out to you for a little light reading over the summer, but that just gives you kind of an overview of what we've been working on. Are there any questions?

Ashley Harris

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32:17

I just have a question. The policy right now, just to clarify, is it just a one for one? Like no matter the size, if you take down a tree, you have to commit to planning a tree.

Shelli

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32:29

Right now we do not have a replacement ratio basically because we don't have anything in our codes. Are you talking about like for private development? Yeah.

Ashley Harris

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32:45

Either.

Shelli

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32:46

Yeah, private development. We try to do what we can on the city projects. But as far as private development, unless we know that there was a significant tree there, which a lot of times we won't, because they may go ahead and kind of clear off the site before they ever bring plans into us, so we wouldn't know that they were even there in the first place so it becomes a little bit of an enforcement issue. So we don't currently require that.

Ashley Harris

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33:15

Got it. Okay, so there isn't anything. So this would be really new.

Shelli

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33:19

Yeah, some of these things would be a pretty big shift in the way we've been doing things.

Ashley Harris

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33:31

Are we doing it because have other cities adopted it and it's been really successful, like in saving older trees?

Shelli

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33:39

Yes, we do. There are a lot of cities out there that have much kind of really robust tree preservation policies and regulations. They also have staff to enforce that and that's one of the biggest challenges with if this is a direction that we want to go. We have to be thinking about the staffing needs for that,

because if we adopt it, we've got to have people that can help enforce it and monitor it. And that's kind of one of the biggest issues that we face when it comes to adding new regulations like this.

Ashley Harris

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34:14

Got it.

Shelli

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34:15

And again, I just want to remind everybody, these are all proposed. So when we get to a point of bringing some of these items to planning commission or city council, it would be great if we had feedback from members of the tree and landscape committee. If you do support it, to kind of lend your support for some of these things, it just gives it a little bit more weight when we're bringing them through.

Nathan Lembke

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34:40

And timing of that piece, the manual of presenting it to the planning commission.

Shelli

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34:49

So I think, like I said, we'll have to take it kind of piece by piece. We'll start with the tree and Landscape manual. I think we're pretty close on that. So I would say by this summer we'll be able to get that in front of planning commission and city council. And then depending on how that goes, we'll just kind of work on each item and just kind of try to knock it out step by step if.

Nathan Lembke

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35:10

You can kind of keep us aware of where those processes so we can make sure to definitely endorsement or whatever.

Shelli

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35:19

Yeah, especially like, the code changes. We have to have public hearings on. Those at Planning commission anyway. And so when we do get those on the agenda, we'll make sure to let you all know that they're on there.

Christopher Hyatt

35:33

Yeah, I'll be sure to send all that out as we get closer. All right, well, next up we have another guest speaker, Laurie Scott from NWACC, so she's going to share some more information on native plantings and some stuff they have planned.

Laurie Scott

36:01

Good morning. Let me do a quick screen share here's. All right, you guys see native plants on an urban landscape? Okay, there we go.

All right, so I noticed that you guys had spoken with Eric Fuselier recently. So I hope that I'm not just repeating a lot of what he said, but I'm going to move sort of quickly so that if I am, it's not just boring for everyone. I am a lab supervisor and land manager here at Northwest Arkansas Community College. Here on our campus, we have an eight acre natural area that is comprised of a post oak savannah and a wetland pond marsh ecosystem and that forms part of the drainage and retention for the north end of campus and some of those parking lots and does a pretty good job of stormwater remediation. So that's why we are talking about native plants on an urban landscape.

Native plants do work for us. They have a lot larger root system. So we're talking when I say larger, I mean, somewhere from between four to six inches to two to 15ft, which, of course, helps build soil structure. It absorbs rainwater and other surface runoff. Rain gardens are built on these principles, and there's a plethora of rain gardens around the Rogers Bentonville metro area. These are some pictures of native plants that we have here on our campus doing work. The middle picture is our bioswale, which moves the water from our parking lots out into the marsh wetlands, and we do regular water quality checks. So on the young lady in the kayak is Trish Ritas, and she actually wrote and implemented a water quality program so that we can keep a good eye on our water quality in our pond.

It's also a really good learning opportunity for students to learn water sampling right here without having to drive. And then, of course, you get lovely plants like the poppy mallow, where people know it as swamp mallow. That plant actually has a generalist pollinator, so lots of different pollinators will visit those mallows, but it also has a specialist pollinator by the name of Bombaformis Philatrix. And so those are some of our native bees that we need to be watching out for. We're actually conducting the Arkansas State based Beeline survey over this summer. We have about 35 monitors spread across northwest Arkansas that goes all the way over toward Franklin County and south down to the River Valley.

So we are trying to figure out what bees we have that are other than APIs or APIs melissa, the European honeybee and the bumblebees, those are really big, obvious bees. But there's between 456 hundred other species of native bees that fall somewhere between 1, maybe ten. They're super teeny tiny. And we're finding bees that we didn't know were here. Lots of people thought they were but weren't sure, and we are confirming that. So the point of that is we can't conserve or preserve what we don't know we have. So that's my beef feel back to plants that do work. Grasses, sedges and rushes are significant besides just the flowering plants and wetland shrubs and vines that we normally think of.

Although Noah is showy as the swamp virus, which is the large pink flower on the left, these plants and grasses play a significant role in the landscape as well. So big blue stem in the middle in flower holds a significant amount of pollen, which is used by bees, but it can also be used as a late season grass for livestock forage so native plants can span a wide range of uses. And then on the far right there, grasses in the Panicum genus are wild growing bunch grasses that add visual texture while providing blooms across the season. So that Panicum genus of grasses is pretty big, and it's able to bloom, have egg species blooming from early spring all the way through to that hard frost. Other grasses that we talk about that add visual texture, often referred to as switch grasses. Indian grass.

Indian grass is a big one that we have here on our campus. Why should we use native plants to build habitat on urban landscapes? And this is where we really get into some of the really interesting nitty gritty pieces on bees. So this is from a separate presentation that is specifically about bees. But the reason I go ahead and use it, even though this isn't what I call the bee show specifically, is because this is phenomenal data on urban landscapes and how that fits into the overall pollinator picture. So in a municipality or larger cities, we typically have lower plant diversity than, say, what we would have at Searles Prairie, where it's a virgin prairie and it's never been developed at all, but it has varying types of disturbance. So what you're actually looking at is a rooftop garden.

I believe that picture is taken from Chicago. And if you notice all along the fence where they have those composting bags that's exposed soil for that soil nesting bees may well take up residence in or place brood cells in. We have exposed timber for carpenter bees. We have areas where you can see more bear soil within those flower beds and then, of course, just the blooms themselves as a food source. So there are a variety of blooming trees and vines, shrubs to benefit humans and that natural world. This is a type of Washington hawthorne, *crutigeri* phenopyrum. There are many native trees that provide spring blooms for beautification while also providing habitat and are low maintenance. So this is a Washington hawthorne. We have a green hawthorne here on campus.

These genetics, along with some genetics from some of the hawthorns that were taken, rescued sort of from Bentonville, and housed here at NWACC for the interim. Those actually made it all the way that germ plasma made it all the way to Harvard University with Bentonville coordinates on it. I have a copies of the extension if the city is interested in that. But Ozark ecotype preservation is very important because we have plants here in the Ozarks that don't occur anywhere else in the United States or even anywhere else in Arkansas. Beyond that. Our plants and our genetics here in the Ozarks are adapted to our really hot and humid summers. Historically, they're adapted for fire when we had fires rage across open grasslands. So our genetics are special, and we try to promote ecotype preservation.

And that was an opportunity to directly preserve germ plasm from Bentonville, but also diozarks. When Harvard took all of the droops, we sent them in a 24 hours overnight shipment, they recovered 415 seeds. They kept some for the ecosphere project there at the Arnold Arboretum and then were able to disseminate out to Ohio state and Illinois state, I believe. So there are two other schools, land grant universities, that are doing research with Bentonville hawthorns. And I just think. That's really cool. So I try to let everybody know. This is one of the largest ecotype hawthorns in Benton County, right here on the NWACC campus. And then I put on the slide there all the stuff I just told you about Harvard.

These early spring blooming trees such as Service berry, redbud and dogwood provide early season nectar sources for many insects, along with oaks, hickories, those catkins that fall and get all over our cars and blow pollen and make our cars all look yellow. That's a food source, a protein source for bees, depending on what order of bees we're talking about. Some bees, it's the only source of nitrogen for

those bees. They're strictly vegetarian. Other bees, they need that to be able to provide pollen ball, to be able to lay their brood on, and that provides the first food source for the bee to pupate and then go ahead and make it out to fly. So that's particularly in the early spring, those bees are included in the genus *Collect* today.

And, *andrina*, which are soil nesting bees, and they rely on their early spring blooms for nectar, for glucose, and then pollen for brood cells. And some bees, pollen, nitrogen sources, protein. Besides providing the movement of genetic material to grow our food crops, native plants also need pollen. I should say native bees also need, yeah, need. Insects need pollen as a protein source. Spring ephemerals are those blooming plants that emerged prior to leaf. The trees leafing out, and these are extraordinarily important as they provide the second generation of spring blooms to feed those early pollinators. So usually we get service berry and maybe the beginnings of some dog I'm sorry, red bud blooming. And about the time the red buds start to fade out, we start getting some of these, let's say, large flowered bellwort *ruanemini* and *hori pacocon*.

Hori pacocon on the right is my personal favorite, spring ephemeral. It's really fuzzy, hairy plant. It's interesting. These are things that would be happy living in landscape gardens. If we are in situations where we're not going to get over irrigation and we're not going to have over fertilization, native plants don't need all that. And that's part of the beauty of using plants that are adapted to Arkansas ecotype genetics. They don't need to be irrigated. They're used to going through drowdy periods and not really suffering for it. Like we get with the petunias that I just bought to put on my front porch. I promote native plants and have plenty of those at my own home. But my partner actually works for Westwood Gardens, and we aren't native plant purists.

The fact of the matter is, as much as I hate to let go of this piece of information, native plants actually can't do all the work that we need to take care of all the pollinators across the seasons. And I am talking about the European honeybee. Well, we're talking about a lot about native bees right now because we need people to notice them and report them. If you use *Inaturalist* or other data gathering apps. The fact of the matter is *Apis mellifera* flies first with *andrina* any day above 45 or 50 degrees in the spring, even if it's just for a few hours, you're probably going to find honeybees out and we have to look to cultivars or a very few bunch of natives.

Like witch hazel is an early spring ephemeral shrub that comes out about the time service berry does maybe even a little bit before. But we really do take care of all the pollinators this season this go around. We're just really focusing on the native bees so natives can help stabilize slope whether it's in a dry or *Zeric* condition or a wet hydric condition. Some landscaping terms there. As I mentioned earlier, we have fire adaptive species that have evolved to survive our Arkansas climate changes. In dry areas we use plants such as prairie plantain, Arkansas *CALAMENT*. There's an Arkansas endemic that's actually endemic to glades. But we're finding out that we can use that in landscaping and it'll form a pretty thick mat. One I use in my personal yard is some sedums. Those provide what we call now a living mulch.

So they're succulents, they don't have to be watered all the time, but they'll go ahead and mat out across your garden and around your shrubbery so that you don't have to necessarily go and buy bags of mulch every single year to keep water retention high at the soil level. So reducing evaporation and then late season blooms are significant as well. We're highlighting golden rods here and part of the reason that we highlight golden rods again is because of native bees. When we think about landscaping, the old thought was after we get that first hard frost in October, we go through our yard and we cut everything

down a few inches above the soil maybe. And what we're finding out, particularly with the golden rods, is we're not really leaving good habitat for some of the pith nesting bees.

So the leaf cutter bees, they're actually using those hollow piths in the golden rods as habitat. They need those to lay their brood cells in. So as landscaping practices change, one of the things that we do is cut back dead fall at varying heights, somewhere between eight and 21 inches. And I personally think it looks a little bit better if you take one bunch of plants and cut the ones at the front to eight inches and sort of stack it back. Not take a whole plant to eight inches and the next one to 21 and 18 and sort of vary it across but sort of keep that height variation going on each plant across the landscape.

It also adds a little bit of visual interest in the wintertime when we don't have a lot of green or color on the ground here in northwest Arkansas, a couple species of note. So swamp milkweed, or *Asclepius incarnate*. This is the southernmost reach of its range, so if we go up into Illinois and Ohio, it's everywhere on the roadsides. I've not witnessed that, but that's what I hear. But here in the Ozarks we have swamp milkweeds, so *Asclepius incarnate*. But that second subspecies, *incarnate*, indicates the Ozark endemic or the Ozark ecotype swamp milkweed. So it's not exactly genetically similar to what we would find in Ohio. That means if we brought some seeds from Ohio swamp milkweed and drove it down here to Arkansas and germinated it and planted it, we're not going to get the bloom production or the seed production.

The fruits that we would from swamp milkweed from one end of 62 to the other end of 62 simply because of the genetics that have been promulgated over time within that genus of specific species of plants. When you go down into Washington County a couple of years ago, it was known and accepted that there was not swamp milkweed in Washington County. Things are getting warmer. We've actually found a couple of decent sized populations of swamp milkweed in Washington County. But as far as I know, which is not everything, I only know of two populations. So that's another plant that makes Bentonville really special because you guys have plenty of it up here.

We did not have swamp milkweed on the NWACC campus, and in order to keep genetic flow going, that's actually something that we put here on purpose so that we had a voucher specimens available for research institutions. But because it doesn't naturally occur here on the campus, we track where we pull genetic populations from. So what I mean is I have swamp milkweed that I purposely gotten from one to 62 on the west side of Bentonville and then some that I've gotten on the east side of Bentonville. And then there's a big stand of it over off of New Hope Road where we brought in some seeds and germinated the plants from Chesney Prairie. Now we'll be going out to Centerton this fall and doing some seed collection so that we don't genetically bottleneck our swamp milkweed.

And we're constantly pulling in genetic sources from all over the county to keep our strong Ozark, specifically bitten county genetics available. The other picture here I put in is buffalo clover. It's not common. It's not even common here on our campus where we have it in our bioswale and our outdoor living laboratory. But it's a really useful plant for pollinators. It's one of the plants where I see some of the most prolific, what we call a nectary. If you ever have the opportunity to come upon a nectar, you'll know you're there because you'll hear it and you'll smell it before you see it.

You just start smelling a very heavy floral scent, and then you start noticing a buzz and you round a corner on a trail and there's a huge bloom of something and it's covered in bees and wasps and ants and all kinds of things happening and you've arrived at a nectary. So swamp milkweed, *Asclepius incarnate*. *Incarnate* is the southernmost reaches of its range in Bitten in Washington County. We just

went over all that. The reason I put this picture in here is because plants and insects have an inherent interaction on the right hand side of your screen, where you have all those little yellow bugs, those are Oleander aphids and those are symbiotic with swamp milkweed. They are considered a naturalized species, so they're not a native species of aphid, but they are naturalized and symbiotic with swamp milkweed. They really won't hurt it.

The most they'll do is inhibit pod production. But what a lot of people don't know about aphids and plants is that there's a whole microcosm of life happening here and you can see it on this screen. So down on the leaf we can see lots of little white tidbits. Those are sheds. So aphids go through in stars and shed an exoskeleton like a lot of other insects do. But when those aphids start to bite and chew on this swamp milkweed and other plants in your garden also send out pheromone signals that bugs can pick up on and come in and know that these plants are under attack and they need help. And these are tachnid wasps is what I'm talking about. You can use different species of Tachnid wasps to deal with flies and a whole host of different pests across your yard. Whether it's dealing with dog waste at a dog park or aphids on plants, the attracted wasp will come and sting these aphids. So where you see the yellow aphids, every once in a while you'll see let me get my pointer. You'll see these brown dots here? These are actually mummified aphids, where the tachnid wasp has come and stung the aphid and laid an egg, therefore killing the aphid and mummifying it. But that also provides an incubation place and a food source for that Tachnid wasp as it pupates before it gets ready to fly. The other interesting thing, and the reason I find this absolutely fascinating, is because ants will farm aphids. I've seen it happen in the greenhouse here. They'll actually carry the aphids to the new ant population when the ant population split. Why do they do that? Well, aphids produce what their byproduct, or their stool, if you will, waste. Their waste is called honeydew and it is very sticky and it is a glucose source for ants. So ants farm the aphids. The aphids eat the swamp milkweed. They have a proboscis, so they're sucking it. We have sort of generally think about pests in two different ways. Either they have mandibles and eat your leaves, or they have a proboscis and suck your plant dry. These have a proboscis, so they are feeding on the swamp milkweed, and that sends out pheromone signals to the wasp. And the tachnid wasps then come in, and you've allowed habitat for them to lay their eggs and continue that beneficial pest cycle.

So that's a really good picture of all of that in action. And then we have just a couple of snapshots on the beard's tongue here on the left, you can see those purple dots on the lower fused petals. Those form runways for bees so that they can see BC and UV, so they can see where that landing strip is to get back to the nectar sources, the little nectar pockets at the base of those plants. This middle picture here is actually this is as good a picture as I could get. What this is a fledgling red tailed hawk. This is a juvenile. These guys there was twins, and they learned to hunt in our outdoor living laboratory.

Last summer, mama had them over on her nest, was up on the water tower, and she would then fly them to the electrical lines and then fly them into the outdoor living laboratory. And she taught them to hunt in our outdoor living laboratory. It was a phenomenal experience. We had to be a little bit careful when she had the babes out in the living lab because she sits right there with them. And we are looking for her again to see if she'll fled her young with us this semester. Green space where you provide a diversity of plant life, trees, shrubs, flowering plants, grasses, veggies, the whole nine yards, and you're welcome to come see it here. Provides a broad habitat source as we have wildlife move across tree and landscape. That we have here.

On the right is Indian Paintbrush hosting a caterpillar that's actually the caterpillar of a sphinx moth. We don't think too much about moths as being pollinators, but they're actually fairly prolific pollinators, not so much with native plants, but in agriculture. They do a lot of nighttime pollination in

agriculture, for our purposes here in a natural area and in an urban landscape, butterflies and moths are both doing more of the genetic spreading. They move farther and at a more rapid pace than a bee does. They move differently. So they're leaving genetic matter and spreading gene flow across a landscape, whereas bees are doing more of that hard hitting work of actually carrying pollen and doing what we call animal mediated pollination. Butterflies require nurseries and nectaries for feeding and breeding.

Most butterflies have host plants, and the best example of that is what we all know is monarchs have to have milkweed. But they're not the only ones. Our state butterfly, the Diana fritillary, is obligate to violet. They need any violet, but particularly the common violet. And there's actually an up and coming project right now. It's been a while since a lot of people have seen some Diana fritillaries. So if you use iNaturalists, I encourage you to go on iNaturalists and join the Diana project. And if you see a Diana fritillary upload that data point, that's actually something that a project that is spearheaded by a couple of Arkansas master naturalists that put their heads together and got a project going.

So it'll be interesting to see if we can take citizen science and flip it back to researchers and notify researchers that, as citizens, we've noticed a problem in the insect world instead of researchers. The traditional way has been research happens, and they reach out to citizens to help pull those data points to be everywhere they can't be. And this may be the first project that I've personally seen develop where we had citizens doing the science and flip it around to researchers and say, hey, university of Arkansas USDA Pollinator Research Center we're missing our state butterfly. I'm very interested to see that Lyasrus is tall and a great background specimen. Along with Joe Pieweed and common milkweed, these are some of the taller native plants that are great at forming screening.

So if you have citizens that call in and they're asking how to get rid of carpenter bees, encouraging them to leave some deadfall maybe at the back of the property line where they don't traffic all the time and then screening that off with some of those taller native plants is a very good way to get carpenter bees to quit trying to drill into your deck. They don't want to drill into your deck and your treated lumber. They'd much rather use the dead trees or downfall. But what we do as citizens, and I do it too, is as soon as we have a bad storm, I go up and pick up all the sticks that are in my way, where I walk out to my goat pins and where I need to get to my car.

Well, instead of just only putting those in burn piles and then burning off in the fall, we've actually started to leave some in corners of the yard where we don't frequent and then are doing just exactly what I described, putting pollinator plantings around those areas. So we're keeping the stinging bugs away from the deck where the kids are, but we're giving habitat to pollinators and in that instance, a place for carpenter bees. So they'll quit trying to bore into my deck. This is just some shots of native plants in their places. All of my pictures are mostly from NWACC or Beaver Lake. The one on the left is taken on the shores of Beaver Lake. That's a zebra striped swallow tail. One of the fun facts that I just learned this year is I had it happen in my yard.

I had zebra swallow tails, I had tiger striped swallow tails, and I had some pipeline swallow tails all in my yard at the same time. That is called a kaleidoscope. So cultural significance actually is very tied to our native plantings, and that oftentimes can enrich experiences for citizens as well as preserve cultural heritage. An example that is pretty prominent right now is the skill of canning. I had to learn how to can. It wasn't something that I grew up learning how to do with my mother canning every year because she'd just go buy hunts tomato sauce at the grocery store and there's nothing wrong with that. But I know that my mother canned. I remember my grandmother canning a little bit.

So I started learning to can and through that little endeavor of mine is really what started to tie me in to the fact that there's a lot more historical and cultural richness to these native plants than what we give credit to sometimes. So here what we have are some persimmons. Those are culturally significant, particularly in the Ozarks people that live here. Prior to the turn of the century industrial revolution, paws and chinka pins were part of their every year diet and a seasonal food that they went after the chinka pin. Ozark chinkipin has been nearly extirpated due to a chestnut blight. But there are projects where we found pockets of trees that are still existing and we're able to harvest viable nuts and we've gotten some to germinate.

There's a couple of projects out at Hobbes State Park where they've got decent sized stands of those. Now, we have had successful germination here of two on the NY campus. So as we start implementing.

I hate to use the word term arboretum because that implies something much larger than what we would have here, but this would be a linear arboretum. Paw paws and chinquapins are two of the trees that we're looking at implementing as quickly as possible because they do have such tight cultural significance to the Ozarks and our own culture.

Mark Lankford

On that chestnut. I have a chestnut tree that I got from the University of Arkansas, an American chestnut. And I got two of them actually, and one immediately died from the blight. And the other is a 35 foot tall tree in my yard. It is cross breeding with Chinese chestnuts, obviously, but I don't know of another one that has survived. I was trying to get a hold of the people at the university. My friend gave them to me. I gave him a bunch of huge burr oak, acorns. Oh, fun size of your fist. They were huge from a tree in Seneca, Missouri. But that tree is beautiful. It has some of the largest spiky needle spikes, shell around. The nuts are delicious, by the way. I've eaten them. But persimmon is also one of the only it is the only ebony tree in North America.

Laurie Scott

I didn't know that.

Mark Lankford

Yeah, it's called the white ebony. It is a form of ebony tree.

Laurie Scott

Well, that explains a lot because we have a couple of wood turners here on campus and they are asking me if I'm ready to cut down any of my mature, persimmons trees in the outdoor living laboratory. Yet I did not know that about wood. So thank you for that information. That's quite helpful. And we don't cut down our old trees in the outdoor living laboratory. No, if we have to do anything, we did just have some tree work done, but all we do is go in and I just say we just snag them. We just take off the canopy, those heavy branches that can fall and hurt somebody and leave that central leader stand at a height somewhere between eight and 15ft. And the reason I started doing that is because during the pandemic when we couldn't, everything was stalled out.

Everybody knows that we had some trees fall over and I couldn't get tree service out here immediately. And I had birds, woodpeckers, start working on them to get to the insects that were taking over the trees. And then those cavities that the woodpeckers left, I had birds inhabit almost immediately. So we take out enough deadfall to be able to get lightweight equipment through the outdoor living laboratory so that we can do management that we need. But we leave a lot of dead fall also north and south, east and west facing and then some on the edges because that provides a great deal of habitat. What that provides direct habitat for are rodents. And nobody wants a bunch of mice in your yard.

But here we have owls that hunt and we have the hawks and stuff, so I have to leave some amount of deadfall for wildlife. We had lost some of our owls and I finally got two different types of owl pellets back this year. And I have never thought I would be so excited to find owl pellets as what I actually was. One is very large, so I'm pretty sure that's a barn owl and then some of the smallest ones I've ever found. So we either have juvenile owls, very close, or my suspicion is probably screech owls have found us.

My neighbors have a family nesting in their maple tree cavity, huge cavity, and they had two outlets this year. They had one last year, they had two this year.

When that stuff happens, whether it's here or at somebody else's house or at my house, that's a compliment from Mother Nature that your yard had food, quiet habitat, whatever structure.

I see him carrying squirrels to them flying. I actually saw one fly right over the car this last week carrying a baby squirrel or a small squirrel rodent of some sort over there to feed.

Yeah, they'll fly them in and start teaching them there and then they'll fledge them out, which is where we caught the ones in the outdoor living laboratory. The mama wasn't having to take it to the nest anymore. The babies are getting too big.

Yeah, they follow them around for a little while. We saw them doing that. They'd fall around and feed them on a limb. They start out yeah.

Then they eventually shove them off the limb, and they'll go make the kill and bring the kill to the babies and start teaching them to shred that down. And that's actually what they were doing. In that picture. I have in the big picture, which you can actually see nothing unless I crop it there's. Actually, both of the twins are there, and you can see the dead rabbit, but nobody wants to see that in a presentation. So this is going to be our big event that everybody's invited to. It's called Pedaling for pollinators. This is going to be our first big event here on the NWACC campus. That is Pollinator and biking centric.

It is sponsored by NWACC Science and Mathematics, which is where I live in the outdoor living laboratory is managed out of our Bicycle Technician program and then also our Sustainable Trails Trade School. And hopefully I sent the copy, I see two Typos. So hopefully I sent Mr. Hyatt the copy that doesn't have the Typos. If not, let me know, and I'll send you the correct one. But this is going to be June 24, so this is the last Saturday of Pollinator week. We're going to have kids bike rides. We're going to have tick safety lectures by Dr. Sonya Gravesvada. She's a lyme disease expert from the East Coast that we hired here right before the Pandemic, actually.

And then myself and Rob Swearing will be doing a pollinator talk around noon that will be quite a bit more extensive than what we got into today. We'll have a lot of some 3D stacked imaging from Coleman Little, who is our, at this point, sort of our native bee expert in the state of Arkansas. So there's really fascinating pictures of bees that most people had no idea existed, and they're really clear shots. So the really neat thing about that to me is bees have really different faces. And there's a lot of good information about how to tell the difference between a bee and a fly. What is a bee? Why do we care? That sort of thing a little bit deeper than what went today, but I encourage everyone to come. You're welcome to come.

Table the event tabling will start out at 08:00 A.m., and I will send Bailey and Mr. Hyatt more detailed information with links to register your respective committees. If you would like to come join us, and we hope that you do.

I've been very successful in building the orchard bee lack of a better word, hives. They don't hive like a honey bee. I call them blue bees. But a three eighth inch drill bit produces a perfect hole. And they love oak better than any other wood. I hang them, I set them on the ground. They find them. I usually put a little bit of honey around it, and they will find that immediately. And I've gotten quite a few dozens and dozens of the mud. They'll pack the holes with mud once they lay their eggs, and I've been very successful at it. All of them that I have, almost every one of them is sealed with clay, with mud. And it's always blue bees, the blue orchard. Yeah. Actually, there are a native bee around here.

Yeah, there's people with the orchard over toward Berryville that are working with the University of Arkansas, doing specific work, looking at what the pollination load that blue orchard mason bees are doing in our orchards here in Arkansas. Pretty cool. And the other question becomes, underneath trees, what becomes the plants that those bees need? Native plants, typically, we think about prairie where it's full sun. So in those situations, I actually helped develop the seed mix for one of the orchards over by Berryville. And the reason that they call me is because I do a great deal of seed collection and have accidentally become somewhat of an expert at native seed collection. And you can't go collect the seeds if you don't notice all the things about the plants and where they are and all that to start.

So when they needed help figuring out what to put in shady spaces directly underneath the apple trees, I got a phone call and was able to help collaborate on that.

Mark Lankford

I bet they like the rotting fruit that's under the fruit trees as well. I've seen one persimmons that are rotting on the ground.

Laurie Scott

Gosh, everybody loves a good persimmon, don't they? Including me. There's some out in a little stand on 62 highway that are so sweet, they taste like the cinnamon just came already in them. It's fascinating to me.

Mark Lankford

There's a huge persimmon on Indian Point right in the park, right beside the lake. It must be 20ft tall, and it's always loaded with persimmons. Every year, I collect my seeds from it that I try to plant, try to get germinate.

Laurie Scott

Have you been successful with your persimmon.

Mark Lankford

Seed germination in the farm? Yes, there was a native group of persimmons on my farm over by Miami, Oklahoma, and it's the old family farm. They've done particularly well over there. I don't know why, but since it's a native grove there, it seems to do well.

Laurie Scott

Yeah, we have persimmons here on the NWACC campus, too, which is fun. They're leftover holdovers from when we so the NWACC campus actually was were an apple orchard around the 20th century. We grew Arkansas. Not in Wack, but the people who had apple orchards here, we knew that they grew Arkansas black. I had one in my yard in Arkansas black.

Mark Lankford

Yeah. There was one of the arborists at the university, ran Ames orchards outside of Fayetteville, and I got them from him, the black Arkansas. And it grew for a long time in my yard. It finally died. I don't know what from.

Laurie Scott

Well, they get that cedar apple blight. That's part of the reason we. Haven't tried to bring any back here at NWACCC because we're managing for pollinator habitat, so I need to leave a few cedar trees. Cedar trees hold more heat than a distinct tree. Yeah, that's a good point, because I have a big cedar in my backyard.

Yeah, well, you'd get caught in the crosshairs with cedar trees because they have the cedar apple rust, which will kill off all your apple trees. So that could have been what happened. I don't know. But because we foster pollinator and wildlife habitat, I have morning doves that prefer to build nests in that cedar tree every year and several years. When we get those, inevitably, when the monarchs are migrating generally through Arkansas, we'll get a knife that goes down into they'll actually cluster up on those cedar trees, similar to the way they live over winter. On the oil trees. I took pictures. I have photo documentation of that in the outdoor living laboratory. So I just don't let any more cedar trees come in. We just keep the two that we have, and we don't grow anymore.

And then we leave our persimmon grove because it has cultural significance, not because you should have persimmons in a natural area. So it's an interesting conversation when the Natural Heritage Commission comes by, because they come by and tell us we shouldn't have persimmon trees and we shouldn't have cedar trees, and we explain to them why we do that, because we're on an urban landscape, and we have to look out for a lot more than just what you would normally find in a natural area in northwest Arkansas. And then we present, like we're doing to you today, to the city of Bentonville, where we're enmeshed in urban landscaping and trying to provide habitat all across the municipality.

And then we turn around and we talk about why you might want to leave a cedar tree and just set a threshold, or why you might want to let some persimmons grow and set a threshold. What we did here on the NWACC campus to manage persimmons is I called it the three inch rule. If those trees can get three inches around before I get to them to kill them and take them out, then they get to stay. And if they don't, then they go. And so what happens over the last eight years is that grove of persimmons has sort of moved across the landscape. It's not in the same place it was when I started. Those are the dead persimmons that now we have birds living in for habitat. So it's really interesting. I'm about done.

My contact information is up there if you guys want to find me anywhere. And thank you for hosting me today. The list of wildlife just for interest that we have managed to host here in the NWACC outdoor living laboratory. I've showed you the hawks. We had a coyote hanging out with us for about 30 days even our college president was taking pictures of him. He got comfortable enough that he would come to the edge of the tall grass and just sit and watch. Everybody at the butterfly garden talking about the butterfly garden. We've had red fox, we've had gray fox. Let's see, we've had the hawks. We've got our owls back.

So we're a really good example of why it's worthwhile to preserve green space on an urban landscape, but also think about our yards and our gardens as providing habitat and doing work for you as a homeowner. You can suck up a whole messy patch of wet ground if we just use the right natives. But those are all good reasons to use natives and maybe plant more natives and less cultivars. But I'm not on anticultivar rant, because native plants can't do everything that honeybees need, and we need honeybees to keep food. Oh, on that point, all big cycles, it's all big circles held together with hydrogen.

I read a very interesting article, don't spray your yard for weeds to kill the weed in your yard, because the dandelions early, are the earliest blooming flower in the early spring and late winter even. And the bees are very in need of pollen and sugar. And that flower, the dandelion flower, gives them that, and they get a lot of it. In my yard, I got a lot of dandelions.

Yeah, I don't take out anything except for giant ragweed, because it gets 12ft tall and it drives me nuts. And Dock, I don't like curly dock because it's a literal seed machine. But other than that, we pretty well just let it go. So a lot of those weedy plants are just native annuals. That self seed. So corn salad, beef, corn salad, dead nettle, which is dead nettle and henbit are the little purple ones that come up all over your yard right after the dandelions start blooming. And sometimes we'll just see a purple haze out across the yard. Those are really important right behind the dandelions. And that's actually in the Mint family. They have a square stem. If you pick a plant, roll it between your fingers, and it feels like it has a square stem, you're in the Mint family.

Almost everything in the Mint family, whether it's a tree or dead nettle in the front yard, has some sort of value because they produce a lot of nectar. Woolly Mountain Mint is a prolific nectary plant.

Laurie Scott

I could talk about this all day.

Mark Lankford

Me too. I've got books on this stuff. I read this all the time.

Laurie Scott

Let me show you this then real quick. And then I'll quit talking because we're 17 minutes over time.

Mark Lankford

This is the best book. It's b's by Heather Holm. Heather Holm. It's H-O-L-M. I'll flip it around so you guys can see the Ifbin number. No, it's not going to do.

Laurie Scott

I can look it up.

Mark Lankford

Yeah, it's \$25 on Amazon. And the reason I like it is because of this right here. It gives the phonology, so it gives the bee and the plants for it, the distribution range, but it also gives what we call the phonology. So the time of year that bee would be flying. And that's how I've taught myself that. When I went hiking down my ridge and I saw a whole bank of bees making nests in the dirt. And what was overhanging it was a Missouri red bud. I knew that what I had done was stumbled upon a colony of brand new Andrina, which is one of the very first, actually the second species of bees to come out in the spring. And then there were two bumble bees come out. They nest in the leaf mold.

So at the exact same height, right after I was sat in lost andrina and turned to leave, there were two queens that had risen up out of the leaf mold, and they'll sit there and hover. So their flight ligaments are disengaged, and they're just hovering. And I didn't know what they were doing, so I took a video and sent it to Coleman Little. And they'll sit there and buzz, and they're orienting themselves, and they'll do that for anywhere from ten to 30 minutes before they take off and go find that first meal of the year. That's how they know how to get back to their tracking the sun. Yeah, but it's semisocial behavior. They don't live together. All that whole bank of Andrina was basically an apartment building of bees. Fascinating.

But that book by Heather Holmes, she also has one on wasp. Last time I looked, it wasn't out in Hardback, and it was, like, \$50. But this one on bees is well worth the 25, I promise.

Laurie Scott

Does anybody else have any questions? Okay, well, my contact information is up there. My email. If you guys have any questions or would like some more programming on a different type, let me know. Otherwise, I hope to see you here on the 24th for pedaling, for pollinators.

Christopher Hyatt

All right. Thanks, Laurie.

Laurie Scott

Thank you so much. It's always a pleasure.

Christopher Hyatt

I'll send out all this information, and I'll talk to Bailey, and I think we want to try and have a presence as part of the Bentonville 150 as well. So hopefully we can get something together and get some of us out there.

Laurie Scott

Good. I've done so many zoom well, so many being three zoom meetings with the city of Bentonville. I would really love to meet some of you in person.

Christopher Hyatt

Yeah, absolutely.

Laurie Scott

All right, well, you guys have a lovely day.

Christopher Hyatt

Does anyone have anything else, or if not, I know went quite a bit over, but yeah, I'll send all that information out and then just let me know by the end of the day tomorrow. Kind of what your nominations are. Your votes are for Landscape Awards, and then I'll get that out to the public with that. Have a good rest of the week and we'll talk soon.