

Lake Simcoe Sessions Podcast

Episode 2: Changing Forests

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This episode features two speakers:

- Katie Biddie- Podcast Host and Outdoor Educator at LSRCA
- Phil Davies- Special Guest and Manager of Forestry and Greenspace Services at LSRCA

Katie Biddie 0:03

Hi and welcome to Lake Simcoe sessions, a podcast hosted by the Lake Simcoe Region Conservation Authority. I'm your host Katie Biddy. Join me as I chat with the experts to learn all about how climate change is impacting us and our ecosystems right here in the Lake Simcoe region. Our goal is to discuss how we can all work together to build a resilient future for our watershed. This podcast is being recorded on the lands of the Williams treaties First Nations, we are committed to renewing our relationships with First Nations peoples and deeply appreciate their historic connection and unwavering care for this land and water. This podcast has been made possible thanks to the generous support from the RBC Foundation, and the Lake Simcoe Conservation Foundation. Hello, and welcome to Episode Two of Lake Simcoe sessions. I'm your host Katie. And I'm really excited about today's episode, because today we're going to be talking all about trees and forests. Now trees and forests are really a huge part of our path forward when it comes to climate change, because they are both an adaptation of climate change and a mitigation of climate change. If you missed our last episode, we were talking a lot about these words, adaptations mitigations. And basically, an adaptation of climate change is something that's going to help us deal with the future weather conditions we expect to see because of climate change. Whereas mitigations are things that actually prevent climate change from getting worse. So these are things that help to absorb greenhouse gases or prevent greenhouse gas emissions. And like I said, trees are an important piece of both. They're an adaptation in the sense that they help us with shade, they help to cool our buildings. In the future, when we're expecting to see much warmer weather conditions in the Lake Simcoe region, trees are going to be a huge piece that helps people stay cool in the summer months. They're also a mitigation because through photosynthesis, trees absorb a lot of carbon dioxide. And they help to clean out some of that carbon dioxide from our atmosphere. Now, today, I'm going to be talking to someone who knows a lot about trees and forests in our region. I'm excited to introduce our next guest, Phil Davies, who's going to be telling us about forestry and how it's being impacted by climate change.

So hello, Phil, and welcome to Lake Simcoe sessions. I'm so excited to have you here today. I'll introduce you to all of our listeners. This is Phil Davies, and he is the manager of forestry at Lake Simcoe Region Conservation Authority. How are you doing today, Phil?

Phil Davies 2:50

I'm great. Thanks, Katie. It's exciting to be here. I know you've mentioned in your last podcast, it was your first, and this is my first so it's exciting.

Katie Biddie 2:56

Yeah, it is exciting. And we've been having a lot of fun. Phil, I was hoping we could start off by introducing yourself to the listeners. And just tell us a little bit about yourself, your background and your role in forestry.

Phil Davies 3:10

Sure. So here at the Conservation Authority, I have responsibility for oversight on our forestry and our green space services programs. I've been with the Lake Simcoe Region Conservation Authority now for 15 or 16 years, and I've certainly seen a lot of change occur in the watershed in that time. Prior to that I was with the Toronto and Region Conservation Authority and spent five years there involved in their forestry program. So as I like to say, on the south side of the moraine, so on the other side of the oak ridges moraine, and it was a bit of a headspace change for me to go from a place where all the rivers flow south into Lake Ontario, a shared body of water with so many other watersheds to come north and be in a place where all of the watersheds flow into one receiving body being like Simcoe. Prior to my time at TRCA, I was at the Essex Region Conservation Authority for a couple of years. That's where I went straight from school, deep in the heart of the Carolinian zone too, an entirely different landscape. For me, I grew up here in the Greater Toronto Area and going to such a unique forest area for Canada and such a flat landscape was to change for me. My background from an education perspective, I have a Master's of forest conservation from the University of Toronto which is a great program to give you a broad breadth of understanding of how forests, woodlands, trees, affects the lives of so many communities. It was a really interesting place to start education and then apply that to the conservation authorities going forward. I should mention as well I'm a registered professional forester, a member of the Ontario professional Forestry Association. Forestry is a regulated professional in Ontario, and so in that role, I have a responsibility to look out for Ontario's forests and protect the various values that they provide.

Katie Biddie 4:50

Amazing you're a wealth of knowledge about forests then Phil! I was hoping you'd be able to tell us just a brief kind of overview of the history of forests in our region and what forests have looked like over the years and how they've changed.

Phil Davies 5:04

That is a great question, I often think they would be absolutely amazing to know if I could find a time machine and go forward or backward in time, I would be going backwards in time to see what the forest looked like here. In this part of the world, in and around the Lake Simcoe basin, there's a very long history of Land Management certainly going well before European contact before settlers arrived here in North America. First Nations indigenous groups have been managing the land for millennia, making changes to the landscape, whether it's using materials for construction or making space available for growing foods and medicines, a lot of working with the land in a very collaborative way to maintain those communities. More recently, when Europeans first arrived, they talked about wilderness about wild areas, and saw the forest that we're here to be something that needs to be tamed, the land wasn't of any use unless it had been cleared of the trees and turned into something else. And the forest that they would have arrived here in the watershed would have been, I think, quite incredible, enormous trees, a mix of conifers and hardwoods, so trees like white pine spruce for as well as hardwoods like maples, and Oaks, and ash and other things. But those trees were stripped from the land, in part for construction of communities, clearing land for agriculture, and changing the nature of the landscape more permanently than would have been done in the past. More recently, there's been a lot of effort put into restoring the damages done by that work, and certainly our communities, towns and cities sit on those lands. So a lot of places trees aren't going to go back and in a forest, or woodland perspective, but a lot of work has been done over the last 100 years to really put trees back on the landscape. And that's what we see in some of the stands around the watershed, whether it's the Simcoe County forests, your regional forest, out in Durham, as well, we've a lot of plantation lands have taken those lands and put them back into trees. As part of I would say an ongoing restoration project. More recently, the practices have shifted, we understand that it's more effective, more beneficial to mimic natural conditions. So clearing or removal of trees is done in a much more holistic way we consider conditions on the site today, plan for future conditions where we'd like to see and really work to improve stands by very much more selective addressing the land look at the various conditions that are there. What trees are already in landscape, what will we know will grow in the future? How can we improve the conditions today and well into the future? So there's a much more judicious approach to land management now.

Katie Biddie 7:45

Yeah. And you said, planning for the future? Right. And that's kind of what our podcast here is about? What is the future of our watershed in regards to climate change? So we know climate change is happening, we know there's going to be about a five and a half degree increase, in average mean temperatures like the 2080s. How Phil is that change and the changing climate going to impact the forests that we have in our region?

Phil Davies 8:10

Certainly getting to the root of the issue there, isn't it? I think forest management is a very long-term planning horizon, we often think in terms of, of 25 year management plans in order to make decisions and then those decisions are revisited on a five year cycle. It's always been the

case that there's a variety of factors that go into forest management. I've heard it said from some that forest management isn't rocket science, it's much more complicated. I'm not a rocket scientist. So I can't speak to their career and how challenging it is there are but when we consider how many different factors go into making a decision. Today for the future, it's really quite complicated. Because we don't know how much rain we're going to get. We don't know how windy it's going to be what insect outbreaks might there be whether or not there might be a species at risk in the stand that we need to consider. Throw on top of that now the fact that trees can't move, they're very firmly rooted in the ground, they can't get up and walk and change as the temperatures change. Climate change has become an is a very important consideration and decisions made today. Because we know that not only are conditions going to be different in a more traditional way in the future. But a five degree temperature change in the next 40 years really does mean that the conditions the trees we plant today or mentioned today are going to be in an entirely different environment in that time, and it's something we need to as best as we can with as much information as we can make decisions today and hopefully adapt for that.

Katie Biddie 9:42

Are there any new species of trees that we're expecting to start to see in our region because of climate change?

Phil Davies 9:48

Yeah, I mentioned the Carolinian zone earlier. So the Carolinian zone is a composition that's a little bit more of more common south of us so especially into the northern and north eastern states parts Carolinians on extending Ontario and up pretty much as far as Toronto, so just south of us. Once we cross over the oak ridges moraine at the lower end of our watershed, you move out of that Carolinian zone. Within the Carolinian zone, there's a suite of species that we can expect we'll have better growing conditions here. hickories, a number of oak species will find conditions in our watershed in the future to be quite acceptable. I often think about the Lord of the Rings, the scenes where the "Ents" which are tree herders, and they're walking around the forest. And of course, our trees can't get up and walk around. Trees don't move that way. They don't get up and just move themselves, they move through various means. And of course, that's through spreading seed. See, you can spread seed in a variety of different ways. Seed can be dispersed by wind, sometimes seed just falls below the tree, animals might move them, trees like hickories and oaks which are further south have very heavy nuts that they drop, and they're not going to make their way into the watershed on their own. So how those trees will begin to advance to take advantage of those new conditions, is interesting to try and understand as well. So we started to look at opportunities to include some of those species into the work that we're doing up here start to salt them in and see if they don't take in perhaps then by the time conditions are right in the future, we've got trees that are producing co2 to sustain themselves.

Katie Biddie 11:21

So Phil, as someone who manages forests, how do you plan to move forests compositions that exist further south up? In regards to climate change? How do you go about almost like shifting forests north

Phil Davies 11:34

as part of our afforestation program, we're taking steps to plant trees that hopefully down the road will be more well more suited. But again, conditions exist today that we need to align with. So we take an approach that involves using trees that have been growing from three different seed zones. So 50% of the stock regrowing will be from seeds collected here in the watershed 25% will be in the next seed zones south where conditions are a little bit different than they are here today. And then 25% from the seed zone further south. So hopefully in time, over the lifetimes of those trees 25 5075 years, the conditions change and the ones that were from the more Southern seeds zone, will find themselves well suited to those conditions, and they'll be thriving, and we will have managed to sustain sugar maple, even if the ones that are growing here today were unable to survive in the future.

Katie Biddie 12:22

Right? And could you give us an example of like a type of tree that is pretty common in our forests right now that maybe won't be able to survive in the changing climate.

Phil Davies 12:34

Absolutely one of the trees that we in some recent work we did, we took a look at what the future conditions are going to look like for the trees that are in the watershed today. And one that stood out very notably noticeably for as going to be impacted is white spruce. white spruce is a conifer species, quite common in the watershed, and one that we from a restoration perspective have used in a lot of our projects historically. when we start to look at the growing conditions that a white spruce requires, we find that in four years based on those climate projection models, the ideal growing conditions for them are going to be much further north and the area that will be best suited to them is north of Sudbury, it's north of Sioux Sainte Marie, for anybody who's gotten the car and gone on a camping trip, that's quite a drive just for the weekend, let alone if you're an entire tree species, so we're going to find in 25 to 40 years, the conditions in our watershed are not going to be well suited for white spruce. A challenge with climate change, however, is that today, white spruce will still grow. So we need to make decisions. Do we stop planting white spruce today? Because it won't be here in the future? Or are we planted today for the benefits that can provide to help us get to a future state in that forest, I've heard a colleague lake and climate change to a rolling wave, you know, the wave is coming, you're not sure how big it's going to be. And you're not entirely certain wind is going to crest somehow you need to plan for it. So that's the sort of considerations that we need to make. We also find that there are species which are going to remain successful in the future, the conditions will shift around them, but they'll still be well suited. And then there are other species that are actually going to find it our watersheds can be better suited in the future than they are today. But there are various challenges that go with those species as well.

Lake Simcoe Watershed Resident 14:23

Now, more than ever, we're seeing and feeling the effects of climate change. As a Lake Simcoe watershed resident. I'm thankful for the generous support of the RBC foundation to help us each learn a little bit more about how we can take actions against climate change, starting right here at home.

Katie Biddie 14:43

So I just wanted to bring it back a bit because I've heard you say adaptations and mitigations and in our last episode, we talked a lot about how we need to adapt to climate change, and we need to find ways to you know, just deal with the changing conditions. But we also need to mitigate climate change. And I think forests and trees in general are the perfect example of something that does both right because they help us to adapt in the sense that they give a shade and absorb water to help prevent flooding, but then they also mitigate through their carbon sequestration. I was wondering if you would tell us a little bit more about the role that trees and urban forests might play in in our urban environments in our watershed. So people who live in the city having a tree on their Boulevard like what how is that helpful to both adapt to and mitigate climate change?

Phil Davies 15:29

I find being a forester in that same age can be both exciting and a little bit nerve wracking. Often because trees really are so remarkable and the things that they do, it can be a little bit stressful to feel the level of response to a role in ensuring their success in the future. In the in the urban environment, trees, as you mentioned, do a wonderful job at helping to mitigate the impacts of climate change. So trees properly planted around buildings can provide shade to help with summer cooling, and trees that lose their leaves and in the right spot when they lose them in the winter, allow more Sunday in a building so you keep things warm. So there's direct benefits there, as it relates to energy costs, as well as energy use. So looking for opportunities to put trees in the right place in an urban environment will certainly lend benefits. There are studies that demonstrate the trees outside of the window of a hospital providing that greener software environment can help with recovery times for illness. And of course, getting out of the out of the sun in the park, you're playing a game in the park with the family and finding a Shady Tree to get underneath is always welcome respite. So they provide a lot of benefits that way,

Katie Biddie 16:39

that's going to be helpful in the future when we have more extreme heat days, right? parks with trees are going to be more comfortable places to be.

Phil Davies 16:46

Absolutely I should mention my daughter will say she doesn't trust trees, because they are so shady.

Katie Biddie 16:54

love it! Folks, There's our first Phil dad joke.

Phil Davies 16:58

With trees though, in urban environments, though, it's a very stressful place to grow. You can imagine there's so much going on in an urban environment. You mentioned paved surfaces, paved surfaces are really tough on roots, but trees need to absorb the nutrients and moisture from the ground. They often share that space, especially on roadsides with what's going on underground. The other things we need for life water, gas lines, telephone lines, electricity. So there's a lot of challenging growing spaces, snowplows cars, bicycles take a real hard time on trees. So there's, it's a tough environment to grow in. But certainly the benefits outweigh them. And a lot of work is being done, particularly with our municipal partners in the watershed to find ways to establish growing conditions for trees so that they will be successful, and they will lend those benefits that we'll need to consider in the future to address what our urban heat islands. So those areas that are absorbing solar radiation warming up and causing the sort of challenges we see in our communities with a changing climate.

Katie Biddie 17:59

Right and I've heard that term before urban heat island and the idea there correct me if I'm wrong, but it's that in urban centers where there's not a lot of trees and there's not a lot of natural spaces, the heat is kind of funneled in and it is kind of like a cycle it gets hotter and hotter Is that correct?

Phil Davies 18:15

Absolutely. And I think we can all you imagine what it's like walking through a park, perhaps you're walking through a conservation area in the forest is quite cool even on a hot sunny day. Whereas if you find yourself on a main street in town things are much warmer. So the canopy cover the trees provide helps to reduce those heat impacts, which again had direct translation into cost for cooling buildings and making spaces comfortable for us to live in. As we start to see more hot periods prolonged hot spells during the warm season with climate change, it's going to be much more important that we see the added benefit that trees can provide for shading those facilities.

Katie Biddie 18:56

And Phil when it comes to carbon sequestration, or some trees or some types of forests better at doing that than others of actually absorbing carbon dioxide from the atmosphere and harnessing it and holding on to it.

Phil Davies 19:07

A lot of work has done around modeling carbon uptake by trees. So different species will uptake carbon at different rates. But in the same manner trees and Woodlands different ages sequester carbon at different rates. So at a younger stand as the trees are rapidly growing will be taking in lots of carbon building, they're building wood, building their branches and structures. And then as trees get older, they start to slow down from an update perspective. But they're storing significantly more carbon, so a large treat has taken in that carbon over its lifetime and held on to it. The next stage then is as trees die is a place where we can start to see carbon released from the trees as the wood decomposes. But it's also as far where we can see effectively permanent storage of carbon by using wood in construction projects. So if you imagine a two by four that's come from a tree the trees been removed, but that wood is storing carbon as part of as part of the construction. So when we've got wood furniture, wood houses, other buildings, and there's a real trend towards large buildings, once again being built out of wood, those are storing the carbon. So trees provide that benefit all the way through, it is important that we leave trees on the ground to rot down back into the soil and they are releasing carbon. But of course, they're producing, improving soil conditions and growing conditions for the next forest. And that's part of the consideration made when forest management is done, trees are coming out for the various purposes that they'll be used for materials left in the ground or on the forest floor quite purposely to make sure we're promoting that that future forest, and those trees now that are sequestering more carbon as they're growing. So it's a it's an interesting cycle.

Katie Biddie 20:42

Yeah, I've heard the quote, sometimes a dead tree or, or a log is more alive than a living tree. And that's because it's created a habitat for so many different insects and invertebrates and all of that stuff. So if you roll over a dead tree, you're going to find like, tons of things making their, their home underneath it. Absolutely. So I was wondering, do you have a favorite tree? And I don't necessarily mean like species of tree like, is there one tree that you've come across in your life? That has just spoken to you for whatever reason? Like, I feel like everyone has that tree that they think of when they're asked this question and just one standout for you. That holds a lot of memory.

Phil Davies 21:19

It doesn't actually, the species and the tree itself are one in the same I had the benefit. years ago to have the most spectacular job one could have I worked in Killarney Provincial Park for a company renting canoes, and people would come in and say you have the best job in the world? I'd say yes, I absolutely I know I do. It's where I first started to recognize the difference between trees. And of course, I had a professor in university who said he only knew two types of trees, there were Christmas trees and other trees. I don't mean that different. But I remember being in a forest and hearing the difference in the way the wind sound as it blows through a stand. So the rustling of leaves versus wind blowing through needles are two different things. And for me, the sound of wind through white pine is remarkable. So white pine is my favorite species. And there's a white pine on an island in incarnate potential market, the

place I used to work with, it's enormous. And I can't help but every time I see that tree, and I get to go back annually, I can't help walk past a tree and just put my hand on it because it has such stature. It's got remarkably history, and its presence is really quite remarkable. So absolutely. I've got my favorite tree. Yeah,

Katie Biddie 22:31

awesome. Yeah, I think I think most people do. There's just one tree that they've seen in their life that just sort of sticks with them as they as they continue on through their life. And Phil that I think the last question I just wanted to end off with and to leave our listeners with is I was wondering if you would share what gives you hope about the future of our planet, right? Our projections for climate change can be quite alarming, knowing that our planet is going to be is going to warm and our region is going to warm as well. What gives you hope about our future?

Phil Davies 23:03

I think this sounds a little bit hokey. Because I know, it says so often by so many, and I'm aware that I'm speaking to an educator when I say this, but I really am heartened by the level of awareness and concern that youth have about climate change. And I think that, you know, there can often be a perspective that it's youthful optimism without, perhaps life experience behind it. But I think that there's so much information being shared the messages being shared with kids are being well received. They're understanding them, they can see the impacts of actions today and what it means for the future. And I really am quite heartened by the action, we see whether it's very public, you know, actions being taken, or even just comments and conversations that I might have with my kids or with their friends are really, really, really heartening, as I said, to think that they understand that the change needs to be made today, and they're, they're prepared, they're not stuck in their old ways, like some of us, and they're prepared to make changes that are going to have benefits for us in the future. So I think I got to say that it's the, the I'll be optimistic the enthusiasm of youth and understanding that we can we can address this if we if we really work at it.

Katie Biddie 24:14

Amazing. I totally agree. That's the page I'm on as well because I get to work with youth so often. And I agree there's just an openness that the next generation has to make changes and build a positive future for our region, but also for our globe. So I completely agree that youth are our path forward. Thank you for "Phil"ing us in on the of the information about forestry and climate change in our region. I really appreciate you being here. I know I learned a ton and I'm sure our listeners did as well.

Phil Davies 24:46

Thanks very much as i mentioned off the top. It was my first podcast and I always love talking about tree so thanks very much. I'm just a little disappointed it's going to be audio only because I did get all "spruced" up for it. But I guess that's just the way these things go!

Katie Biddie 25:03

Slow clap for that dad joke, Phil finished it off strong! That's fantastic. Thanks, Phil, and we'll talk to you soon.

I hope you enjoyed hearing from Phil Davis as much as I did today, I found it to be a real treat talking to him, sorry, Phil put me in the mood to make a bad tree pun. So I couldn't hold back. But really, I'm just I find it so interesting to consider that 40 50 60 years down the road, the forests in our region will have changed. And they will have adapted to meet the new conditions caused by climate change. Now, my challenge for you today is I want you to learn more about a tree. So I want you to go out into your neighborhood, maybe your local conservation area, and find the tree that speaks to you, you know, walk around, find the one there will be one, I can promise you that for whatever reason calls your name. And when you find it, I want you to try to identify it. So there are two ways that you can do this, I'll share both these ways in the show notes. One is you can use our dichotomous key. And this dichotomous key has most of the common tree species in our region, it's pretty easy to do. And all you have to do is answer a series of questions about the tree, and it will lead you to the tree species. Now the second option is you can use a new app called seek by naturalist to help you identify your tree. Seek is a really amazing tool. And I definitely recommend downloading it if you've got a smartphone. The way that it works is it uses photo recognition software to match a photo that you've taken on your own phone to tons of other photos they have in their database. So when it comes to identifying a tree, what you can do is take a photo of maybe a healthy leaf of the tree you're identifying. And it's going to match it to other photos in its database of that same species. It'll then tell you what species of tree you're looking at. So I'll share the link to that app in the show notes as well. And yeah, my challenge for you is to just go out and identify a new type of tree. Now, you might be wondering why I'm asking you to do this to go out and identify a tree. And the reason really is because I think that by doing this, you'll become part of a community of people who know a little bit more about trees and take notice of trees. It's so easy because trees are quite ordinary in our region to not really like consider them as special or appreciate them for all the values and all the benefits that they do for humans. So by taking the time to identify a tree and connect with it, I'm hoping that we can build a larger community of people who care for and respect for trees. That's all for today, folks, thank you so much for joining me on Lake Simcoe sessions. I hope that you'll come back next time, because next time we're going to be talking about the namesake of our podcast, we're actually going to be talking about Lake Simcoe and I'm going to be interviewing Dr. Brian Ginn, who is a limnologist for Lake Simcoe. Now a limnologist is basically a lake doctor, it's somebody who studies and monitors the health of the lake. So he's going to be telling us some of the changes that we've seen in Lake Simcoe already as far as climate change goes and a little bit about what we can expect in Lake Simcoe in the future.

Conclusion with music

Thanks for joining me and tuning into this episode of Lake Simcoe sessions. Let us know what you think by using the hashtag climate connection on social media or tagging us at LSRCA on

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