



Thriving Forests, Thriving Caribou Populations

Janet Sumner: 0:00

Welcome to *The Clear Cut*. Hi, I'm Janet Sumner, Executive Director at Wildlands League.

Kaya Adleman: 0:08

And I'm Kaya Adelman, Carbon Manager at Wildlands League.

Janet Sumner: 0:14

Wildlands League is a Canadian conservation organization working on protecting the natural world.

Kaya Adleman: 0:21

The Clear Cut is bringing to you the much needed conversation on Canadian forest management and how we can better protect one of Canada's most important ecosystems, as our forests are reaching a tipping point.

Hello and welcome back to another episode of *The Clear Cut*. It's just me doing the intro today because Janet is away traveling doing super cool and important things, but, that being said, I'm very excited to bring back to you the second part of our conversation with Justina Ray, who you may remember, is the Senior Scientist and President of WCS Canada, and if you have no idea what I'm talking about, please go back and listen to our first episode, all about caribou conservation and why it's important, and can caribou coexist with disturbance. It's all important context for you to have before jumping back into this super action packed episode where we talk about some of the management strategies that are currently being undertaken to conserve caribou. What do they look like? Are they effective? Do they lead to a caribou population that is surviving, or do they lead to caribou ranges that are thriving? What's the outlook like for the future? These are all important questions that we will get into in this part and, without further ado, let's dive back in.



Janet Sumner: 1:57

So and I wonder if you can help me think this through so there are strategies that I've seen or heard about or been in discussion, because I've sat at numerous conservation tables working with industry on trying to come up with a good plan around caribou conservation, and those plans often will include strategies that might be predator control, they might be penning for keeping pregnant females away from challenges, whether it's just keeping them safe. So my question is because as we started out this podcast, we talked about caribou as being a good bellwether of how healthy the forest was. So some of these strategies sound like they might really help caribou survive, but that's not necessarily how it may not translate into a healthier forest. If you get my drift, can you just maybe talk about some of those management strategies that you think are really working or that, and maybe even just talk about the differences and what would work on caribou and how it could be transferred and what you might think of that?

Justina Ray: 3:12

So just to back up a bit, the goal of caribou recovery in most jurisdictions federally or in Ontario, whatever are self-sustaining caribou populations, and self-sustaining the definition of self-sustaining means that they don't get aided by this sort of intensive management. So nobody wants that to be the way that. You know that's not success. But what's happened in a number of places in Quebec, in British Columbia and Alberta in particular, and not only with boreal caribou but with mountain caribou, is that circumstances have allowed caribou populations to dwindle so much and so steeply that they really only have a handful left. And then what do you do? Because you know the other goal is to stave off extinction. So you don't want caribou populations to disappear entirely, which has in a few places, and certainly the range has receded. So you know, a more common kind of approach has been then to take those caribou out of the wild and put them in a pen to keep them safe, right. So that's an extreme measure because you know, I don't know if too many or any instances where those guys come back it's not like that habitat that they've been taken away from and those conditions just needs a little bit of TLC and they can come back in a year or two. It's not like. You know they've been evacuated from a hurricane and you know they can come back and you know things will

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be rebuilt right. No, it takes like 40 years. I was thinking exactly about Florida, right, it's not like that and so so. So that's an extreme sort of situation. Another thing that happens when is when there's quite a lot of, you know, there's evidence of population decline and so on. Another kind of tool to use is predator control, because really and I haven't explained this before what happens when the kind of forest shifts? It shifts to a different condition. You know, if you have a lot of clearing of forests, the stuff that grows back is often is not right away coniferous you know nice coniferous trees and so forth. That takes a long time. It starts out as deciduous, leafy stuff, which is what attracts deer and moose, depending on where you are, and that in turn attracts predators who are then able to get around pretty easily because of roads, because you know that facilitates their transport. You know that's easy to understand, that much easier they're. Often the wolf packs are bigger because there's more food in these areas all of a sudden. So you've got bigger wolf packs proliferating around this area. So the whole kind of the neighborhood has changed. You know, the whole, the whole range is like shifted from a, you know, a caribou wolf system where you've got wolves and small packs that are kind of distributed across to caribou, are staying away from the wolves and and not as productive, and so on to a more productive leafy where you've got deer and moose, and the wolves aren't even, they're not even after the caribou, but if they run across a caribou they're going to eat it, and so the key thing that happens in these situations is that most caribou die by predation. That's the sort of what you call the proximate or the direct cause of their death. What was the ultimate? The underlying reason was habitat change, but the direct cause of the death is wolves and in some landscapes, particularly out west, cougars and even Wolverine in some areas, but that's in the mountains. So you have this situation and really a key management tool that's been used in a number of places is to really get rid of the wolves. Earlier I talked about how wolves are a very productive animal, so you know they can. If their sizes get knocked back, their population levels get knocked back, they can often, you know, recoup their numbers in a short period of time. So the difficult part about all this is that if you kill a bunch of wolves in a range so that the caribou survive, you have to do this year over year, because and you have to sustain that because they'll knock back wolf populations will come back in force, and so this becomes a really difficult thing because it's very effective from the point of view of, you know, caribou will survive better and they'll kind of figure that, figure it out. They won't get killed and eaten as often. But meanwhile you know you have to do this year after year and sometimes you know it's hundreds of wolves in a



particular place and that raises all sorts of ethical concerns. But scientifically speaking it's actually quite effective. And so are other measures, like protecting females in pens again during their during that most vulnerable period where the caribou calves are at their most vulnerable, and get them through that year and then put them back. But if you put them back you got to. You got to make sure you have predator control because you can't put them back into the same stuff that they disappeared from. You got to gather lichen so they can eat in the pens, you know. So this is a really significant operation because habitat restoration by itself is not going to be sufficient where you've got habitat knockback so badly that you're going to take decades to get it back. And so you know it's that it's a cornucopia of management. When you get, when things get so bad that you're doing this intense management, it's like a cornucopia of strategies that you have to deploy and and you'll have to do that for a sustained period of time in order for it to be effective in a sustained way.

Janet Sumner: 9:20

And it doesn't get you necessarily to that self sustaining target¹ which you're trying to get to.

Justina Ray: 9:26

Yeah, so far it hasn't. And one of the other difficulties is that what, what that can sometimes buy industry in certain areas is if they, if they, if they focus on investing in habitat restoration here or or or if there's predator control in the area, that they can still do have more industrial disturbance and that that somehow is a mitigation approach. But but really that doesn't help the situation. In a net, in a net value kind of way, right, like if you talk in net terms, you're, you're in just as bad shape, if not worse, if you're deploying

¹ Read more on this in the amended [Boreal Caribou Recovery Strategy \(2020\)](#): *the recovery strategy identifies 65% undisturbed habitat in a range as the disturbance management threshold, which provides a measurable probability (60%) for a local population to be self-sustaining. This threshold is considered a minimum threshold because at 65% undisturbed habitat there remains a significant risk (40%) that local populations will not be self-sustaining.*



those kind of management strategies but the same time still still having more disturbance. But you know, but this business about, about recovering habitat is extremely difficult for so many reasons. And although we know how to do it, it's you know and have more and more techniques that are successful in the sense of being able to get it to a certain, getting habitat to a certain level. It's so difficult. You know, people want to keep reading. We're using the roads that they got used to, so refurbishing roads is is is sometimes socially extremely difficult, and then, and then just you know the many decades that it would take. And then now, increasingly, we've got the specter of climate change. I haven't mentioned that yet and to date that's not the key culprit for range recession for caribou, but it's now making earlier areas much less likely that they'll ever be able to reoccupy, and then it's going to for so many creatures. If it gets worse and worse, it's going to take over as the key threat and the key driver of decline and of populations, not just caribou but other other animals as well.

Kaya Adleman: 11:26

Wow. So it seems like and correct me if I'm wrong the more intensively we disturb an area, the more intensively we have to manage to restore the habitat right.

Janet Sumner: 11:44

Well, I think what she is not quite that. I think what she's saying is that the higher the disturbance level and the greater the threat to caribou, and if we start to see those populations collapse, what we've been doing to date is the more sort of strategies we start to use, whether it's penning or predator control, you know, pushing back on wolves et cetera, instead of just leaving it alone doing what we need to do, which is reduce the disturbance and, yes, we can do restoration, but, as I said before, getting it to a point where it will sustain caribou. You know that's a 60 year project, so it still doesn't allow further disturbance to occur while you're trying to rebuild the habitat. So we sometimes deploy these incredibly intensive strategies, but we haven't done the one thing that needs to happen, which is to protect it from disturbance, protect habitat from disturbance, and so, without doing that, and in some cases because you might be in such dire shape, I think there was like caribou range in Val d'Or in Quebec, and they were actually talking about flying the caribou out because we're only six or seven left and it's



like you know that's an extreme strategy, but they weren't necessarily looking at the habitat piece and again having experience more directly. So I don't have as much direct experience with the Quebec situation, but with Alberta, certainly with the little smokey, you've got 26 caribou that have been there for 10, 12 years and so your strategies have worked. You've been doing predator control and I don't know what other strategy, but certainly predator control is a big function there and that's allowed caribou to exist on the landscape. But meanwhile disturbance numbers have been going up so it doesn't really get to that self-sustaining which is what Justina talks about and which, frankly, is what Wildlands League is interested in. We want to see the forest be healthy and thriving and that means having self-sustaining caribou populations. So from our perspective, you know, putting the paddles to the chest at the last moment because this caribou range is going to go extinct has kind of missed all the opportunities that you had beforehand to get it right and to change the disturbance levels. And so really it comes right back to disturbance levels and getting those done. And investing in these strategies as a last-ditch effort, without doing disturbance or without increasing the undisturbed habitat or finding a way to bring it back, is, justina said, those caribou you're not just going to be able to take them back from Florida and put them in, and not that they're taking them to Florida, but you know that you can't just re-home them after that if you haven't dealt with the disturbance.

Kaya Adleman: 14:49

What are some of the effects of climate change that could contribute to that happening?

Justina Ray: 14:55

Well, so for caribou, I mean, they're really like a snow-loving critter. They cross ice, they move a huge amount in the winter. They also a lot of their food sources are underneath the snow in certain cases, or on top of the snow in the trees, so they need snow, no matter what. Some mountain caribou populations, they eat the lichen that's dripping from the trees, but they really rely on big, thick packs of snow in order to get to reach those lichen. And then in boreal areas they're digging underneath. And so if you've got these rain on snow events, which happens much more frequently in these winters these days I mean we've experienced it hugely in Toronto, but it's happening further north

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Talking to my colleagues in Thunder Bay that that was happening recently in Whitehorse as well I mean these really odd rain events that happen increasingly in places where it shouldn't go and that will then lead to freezes. And even though these animals have fantastic claws, like nut claws, but their hooves are able to dig through snow and ice, there's limits to that, so they can starve their food. They can have difficulties moving across the landscape. Climate also brings more fire, more frequency of fire, more and over broader areas, and so all that combined can be very difficult. The other thing is that it makes these forests in the north more hospitable to things like coyotes and deer, so it changes the forest in that way. It hasn't happened so much in the eastern Canada because the winters have still been severe enough to knock back deer populations for the most part, but there's in Alberta and Saskatchewan. It's been crazy how the deer range has increased and gone further and further north and that changes things. They bring a kind of brain parasite along with them, and if the caribou even a moose encounters that, it's almost 100% mortality In festations that will happen, along with hotter, drier summers. So it's that constellation of factors that really serve to compound. It's tough already to be a creature in these kind of northern environments. I mean, they're really well adapted for these areas in every way, and so climate can kind of wreak havoc with that kind of situation.

Janet Sumner: 17:37

So, in terms of the number of ranges that we have, is it 50?, 51?

Justina Ray: 17:42

I mean across Canada, yeah, I mean circa. So it's really difficult to, because the whole business of a range is really difficult to identify and so on. And sometimes it's artificial, because places like Alberta, where you have so much industrial disturbance, you've got these islands of caribou and then you call that a range, but that's not really a self-respecting range in the true sense of the word, right, and then on other areas where the forest is more contiguous, it's. The delineation of these populations can sometimes be a bit arbitrary as well, because really they do move across a little bit more and that's certainly something that genetic studies have been showing, that there's much more population exchange. So anyway, I'm being a little bit pointy-headed about that.



Janet Sumner: 18:36

No, no, no.

Justina Ray: 18:38

Just as an excuse to say that you know I'm not going to, you're not going to find, you're not going to hear a population a number of ranges from me.

Janet Sumner: 18:45

That's okay. That's okay. People can look at, look it up on the the come on to Canada Of course they're.

Justina Ray: 18:52

They're, they're kind of more management units. It is probably a better way to describe them.

Janet Sumner: 18:57

So, but a number of those management units. We understand that the disturbance levels are above the 35%.

Justina Ray: 19:05

Quite a bit in some cases, yeah.

Janet Sumner: 19:07

Yeah, there's 43s and 50s and you know it's it's quite a bit higher. So, and we haven't got the population data in a lot of these ranges. So we're on a tightrope without a net and we don't really know necessarily how they're doing. Are you hopeful, Are you? I'm a



retired electrical engineer and Joann, I'm a hair-dresser of trainitty stations tech and we're almost at maybe a ten minute event.

Justina Ray: 19:30

I'll turn that question around a little bit. I'm very motivated, I mean, I do see, I do see, you know the under, we have the understanding and you know, in Ontario, the hopeful thing is that is that there are population surveys happening and there is indication and intent to adjust management strategies accordingly. It'll be very difficult because that has to be balanced with other concerns and so on, but at least being transparent about it, about the situation, would be a very good step, you know, and so that society can make choices, and instead of saying that, as many governments are not that keen to sort of admit that there is a choice being made effectively between biodiversity and economic priorities, and so that needs to be put out in the table a little bit more clearly. There's a lot of work to be done, but there's also more realization by governments that biodiversity, including caribou, is important, it's important for human well-being, it's important for climate change strategies, and people are getting a little bit more aware, I think. So that's the thing that gets me up in the morning is that there's a lot of work to do.

Janet Sumner: 20:56

I understand that you're saying that there will be choices that are made, and I'm just going to put some wildlands editorial on that, which is and maybe it's not editorial, but licensing to do. Many of the industrial activities that we license for are predicated on managing sustainably. And so your point about, well, society will have to choose whether or not we make some of these management choices. Most of society is assuming that we're operating industrial activities in our forests in a sustainable way, and if we have evidence that that's not occurring, because populations are not doing well or we've exceeded the disturbance level, I don't know if it's going to be enough to just change the management prescriptions, unless you're going to include the actual protection of habitat. So I would just sort of I mean, that's just my editorial on that and I'm not going to expect to use the scientist in a certain way on that, but that's how I would frame it. But



in terms of the science in Ontario, you're saying we're going to get more, better data and have a foundation upon which we can make better choices.

Justina Ray: 22:16

That's my hope, I mean, certainly that's the intent, and from everything I know that that is happening in terms of the data collection and, again, this is a well-studied creature. So we should be able to use the broader, we should be able to do things with those data and I think, evidence having evident, most governments claim and are keen to have evidence-based policies, and so I view my job as bringing forward the evidence and then also, you know, the implications for management as a result. So the end being and helping with that transparency.

Kaya Adleman: 23:04

I will say that if there was any animal to bring a brain eating parasite to a population of caribou, it would be deer. They just give me that vibe.

Janet Sumner: 23:20

You're more a fan of orcas than deer. Okay, got that. Yes. One of the things I just want to comment on this is that just D just saying it's great that we're going to have this population data, and I agree with her. I'm really looking forward to it. I'm pleased that that's going to happen. As I mentioned before, I think we need to not just have it for this year, but we need to have it for multiple years so we can understand the trend and then we can make decisions on management choices. But I think in the absence of that, until we have that trend data and we understand, we should be acting in a much more precautionary way. I mean, if we know that the science says that there's this relationship on 6535, we should be maybe being even more cautious on that and going for a higher percentage of undisturbed and pushing our policies in that way, as opposed to exempting forestry from the protections of the Endangered Species Act or the protection provisions in the Endangered Species Act. So I think that we've gone the wrong way around this and instead we're continuing with business as usual while we get the data. Really happy that we're getting the data finally. That's a big step. But in the



absence of it and having the trend data over several years, I think that we should be taking a more. And then again, this is a wildlands league perspective. We should be airing on the side of precaution here, and a good precautionary approach would be to put Caribou Habitat into protection now. Interim protection Stop building roads in the last remaining intact areas of Caribou Habitat. This forestry operations into the already disturbed areas. After all, provinces and territories were asked to do this since 2012 and it's 2023. So we shouldn't be sitting around waiting for more data. We need to take action now. We're not at the beginning of the struggle. We're at year 11 on the federal recovery strategy. Even longer, if you look at, some of us have been trying to get Ontario to take action since 2007.

Kaya Adleman: 25:25

And I just, I don't know, maybe just to add to that, especially since disturbances are compounding now even more so with the impacts of climate change, that's just you know. Saying just adds to the argument for more precaution.

Janet Sumner: 25:40

Maybe if you can just give us a bit of background on WCS Canada and the E-Broad. You re-birthed the organization and now it's. You know it's across Canada. It's doing amazing work across Canada.

Justina Ray: 25:56

Yeah, I mean I co-founded it with WCS Global and they were keen to start a program in Canada. We had done some advanced work beforehand to determine whether or not the niche was there, and essentially it's. We are conservation scientists who do work on species and ecosystems mostly, but you know that's broadening to a certain extent. We started in particular geographies like Northern Ontario and Yukon and other parts of Canada where we are there for the long term. We work very closely with communities and provide technical support or co-create research with them, and then increasingly we have broader national initiatives that go across Canada, like identifying key biodiversity areas as a big flagship program of ours, and also our forest, peatland and climate change



program, which has a big focus on peatlands in particular, where Canada has 25% of the global responsibility for this ecosystem and it's incredibly carbon rich and we argue it is got to be a key part, mainstreamed into any climate strategies that Canada is leading.

Janet Sumner: 27:11

I just want to say is there any advice out there to parents who have a six year old who wants to be a wildlife biologist?

Justina Ray: 27:22

Feed the dream. You know, I grew up in a city on a 10th floor of an apartment, and I got I was able to be to get a lot of stimulants before television. So I'm dating myself, you know, in the sense that you know we weren't allowed to watch it and there was certainly no streaming. But you know, most of most of how I learned was through books, and and then you know occasional visits to the zoo and to the museums, and that was enough for me in the sense it wasn't, it was not nearly enough, but we didn't camp in my youth because my mother was a refugee in the war and so it was not interested in camping and and so it wasn't until my twenties that I actually got outdoors and did all these things. So it is possible, and it's also I think it's going to be increasingly possible to make a living, because people are recognizing governments and everybody's recognizing the need to take care of the other creatures that we share the planet with, but also that they are representatives of biodiversity and nature, which is absolutely critical for human well-being and then also for addressing the climate catastrophe. So these are all key and important things. So feed, feed the feed the interest as best as you can.

Janet Sumner: 28:46

That's a great place to leave it with Justina.

Kaya Adleman: 28:48

Yeah.

Janet Sumner: 28:49



Feed the need, feed the dream.

Kaya Adleman: 28:52

Yeah, I really like those concluding remarks from her. Yeah, that was a great conversation, Janet. I really really enjoyed kind of getting a sideline seat to the chat and I did. I will have to say I did feel a little bit like I was watching a nature documentary, but through my ears, so that was really cool. I found it super informative. I really learned a lot. I hope that anyone listening to this now has more knowledge under their belt around Woodland, boreal, caribou. I think there's two key take home messages for me, looking at the entire context of the conversation and in the context of our podcast, and that's to say that there seems to be kind of a recurring theme of cumulative impacts to the landscape and cumulative disturbances. We literally just had an episode with a constitutional lawyer, amy Westland, about cumulative impacts cases in legal context. And that's to say that you know, when we talk about lands and resource management planning, it doesn't seem like we have our thinking right around looking at the effects over time that these multiple instances of disturbances to the landscape have, because everything is so connected. You know industrial disturbances to the landscape, they impact, you know, lands and water and that all cumulatively, all together has an impact on biodiversity, and so that's not something that should just be also thrown aside when thinking about caribou conservation, and I think that's also like even the idea of looking at caribou as kind of an indicator species also speaks to that idea that we can use it as a marker, not in a vacuum, but as a marker for the health of the forest overall. And my second take home point from the conversation is that we really don't have a lot of data to kind of base a lot of the decisions that we're currently making on, and that an investment in good, high quality data and an incorporate, better incorporation of too-eyed seeing and indigenous knowledge into the framework would really be beneficial to improving our, I guess, our strategies and approaches to lands and resources management and forestry. And I like that idea Janet, that we should take a better precautionary approach in the absence of that data.

Janet Sumner: 31:38



Yeah, and I think Justina highlighted the point that where we have great data, where industry is supplying the funding to actually get the data, we're not necessarily taking the action to protect the caribou habitat. So just having great data is not going to get you to self-sustaining ranges of caribou. It's actually important that you have great data population trends, disturbance numbers that are taken into account, the cumulative disturbance then you can choose your strategies and that should include leaning heavily on getting to the 65, 35, 65% undisturbed habitat, unless you've got amazing data that shows that your caribou, over trending, over years, are just doing fabulously. And I think that that's the that having that, especially with the increase in climate change et cetera and the risks, et cetera. So, again, the goal for Wildlands League is to see healthy, thriving boreal ecosystems and this is a good proximate to help us guide us there. And I think what's wonderful for me and I just realized as you were talking is that caribou kind of embody that bellwether of cumulative disturbance, right, so if First Nations are tracking on cumulative disturbance cases and cumulative impacts cases, caribou kind of are that critter that tell you whether or not you've got too many accumulated disturbances. And yeah, so they're sort of it's a complex problem, it's not easy to solve and even when you have people of all good intentions, it's difficult and we don't have a magic bullet. So thanks, Kaya, it's good going on this journey with you.

Kaya Adleman: 33:31

Likewise, thanks for the conversation, and we're not done with boreal caribou just yet. We have more on the topic with our in-house caribou policy expert, Anna Baggio, coming soon. So that's another conversation to look forward to on the docket.

Janet Sumner: 33:52

Yeah, we'll get to hear like what are the like once you have the science, what are the policies that actually could work or should work, or do we have or how could they work? Because it's not enough just to have great science. You need to do something with it.

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Kaya Adleman: 34:20

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