

# **If a Tree Falls Review**

Ashes Ashes

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# Synopsis

We're missing the forest and the trees. Not only has logging exploded in recent years, but it is has done so in many cases in the explicit name of sustainability and green energy. We examine the authenticity of these practices as well as look at some of the long-term destructive consequences that forest disturbances can wreak, in some cases (e.g. extinction debt) reverberating a century in the future. Additionally, the same economic forces that destroy pristine and critical ecosystems are the same that seek to divide and conquer indigenous people by pitting them against one another and against the health of the very land they depend on.

# Introduction

**TORCIVIA:** I'm David Torcivia.

**FORKNER:** And I'm Daniel Forkner.

**TORCIVIA:** And this is Ashes Ashes, a show about systemic issues, cracks in civilization, collapse of the environment, and if we're unlucky, the end of the world.

**FORKNER:** But if we learn from all of this, maybe we can stop that. The world might be broken, but it doesn't have to be.

# The Industrial 'One-Night Stand'

**FORKNER:** One of the primary results and one of the primary needs of industrialism is the separation of people and places and products from their histories. To the extent that we participate in the industrial economy we do not know the histories of our meals or of our habitats or of our families. This is an economy, and in fact a culture of the one night stand. "I had a good time," says the industrial lover, "but don't ask me my last name." Just so, the industrial eater says to the svelte industrial hog, "we'll be together at breakfast. I don't want to see you before then, and I won't care to remember you afterwards." In this condition, we have many commodities but little satisfaction; little sense of the sufficiency of anything. The scarcity of satisfaction makes of our many commodities, in fact, an infinite series of commodities: the new commodities invariably promising greater satisfaction than the older ones. And so we can say that the industrial economy's most marketed commodity is satisfaction, and that this commodity which is repeatedly promised, bought, and paid-for is never delivered. The persistent want of satisfaction is directly and complexly related to the disassociation of ourselves and our goods from our and their histories.

And that David was a quote by Wendell Berry. I think it's pretty obvious at this point that the modern economy flush with all it's commodities does not provide a lot of satisfaction, David. Otherwise, why would business models like Ikea be so successful?

**TORCIVIA:** Daniel, I would take that a step further, even: that it's not that the modern economy fails to create some sort of satisfaction or contentment in the heart of the consumer but in fact depends on breeding the opposite an endless sense of want and need that you try and fill with commodities in order to keep this economy churning. That is the design of people like Renee's, who talked about on the show that is the end goal of people who work in the advertising industry spending billions of dollars a year to get you to want and want and want some more. The fact you do not obtain contentment through these consumer products is not something that is lacking because the products have been designed in such a way that they can't do that but it is back a very fundamental cornerstone of the way that our economy and its dependence upon endless growth function.

**FORKNER:** Yeah but behind every consumer product is the commodity in terms of the investment, you know, stock market conception of it, which is the basic inputs that go into making all these consumer products that we are then conditioned to keep wanting and coming back for over and over again. You know, we talked about some of these commodities like cotton or the industrial food commodities like corn and in these types of things so I...

**TORCIVIA:** Sand.

**FORKNER:** Sand, that's right but there's one that hasn't quite sprouted through in the discussion, David.

**TORCIVIA:** Uhhh, what is that Daniel, you're using sprouted so, a plant, um, rice.

**FORKNER:** Tall plant.

**TORCIVIA:** Corn.

**FORKNER:** Well, and this doesn't just sprout, David, but it rises to great heights and it is in fact that great height that provides the value because...

**TORCIVIA:** Sunflowers. No, it's a tree, David. We haven't talked about trees and specifically the commodity of lumber which is derived from trees. You take something very complex like a forest, which is a superorganism – if anyone hasn't read it yet I highly recommend *The Hidden Life of Trees* about all these very intricate and complex relationships between different individuals of trees, the diversity of species that form symbiotic relationships with them – and we we take something like this: super complex,

close to just innumerable biological ecosystem services and all these complex inter-relationships and we convert it to a simple two-by-four, and that's the value that we extract from the superorganism that we then ship around the world in a complex web of logistics, wreaking violence everywhere it goes all so that you and I, David, can go to that IKEA store and keep purchasing the same end table over and over again.

**TORCIVIA:** You need to stop buying things over and over again, Daniel. I don't know how many shows we've had at this point where you're like, "I keep buying toasters. I keep buying Ikea furniture." Bro you got to stop and just buy something once.

**FORKNER:** That is not my probl- I don't have a problem, David, society has a problem and until we...

**TORCIVIA:** Why are you breaking the end tables constantly, like, what are you doing?

**FORKNER:** Do not deflect the failings of society onto me as an individual, David, I don't appreciate that.

**TORCIVIA:** Touche.

**FORKNER:** Alright so this is a problem, right?

**TORCIVIA:** Yeah, well I think maybe this is a good point to move on to the main thrust of this show and that is the focus on not just this wood and these trees as commodities or as living organisms, but rather, the act of converting it from one to the other- and that act is a moment of logging. And, uh, we all know logging is bad. If you walked down the street and you said to someone, like, "is logging bad," I would bet 90-something percent of people would say, "yes," and we can in the conversation there, right, Daniel? Shows over; good job. But there's a lot of nuances, a lot of interesting things, there's a lot of stuff happening in the logging world that we want to talk about. And it may be logging is too limited but the forest industries as a whole are really a fundamental part of the economy in so many ways. Look around you at everything that contains wood, it's obviously a lot. It's everything from homes to consumer goods like Daniel mentioned, and it's an important fundamental basis of the economy.

But, like everything in the economy, that comes with a cost. And so, over the course of this episode we're going to explore some of that. We're going to explore some of the unique uses of some of this lumber, where it's ending up in places you might not expect and how that could be problematic, and then also, a lot of focus on the tricky accounting and conversations that happen around this industry that is increasingly trying to rebrand itself as something sustainable, and selective in its actions, because it does have a bad rap that it's gotten over years for, you know, good reason. But, all of this starts at the fundamental beginning of any process of converting a tree to some sort of final good, and that is logging. Logging technology has advanced a lot especially within the past few decades. Obviously, we have this image in our head of the manly man with a plaid shirt and a big beard heading out into the woods by himself with an axe, chops in that signature V cut into the tree, uh, yells "timber," and it comes down with this traumatic crashing noise that, you know, is pretty good ASMR content. But the technology of logging has advanced quite a bit from that image, uh, that was maybe something that we got used to a hundred years ago and had basically been the fundamental cornerstone of logging for thousands of years.

And over the course of human history we've cut down a lot of trees. I found this really interesting paper that estimated that throughout the entire length of human civilization from the beginning of humans cutting down trees until now, we've cut down 46% of all trees that lived on earth during that time.

**FORKNER:** That is a lot of trees.

# Logging 101

**TORCIVIA:** That's a lot of trees. 46%. This is hundreds of billions of trees that have been lost because of our actions in order to fuel civilization at first for very basic things like using trees as fuel to create warmth in heat in the form of fire. We still use trees for that- for the source of energy in a variety of different ways up through today including fire, but also things that are more complicated viewed through a sustainable lens, which we'll talk about a little bit later. But increasingly, as time goes on, we find more interesting and more technologically innovative uses for this wood, and at the same time, the process of cutting down those trees becomes increasingly conscious of sustainability as well as more economically efficient with use of technology and expensive mechanical good soap. Most of the time today there's very little one-on-one, you know, a guy attacking a tree by himself happening; that those days are long gone. So you will see teams heading out with chainsaws, that still does happen. But a lot of this now is very much mechanized especially in selective cutting areas where we have these very complicated machines that come in, they find a tree, and they analyze all the trees in an area and they they say okay well these trees are the most profitable right now based on current market prices, and so we can make the most money by pulling out just these trees because we're not going to clear-cut this area, we're going to do selective cutting- and we'll talk about that a little bit.

And then it'll take that tree; it basically grabs it, cuts it down automatically, flips it back, strips off all the limbs, and sometimes even turns it into lumber right there on that spot before driving it out. And so all these things that were once teams of people that would take lots of transportation, you know, flipping these down rivers (you've seen those videos of people riding these giant log rafts), I mean that still happens, but a lot of this is now increasingly mechanized especially in the developed world- here in the United States and Europe where much of the harvesting of lumber does happen. This is the image that we see increasingly today.

And there's a lot of variation. Sometimes they leave the products of the tree-felling there on the site, so things like: branches, the leaves, or the needles from the tree. There are differing schools of thought whether they're good for fertilizing the area or helping new plants grow. Other times those are swept out in order not to disturb the soil as much as possible to keep things pristine. There's different schools of thought, and different silviculturists, which is somebody who is a forestry management person focusing on the harvesting of trees and the maintenance of those tree blinds in other areas, will have disagreements (and there's lots of interesting papers about all that). But, I mean, basically the idea is you either come in and do a clear-cut where you take an area and you harvest everything; you pull it out or you leave some remains behind but everything is gone. Or, you do a select cut where you come in, you take a percentage of the trees, often times it's about a third to half, depends how dense the area is, what trees you're doing, and what your permit allows you to take. You grab those trees and then you move on. And, uh, we talked about selective cutting before on the show, Daniel, if you remember back in an episode with Bernie Krause.

**FORKNER:** That's right, Episode 44, *Do Not Disturb*. Bernie Krause actually did some testing. So he's a field recorder. He went into this area where a logging company said "hey we're just going to do some selective logging it's not going to disturb the habitat we're only going to take some trees here and there." So, the community said "okay, well let's try it." But before they started, Bernie Krause came and said "Well, let me record the soundscape. Let me listen with a microphone how many species are here." And then after the logging company did its thing, he went back. And, obviously you can't really tell visually that there's a big difference in the forest, but then when he recorded he found that some like 90% or something of the species were gone, which is crazy. But David, you know you made this

comment earlier: you said that most people know that deforestation is bad. But I don't want to make any assumptions, okay about, uh, the pre-knowledge of our listeners here so, can you indulge me as we just touch a couple points of why logging might be something that we should be concerned about?



# Good or Bad?

**TORCIVIA:** Tell me more Daniel.

**FORKNER:** Alright, well we care about climate change here on this show and forest represent up to 80% of all sequestered carbon above ground, and their soil accounts for up to 70% of all organic carbon found in our soils worldwide, which is a lot that has the potential to be released when we disturb these forests. In the United States, as long as our forest are still alive, they absorb perhaps as much as 13% of our greenhouse gas emissions. This deforestation is worse in some places relative to others. You mentioned 47% of all trees since the dawn of civilization have been cut down. In 1960, Guatemala had a 75% forest cover across the nation, and just 30 years later that had dropped at 25%, with only 2% of that original forest cover remain.

**TORCIVIA:** And, this was really interesting to me, Daniel, digging into all this stuff and deforestation in particular, because, I've heard something over the past couple years and even some of our listeners of our show have told us this, and I, I thought it was true. And you can still find these stats in some places suggesting this, but when I was digging down into peer reviewed papers I found the opposite. There's this fact that people say that actually forests are increasing worldwide, and I just took that to be true, and it is sort of true in some areas. It depends on your definition of forest. Many times when you hearing the stat, people consider something that is more than 10% canopy-cover, which is a very small amount of trees, most people looking at it would not consider it a forest, but a lot of these statistics do count that as forest. But the most recent paper that I can find from *Nature* suggested that we are losing global forest cover at a rate of 192,000 square kilometers each year. That is approximately 15 billion trees annually being cut down for various uses whether it's for lumber sales, for energy usage, or just clear-cutting of land in order to make space for human land use.

**FORKNER:** Which obviously has a dramatic impact on climate change but climate change is always the center of these environmental changes these days because it is such a looming threat. But last week we discussed that the very recent study that just came out about bird loss, specifically an average of 29% bird species have disappeared from North America in just the last several decades, as high as 50% for certain habitats like grasslands. I want to draw your attention to a paper published in *Animal Conservation*, uh, written in 1999 titled "De-forestation and bird Extinctions in the Atlantic Forest."

Now, the purpose of this very robust paper was to determine why many bird species did not seem to be experiencing extinction immediately following bouts of deforestation, and the data revealed something interesting: that there is a lag time between deforestation, habitat loss, etc., and bird species extinction. And after discussing that paper last week, David, about the monumental loss of bird species that our world somehow didn't notice, when I read the conclusion of this paper it just confirms all the more in my mind that we live in just a crazy, crazy world. So let me quote this conclusion, quote "So what proportion of the endemic Atlantic forest avifauna is in danger of being lost? We know that 36% are already threatened with a high risk of extinction in the wild in the medium-term future. Varying our predictions of extinction based on deforestation across ecologically plausible ranges produces estimates in the range of 30 to 50%. We stand to lose between a third and a half of the Atlantic Forest endemic birds as a consequence of the deforestation that has already been carried out."

But keep in mind that this is being written in 1999. Going on: "How long is the medium-term over which we expect these extinctions to take place? We can estimate this using the new categories of threat, which assign probabilities of extinction of 50% in 5 years to critical species, 20% in 20 years to endangered species, and 10% in 100 years to vulnerable species. Applying these probabilities of

extinction to the number of Atlantic forest-dependent endemic birds in each category of threat, gives a crude estimate of 21 global extinctions within a century. That is 1/6 of the avifauna. This prediction is conservative; it does not include species that survive in secondary forest nor those forest species that may become threatened due to deforestation in the future. Our analysis clearly shows that deforestation is also leading to mass bird extinctions over the scale of the entire Atlantic Forest, but that these have not yet occurred. Without immediate and comprehensive conservative action, many species of Atlantic forest endemic birds and untold numbers of other taxa threatened with extinction today will become extinct in the medium-term future.” End quote.

I just think that’s really profound, David, that what these researchers found twenty years ago is that the effects of deforestation on mass extinction ring 100 years in the future. And, you know, last week we we talked about the new paper that came out , talking about the mass extinction of birds that just occurred underneath our noses, right in front of our eyes, and we’re still grasping for an explanation despite the fact that researchers have been warning about this type of event. And here we are today with the greatest scale of industrial logging the world has ever seen. We haven’t heeded these warnings at all. In fact, we’re just accelerating the process and this is something we’re going to talk about very shortly. But, real quick, a similar study was carried out for plant species, and a similar result was found that forest habitat fragmentation incurs a quote on quote “extinction debt”, which leads to the loss of plant species, also a hundred years in the future. And why is that the case? You know, this phenomenon plays out more significantly of course among plant species with low rates of population turnover: the so-called slow species. And we forget just how old forests are, right, and how old trees can be.

You know, the lumber industry would have us believe that a tree can be grown in a couple decades or so. But trees do not occur as isolated in individual units within a forest. As the author talks about in that book *Hidden Life of Trees*, forests are super organisms, and the individuals within those forests live lives playing out over centuries and with complex relationships with one another. There are examples of mid-size trees that we might mistake as a twenty-year-old sapling that is, in fact, an 80 year old tree whose growth is being intentionally stunted by a parent tree, itself centuries-old; and only when that parent tree dies does the young buck have it’s chance to shoot for the sky. Right, the relationships in forests are ancient, and so should come as no surprise that to measure of the health and outcome of change within a forest, you need an ancient and long process of observation. And the problem is we are now living out, or about to live out some of the very worst effects of change that took place many years in the past because of deforestation. Because the extinction debt reverberates out to all of the relationships within a forest: not just the trees, not just the plants, but the birds, the primates, and countless other.

# Sustainable Logging

**TORCIVIA:** I think this is a perfect place for me to jump in, Daniel, and talk about, for one second, the sustainable logging industry, or what it has tried to rebrand itself as. This idea that you can come in and take trees out of a forest, often times not clear-cutting, this selective style of tree cutting, and for it to turn out fine: for the ecosystem not to be disrupted, for the soil to be rich and healthy, and, uh, the forest to live on without much problem with [sic] like we were never there in the first place. At least that is the lie that is sold to people that is constantly put up on these company websites that nations, organizations, and NGOs set up to make sure that we know this product was logged sustainable or whatever. But the fact that matter is, this is a side effect of a lot of really bad science, a lot of questionable quantification and, uh, very shortsightedness. And I want to talk about this just just for a second here.

**FORKNER:** So sustainable logging– you’re talking about companies that say “oh, we harvest the trees but we do so in such a way that...” like what exactly is sustainable about this?

**TORCIVIA:** Well, I mean, so there’s a lot of elements at play here and so I apologize in advance for spreading out all over the place immediately, but there’s a lot of updates you have to know, so.

It begins once again with the active logging in the area for the first time and instead of clear-cutting that area, which is the horrible image that we’ve all seen where you come somewhere and there used to be beautiful forest, we are flying over an area and there’s just death, just stumps and dirt and piles of discarded wood as far as you can see. And this is a very heartbreaking image, uh, when people come and photograph this or witness this it makes people angry, and this is part of the reason why lumber companies were looking so intensely at trying to find another way of going about harvesting these products at the markets desire, that we want as consumers, ultimately because this is really bad PR. So they came up with selective cutting where they would come into an area cut down a fraction of the trees, somewhere less than half, sometimes as little as 10% depending on the permit, depending on the area, depending on what trees they’re looking for and whether it’s a natural stand or something that is a tree plantation. And they’ll come in, cut these things out, remove it, clean up after themselves, there’s a lot of careful cleaning of the soil, often times there’s only certain marked routes that they’re allowed to traverse– they’ll send people off on foot in other areas– to try and disturb the soil as little as possible and make sure that the forest, at least to the eye, looks really pristine. But as Bernie Krause found out, and as we are increasingly finding out, just because something looks the same to the eye, doesn’t mean that the ecosystems, the soil, the environment isn’t disturbed and kickoff one of those extinction debts like you mentioned.

So that’s the first element of this: this sustainable practice of selective cutting. And I found a lot of papers on it, and most of the way that they decide that an area, in terms of whether a lumber company can count as having logged it sustainably, is by coming in after the logging and looking at the trees that are still standing, and if they have wounds, which are you know slashes are cuts from another trees falling, or machinery, or other things hitting them or striking them, that is a mark against this tree – the tree is damaged so it wasn’t maybe sustainably [sic]. And if you have too many of these then the area doesn’t count as a sustainable selective logging area.

The other element is soil disturbance. This is why we have these very advanced technology that use these rubber treads, or only a very small logging path in order to try and disturb the soil as little as possible. Because, rightly so, forestry experts have realized how important soil is for forest health, and we want to disturb this as little as possible because doing so can disturb the very fragile relationship between these different chemicals and microorganisms in the soil, and by messing that up and we can

cause these long-term ripple effects in the forest that could be disastrous for the future health of this ecosystem. And so they will set these big grids up, basically, and analyze how disturbed the soil is: whether it's pristine and untouched, or is on the worst-case upturned and covered in treads and marks from heavy machinery. And we've gotten pretty good about not disturbing the soil.

But, I found a couple of papers that suggested that it doesn't fucking matter- that you can actually tear up the soil or you can not tear up the soil. And when you do a long-term study of the health of the forest it really doesn't make a difference- that the forest, in fact in some cases, where the soil was upturned, ends up better at least in the short-term because it mixes up and adds, uh, releases some carbon, introduces new nitrogen, which spurs short-term growth. But in the long-term there really isn't a difference the forests don't grow back the same. And this is because, like you mentioned, Daniel, these are very fragile carefully balanced ecosystems that got to this way because of hundreds of years of growth, and, of course, I'm talking here about old growth forest. Managed modern forests have different problems, which we can get into, but you can't repair something in a few decades that spent hundreds of years to get to that place. It doesn't work. So this focus on these very small short-term quantifiable effects of what counts as sustainable is just ludicrous, and is short-sighted, and is the logging industry and the governments of the world offering the permits to this industry, pulling the wool over our heads to make us feel better. When in reality we're just upturning ecosystems, ripping the environment apart and causing extinctions, like you mentioned, Daniel, willy-nilly all over the place. And so one paper asked a question: "well in terms of long-term damage what is the bigger trade-off here? So if we come in and we selectively log a large area, is that better or worse than clear-cutting a smaller area to get the same number of trees?" And this paper found in the end, if we're talking about sheer damage to the ecosystem, to the environment, and to the overall forest health then we are far better off actually clear cutting small areas than disturbing and disrupting large areas of this environment because that ultimately, in the end, is probably disrupting the ecosystem just as much as a clear-cut. Which is shocking based on the visual of a clear-cut versus a selectively logged forest, but when we start really beginning to understand the intricacies of these ecosystems it shouldn't be surprising that when you come in and rip out fundamental bottom parts of these fragile food chains, these fragile relationships between hundreds or thousands of different species, that things don't work, that it begins to fall apart. And that collapse can take decades, but it does happen in the end.

So, that's that's something that's a greenwashing counter-intuitive thing, uh, that is driven by this very visceral image of the clear-cut forest. And that's just one of these elements of the sustainable scam that we're seeing, and I think really ties into that greenwashing conversation we've already had, Daniel.

**FORKNER:** Yeah, and I want to talk about more scams, but just to be clear here in case anyone, [laughs] in case anyone is at risk of taking the wrong take away from that. The takeaway is not oh, clear cutting is better than than large-scale selective logging so we need to encourage clear-cutting. No, the answer is: we shouldn't be doing either, and we certainly shouldn't be encouraging the growth of selective logging simply because we think it's a better alternative to clear-cutting.

**TORCIVIA:** Yeah, but I have more. So so wait, hold on, there's more here.

**FORKNER:** Ok.

**TORCIVIA:** So, this is talking about coming into a natural forest, uh, but after we've clear-cut an area, or whether we're restoring an area that was once forested, and then no longer is. By planting trees, reforestation, which is a huge important program that is happening all around the world by number of private companies, NGO's, and other charities as well as states themselves, often times this is done without consideration, and we'll talk about some of this later on, but I just want to talk about, in terms of commercial reforestation in the creation of tree plantations, these are, especially if you live in the South you've probably seen them, where you drive past a stand of trees and they're all in perfect lines. And it looks pretty cool when you're going by in a car, right, Daniel? Where you like look down the lines you can see, uh, this like beautiful line of trees, and it's a pattern, and you can look back and the angle's different. I mean, it looks cool when you're passing by, but it also looks extremely artificial, right? It doesn't feel like a forest.

**FORKNER:** Right it's a, it's a plantation.

**TORCIVIA:** Exactly. And, so these count as forests when they're made, but really, in terms of the ecosystems and the depth of the amount of species and plants that live inside this, it is anything but. These are basically, in terms of an ecosystem, about the same as a lawn, and we all know what I feel about lawns. Environmentalists like to talk about them as basically green concrete because this monoculture doesn't really support anything. And the same thing is true with these tree plantations. When you just have rows and rows of identical trees without any sort of difference, or or unique species, or abilities, or niches, then you get, in the same way, a very small monoculture of species that are dependent upon those trees, and it is nothing like the complex relationships that a fully formed, mature forest would support. And so, yeah, you know, some things to do live in this: squirrels, some birds can make their homes in there, but it is not the same, and it shouldn't count the same.

**FORKNER:** Squirrels also live on telephone poles, though.

**TORCIVIA:** That's true. Or in attics. Squirrels are happy to live wherever they want wherever they can fit in. And, uh, this is a common methodology where somebody will come in, clear-cut something, or selectively cut, replant trees that are most economically viable to them when they come in and re-harvest this again. But those trees often aren't best for the ecosystem. We don't have good ways of measuring ecosystems- good affordable ways of measuring ecosystem health, especially over a long-term, and any long-term studies aren't profitable, so these companies aren't interested in doing them.

So, there's a lot more depth and nuance and ah, there's a ton of papers on the website if you want to read about some of the stuff, but I just really want to say: there is no such thing as anything remotely sustainable in the forestry and logging industry. And I'm sure some forestry experts are going to come in disagree with me on that, but I think if you took anybody who looks at large-scale ecosystem health, which I think should be the gold standard benchmark of what a sustainable extraction process looks at, then anything that is even remotely commercially viable is not going to allow that to happen. There will be no long-term ecosystem health in a commercial scale, as as they exist today, operation when it comes to logging. I feel confident saying that that is true, full stop. And there is some awareness about this with silvioculturists, and that is, you know, it takes time for a ecosystem to repair itself, you mentioned, Daniel, that that we have a hundred year lag at some points in extinctions. Well, some ecologist and other researchers have discovered that forests will take 60 to 85 years to repair themselves to a similar level of life if they are completely left undisturbed during a time after dramatic... whether that is a selective logging or a forest fire, which is often used as a proxy for logging in these types of studies, though they aren't necessarily the same at all: one returns a lot of this carbon and biomass back to the soil, one removes it and ships it off halfway around the world.

But, we're talking 65 to 85 years for anything that looks remotely similar, and it's probably longer, but we just don't have the length of studies yet to know that that's the case. And this is especially important because a lot of lumber harvesting is set on a decadal scale, where they will return in 10 or 20, or oftentimes 25 or 30 years- 26 years being the jump to what's considered like an old growth tree in a lot of lumber. That's it. You know, maybe we're 30 35 years out from the original harvest but they replanted these fast growing trees, often times which are bad for the local ecosystem, and they come and reharvest them again in 35 years. That's not enough time for this ecosystem to even begin to repair itself. So we just continuously cause more and more damage even in these areas that are supposedly sustainably logged. And, once again, that's because sustainability is based on tree numbers, more or less, at the end of the day. It is based on how many trees were there before, how many trees are there after we're done, how many trees will there be when we come back again. And any sort of observation of the larger health of ecosystem- because a forest is not just trees, it is this entire interwoven fabric of the life that supports every other element within this ecosystem- well that just doesn't exist.

# Problems

**FORKNER:** Not everybody, David, subscribes to this type of sustainable logging. You know, one of the boogeymen that we always like to point to, here in the United States, is China. And the Chinese state, about 20 years ago, put severe restrictions on their own domestic logging industry, uh, they were trying to halt flooding, massive flooding, on the rivers, a lot of pollution that was going on. So they wanted to protect their land for the benefit of their people. But, the demand for lumber from industries like construction and those furniture companies, that demand has only soared to epic proportions since then, a factor of 10 specifically. So Chinese companies have been investing in operations abroad and importing massive amounts of lumber from other countries making China the number one importer of wood, and the number one exporter of wood products in the world.

And this of course spells disaster for the foreign countries that they are sourcing this wood from, for example: rainforests in the Solomon Islands are projected to be gone by 2036, other small nations like Peru, Mozambique, Myanmar, Indonesia; all these countries are under siege. But, it's also straining for a relationship with Russia as over 500 Chinese companies now log Russian forests, often illegally, and with permits that were paid for through bribes, that are threatening endangered species and precious habitats especially in those old growth forests in the in the far east in Siberia. And these forests, in fact, comprise 20% of China's total Imports.

# Biomass Woes

But like I said, David, you know, China is always the boogiemani- always always the country that we like to point to as bad or inefficient, or somehow not responsible, right, from a US foreign policy standpoint. But I think it's important to take a step back and think about why this is happening because it's occurring not just because of some individual nation's, uh, let's say less than scrupulous motivations, but it's really a fundamental law in our economic system and its resulting in a very unfavorable relationship between nations historically considered allies, in this case, China and Russia. But now this is starting to strain the relationship between the United States and the United Kingdom.

And this falls under the umbrella discussion of the scams that are going on around the lumber industry in the logging practices that we employ, David. So much of the logging going on right now in the American Southeast, which is where we grew up, David, you know, we both grew up in Georgia- our homeland if you will. Well, as it turns out, this is the hotbed for a new product making its debut on the international logistics supply chain, and that is wooden pellets. We now have some 20 large pellet mills in the South, ah, with about 18 planned or proposed in the near future. And what are wood pellets? They're just tiny pellets, they're usually compressed sawdust or or other wood, they're about the size of your fingernail, they're convenient in that unlike logs which have to be manually placed into a stove as fuel gets used up, pellets can be fed into augers that automatically keep them fed into the chamber that, you know, doing the burning. So they're really convenient home products, right? But there's another use for them that has taken off in recent years and that is in industrial-scale energy production also known as biofuel, also known as renewable energy, also known as insanity.

So let's look at this: in 2015, a single power station in the UK Supply 3% of the country's electricity through biomass sources. Now, where did this biomass come from? It came from none of the other than the American South, and that's because after the European Union categorized wood pellets as a carbon neutral energy source, logging exploded. European forests were quickly degraded, and the United States quickly had to triple its pellet exports to meet the rising demand for this product. And in fact, one company alone is on target to log 135 acres of forest land in Virginia every single day. And with this rapid growth of the industry, it's still not enough. So that UK power plant opened up its own pellet mills in the US in order to, and this is a quote by their sustainability officer, "in order to, speed up the process of pellet mill construction and development." That's why they're opening these mills in the United States. And, David, I think we need to do an episode on, at some point, I mean, I know we did an episode on greenwashing specifically, but I feel like we need one where we find out where all these sustainability departments come from. You know, like, every single manufacturing company, fast fashion brand, you name it, all these really heavily intense extraction companies seem to have a sustainability officer. And I don't know exactly what they do, like what is their day-to-day job, like I'm genuinely curious, because if a sustainability officer at a large industrial power plant is saying that we need to speed up production by burning more of America's forest land, what exactly is their job?

**TORCIVIA:** Daniel, honestly, I think they just design like green stickers to put on things. Just like a picture of the Earth.

**FORKNER:** They make those certificates that you can put on products, you know, like the leaves on the side that say, like, "ooh, sustainability certification."

**TORCIVIA:** Yea, exactly, and they plan the Earth Day celebration, where they get like cake and stuff for everyone.

**FORKNER:** So really there just, uh, public relations people.

**TORCIVIA:** Yea.

**FORKNER:** Cool. Well. So a lot of these companies that are doing this biofuel logging for these wood pellet production schemes, they'll say "oh you know we only log waste trees or low value trees," which, first of all, raises the question: what does that even mean? Typically, to the company, that means that the trees are of low value as a commodity, but if we valued trees as an ecological asset, I don't think we would be calling any individual tree a waste. Another tactic they'll use is they'll say "oh, we only come behind other logging companies and take their scraps, or we only use sawdust." But as people on the ground, like riverkeepers and environmental groups, are discovering in Virginia, North Carolina and other parts of the American South, what they actually do is clear-cut huge tracts of land to get whole trees for their pellet mills, and much of this a logging will occur in wetlands, one of the most important habitats we still have in terms of biodiversity and carbon sequestration. This is an industry that did not exist to this scale just five years ago, and now we have twenty pellet mills existing currently in the American South with an additional 18 on the way, so we're going to see an incoming doubling of this clear cutting activity. Which makes the southeast United States the most heavily disturbed forest landscape in the world. And according to a researcher from the University of Maryland, a third of the tree cover in this region has been cleared in just 10 years, which is a higher percentage than anywhere else in the world. So, where we grew up David has been effectively turned into a giant lumber factory.

And the kicker to all this is that for all this wood being cut and burned for green energy or biofuel, David, there is absolutely zero CO2 emissions being recorded. And so the whole process is treated as carbon neutral. It's a total loophole. So leading up to the Kyoto Protocol, there was an accounting rule that was established for global national biomass reporting that was effectively a mistake. If you counted the carbon that you released from a tree when you cut it down, and then you count the carbon released when you burn it, you're basically double-counting. So, in an effort to prevent this double-counting they drafted climate legislation that, if I can speak in parables, David, it would be basically like if you had two brothers and they hated each other so I didn't really want to talk to one another, but they were responsible for drafting this legislation. And one of the brothers told all the nations that, well, they didn't have to count the CO2 released from burning because he was just assuming that his other brother would make them count it from cutting. But then that other brother made the opposite assumption. And now we have legislation that allows companies to cut down trees, burn them, and report exactly zero carbon emissions because, instead of double counting we've just canceled these two things out. And that's one of the reasons, David, we have the most explosive growth of logging extraction going on today.

**TORCIVIA:** So, hold up. Lemme, let me hold up and recap here because this all just sounds like such a scam that I just, I got to get it straight. So basically it's like this: I own a power plant and I have this like mandate from the government or from the Kyoto Protocol, or whatever, that says I need to be carbon neutral, or I need to just release less carbon into the environment. And so, I'm like, aw man, I can't figure out what to do, I'm burning all this coal. You know, if I switch to natural gas, I'm releasing all this carbon dioxide. What I need is a renewable fuel. Uhhh, lemme think, lemme think: solar, you know that only works in the day, wind, that only works when it's winds blowing. Hmmm, well you know what's renewable, Daniel? Trees. They regrow. So I've got a plan. I'm going to buy trees from the opposite side of the world, because it's mostly does happen in Europe because their stringent climate regulations. I'm going to buy trees from the United States: have them cut these trees down, have them grind them up and turn them into pulp, have them put that pulp on a heave, ocean-crossing ship, which is one of the most polluting things that you can do, have that sail across the Atlantic Ocean, have it come into a dock, load up a bunch of that [sic] are, you know, very heavily putting diesel trucks, drive them across mainland Europe or, on my little UK Island to my power plant, pull into the power plant and dump it into a furnace, burn that fuel and release it - all that carbon - back into the air. And I'm carbon neutral because at the other end of this chain whoever cut down that original wood pulp is going to plant a new sapling to cut down again another 20 years.

**FORKNER:** When you put it that way, David, it does reveal the insanity and yeah it's insane David. I mean, we have to be in deep trouble to even be considering this, this is a classic example



of declining energy returned on energy invested, right? What's interesting is that the increasing price of fossil fuels itself is what has created such high demand for wood pellet fuel. Production of wood pellets doubled between 2006 and 2010 alone due entirely to the rise of fossil fuel prices. And since then production has continued to double every 5 years.

# Logging and Climate

**TORCIVIA:** Yea, and the United States creates an enormous amount of these wood pellets: 21% to 26%, depending on which year you're looking at, come from the United States, and the vast majority of that ends up being consumed by the European Union states who once again, have this additional incentive to burn these, even if it's not economically feasible and certainly not carbon feasible, because of their clever accounting. And so, we've started really disconnecting our connection to the world with this tricky accounting quantification in very much the same way that we can consider a forest sustainably logged while ignoring all the damage is done to the ecosystem. When we only track certain things, in this case net carbon in a very extremely generous way, then we end up with this ridiculous situations where we're shipping trees halfway around the world just to burn them and counting that is renewable. I mean, it's ludicrous, but it does bring up a really good point that I want to drive home about the way a lot of people talk about trees, and that is pretty much solely in their carbon content: how much carbon is released when they cut down a tree, how much carbon can a tree sequester when we plant a new one, should we be planting this certain species of tree because it can sequester carbon faster cause it grows faster, blah blah blah blah blah, so much carbon carbon carbon carbon. And, you know, it reminds me of something that that we were talking about earlier, Daniel, which is that if climate change was solved today, if somebody came, snapped our fingers and sucked out all the carbon in the atmosphere and returned us down to, you know, 300 whatever parts per million, the ocean acidification whatever... Let's pretend all the bad things that happened because of the increase in carbon in our atmosphere, were solved instantaneously, we would still be in the midst of the ongoing sixth mass extinction. That would still be happening; it wouldn't stop happening, maybe the pace if it would slow down but we would still be seeing the disappearance of all these species in increasing amounts. And that's because, well, you know, climate change is the second act of the sixth mass extinction, Daniel, like that's just the thing that's going to really turn it up to the high gear. But it's our actions on this Earth, in the ecosystems around it, in our dramatic land use patterns that have caused this initial begin of this mass extinction. It isn't it isn't climate change yet. I mean, it is some, but like, for the most part, it is the way that we interact with the land and exploit the resources that this Earth has that has caused this collapse. And so if we just were able to completely ignore the carbon content of trees in this perfect world, this selective, environmentally friendly, allegedly selective logging, sustainable logging, whatever you want to call it, would still be decimating ecosystems around the world.

And so our focus always on carbon, and our focus always on tree health, these very narrow things, which are easy to quantify, which is probably why they're tracked, we've totally lost sight of the fact that these actions are still causing mass deaths they're still causing extinctions in increasingly short timelines. And there is no governing body there is no NGO there's nobody who's focusing on trying to fix these things. These are gaps in accounting because we are dependent upon these processes, these methodologies of logging and ultimately the products they create in order to continue sustaining our way of life as it exists. And maybe we shouldn't be, even in the scenario where we have to write legislation that encourages shipping wood pellets halfway around the world in order to burn for some carbon neutral accounting, maybe we should just be using less electricity. As crazy as that sounds, maybe we should be not living in a world where we can count on 24-hour electricity for the vast majority things outside of, you know, critical functions, like we don't want hospitals to have to ration their electricity. But, maybe when we go to sleep there should be no power. I don't know, certainly no one in the United States, no one in Europe would wouldn't want that or or want to live in a world where that's case. But,

if you want to be sustainable in terms of ecosystem health, that is probably where we would need to be today, but I digress.

**FORKNER:** Well, I like the line of thinking there: that what if we collectively decided that there are certain societal changes we need to make to curtail our demand, curtail our uses of very precious resources that we don't have the capacity, we don't have the margin anymore to simply destroy. And I think that's a great point about how so much of these environmental problems now revolve around the climate change discussion. But you're absolutely right we are in the midst of a mass extinction right now with upwards of 90% of every living creature on this Earth threatened. And it's all because of massive changes to this earth that we are carrying out in the name of industrial economic growth. But the reason why climate change is an important part of this discussion is because it reveals how little we know. It reveals how blind we are to the consequences of all these changes. And so, bringing it back to climate, obviously when we log trees we release carbon and that accelerates climate change, but as it turns out, we have been severely underestimating how much carbon is being lost in this process.

You know, we consider the carbon that gets burned out of the tree itself but we very often do not consider the carbon that is stored in the soil. And there's a useful paper I found, it is from 2016 titled: "The Effect of Harvest on Forest Soil Carbon: A Meta-Analysis." It analyzed over 900 studies in 112 scientific publications specifically related to logging and soil carbon. And, on average, logging causes over 11% loss of carbon in the soil, and what's interesting is that the most loss occurs in the very thin organic layer, but there are still very significant losses of soil carbon occurring in depths as far down as 100 cm. But, unfortunately, out of the nearly 950 studies available on soil carbon loss after deforestation, only 21 of these looked at any depth lower than 36 centimeters. So there's still a lot of uncertainty around how much carbon is lost when we disturb these forests and it could be even higher than that 11%. And, bringing it back to the point about lag time here, David, you talked about the different types of soils in our episode on permaculture and there are in fact 12 distinct classes of soils. And this paper took that into account and found that for two of those classes of soils which collectively make up some 12% of all ice free land, once that soil gets disturbed due to deforestation, it takes up to 75 years or more for the soil to sequester the same level of carbon after it's been lost. 75 years, David, is a very long time. Logging and the land use change that goes with deforestation is already considered one of, if not the biggest driver of climate change. And, as it turns out, because we haven't been taking into account the entire forest, we have been severely underestimating even this impact. And here's from that 2016 paper, quote:

Soil carbon is an essential component of forest carbon accounting, yet many models assume that only surface soil responds to forest management and that soil carbon returns to equilibrium within 20 years after harvest. Recent national or global assessments of forest carbon lack any mention of mineral soil carbon, implicitly assuming the soil carbon remains constant after forest harvest. Furthermore, carbon monitoring programs include soil carbon inconsistently, for example, the American carbon registry and the verified carbon standard do not require or specify protocols for soil carbon measurements. The intergovernmental panel on climate change inventory standards assume constant mineral soil carbon in tier one with an option for inclusion of national soil carbon inventories only if preferred by a particular agency. And the u.s. forest service inventory and analysis program specifically limits soil sampling to 20 centimeters depth. The inclusion of soil and models of ecosystem carbon following harvest can have significant effects. End quote. So basically, David, we're losing a bunch of carbon from the forest soil but we don't really even take it into account.

# Dangerous Jobs

**TORCIVIA:** You just really wanted to talk about carbon after my anti carbon rant. But, this is important, this is important. I mean, so we're addressing this as deforestation is devastating from a climate change perspective. And not just deforestation but even responsible logging, because this disturbance of the soil, like you mentioned, even in sustainably log areas can still cause this kind of dramatic increase in the carbon emitted. We're destroying ecosystems; the world is worse for all of this, but it doesn't just end at this kind of stuff, Daniel, it's also affecting people and individuals. I mean the guys who go out there and log - this is the most deadly job, at least in the United States. In places all over the world with less stringent safety standards, it can be even more deadly. But logging is by far, not even close, the deadliest job.

**FORKNER:** David, hit me with some numbers.

**TORCIVIA:** Okay Daniel, that's what I'm here for. To put this in perspective I'm just going to go down the top 10 list of deadliest jobs. That sounds like a Discovery Channel special, but here it is: these are deaths per 100,000 people employed in this field. The number 10 most dangerous job... do you want to guess any of these, Daniel, guess what these jobs might be?

**FORKNER:** The most dangerous jobs? Yeah okay, um, let's see uh, policeman number one?

**TORCIVIA:** No, it's not even on this list.

**FORKNER:** CIA special agent?

**TORCIVIA:** No.

**FORKNER:** Ugh, that was my only two guesses. Let me see if I can think of some more. Astronaut?

**TORCIVIA:** Nope. Well astronaut might be on here if it was... I don't think I keep track of that, but it's not a super safe job.

**FORKNER:** Hmmm. A race car driver, um, equestrian.

**TORCIVIA:** What is up? No, uh, stop guessing. You're bad at this. No, all those jobs that most people consider extremely dangerous don't even register in the top 10 of most dangerous jobs. Things like police officer, soldier, nope, those are pretty safe actually. The top 10 most dangerous jobs going down the list. Number 10: ground maintenance workers these are gardeners, seventeen and a half of them die per 100,000 people.

**FORKNER:** And I bet that does not even include the glyphosate cancer impact.

**TORCIVIA:** You know it does not, but those people coming down with glyphosate cancer at least they can maybe hit the bank for you know tens or hundreds of millions of dollars. If you think you might have cancer, sue Bayer. Why not? Number 9: 18 deaths per 100,000 people are front-line supervisors of construction and extraction workers. Number 8 is farmers ranchers and other agricultural workers at 23 deaths per 1,000. Number 7 is truck and sales drivers.

Not surprising they drive a lot, it's where most workplace deaths occur, especially if your border patrol agent. Number 6: Iron and Steel Workers - 25 deaths per 100,000. Number 5: trash and recycling collectors - 34 deaths per 100,000. So next time you see a garbage man know that their job is significantly more dangerous than that of a police officer and don't give police officers any respect or anything else except the finger. Number 4: roofers - 48 deaths per 100,000. Number 3: aircraft pilots and flight engineers - they're getting up there - 55 deaths. Number 2: fishers and related fishing workers, Deadliest Catch, the name does ring true, that's 86 for 1,000 workers. But far and away, leaving everyone in the dust, almost ten times more dangerous than the bottom of this list is logging workers who die at a rate of 136 per 100,000. This is extremely tough, extremely hard work with a median pay about \$40,000 per year and for what? Damage these ecosystems to rip apart the world to release all this carbon in order

to get us logs and lumber, to ultimately build these flat-pack furniture, Daniel, that you are so adamant about buying every month for your new end table, so you should stop doing that. In the past couple episodes we keep coming back to this point, that we are increasingly putting people in harm's way in order to sustain certain things of our current civilization. And these logging workers, even though we might look at them as the villains of doing the damage to these forests and to the earth and to all the ecosystems on it, and ultimately our own health, they are doing so in the service of civilization. We are forcing them there because of our consumer wants because of our needs because of the manufactured wants and needs of the advertising industry and because of the larger need of the economy to always be growing, to always be creating, to always be finding new ways and places to exploit in the never-ending chase of profit.

# Land Tenure

But, as always, the conversation doesn't end there. It's not just the workers who are damaged in this process but the people who live in these forests that are being logged at increasing rates and those people are predominantly, far and away, indigenous people both here in the United States but also around the world. And this is in large part because indigenous people do control something like 50 to 65% of the world's land in terms of their practical use of this land. But practical use and generational traditions fall to the wayside so often when it turns to actual property rights. So the way that governments see land ownership is often not the same as the practical nature: people living on and using land for thousands of years. This means it's either federal land or land that the government has ceded over to private corporations, both in the United States and in other countries around the world. And so governments only recognize as about 10% of global land as actually legally belonging to these groups. Remember that original figure was 65% . So, of the 65% of land on Earth, that indigenous people should be controlling, only 10% of that is legally owned by them, and then another 8% is set aside by governments for these communities but in a sort of stewardship manner and not as actual ownership.

But, you know, the land that is owned and controlled by these indigenous people around the world are some of the best pieces of forest stewardship anywhere. They are dramatically more efficient at sequestering carbon than managed or commercially operated forests. As one example if indigenous lands had not been secured in the Amazon, CO2 emissions would have been higher about 9% more per year in Bolivia, as just one single nation, than they actually are when controlled by these indigenous people. And that is because so often they're balancing this need to profit economically from the land they control because we forced them into this world where they have to compete with the rest of us, and at the same time they're dependent upon this land for their livelihood and so they realize if they come in exploit it, destroy it, then it's gone.

This tradition that lives in the land will also be gone with it. And so there's a very subtle balance there - an extra externality that ensures that they maintain a sustainable and balanced relationship with the land that lacks in our model of just coming in, profiting off of it, maybe replanting it so it looks the same, and then moving off to somewhere else so we can exploit efficiently. And we're seeing this come to head right now in Alaska in this beautiful pristine primeval forest called Tongass, and this is actually the impetus for this episode. We had some listeners send us videos of them flying over the Tongass forest, which is this massive Ancient Forest in Southeast Alaska sort of around Juneau, in the surrounding towns around Juneau. There's a town in particular called Xuuna, who's somebody who lives there or was in contact with the people were giving us information about the controversies going on in there.

This is about 70 miles outside of Juneau but it's only accessible by plane or boat as much of Alaska is and I mean, this stuff is remote, but it was heavily logged for decades. The United States owns this federal land, some of it is owned by natives now, but it originally was owned by the U.S. government and they opened it up for logging and much of this land was clear-cut. They took the best stuff out and then at some point after years of battling, especially the indigenous people of the area, but also locals were able to get a law passed that restricted the logging of this area basically to where there were roads. And Alaska, being so remote meant that much of this land was pristine no roads on it, which is part of the reason why it hasn't been logged, and this law made that enshrined in in law, basically where you couldn't go past where things were easily accessible for logging purposes. This was called the Robles rule, it was passed in 2001 and the forest has seen a lot of regrowth in that time especially because of careful forest management from the native people there.

And this is sort of an ironic twist to the story here Daniel: much of that initial logging especially much of the clear-cutting that happened in this previous period of logging for the Tongass forest was done by native and indigenous people of the area. They had started up companies, they were moving in, and they were the driving force of logging. And this was partially because of a very important treaty called the Alaska Native Claims Settlement Act that Congress passed in 1971, and what that law did was it transferred 40 million acres of land to thirteen regional and hundreds of local native corporations around the state. This was a value of hundreds of millions billions of dollars to the people and much of this especially in Southeast Alaska, these newly created corporations, they were allowed to choose a half-million acres of the most valuable timberland in this forest, the Tongass National Forest, and to generate regular dividends for their stockholders, which was considered all Native Alaskans born before December 18th 1971 when this law went into practice

But these dividends could only be generated if they exploited that land and this is what kicked off that first massive wave of clear-cutting. And so the u.s. government basically forced these people into this scenario where: we're going to pay you reparations in the form of land, okay. And this is land you're already living and you're already utilizing, for hunting. There's an interesting paper that's written at the time that showed that the people, the native people, especially in this area were using these forests for large portion of their diets whether through fishing salmon, hunting deer, bear other things, as well as just foraging for native plants in the area. It was an important part of their total diet.

And suddenly they start clear-cutting this, especially where it's easily accessible in the areas immediately around the towns. And so, now they started cutting into their their food and they were like wait a second, we have this money but we're losing this way of life; we are losing this natural land that we've had for generations and we're losing access to this source of food and bounty and sustainability that we have that allowed us to live, you know where there isn't an easy way to get products to.

Xuuna, once again, is not accessible by roads so all goods have to be brought in by ship or by plane and that makes it extra expensive, so you really want to gather your food locally and sustainably. And when you start damaging the forests in ecosystems within, you start cutting out your own dependence upon those ecosystems as well. And there was a shift in the community where some people wanted to continue logging this, profiting off of this, getting very wealthy off this natural bounty that they found themselves. And others said "no, we have to stop, we have to do this sustainably if we we're going to do it at all, but really we need to focus on making sure that we don't disrupt our way of life and end up forcing ourselves basically to abandon this area to move somewhere else." So long story short: the legislation was passed to reduce the logging, a lot of control was regained but Trump has now decided that it's a good idea to open this area back up to basically limitless logging. There's a lot of natives that have traveled to DC, thousands of miles away, in order to tell their story, tell their about the connection to the land. There's a really great article we will post it on the website if you want to check it out and read these stories. I don't want to put their words in my mouth; I encourage you to check this out.

As well as pictures of the Tongass forest, it is gorgeous. But in this process, and this is once again what kicked off this this episode is these videos of a listener flying over what was once this beautiful mountain covered in this unbelievable forest and it's just been leveled like a moonscape.

Clear cutting the entire area, damaging everything in order to generate income for the local population as well as the corporations and companies that are coming here to exploit this product, to bring this old growth hardwood to the rest of the world. And so, even within the communities it's contentious. It's not something we can just come in and say, "logging is bad, deforestation is bad, clear-cutting is bad," as easy as that is for us to say, Daniel, because some of these people who are the stewards of this land, these indigenous populations, they want this logging to go on, they want this way of life to continue because they are unfortunately running the poverty line, running under just, just underneath it or just over it, but, you know, scraping by basically and they see this as a potential source of income and they ask, "well why aren't we taking advantage of this? this is the only way the United States gave us reparations for taking our land, is by giving us land back basically. But because we have to adopt their way of life, well you know that along with it means that we need to earn some source of money,

and unfortunately in our modern world, the only way that we really do that at the core level is by exploiting something and in this case the only resource to do is this pristine Forest.”

And so you’re seeing competitions, arguments, battles within this community over what do we do. And it’s interesting to see play-out, there’s a lot of conversations of what resistance should look like.

And I as an outsider am really hesitant to comment on what should be done beyond the fact that we’ve given these people, who had managed this land successfully for thousands of years, a really shit deal where they have to choose between two bad options and that’s because of our actions in this process of settling these areas and ultimately establishing our control over what was never ours.

**FORKNER:** Yeah that’s sad. It sounds like the United States Congress in tandem with the industry really worked to, I guess divide the people and then kind of incentivised them to work against one another. You know there’s a similar process that played out with oil companies and Navajo people about a hundred years ago, so in the early 1920s. You had these massive stores of underground hydrocarbons in New Mexico around the San Juan Basin and oil companies were just trying as hard as I could to get at this oil, but the most valuable stores of it were controlled by the Navajo tribe. And the problem was, you know the oil man couldn’t simply just hand someone a lot of cash in exchange for the land because at the time the Navajo had a very decentralized government structure comprising of six regional agencies at the time, and those agencies themselves were led by groups of head men run small structures of local families. And so this represented a very – an absolute democracy by which the Navajo govern themselves, you know with every single person over the age of 18 being entitled to vote on tribal matters. But then all of this was eroded in just a couple years by the really relentless pressure of the oil industry that had found a way to partner with the US government. And there’s a man named Albert Bacon Fall who was the US Secretary of the Interior at the time, which is the department responsible for federal land and natural resources. And this man used his federal position much similar to the way I guess Congress, in your example David, has used their power to establish a Navajo business council to serve as the signer on new oil and gas land leases paving the way for some new structure by which these oilmen could negotiate contracts. And so this man, Albert Fall, he then worked for the industry to get these Navajo men who were connected with the white business Community appointed to this business Council.

And then he further eroded the local sovereignty of the People by making a federal rule that returned royalties from oil and gas drilling to the entire Navajo Nation, instead of the local regencies on whose land the drilling was actually taking place, so I guess similar to the example in Alaska, David. And this kind of laid the groundwork for incentivizing these agencies to work against one another because one agency could profit off of the extraction of oil occurring on another agency’s land. And so with all this being established, Fall then created a special commissioner with absolute power to negotiate oil and gas leases with the Navajo, and behind the scenes, these forces pressured the Navajo leadership to abandon their Democratic structure in favor of a new representative government made up of just 24 delegates. And this was established in 1923. So now with this new representative framework established and the ability to incentivize one side of the Navajo to give up the land of another side, the oil industry very easily could identify, you know, which delegates to co-opt out to present contracts on the industry’s terms and in such a way as to get them signed by the delegates. And the result was the invasion of oil companies on Navajo land with little to no royalties actually going back to the native people on whose land oil was being taken. And it sounds like if we don’t support and provide solidarity and resist the outside influence of these type of pressures on the people in Alaska, David, then a similar consequences play out.



# What's this all for?

**TORCIVIA:** Daniel, there's a lot of heavy points here and a lot of conversation about destruction, whether it's ecosystems, whether it's other people's lives, whether its livelihood, you know, all these things, and, in the end I think it's worth noting what all this is over. Right, so when I come in and log an area, I'm logging that in order to profit off of it right? What's a tree worth in this case what is all this damage to an ecosystem worth, what is the release of all this carbon worth, what is all of this, this negative externalities worth in terms of somebody's profit? So I've got some stats here for you and I think this is a good way to close out this episode. To give you an idea of of the money that all this damage is ultimately traded.

**FORKNER:** Well I would certainly hope it's a lot.

**TORCIVIA:** Well I'm going to make you guess, so it's a guess, guess the price Daniel.

**FORKNER:** Oh so you getting me back for all those pop quizzes I gave you.

**TORCIVIA:** This is my turn to do this now and I've got these numbers specifically for the Southeastern United States because that was specifically when you were talking about - especially with all those wood pellets and and things - and I've got two numbers. One for an acre of pine, which is the common tree that is harvested in the Southeast in terms of selective harvesting. And then one that is for a clear-cut of an acre, and I have these numbers also both for a plantation and a natural tree stand. So, I want you to guess. What is a selective harvest of an acre of pine worth?

**FORKNER:** Selective harvest I'm guessing...

**TORCIVIA:** So this when you come in and you take out you know 10% to 50% of the trees.

**FORKNER:** I'm guessing it'll be less than the the clear-cut so, but since I don't know what that is either I'm going to guess... so what, an acre you said?

**TORCIVIA:** Yeah 1 acre, you know, a football field's worth of trees.

**FORKNER:** \$15,000, no, \$30,000 no, um, \$50,000 that seems reasonable.

**TORCIVIA:** You are.

**FORKNER:** No, for a whole football fields worth of trees?

**TORCIVIA:** Well you know a selective cutting not a whole football field worth that would be the clear-cut.

**FORKNER:** Oh ok, so I'll go with clear-cut \$50,000 selective logging 10,000.

**TORCIVIA:** Ok, a selective harvest of a tree plantation of fairly young trees is going to get you about \$300. A selective harvest of mature, non plantation trees is going to earn you about \$900. And a clear-cut of an acre of a natural untouched piece of pine forest will make you \$1,500.

**FORKNER:** I was way way off. Um, wow.

**TORCIVIA:** Yea. It's a lot to think about.

**FORKNER:** But think about it we hope you will and set fire to a lumber tractor we hope you will.

**TORCIVIA:** No I don't I don't think we can say that. We we had to censor that.

**FORKNER:** You know that was hypothetical.

**TORCIVIA:** Don't don't don't drive sp... no. Like we can't tell people to go and put spikes in the trees or we can't tell people to add plastic into the gas of like logging vehicles, all the things are no go, and we definitely can't tell you to look up Ecodefense a field guide to monkeywrenching, that would be like... that's like extremely not not good like we can never.

**FORKNER:** That is terrible.

**TORCIVIA:** That is not allowed so.

**FORKNER:** Shame shame on you, listener shame on you.

**TORCIVIA:** For even thinking that we would do that because we wouldn't, so like don't don't do any of that stuff, but what you should do is read all the sources that we used for this episode to fact-check us to make sure we're doing the right thing. You should check out those pictures of the Tongass forest, you should read the stories of the natives who were affected by the actions in this area, and you if you're hard of hearing or just want it all the confirm that we actually said something, you can find a full transcript to look at also on our website, of this episode and every episode at ashesashes.org.

**FORKNER:** As always, a lot of time and research goes into making these episodes possible and we will never use ads to support this show, so if you like it, would like us to keep going, you, our listener, can support us by giving us a review, recommending us to a friend, discussing these topics with other people around you and supporting us on [patreon.com/ashesashescast](https://patreon.com/ashesashescast). We'd like to thank our associate producer John Fitzgerald. Thank you so much. We also have an email address: [its contact at ashesashes.org](mailto:itscontact@ashesashes.org) we encourage you to send us your thoughts: we read them and we appreciate.

**TORCIVIA:** Or, if you don't like writing emails and let's be honest - who does? We have a phone number you can call in and leave us an awesome voice message. We're compiling these to make a great call in show that's coming up eventually, so get yours in now while you can. The number for that is 31399 ashes that's 313-992-7437. We're also on all of your favorite social media networks: you can find us on Twitter, Instagram, Facebook at ashesashescast, we got a subReddit: [r/ashesashescast](https://www.reddit.com/r/ashesashescast), we've got a Discord community that we'd love to see you be a part of - you can find a link to that on the website, just click the community tab Discord and you'll have the invite there for that, and we encourage you to leave reviews for us on a your favorite podcast network whether its iTunes podChaser or something else, those really do help out and we appreciate you taking the time to do so. Next week we've got another chat episode and no I'm not sure exactly what we're going to get into yet but we know you'll want to tune in for that but until then, this is Ashes Ashes. ByeBye.



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Ashes Ashes  
If a Tree Falls Review  
3 Oct 2019

[ashesashes.org](http://ashesashes.org)  
Transcribed by Clara.

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