

[dogs barking and running at Felix]

Felix Poon: Hey Nate.

Nate Hegyi: Hey Felix.

Felix Poon: So the other day, I met up with this guy in rural Connecticut. He had this vicious pack of cute dogs. Their names were Ponyo, Camarada, and Hulk.

Nate Hegyi: Great names.

Freedom: So they're about 13 and 12.

[doggy mic-handling noise]

*Oh no! I can't pay for that, there's no insurance.
Let's go!*

Felix Poon: This gear is holding up, it's holding up.

[MUX IN]

Nate Hegyi: Hulk I imagine was not actually very big.

Felix Poon: No no, he was the smallest one of all.

Felix Poon: But anyways the guy I'm here to meet, his name is Hector (EK-tor) Gerardo (her-AR-do), but he goes by Freedom.

Nate Hegyi: Freedom? Okay.

Felix Poon: Yes. And Freedom brings me to a table with a bunch of things on it, laid out kind of like a table at a flea market.

[00:38:24-00:38:31] Freedom Gerardo: Let's start with the plants. You can see right here, this is the seed, you can see like a few leaves.

Felix Poon: And we're looking at hemp plants. Freedom is a hemp farmer.

[00:38:47-00:38:52] Felix Poon: Yeah. They're on stocks that are about the same height as a human.

[00:39:06-00:39:09] Freedom Gerardo: Look at this. My height. Six feet.

[00:38:54-00:39:05] Felix Poon: So the top, the flower part looks like weed.

[00:39:29-00:39:30] Freedom Gerardo: No. Ponyo.

Felix Poon: So Ponyo is trying to eat the leaves.

Nate Hegyi: He's gotta wait for them to be cooked into brownies first.

[MUX FADE OUT]

Felix Poon: Anyways, So this is definitely a generalization, but I will say that people that are into hemp? Is that they are REALLY into hemp.

Felix Poon: Like, Freedom is really excited to tell me that it can be processed and made into more than 25 thousand different things...

[01:25:16-01:25:18] Freedom Gerardo: Tables

[01:25:36-01:25:38] Freedom Gerardo: Any type of clothing

Felix Poon: Shoes, sunglasses.

*[01:25:40-01:25:42] Freedom Gerardo: utensils.
Plates.*

[01:25:45-01:25:46] Freedom Gerardo: straws

Felix Poon: concrete!

*[01:25:47-01:25:54] Freedom Gerardo: you name it,
you name it.*

Felix Poon: Even [BMW is experimenting with hemp for bio-plastic parts in cars...](#)

I haven't even gotten to those necklaces and hoodies that were popular in the 90s yet Nate!

[MUX IN]

Nate Hegyi: I think I had one of those hemp necklaces when I was in that phase of being a teenager.

Felix Poon: See you're a hemp enthusiast too Nate. You just gotta go back to your roots.

Nate Hegyi: Exactly, I gotta put on my Dave Matthews CD.

<<NUTGRAPH>>

Nate Hegyi: I'm Nate Hegyi, here with producer Felix Poon. And today on Outside/In... hemp! What is it? What happened to it? And why does it sound like a weird infomercial whenever you try to talk about it?

Felix Poon: I mean Nate, we only have twenty-four thousand, nine-hundred and eighty-nine uses left to go Nate.

Nate Hegyi: Oh god, this is gonna be a long episode.

Felix Poon: Rope, jewelry, water bottles, paper, roofing, flooring

Nate Hegyi: yeah yeah yeah, I get it, I get it, I get it.

Felix Poon: paint, biofuel, wallets, backpacks, tote bags, laundry detergent.

Nate Hegyi: Sorry everybody. This is just the episode. It's just Felix listing things.

Felix Poon: sunscreen, shampoo, bedding, dog collars, leashes

Nate Hegyi: Okay, enough!

Felix Poon: yoga pants, hemp flour, hemp tea....

[MUX SWELL AND OUT]

<<FIRST HALF>>

Felix Poon: So there's a question I think we need to get out of the way first before I keep talking about hemp. Want to take a guess what that is?

Nate Hegyi: Something to do with weed? I've been making a lot of weed jokes.

Felix Poon: So some hemp super fans go out of their way to make it clear: hemp is not the same thing as weed.

But that's only kind of true... because, from a scientific point of view, they are *literally* the same species of plant: *Cannabis sativa*.

There's just ooone important difference, and that is how much THC that each plant produces which is the chemical compound that gets you high.

Legally, anything with *less* than 0.3 percent THC is considered hemp. Everything above that is considered marijuana. *But...*

[00:02:31-00:02:39] David Suchoff: that 0.3% is not some type of magical number that we find in nature that really delineates the two.

Felix Poon: That by the way is David Suchoff [SOO-chawf], he's a professor in the Department of Crop and Soil Sciences at North Carolina State University.

And David says that the difference we do find in nature that separates the two? It comes down to one gene.

[00:16:06-00:17:25] David Suchoff: So there's a gene that codes for an enzyme called THCA synthase.

And there's a gene that codes for CBDA synthase,

And so if a plant contains just one copy of that thca synthase gene, it will now produce much more than 0.3 percent THC. And then it becomes marijuana.

[MUX IN]

Now, to make things a little bit more complicated, it turns out that CBDA synthase, produces a little bit of THC, and it does it at a ratio of about 26 to 1, meaning for every 26 molecules of CBD it produces, it's going to push out one molecule of THC.

And so that's why CBD hemp. Even if it doesn't have the gene for for THC production, will still produce a little bit of THC. In fact, it will produce enough if given enough time that it will go above 0.3%.

Nate Hegyi: Okay so hemp is just weed that doesn't get you high.

Felix Poon: Basically. It's kind of like this thing Taylor our executive producer, he told me this fun fact because he's our resident pepper enthusiast. Did you know that bell peppers are actually the same species as jalapeno peppers?

Nate Hegyi: Really? They're just bigger and less spicy?

Felix Poon: Yeah - they have a recessive gene that stops them from producing the chemical capsaicin... , so they're not spicy versus jalapenos which is its spicier cousin, but same species.

Nate Hegyi: Oh okay, so hemp is the bell pepper of the weed world. Gotcha.

[MUX SWELL AND OUT]

Felix Poon: Okay Nate, so it's time for ... hemp history 101.

Nate Hegyi: Woohoo!

Felix Poon: I mean, Hemp is probably one of the oldest fibers in human history.

Nate Hegyi: Older than cotton?

Felix Poon: Older than cotton. John Fike, a professor in the School of Plant and Environmental Sciences at Virginia Tech says that hemp was first domesticated in what's present-day China. And from there its usage spread to the east...

[00:09:29-00:09:38] John Fike: into Japan by a land bridge about 18,000 years ago.

It spread to the west...

[00:14:57-00:15:06] John Fike: it was known for, you know, at least a thousand years or more before the rise of Islam in the Middle East.

I mean this stuff goes way back...like, just think about ancient cave art of people hunting with spears – in some of those paintings it was probably hemp rope that was used to tie the arrowheads to the shafts to make those spears.

Nate Hegyi: And I bet you they never let that hemp grow too old, right?

Felix Poon: Nah, they probably did, how did you think they got the inspiration to make this artwork?

But anyway, hemp became essential for building boats and entire navies, because it's a lot stronger than cotton is.

I mean it was SO important that [King James the first required by LAW that property owners in the American colonies HAD to grow this stuff, at least a hundred plants of hemp](#) on their property.

[00:26:56-00:27:15] John Fike: your strength of your empire is built on a navy. You know, the stronger the material you've got,

the more powerful you may be.

Nate Hegyi: So like, Paul Revere had like, hemp growing in his backyard.

Felix Poon: I mean maybe... but definitely George Washington and Thomas Jefferson did, the first founding fathers. I mean, George toked weed, don't you know that?

Nate Hegyi: I did not, is that true?

Felix Poon: It's a reference to the movie, *Dazed and Confused*.

Smoker 1: He grew that shit up in Mt. Vernon man.

Smoker 2: Mt. Vernon man he grew it all over the country man. He had people growing it all over the country, you know. The whole country back then was getting high.

Nate Hegyi: It's a great movie.

Felix Poon: And before wood pulp became a thing in the 1800s... guess what most paper was made of Nate?

Nate Hegyi: Oh let me guess, hmm...

Felix Poon: It's a tough one I don't know if you're gonna get this.

Nate Hegyi: Hemp?

Felix Poon: Precisely, hemp!

But then... came the 1930s.

[\[Reefer Madness \(1936\) clip\]](#)

Smoking the soul destroying reefer they find a moment's pleasure, but at a terrible price. Divorcery, violence, murder, suicide. And the ultimate end of the marijuana addict: hopeless insanity.

Felix Poon: Do you know what this is a trailer of Nate?

Nate Hegyi: I do actually the aptly titled Reefer Madness.

Felix Poon: Yeah it's become this kind of weird cult classic you watch for the over-the-top depiction of pot use...

Narrator: Marijuana, the burning weed with its roots in hell!

But it was originally produced by this church group to warn parents about the supposed dangers of weed.

Like, Freedom, the guy I visited in Connecticut, he said he watched the movie with his mother-in-law...

[00:59:45-00:59:58] Freedom Gerardo: And she goes, you know, that's why you don't smoke weed. You see that? You see that what's happening to that guy? That's why we don't smoke weed. Aiee! You see that?

Felix Poon: So marijuana was effectively banned in 1937... and hemp got lumped in to it as well.

It was probably just a whole heck of a lot easier to just ban it all, because like we talked about it's

basically the same plant, how are you going to enforce like, figuring out, is this marijuana or is this hemp?

Felix Poon: But, it has had its ups and downs over the decades though. Like the US government lifted the ban temporarily [during World War II](#), because Japan blocked the supply of fiber from the Philippines.

The USDA actually made one of those war-time newsreels about it, called “Hemp for Victory”

[Hemp for Victory](#) Narrator: This is Manilla hemp, from the navy’s rapidly dwindling reserve. When that is gone, American hemp will go on duty again. Hemp for mooring ships, hemp for tow lines.

And of course In the 90s hemp was pretty popular in those necklaces and those hoodies (these were [imported from](#) overseas to get around the ban, [for example](#))

And then attitudes finally changed over the past couple of decades, after a wave of states legalized marijuana, right? And apparently then [Senate Majority leader Mitch McConnell was a huge proponent for legalizing hemp](#).

Nate Hegyi: Really?

Felix Poon: He even wrote an [op-ed in 2018 calling for its legalization](#), that he published on April 20th.

Nate Hegyi: 4/20, nice job Mitch!

Felix Poon: Right!

Felix Poon: So the ban was finally lifted in the US later that year by the [Agriculture Improvement Act of 2018](#), better known as the 2018 Farm Bill.

I mean this is where things get tricky, because marijuana is still a federally prohibited drug.

Like Freedom for example, he's just trying to grow hemp.

[00:16:48-00:16:52] Freedom Gerardo: the thing is that you have to be careful in the States because you have to test your plants.

because even though medical and recreational pot is usually like 15 to 30 percent THC... the government defined hemp at a *much* lower threshold. So Freedom has to make sure his hemp never goes above .3 percent THC, it's a tiny amount.

[00:17:07-00:17:20] Freedom Gerardo: But if you get past that, um, then you got to burn your, your crop, even if you're not using it for, for CBD or weed, it's just fiber. Um, you got to burn it.

Nate Hegyi: I'm tempted to make a joke about Freedom burning his hemp, but that actually sounds like a real bummer for hemp farmers.

Felix Poon: Uh, yeah, that's a huge waste.

Nate Hegyi: Yeah, massive waste.

Felix Poon: I mean to be fair, Freedom would probably not get high off of this. Because the THC levels...you know, .4% THC that's still kind of nothing.

Nate Hegyi: Yeah, right. It's like trying to drink a bunch of kombucha to try to get drunk

Felix Poon: Is there alcohol in kombucha?

Nate Hegyi: Yeah, ask Lindsay Lohan. She got busted for that.

Felix Poon: Oh yeah, I had no idea.

[MUX TRANSITION]

Felix Poon: So once the ban was lifted in 2018, can you guess what most hemp growers grew hemp for?

Nate Hegyi: Oh if I were to go to any kind of like, weed adjacent shop I would see bottles full of CBD oil, CBD for pets, CBD for my aches and pains, CBD, CBD, CBD.

[00:22:20-00:22:35] David Suchoff: So early on when the farm bill first passed, there was a lot of interest in CBD hemp.

Say hello to Just CBD Gummies

Thousands of happy customers use CBD by British Cannabis everyday.

We're really happy we tried CBD.

CBD for the people!

Nate Hegyi: I'm just curious, okay, everybody has seen CBD oil everywhere, like I can literally give my dog CBD oil to help with his anxiety. But like, does it work, because it didn't work for me. So.

Felix Poon: Great question. So David said there there is a drug that is FDA approved, it's prescribed specifically for a type of seizure disorder in children. And it's been proven to be effective there, but beyond that like, there are just no studies to prove that it works for anything else

Which is maybe why the CBD fad sort of backfired.

So everybody grew and there was a demand. But that demand wasn't really real.

Felix Poon: This is David Suchoff again by the way.

[00:22:25-00:22:28] David Suchoff: and it was a big bubble and that bubble burst.

[00:23:50-00:24:10] David Suchoff: We saw a lot of companies go bankrupt. We saw a lot of, uh, farmers who were given contracts, not have those contracts honored. Uh, and then at the end of the day, what we saw is farmers with barns full of dried hemp just sitting t here.

[00:09:39-00:09:40] Freedom Gerardo: I grew CBD in this- I grew a hundred plants here, in that

mountain right there. CBD plants, but I lost A lot of money on that one.

Felix Poon: The other thing that happened after the farm bill, is that some companies found a loophole to get around marijuana laws, by taking the small amount of thc that is in hemp, and concentrating it, and putting it into gummies and drinks that can get you high.

Nate Hegyi: Really?

Felix Poon: Yeah, like 22 ags have actually written a letter recently saying that the next version of the farm bill needs to fix that loophole...

but all of this is sort of a distraction from the real benefit of legalizing hemp... with is all the other uses we can get out of it. . Because hemp is a super versatile plant. And to understand why, it comes down to the fact that it's a dioecious plant.

Nate Hegyi: Dieocious?

Felix Poon: Yes, meaning that there are male and female plants.

So if you plant them both, the males fertilizes the females and make seeds, or hemp hearts that you can buy in the grocery store.

[00:03:55-00:04:18] David Suchoff: So if I'm growing hemp for grain, then I need males and females in the field.

Felix Poon: Have you had hemp hearts Nate?

Nate Hegyi: I feel like I've seen them in every Whole Foods. As like the thing I'll sprinkle in a salad. Right?

Felix Poon: they're supposedly very healthy for you, [lots of antioxidants](#).

Okay but if you're growing hemp for CBD

David Suchoff: I only want females. I don't want males. Males don't produce a lot of cannabinoids.

So we do not want any males.

Felix Poon: And then if you're growing hemp for fiber to make rope, or clothes or whatever.

[00:04:35-00:04:59] David Suchoff: that's an instance where we really don't care if there are males or females in the field.

We're not growing for the flowers we're not growing for the cannabinoids we're growing for the stems. That's where the fibers are located that we use in textiles, apparel, nonwovens and so on.

But a big reason hemp enthusiasts want to make everything from hemp is because it's a carbon sink.

[00:18:41-00:18:43] Freedom Gerardo: It is- they call it the earth purifier.

[00:18:44-00:18:46] Felix Poon: Yeah. Why? Why is that?

[00:18:46-00:18:53] Freedom Gerardo: Uh, because an acre of hemp can, um, can produce more oxygen than a whole forest

Nate Hegyi: Is that true, really?

Felix Poon: I mean yeah, think about it, they call weed weed for a reason, it grows like a weed. Think about how long it takes to grow a forest of trees from nothing. Like reports do confirm that an acre of hemp sequesters more carbon than an acre of trees ([more than trees in a forest](#)).

Nate Hegyi: I guess that makes sense.

Felix Poon: Which is why there's a bit of buzz in the world of sustainable construction...for something called "Hempcrete."

Nate Hegyi: Hempcrete? You serious?

Felix Poon: Yes, and I'm gonna tell you what hempcrete is, and whether this hempcrete hype holds any water – after the break.

<<Midroll – Second Half>>

Nate Hegyi: Welcome back to Outside/In. I'm Nate Hegyi, with Felix Poon

Felix Poon: So one of the reasons you can go on and on listing the stuff you can make out of hemp is because it's a fiber.

Nate Hegyi: Like, you could probably list twenty-five thousand things you can make out of cotton.

Felix Poon: BUT unlike cotton, there's this whole other category of stuff you can turn hemp into. And that's construction materials. Which matters because construction and building materials are responsible for up to *11 percent* of global greenhouse gas emissions, [according to the World Green Building Council](#). So if we find better alternatives we might be able to make a big difference on our emissions..

Nate Hegyi: so what are we talking about here? Like thatching roofs with hemp? Building decks out of hemp?

Felix Poon: Yeah, basically all of the above! because hemp can be used as a bioplastic, and the very nature of plastic is you can shape and mold it and make anything out of it.

Nate Hegyi: It's really strong enough?

Felix Poon: so I mean, compared to plastic like, it is biodegradable so it's not gonna last like thousands and thousands of years like plastic would. So it's not as strong in that sense. But it is strong enough to perform in similar ways.

Nate Hegyi: Stand like a bunch of people partying on a deck.

Felix Poon: Yeah. But I wanna tell you about one specific way it's being used that's pretty cool.

[00:00:49-00:01:22] Danny Desjarlais: basically the stem of the hemp plant, the inside of the stem broken up into basically like woodchips mixed with a lime based binder and water.

Felix Poon: So this is Danny Desjarlais (dee-ZHAR-lay), he's the industrial hemp... construction project manager with the Lower Sioux community.

[00:01:02-00:01:22] Danny Desjarlais: And so it's an all natural wall insulation.

Felix Poon: So think of your typical fiberglass insulation and drywall in your typical home, like you know what I'm talking about right?

Nate Hegyi: Right.

Felix Poon: That's what it's a substitute for. It's not load-bearing. So it has to be sprayed or packed in-between a steel or a wood frame. Or, some companies make these pre-fabricated blocks but they have to mix it with other stuff to make it load-bearing.

Either way, it gets like rock hard - which is why people call it "hemcrete."

Nate Hegyi: But like... You can't like build a building out of hemcrete. In the same way that you can't

build a building out of just drywall. Like there has to be other stuff.

Felix Poon: Yes.

That's a silly name. Sorry. If you're not using it as concrete, you're using it as insulation, it should be "hemp insulation."

Felix Poon: I will- yeah let's officially submit our complaint to the uh...

Nate Hegyi: The national hemp board?

Felix Poon: If they exist.

Felix Poon: So hempcrete is mold resistant, and [fire resistant](#) – [whereas fiberglass melts when you expose it to high temperatures](#), hempcrete doesn't, which many a YouTube video will attest.

[\[YouTube video\]](#)

So we got a nice butane port, benzomatic propane here, this is 3.5 inches thick, so here we go.

[flame sounds]

Felix Poon: And the hempcrete is fine.

Nate Hegyi: And so I guess like, hemp insulation, and I'm gonna call it hemp insulation because hempcrete is a terrible name.

This hemp insulation, it sounds like it's a better more safe form of insulation than we're normally using.

Felix Poon: Well yeah, so there are, like any building material, pros and cons. So the pros, you know [advocates say hempcrete is non-toxic](#). [Studies say](#) it can help regulate the humidity in your house, and help you [save on AC by keeping your house cooler](#).

Felix Poon: But the cons, it [doesn't insulate as well as fiberglass](#), so you [need thicker walls to get the same insulation value](#).

Plus... it's just really new in the US. So it's hard to come by, and it's more expensive, like 20 to 30 percent more expensive than a conventional build, according to Danny.

Nate Hegyi: So it's expensive financially. But like, the cost to the environment is way lower.

Felix Poon: Yeah that's why people are excited about it. ([study 1](#), [study 2](#), [study 3](#))

And to understand how it's a carbon sink, I wanna take you on a little virtual tour of how the hemp plant gets turned into hempcrete.

So this tour starts with tossing your hemp seeds into the soil, and then boom, hemp plants pop up out of the ground.

[00:17:48-00:17:52] Danny Desjarlais: we cut it down around 90 days after

Nate Hegyi: 90 days. That's really quick.

Felix Poon: The amount of CO2 it absorbs – three to 9 tons per acre – is more than trees do.

So they harvest it.

[00:17:56-00:18:03] Danny Desjarlais: then it has to sit in the field and rot, which is just a fancy word for rot.

Felix Poon: Then they use a machine to break up the stem. Turning them into mini wood chips.

[00:30:03-00:30:06] Danny Desjarlais: basically the size of a dime up to a quarter.

Of course running these machines *does emit* greenhouse gasses.

But anyway the next step is for these wood chips to go in the mixer and get mixed with water and lime

[00:31:58-00:32:10] Danny Desjarlais: It basically looks like oatmeal.

It's not like soupy or creamy. It's basically like a, you know, a really dry oatmeal

And then... they test it!

[00:32:21-00:32:33] Danny Desjarlais: So we'll grab a ball, a big handful of, of the mix that we have in there, and we'll compact that ball in between both of our hands,

and we'll kind of push down on the top of the ball.

Depending on how the ball breaks they'll know if it's a good mix or not. And, that job of breaking the balls? There's a dedicated person for that.

[00:33:16-00:33:18] Danny Desjarlais: they're called the mix master.

[00:33:19-00:33:22] Felix Poon: Yeah, the mix master. That's that's a cool name. He takes care of.

[00:33:22-00:33:23] Danny Desjarlais: All of that. And so.

[00:33:23-00:33:25] Felix Poon: Yeah, that sounds like he's a DJ.

[00:33:25-00:33:29] Danny Desjarlais: Yeah, that's our cool. The coolest name in the hempcrete world is your mix master.

Nate Hegyi: And his job is to break balls.

Felix Poon: Yeah that- that's a missed opportunity there. They should call him the ball breaker.

Nate Hegyi: That is a more apt name.

[MUX IN]

Felix Poon: So [CO2 is emitted during the production of hempcrete, but studies say that it's more than offset by the carbon sequestered by the plants during photosynthesis.](#)

So it looks like a really promising climate solution. But I will caveat this and say both John Fike and David Suchoff, those industrial hemp scholars I talked to? They say that hempcrete hasn't been around long enough for us to really know, like we need more studies to really confirm.

Nate Hegyi: So it's got potential but we're not 100% sure yet.

Felix Poon: Right but there is this one other cool thing. And that is that it's [potentially a rural jobs driver](#). Like even if none of the sustainability stuff ends up being true, Danny says it wouldn't matter. Because working with hempcrete for the past couple of years... they've been able to bring more jobs to the Lower Sioux community. And they're about to open up a brand new facility to process hemp, and that's gonna mean even *more* jobs for the community.

Nate Hegyi: I'll tell you what Felix. My neighbor here in rural Montana just got a job at a hemp company that opened up in a really small rural town in Montana. So I know what you're talking about. It does actually create jobs for the tiny town I live in.

Felix Poon: There you go.

[00:45:04-00:45:20] Danny Desjarlais: Hey we're putting up new houses here in our community by our community members. You know, we're not having to pay these outside contractors to come in. I think that's a really big part right there. We're kind of taking back part of our part of our community right there just by doing that.

Nate Hegyi: I just imagined a senator cutting the ribbon in front of a new rural hemp plant, taking a big whiff and saying ‘this doesn’t smell like weed, it smells like jobs’

Felix Poon: That’s great.

[MUX]

Felix Poon: So that’s it for the show. You know Nate, as we were making this episode we polled our FB group what THEY think of when they hear the word “hemp.”

One person said they think of “those necklaces everyone made in the late 90s.” Someone else said “Those hideous pullovers from the 90s.”

Nate Hegyi: they weren’t that hideous.

Felix Poon: And a whole bunch of other people, think of weed.

Nate Hegyi: You can let us know what YOU think of when you hear the word “hemp.” Or if you have any other thoughts from this episode. You can email us at outsidein@nhpr.org like if you really didn’t like my CBD take, I’m open to your angry emails I’m sure it worked for you. You can tag us on social media we’re AT outsideinradio. And you can join the conversation in our private Facebook Group, just search for “Outside/In” to find us there.

<<CREDITS>>

This episode was reported, mixed, and produced by Felix Poon.

It was edited by Taylor Quimby.

Our staff includes Justine Paradis

Our executive producer is Taylor Quimby. Rebecca Lavoie is NHPR's Director of On-Demand Audio. I'm your host, Nate Hegyi.

Music by Bluedot Sessions, Mike Franklyn, Jules Gaia, Dusty Decks, and Rocket Jr.

Our theme music is by Breakmaster Cylinder.

Felix Poon: Special thanks to Fitsum (FIT-sum) Tariku (Tah-REE-koo), Director of the Building Science Centre of Excellence for talking to me about hempcrete.

And a sad update about one of Freedom's dogs. Freedom let me know that Camarada passed away, just a couple of weeks after my visit. May she rest in peace.

Outside/In is a production of New Hampshire Public Radio