

Nate Hegyi: This is Outside/In, I'm Nate Hegyi. Here with me today is producer Felix Poon.

Felix Poon: Nate, I wanna kick us off with a story.

Felix Poon: So it's 1955, Western PA. And there's this guy named Albert Miller, just kind of walking around on his property.

David Scofield: Albert was a farmer, and he was the local historian, and an amateur archaeologist

Felix Poon: This other voice is David Scofield, by the way, director at Meadowcroft Rock Shelter and Historic Village.

So Albert is walking around and sees something as a farmer that would be his worst nightmare, but as an amateur archaeologist, was pretty exciting.

David Scofield: and he noticed that a groundhog had freshly excavated a hole,

Nate Hegyi: Eehh Groundhogs! I've heard they're not great for crops.

Felix Poon: But...

David Scofield:... he sifted through what the groundhog had excavated and found some artifacts.

Felix Poon: So Albert gets a shovel and starts enlarging the groundhog hole... And the stuff he's finding is... old. Like, really old.

David Scofield: He found burnt bone, some flint flakes, and 30 inches deep he encountered an intact flint knife.

Nate Hegyi: Ooh.

Long story short, professional archaeologists come in to excavate the site, and they learn it's over 19 thousand years old.

Nate Hegyi: Wow, that's old.

Felix Poon: Yeah, it's the oldest known site of human habitation in North America, AND it's given us one of the largest collections of ancient flora and fauna materials on the continent.

Felix Poon: So, in today's episode, we're gonna tell you all about our hero of this story. But, to set the record straight Nate...I'm not referring to Albert.

I'm talking about the groundhog. They're amazing diggers. According to some accounts their burrows [can stretch up to a 100 feet long!](#) (Most websites only say up to 50 or 65 ft though). That's like if you and I had to dig the length of a football field... with just our bare hands!

Nate Hegyi: Yeah.

Anyway, this isn't even the only example of groundhogs making archaeological discoveries. There's a site in Ohio where groundhogs did all the excavating, and the archaeologists just identified the culture of the artifacts afterwards.

Nate Hegyi: Man...these groundhogs are just doing so much of the work and not getting the credit.

Felix Poon: I guess that's what happens when they don't publish their findings Nate, if you don't publish, you perish!

Nate Hegyi: Well let's give them credit where credit's due then.

Felix Poon: Hold onto your archaeologist hat Nate, it's our latest installment of our holy scat series, and we're going digging.

[Holy Scat Stinger]

<<Nutgraf>>

Nate Hegyi: Today on Outside/In, we celebrate Groundhog Day not by waiting to see if a groundhog sees their shadow, or by watching a dated Bill Murray movie.

Felix Poon: Nope! Instead, I'm bringing you along to meet a real live groundhog, which by the way is also known as a woodchuck, or by it's scientific name, marmota monax.

Plus we're gonna talk about the origins of Groundhog Day in Celtic traditions.

And we'll talk to an expert on why they're key to unlocking treatments for Hepatitis B and liver cancer.

**Nate Hegyi: how much wood can a woodchuck chuck,
Felix?**

Felix Poon: Oh, stay tuned for that answer!

Nate Hegyi: I had to...

[MUX THEME OUT]

<<FIRST HALF>>

*Google Maps: In one thousand feet, turn left on to
Science Center Road*

**Felix Poon: So Nate, I wanted to see a woodchuck up
close, so I drove to a place called Squam Lakes
Natural Science Center in NH, it's in the middle of the
woods where they've got a bunch of wildlife.**

*Amanda Gillen: ...it's all native New Hampshire
species, so foxes, coyotes, white tail deer, river
otters, bobcats, bunch of different raptors...*

**Felix Poon: This is Amanda Gillen, she takes me up to
a building where I meet their woodchuck.**

Felix Poon: There she is! Wow!

**It's got brown fur, looks like a beaver without its tail,
and kind of the size of a fat cat.**

*Felix Poon: She's a fat one, but I feel like that's how
they all are right?*

Eric D'Aleo: Yeah, that's normal, at this time of the year, for an animal that's in hibernation.

Felix Poon: This is Eric D'Aleo a naturalist at Squam Lakes. Eric lifts her cage up onto this table and puts some food out.

Eric D'Aleo: I'm putting out what's called rodent chow. It's basically alfalfa that's been squished into a square.

They look like little dog treats

Eric D'Aleo: So, there we go

Felix Poon: We've unlocked the cage and she's coming out. She's sniffing around.

Eric D'Aleo: And there's some peanuts here, and if you listen

[chewing sounds]

Nate Hegyi: It's the cutest little eating sounds ever.

Felix Poon: Yeah, right? I just almost died out of cuteness.

Eric D'Aleo: So those claws that you notice, those claws are used for digging.

Felix Poon: her claws almost look like little mini wolverine claws. They're thin and long, and they're backed by a lot of power too.

Eric D'Aleo: If you look at her shoulders, you can see she's really broad, and so there's a lot of power behind that.

Felix Poon: And they need that because they live underground by themselves, they don't live with other woodchucks, so every one of them has to dig out a burrow that goes up to 6 feet deep, stretches horizontally by anywhere from 30, to 50, even 100 feet, and they contains multiple chambers too.

Nate Hegyi: These are like groundhog mini mansions, underground mansions.

Felix Poon: Yeah, you got to setup your living room, your dining room, your kitchen.

So the woodchuck gets a nice little home out of this burrow, or like a mini mansion, but they're also kind of like beavers...like, they're landscape architects. Their burrowing aerates the soil – [it gets oxygen down there which is what plant roots need to breath](#). They're also [essentially composting the soil](#) and provide shelter for other animals.

Eric D'Aleo: Skunk could use it.

Felix Poon: Snakes

Eric D'Aleo: Possum could use it.

Felix Poon: He means opossums, not possums.

Nate Hegyi: He shoulda listened to our last episode, our last Holy Scat!

Eric D'Aleo: Fox Coyote can enlarge it and move in.

Felix Poon: So these burrows are little ecosystems of their own.

And of course, they're great for woodchucks to hibernate in. And so this woodchuck that I'm visiting is awake because she's in captivity. But for all the wild woodchucks on this continent...right now

Nate Hegyi: They're zonked out.

[MUX]

So it's winter time as we release this episode, and all along the eastern United States, from [as far south as northern Georgia, and up north to Canada and parts of Alaska...](#)

They're all sleeping, in a state of torpor

Which is when all the body's activities slow down to conserve energy.

And Nate, when you think of hibernating animals, what's the first animal to come to your mind?

Nate Hegyi: Well actually bears, even though I know they don't actually hibernate, but that was just the first animal that comes to mind.

Felix Poon: I think that's what comes to everyone's minds basically. But bears are considered light sleepers compared to woodchucks...they're waking

up all the time through the winter. And their body temperature only drops from 100 to 88 degrees F.

Woodchucks on the other hand.... their body temperature drops from from 99, to just 47 degrees F.

Nate Hegyi: That's freezing.

[icy cold breath]

[fast heartbeat]

Plus their breath slows down from 16 breaths per minute to just 2, and the heartbeat, goes from about 100 beats a minute, to just 5 beats a minute.

Nate Hegyi: That sounds so relaxing.

[slow heartbeat]

Felix Poon: Around here in NH, Eric says woodchucks are hibernating until late March or April.

Now there's two reasons why you might see one earlier than that. There are reports that animals are waking up early from hibernation because our winters are getting warmer.

Nate Hegyi: Climate Change

Felix Poon: Or if it's a normal winter

Eric D'Aleo: it's probably the male going around and looking for a female to breed with.

[MUX]

Felix Poon: The males wake up early to go visit the dens of the females. But not to mate just yet.

Nate Hegyi: So they're just like...Seeing if there's any chemistry?

Felix Poon: Yeah, so adult woodchucks are pretty solitary for the whole year, except this one moment of time when they're just getting re-acquainted. And there's this very short window of time to breed – if your pups are born too early, it's too cold for them to survive, and if they're born too late, they don't have enough time to put on enough weight for the next winter.

Nate Hegyi: So once it's warm enough, woodchucks don't want to waste time with courtship, they just want to get right to business.

Felix Poon: Right, exactly

But there IS one other day that groundhogs come out early.

Amanda Gillen: But he's not coming out February 2nd.

Eric D'Aleo: No, he's not coming out February 2nd. That's not. Not. Not. Not here in New Hampshire.

Felix Poon: Okay. So in warmer climates, woodchucks might be coming out February 2nd in Punxsutawney, Pennsylvania, perhaps.

Eric D'Aleo: Yeah, not even not even not even there. I mean, the whole the whole Groundhog thing, that is that's some some folklore that was brought over from Europe that was transferred onto the woodchuck.

[MUX BEAT]

Groundhog Day Announcer: Punxsutawney Phil, the seer of seers, the prognosticator of all prognosticators, was gently lifted from his burrow held high to see, his faithful followers had returned with glee.

Nate Hegyi: I feel like Groundhog Day is...I don't even think about it until it's actually Groundhog Day, you know?

Felix Poon: Yeah, totally, I completely forget about it until I hear on like NPR, I'm like, oh yeah!

Nate Hegyi: Oh yeah, it's Feb 2nd, feels like winter to me, still.

[MUX SWELL]

Felix Poon: So Groundhog Day was brought here by German immigrants who celebrated something called Candlemas, which was about the purification of Mary and the presenting of Jesus to the temple .

Nate Hegyi: Hmmm

Felix Poon: But Candlemass also borrows some Celtic traditions from festivals that celebrated the

mid-way point between the winter solstice and the spring equinox, called a Cross-Quarter Day.

Nate Hegyi: Cross-Quarter Day

Felix Poon: part of the festivities was to anticipate if warm weather was coming, or if there'd be more weeks of winter.

Nate Hegyi: Yeah, I like that idea.

Felix Poon: Yeah, so they had the tradition was that if it was a sunny day, that meant there would be more weeks of winter.

Nate Hegyi: It feels like they have that backwards. Like, a sunny day should mean winter is ending, right?

Felix Poon: Yeah

Nate Hegyi: But I guess it's not fair of me to monday-morning quarterback [an ancient celtic festival](#).

Felix Poon: yeah, so I think the way to explain it is this: do you know how sometimes you get a really warm day in late winter and it fools a bunch of plants to start budding and flowering?

Nate Hegyi: Yeah false spring. I think that's the term for it. Fool's spring. That's what I'd call it.

Felix Poon: Well, the worry is that if you get a late frost...and there's always a late frost, it's gonna kill

off all those budding plants. So in other words it doesn't bode well to have a warm sunny day too early.

Nate Hegyi: That makes sense...but how did the groundhog get all mixed up in this?

Felix Poon: Basically this Celtic tradition was brought over to Germany, and the [Germans added an animal to the mix and called it Badger day. They had this saying that translates to English](#) as, quote, "If the badger sunbathes during Candlemas-week, for four more weeks he will be back in his hole" ...or in other words, four more weeks of winter

Nate Hegyi: Yeah

Felix Poon: Yeah, so German immigrants brought this to the US, and there weren't any badgers here on the east coast, and so Groundhog Day was born.

Nate Hegyi: They're like squinting and looking at a groundhog and being like, that kinda looks like a badger, why not? Why not?

Groundhog Day Announcer: Placing Phil on top of the stump where in Groundhogese, he directed the president, Jeff Lundy, and the inner circle to his prediction scroll that reads, with my shadow I have cast, that a long lustrous six more weeks of winter.

Groundhog Day Crowd: Six more weeks! Six more weeks! Six more weeks!

Felix Poon: I've never heard people so excited to get six more weeks of winter.

Nate Hegyi: Yeah, I know...I think they're just... they needed something to celebrate, it's February, you know, it's February, it's not exactly the most festive of seasons.

[MUX TRANSITION]

Nate Hegyi: Alright Felix, I'm looking forward to learning even more about woodchucks, but first, if you're digging this story about woodchucks...get it Felix? Digging?

Felix Poon: I do, yes

Nate Hegyi: I'm actually just digging for support from our listeners. Um, please head on over to our website, Outside in Radio dot org, and hit that donate button. AND! If you do that before February 15th, which is less than a couple weeks from now, you'll get our limited-edition mug, featuring another amazing animal, the opossum! So go ahead and do that now, hit the pause button, show some love for our show, get your opossum mug and then come right back.

And we'll meet back up with you after the break.

[MUX OUT]

<<SECOND HALF>>

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

Felix Poon: I'm Felix Poon.

Nate Hegyi: And today, in celebration of Groundhog day, we're talking all about groundhogs

Felix Poon: Aka woodchucks.

Nate Hegyi: Felix, what should we be calling these animals? Woodchucks, or groundhogs? What's the right answer?

Felix Poon: Okay, so their scientific name is marmota monax. But in everyday language there are a ton more names we could be calling them.

Nate Hegyi: Really?

Felix Poon: Yeah, including names like thickwood badger

Nate Hegyi: Thickwood badger.

Felix Poon: which is used in the Northwest to distinguish them from the prairie badger

Nate Hegyi: Ah, it's a badger, it's just a thick badger

Felix Poon: They're doing the thing the Germans did, see they weren't that far off?

Or in Eastern Canada among the French Canadians they call them siffleux.

Nate Hegyi: Siffleux?

Felix Poon: Siffleux.

Nate Hegyi: Siffleux

Felix Poon: Um, and sometimes they're called whistle pigs

Nate Hegyi: That is a bar name if I've ever heard one. Going down to the whistle pig.

Felix Poon: Yeah, no it's actually the name of a...I think it's the name of a whiskey right?

Nate Hegyi: Is it?

Felix Poon: Whistlepig...

Nate Hegyi: now we're both, whistlepig, typing around...Whistlepig Rye Whiskey. Yup! In Vermont! Great name.

So yeah this is what they sound like when they make a whistling noise.

[\[https://www.youtube.com/watch?v=6K4FbBkUt7E\]](https://www.youtube.com/watch?v=6K4FbBkUt7E)

Felix Poon: so they make that noise whenever they get scared, to warn others.

Nate Hegyi: That's kind of a cool sound. I like it.

FP:. Anyway, I put this question to Eric, the naturalist at Squam Lakes and he said he prefers "woodchuck," even though that term bothers him a little bit.

Eric D'Aleo: because everybody goes how much would could which could have woodchuck could chuck Wood. And I say they don't because they can't.

Felix Poon: But it's in the rhyme, it says if a woodchuck, could chuck wood.

Eric D'Aleo: But they can't! So the answer is zero. Case closed.

Felix Poon: So there's your answer Nate.

Nate Hegyi: Alright, zero. I never really thought too...like, ground hog. I never really broke that word down too. Like, I think I would pick "woodchuck" over groundhog because they don't really look like pigs,

Felix Poon: They're kind of pig-like.

Nate Hegyi: Yeah, I guess.

Felix Poon: So Eric DID caveat this and say that they will sometimes gnaw on wood, or anything that's hard because they need to sharpen and shorten their teeth, which, like all rodents, their teeth never stop growing.

Nate Hegyi: right

[MUX TRANSITION]

Felix Poon: But anyway, the word "woodchuck" is most likely an Anglicization of the Algonquian word for the animal, oochek.

And, besides the origins of the word, I was also curious to know how woodchucks are portrayed in Indigenous stories. So I reached out to Joe Bruchac, Joe's a storyteller and an Abenaki tribal member...we've had him on the show before to tell us about opossums.

So in this story, about woodchucks, there's...

Joe Bruchac: The first one to walk in the shape of a human being.

Felix Poon: In other words, he was the world's first human. And he had great power.

Joe Bruchac: but no one to guide him, no family, no grandparents

Felix Poon: So Grandmother Woodchuck was designated to be his grandmother.

Joe Bruchac: A loooooooooooooong time ago. A long time ago Gluscomba lived with his grandmother, woodchuck in their wigwam.

One day Gluscomba ...

Felix Poon: The thing with Gluscomba was he'd gotten tired of hunting. So he hatches up this idea – he asks Grandmother Woodchuck to make him a bag that he could use to capture game. So she makes him this game bag from deer hair, and gives it to him

Joe Bruchac: And he looked at it, reached into it, and then threw it down on the ground and said, This is not good enough. Make me a better one.

Nate Hegyi: You should say please, by the way.

Felix Poon: I know right? So rude.

Felix Poon: Then she makes him another game bag, this one's made of caribou hair

Joe Bruchac: Gluscomba did the same thing.

Felix Poon: He threw it down on the ground, said it wasn't good enough.

Nate Hegyi: Jeez.

This happens again for a third time – another bag, still not good enough. And then finally, she makes him a fourth and final bag, this time she makes it one out of her own hair.

Joe Bruchac: she began to pluck the hair off her belly. You know to this day, if you look at a woodchuck's belly, you'll see there's places where the hair is missing.

Felix Poon: because of this sacrifice, this wasn't a normal bag, it was magic, and bottomless. Now Gluscomba could put his plan into action.

[MUX BEAT]

Felix Poon: so he goes into the forest, and tricks all the animals into thinking the world is ending and that they should get in to the bag for protection. They get in, he takes them back to Grandmother Woodchuck and he brags to her that he doesn't have to *hunt* anymore. If he wants some meat? He just reaches into the bag and there it is. Needs some new furs? Pulls it out of the bag.

But of course, Grandmother Woodchuck is not happy.

Joe Bruchac: My grandson, this is not a good thing.

She says it's wrong for any one person to own the animals. They'll get sick and die and then there won't be any left for future generations.

So Gluscomba learns his lesson...he releases the animals, and they realize that they'd been tricked.

Joe Bruchac: And so from then on to this day, no animal has ever crawled into anyone's game bag again. That is how the story goes.

Nate Hegyi: That's why it's so hard for me to hunt. They don't just jump into my game bag. Thanks woodchuck.

Felix Poon: Yeah, well you know, you're getting strong by chasing them, and getting sharp of mind.

Nate Hegyi: I guess so. I don't feel very sharp of mind when I'm hunting. By the end of it I feel exhausted and frustrated. But, that's another story.

Felix Poon: That's your story Nate.

Nate Hegyi: Yeah that's my story that's not woodchuck's story.

[MUX TRANSITION]

Felix Poon: Okay, so one last thing about woodchucks I wanna talk about is why they've been super important for a particular kind of medical research.

So in [the 1960s and 70s, researchers were looking at woodchucks from the Philadelphia Zoo and they realized something](#)

Sandra Sexton: They started noticing that they were all positive for this woodchuck hepatitis virus.

And they noticed that whenever woodchucks get chronic hep B...

Sandra Sexton: then they develop the hepatocellular carcinoma, which is liver cancer, and that is very similar to what is seen in humans.

This is Sandra Sexton by the way, a researcher and facility director at the Roswell Park Comprehensive Cancer Center. And Sandra says this was a big deal for a few reasons. First, [this disease progresses much faster in woodchucks than it does in humans](#) – making it much quicker and easier to test new drugs. And second, while the vast majority of medical research is done on mice and rats, mice and rats don't naturally get hep B.

Sandra Sexton: there are just very few animals that have this type of virus that is similar to the hepatitis B virus in humans.

[MUX BEAT]

So medical experiments on hep B have a troubling past. Before and during WWII experiments were conducted on so-called “volunteers”...who were actually prison inmates.

Nate Hegyi: Yikes.

Felix Poon: Yeah, then in the 70s they started experimenting on Chimpanzees, but this didn't catch on for a few reasons, for example their large size and cost, and other ethical concerns.

So discovering that woodchucks get Hep B was a revelation,

[MUX BEAT]

Now at the same time that woodchuck research was ramping up, the FDA approved the first Hep B vaccine in 1981, and that led to a huge decline of infections in the US%.

But globally, there's still hundreds of millions who have chronic hep B that the vaccine won't help.

And while I don't want to make light of animal experimentation, woodchuck research has been instrumental in the development of new drugs for hep

B. And while none of them completely cure you of the disease, they lower your chances of getting liver cancer so effectively, that the [World Health Organization called it “the first cancer vaccine”¹](#)

Nate Hegyi: That’s pretty cool.

[MUX]

Sandra Sexton: You know, all the research that has been accomplished with them has a tremendous positive impact. And we’re just very proud to be leading the work in this area.

[MUX FADE OUT]

Felix Poon: So Nate, do you have a newfound respect for the humble woodchuck now?

Nate Hegyi: Woodchucks I feel like, pretty cool, groundhogs, whatever you want to call them. Very impressive.

Felix Poon: Whistlepigs

Nate Hegyi: Whistlepigs. They do deserve their own day. Even if it’s kind of, you know, not biologically accurate that they wake up and observe their shadows. Or anything else like that. I think they’re cool enough to get their own day.

Felix Poon: Happy whistlepig day to you Nate.

¹ 1991 Interferon IFN α -2a / 2005 Entecavir nucleotides

Nate Hegyi: And a very happy thickwood badger day to you Felix.

Felix Poon: Merry thickwood badger day.

<<CREDITS>>

Nate Hegyi: Do you have any experiences with woodchucks? Thoughts about groundhog day? Let us know, you can send us an email at outsidein@nhpr.org. Or hit us up on social media, we're at outside in radio.

And if you want to see pictures of the woodchuck featured in this piece, head on over to our website. BUT if you want the full behind-the-scenes look at Felix's reporting trip, and other bonus material, make sure you're signed up for our newsletter. You can sign up at Outside In Radio dot org.

This episode was produced by Felix Poon and edited by Taylor Quimby, with help from me, Nate Hegyi, Justine Paradis, and Jessica Hunt.

Our executive producer is Rebecca Lavoie.

Special thanks to Rachel Davison with the Ecotarium, and to Paul Cote, and Silvermoon LaRose

Music in this episode came from Blue Dot Sessions. Our theme music is by breakmaster cylinder.

Outside/In is a production of New Hampshire Public Radio.