Agricultural Innovation Board (AIB) Meeting Transcript

May 20, 2024, 5:02PM

Griffith, Morgan started transcription

Goss, Jill 0:15
Great.
Uh, welcome everybody.
Uh, it's well, after one on May 20th and we are calling this meeting of the AIB order.
So as a reminder, this meeting is being recorded as public record and that participation in a recorded meeting we deemed as consent be reported including statements both written and oral public records including this recording can be requested at any time in accordance with the Vermont Public Records Act.
So I see a few people here, so let me do a round of introductions.
1st so starting with our Members that I see.
Uh, like, have Sarah?
Stepped array Laura.

Owen, Sarah 1:22
Ohh sorry, can you can you hear me?

DiPietro, Laura 1:22
Hi.

Goss, Jill 1:24
Ohh, now I can say yeah.

DiPietro, Laura 1:25
Got Sarah.

Owen, Sarah 1:26
OK.
Yeah, I'm on my phone, so I don't have video right now.
I'll switch to my computer in a bit.

I'm Sarah.
I went on the state toxicologist at the health department.

DiPietro, Laura 1:37
And I'm Laura depietro.

Goss, Jill 1:37
It's terrifying.

DiPietro, Laura 1:39
I'm the water quality division director at the Agency of Agriculture.

Goss, Jill 1:47
It's.
Yeah, I know.
You just sent me a note.
Are you able to give a quick introduction?
Maybe not.
She's listening.
And here just calling to say kiddo so.
Fine.
Roy, forehead.
Good morning, good afternoon.

Roy Beckford 2:10
Good afternoon.
So our folks introduced to themselves, OK.

Goss, Jill 2:14
Yes.
Sorry.
Yeah, we're just doing Members first.

Roy Beckford 2:17
Alright, right back for director of extension VM.

Goss, Jill 2:23
That's right. Alright.

Ryan Rebozo 2:27
Ryan Rebozo with the Vermont Center for Eco Studies.

Goss, Jill 2:34
Or come when it's you.
Umm, she might be having.
Makes you problems.
Sarah, come in and out.
And get her.
Uh, OK, I'm gonna do in the room here.
My name is Morgan Griffith.
I work for the public health and age resource management division of Agency of Agriculture.
I am Pam fryer.
I am with the Agency of Agriculture, Food Market Angel Goss Agency.
I'm from the markets a food market.
It's actually asking also if you lag and the farm division and Stephanie Smith uh also with the division of Page 2 agriculture.
Jessica and get a quick interaction.

Tessier, Jessica 3:39
Uh, yeah.
If this is working, Jessica Tessier, Agency of Egg Egg resource management specialist for the whole, I can't say the Northeast anymore.
Franklin, Orleans, Essex, Lamoille and Caledonia counties.
I think I got them all.

Goss, Jill 3:56
It's just.
Jared Carpenter.

Jared Carpenter 4:06
Good afternoon all chaired Carpenter Lake Champlain committee.
Just listening in. Thanks.

Goss, Jill 4:14
Thank Emily.
Emily neck.

Emily May (Xerces) (Guest) 4:18
Hi, I'm Lily.
May pollinator conservation specialist with the Society Society for Invertebrate Conservation.
Just listening in. Thanks.

Goss, Jill 4:26
Online and I have I have a phone number ending in 2326.
When is she?
Are you with?
Are you able to hear us in?
So in answer you.
Well, no.
Oh, I can hear.
That she no problem.
Wendy, too.
So yeah, if you see in the chat she's she's our total scientist on the board.
Umm.
And just you can keep chatting us when you see if you can't get anything else to work, that's fine.
Uh, OK, so.
Unfortunately, so we were going to have a new member join us today, but I don't see him yet.
So we had a a a swap of AID members.
So Anne Hazelrigg, we thank for her service on the AIB.
She was great to have on the team and however we are introducing a new member,

Nate Norse, who hopefully can join us soon.
She's a blueberry grower.
Uh in southern Vermont.
And so he is going to represent that fruit and vegetable grower roll and the IB and was appointed for A3 year term.
Last month.
Ah, I see.
If you wanna do a quick introduction.

SS **Steve Schubart** 6:22
Sure.
Yeah.
Sorry I'm late, Steve on the board representing meat and beef.

GJ **Goss, Jill** 6:31
Thanks.
Yeah, I was just.
It's a little anticlimactic because I don't think he has joined us yet, but we are welcoming a new board member, Nate Norris, representing the vegetable and fruit growers, and in Vermont, and he is a blueberry grower in southern Vermont.
And so hopefully if he joins us later, we'll be able to ask him to introduce himself to all of us.
And we thanked and he's already for her service on the IP.
OK so.
What we have in store today?
Is, uh, we are going to hear a little bit of our legislative updates from my colleagues, Zach and Pam, and about ones that we've been following a little bit.
We heard a little bit about the last two meetings as well.
And then we're also going to be joining umm, by Ryan's colleagues.
Spencer Hardy with the Vermont Center for Eco Studies just to give us a little overview of their work to date on while we and polyandrous surveys that the Vermont Center for Equal Studies has done.
And then we talk just a little bit about what any of these pledges live updates, what they mean for the ID.
If we have any, umm, responsibilities like we did for the last year, plus for to make

recommendations to the HDMI.
So first, just our kind of logistics, we did send out the meeting minutes for the last time we met.
It seems like forever ago at the end of March.
I don't think I heard back any edits to those meeting minutes.
So are is the board OK to and then final or as your presentation for our meeting on March 25th?

OS **Owen, Sarah** 8:44
Morgan, this is Sarah.
I forgot to read them.

GJ **Goss, Jill** 8:47
OK, if you if you want to.

OS **Owen, Sarah** 8:49
I I can follow up by email, yeah.

GJ **Goss, Jill** 8:51
Great, that's fine.
Umm.
And that goes for anybody else.
I I think when you two were backs, I find they were good.
So just anybody else wants to give him a look over.
They are posted online right now.
Umm.
Or they've been set, thinking.
Umm and me and I'll send it again.

3 **3a464dbc-9fc8-4e45-a518-405a9b13c0d0** 9:16
Morgan, this is Nate Norris.
Can you hear me now?

GJ **Goss, Jill** 9:18
Hi, yes.

3 **3a464dbc-9fc8-4e45-a518-405a9b13c0d0** 9:21
I was the 2326 number.

GJ **Goss, Jill** 9:21
Hi, Nate.

3 **3a464dbc-9fc8-4e45-a518-405a9b13c0d0** 9:24
I could hear you, but you couldn't hear me.
But now you can't hear me.

GJ **Goss, Jill** 9:27
I think yes, we can.
Do you wanna give a quick introduction of yourself and welcome to the ID.

3 **3a464dbc-9fc8-4e45-a518-405a9b13c0d0** 9:34
Thank you.
I made Norris consulting out was out of Western mass and now I have a small farm in Montgomery, Vt gonna plant some blueberries next year.
And I was a I'm a member of the New England Vegetable Growers Executive Board and I work with growers throughout New England and the Midwest.
Thank you for having me on.

GJ **Goss, Jill** 10:00
Thank you very much for joining me.

3 **3a464dbc-9fc8-4e45-a518-405a9b13c0d0** 10:05
My pleasure.

GJ **Goss, Jill** 10:11
Alright, so I don't believe we have any other agency update.
I will talk a little bit after we get billing on because I wanna give it Zach enough time and expense's gonna join us around 1:30.
Umm, so I'm if we're good with everything else, I'm gonna hand it over to Zach to start us with an update on H 706.

Sure thing, I'll just share my screen.
I think so.
Yeah, already raining.
Alright, I believe in what I remember is I was like about a month ago just gave an update on this Bill, 8706.
She's title and accumulating the banning the use of Munich.
Going pesticides.
Uh, you know, month ago it was, you know, still in the process, I believe it.
Maybe it just passed the house, but umm, it has since been passed by both the House and the Senate and it is awaiting action by Governor Scott, which should be coming out today.
So that's the quick status update, but they're just brief overview.
And just also disclaimer, I've got I've done this kind of in my own words.
So, so always good idea to read the law itself to fully understand it.
But for purposes of digestibility, this is this is me.
So major components of the of the bill, umm or just one prohibition on use of Munich, it's not treated article seeds, but you prohibition on use application of Munich like pesticides and for our purposes administrative rules for making.
So the big one is the probation on use of Munich, Germany treated article scenes.
So last I presented this is taken a little bit of change on what it looks like umm.
So just kind of go over generally speaking, like the main provisions of pod, but such as you know, the prohibition applies to I'm following.
That's my bad soybeans.
Any crop in the cereal, grain crop groups and those are the crop groups that follow 1515 dash 221616 dash 22.
That's a rather expansive list.
That includes corn.
Uh, so you have a general prohibition, but you can have an exception.
So Secretary very colture could not have any agency mariculture freedom markets.
May, in consultation with the Agency of Natural Resources issue exemption orders for use of Munich, actually treated article seeds.
Prior, before the way this looked, this was a lot of requirements on the agencies part.
It was detailed valuations etcetera but but that's here nor now, so anything here now is that the person seeking an exemption.
So this would be the farmer in this instance must complete I PM integrated pest

management training and submit a completed pest risk assessment to the agency, umm.
And they would also be required to maintain current records of this pest risk assessment report and records of when the Munich noted treated article seeds are planted.
Uh, the seeds are can only be planted on properties identified, and that's Christoff risk assessment report.
Umm.
And then these exception orders cannot be longer than a year and they must specify the types of seeds, start date and duration, and additionally uh.
Agency may establish additional restrictions related to the use of seeds and minimize harm to environment.
Pollinator for these public health and other restrictions as deemed necessary by Secretary of Bioculture.
And please feel free to stop me because anybody else to ask any questions around but.
Uh, prohibition on use of munication like pesticides.
Uh, this hasn't changes.
And there's notably is it no longer includes the application and the integration testing that pesticides to turn, but it doesn't apply to you, is outdoor applications to any crop during bloom outdoor applications to soybeans or any crop in the cereal grain groups, outdoor applications to crops in the leafy vegetables.
Brassica.
Old vegetables or spices?
Stocks them and leafy patio veggie crap groups harvested after bloom and then application to ornamental plants.
As noted, this used to also include application differ.
That is no longer gets you.
See, you know, similar to the other provisions prohibition on treating article seeds, the agency may and consultation with the agency.
That's resources issue exemption orders for use of pesticides.
So what are the conditions for extra things, actually?
Uh, there has to be either a valid agricultural or environmental emergency that exists.
Uh, so this would be a declaration on the the person seeking the exemption order.
They would have proper proof that one of these emergencies exist.

I could read you the definition.
It's in my notes, so I don't know how to do that, though.
Uh, that the pesticide would be effective in addressing uh the emergency, whether that be an agricultural or environmental emergency, and that no other less harmful pesticides, pest management practice would be effective in addressing the emergency.
Similar to the prohibition of seeds, exemption and orders cannot be for longer than a year, and that these must specify the Munich with pesticides.
The uses thereof crops or plants to which the order applies, and this would be, you know, this is what the order would be stable.
Umm, the effective date duration and the orders geographic scope, which includes specific farms fields more properties.
Additionally, the order must provide detailed valuation determining that an agricultural emergency or environment environmental emergency does indeed exist.
And some of the last one that you can have additional restrictions that the agency can put into an exemption order in order to buy.
As far as other restrictions that are deemed necessary.
Uh, we're making so this has changed a bit and this is important for for Christians of the Agricultural Innovation Board.
So.
Prior, you know, under.
Yeah, current law, I guess it's a must stop exchanged on doing this.
The agency it used to be, I believe one thing that be best management practices for the use of even they could throw and treat it article seats.
So this is looks different under H706 and that's the agency consultation with the IP shelf by ruled out BMPS for and then yeah, I love the list and the first one is Munich Treaty article seeds when used prior to January 1st, 2031 uh needed to control and treated article seeds when the secretary issues a exemption order pursuant to Section 5B in this chapter which authorizes the use of the seeds.
Uh, I mean, if you don't pass decide and secretary issues, favorite exception Porter.
Yeah, pretty soon to the other chapter, which is the prohibition on Munich, right?
That's the size and then.
The MP's for the agricultural use after 2025, you know, they could swear pesticides, the use of which is otherwise not prohibited under law.
Ought to be at peace.

Note on the contingent repeal provision that was not included in the House version of the bill.
Bob, essentially both the prohibition on the seeds and the pesticides themselves, not to treat articles.
But this prohibitions will be repealed if the you know similar.
Corresponding.
That says the prohibition in New York State is repealed.
Uh, so say you're appeals.
They're all our laws.
Give that prohibition is repealed in or not.
And then affected dates.
This is changed a little bit as well.
I believe he prohibition for Unit 20 treated article seeds.
Is that believe the January 1st, 2029 UH provided, you know there's additional caveat there as well as you know provided that the New York's prohibition is in place that that time, umm and otherwise it would be take effect when New York's prohibition takes effect.
And then somewhere like, uh, put that same caveat, kind of gives the prohibition on use of nudity destroid.
Pesticides and that would be January 1st, 2025.
Yeah.
Again, with that same caveat of the New York law being in place at that time.
And that is my short and sweet update.
Morgan, if you wanted to give a little more information on rules are rather, we wanted to say that later.
Maybe.
Uh, yeah, I can give a a little, uh, if you wanna go back to that room inside that box that you have.
Umm, so basically this is the same.
What?
What we had to do before, or what we spent the last year on was uh BMP's for use of Munich treated seeds.
So that's the same as that first bullet there.
So the use of the seeds right for their prohibited.
Where our responsibility?

Lies to provide recommendation to or consult with agency of AD is about the use of having been peace for the use of Munich pesticides.
So it expands our recommendation beyond just unit treated seeds to neonics pesticides in general.
So our plan was after we hear from Spencer and we hear from Pam is just to we can talk through that more.
We can talk through what Members are thinking of, what they want to hear, or just we're starting that process right.
But right now it's still on the governor's desk, and so but it just we wanted to point out that difference between our responsibility, the last time it came through, basically there were additional responsibilities were potentially there.
I was anybody have any questions for Zach?
Ohk OK that.
Umm Spencer.
I saw that you joined.

SH **Spencer Hardy** 23:22
Yep, I'm here.
Can you hear me right?

GJ **Goss, Jill** 23:23
Great.
Yes, we can.
Umm, so we are right.
If you have anything to share, you're more than welcome to share your screen.

SH **Spencer Hardy** 23:36
Let's see if I can figure that out.
Yeah, one second.

GJ **Goss, Jill** 23:42
And you want to give a quick introduction to of yourself.

SH **Spencer Hardy** 23:48

And.
And are you seeing this slideshow now?

Goss, Jill 24:01
Looks good. Yep.

Spencer Hardy 24:02
And sorry for the background noise, we got a bunch of contractors here. OK.
Yeah, I'm Spencer Hardy.
I'm a biologist with the Vermont Center for Eco Studies.
I've been working on this wild Beast survey for the last four years.
Part of that I've been bouncing around some organic farms in Vermont as well as working on their first Vermont Bumblebee Atlas in the early 2000s, which I'll talk about at some point soon.
Do you want any other background?
Any other things before I get started?

Goss, Jill 24:36
That's great.
Thank you for sharing your expertise with us.

Spencer Hardy 24:40
Yeah.
So I always like to start with sort of a very broad what Arby's?
I know we know what bees are in the colloquial sense, and people have notions in their head and.
Taxonomically speaking, bees are this subgroup of Hymenoptera, so ants water related to ants and Wasps and sawflies umm they are distinct and that they have branched hairs somewhere on their body which is an important adaptation for collecting pollen which is the primary food source for the only food source for developing B larva.
Unlike a lot of other Hymenoptera Wasps in particular, they are feeding their offspring entirely.
Pollen, which makes them really good pollinators and it makes them at so technically, they're herbivores.

They're the vegetarian Wasps of the insect world, which has important implications for all member of things, including for pesticides.
And in Vermont, there's we have six of the seven global families are represented.
So it's a fairly diverse group.
It's much more than just the honey bees and the bumblebees that we're all familiar with.
A lot of us are familiar with.
Umm, so my work would BCE and VC's work on bumblebees started in roughly 2012 with the Bumblebee Atlas?
This was so following some national attention, and some biologists were starting to notice changes in the bumblebee community in their lifetime and at the local level.
And so we started this project to to figure out what bumblebees were here.
Get a baseline and to compare that to any historical data that we could find.
So after three years of intensive searching and including through the museum record and historical specimens.
Collected it, stored at universities and colleges and museums across the country.
We found there were seventeen species of bumblebees that had been recorded in Vermont in the last 100 years, but only I think 14 of those were still found in Vermont or found during the survey period.
We found several species, including the now endangered rusty patch bumblebee, Bombus affinis, that were very common in the historical museum records.
So these are insects that students or professional entomologists collected put a pin through, labeled and were stored in a museum, many of them at UVM.
As shown by these blue dots here and and that is the only information that we have about.
Umm will be and other be abundance prior to more recent surveys.
So we went through these museum collections, identified the bees and what corded the information that was written on the little associated tag.
And in that data, just looking at the historical record, so prior to 2000 Rusty patched Bumblebee was the third most common species in Vermont.
And then prior to after 2000, including some really extensive field work in the 2010 or 1214, we found no Rusty patch bumble bees.
So there's no bar there, and that same pattern shows up for a number of species.
Bombus Ashton, I completely disappeared Bombus pennsylvanicus completely disappeared.

Both Pennsylvanicus and Athenis are now state threatened or endangered.
I forget exactly which one, but there's other species, Bombus servitus, to recoil that have declined in abundance as well.
Over that same period, while a few species, the common eastern bumble bee, bombus and patients, has become much more common.
Or much more common relative to the other bumblebees.
So this is not saying that there are more common eastern bumble bees on the landscape than there were.
It's saying that more of the bumblebees on the landscape are this species.
Umm.
Basically, it's a simplification of the bumblebee fauna, so instead of having five or eight pretty common species, we now have three.
We're pretty common species and a lot of pretty rare species and more pretty rare species and fewer species overall than we had in the early 2000s.
Prior to 2000, so that's the very quick overview of the Bumblebee Atlas.
If we have time at the end, I can talk a little bit about bumblebee biology, but they're the big fuzzy ones that are out right now that many people are familiar with.
They're really good crop pollinators for almost all commercial crops.
Umm.
Then following that work, we realized that bumblebees are just this small sliver of the beef on A and there's a lot of other bees that we know much less about.
They're smaller W charismatic, but also important pollinators.
So we launched the Vermont Wild B survey.
There's a four year project starting in Chittenden County, but then spreading out across the state.
We really tried to get to every habitat, every unique corner of the state, including developed land, agricultural lands.
To find all of the species of bees that we thought we could and to generate a list of the bees in Vermont which hadn't been done prior to this work.
Uhm, and this is sort of the stated goals of the.
And then the the.
Sorry, go ahead.

GJ **Goss, Jill** 30:24

Ah, we just lost you for a second.
But we got you back, I think.

Spencer Hardy 30:27
Sorry.
OK, I'll holler.
That happens again, or if you have questions as I go through, feel free to stop me.
So this is sort of the the broad overview of what we now know about the wild beef fauna of Vermont.
353 species have been recorded plus or minus.
There's some ongoing taxonomic work there, but it's a really diverse cast of characters.
16 of which of these bumblebees I just talked about 16 or 17, but then a lot of them are.
These really obscure small, specialized bees that are you really have to go looking for to find like this one here in the center.
And if you can see my cursor or not but the one on the pink flower, that's andrina distance.
It's a wild geranium specialist, so the only place you find that be is on and around wild brainium flowers for about a month and right now and like late May.
You never going to find it on your corn.
You're never gonna find it on the tomatoes.
You're never going to find it in a a coniferous forest.
It doesn't have wild geranium, but we were looking for it.
We found it.
There's a lot of other ones stories like that and this guy in the top right with the red is a Willow specialist, one on the sunflower is a sunflower specialist and.
So and roughly 20% of this 353 species are confined to a small subset of flowers for all of their food needs.
Basically, sometimes it's one species of flour, sometimes it's a family of flowers.
But they're what we call specialists.
They have very unique diet needs and then a lot also have unique nesting needs so.
Unlike honey bees, which nest in honeybee hives and maybe hollow logs very occasionally in Vermont, but roughly 88% of the ground nesting or of the bees in Vermont nest in the ground.

So they're nesting in sandy banks that are sort of sloughing into rivers.
They're nesting at the edges of driveways, baseball diamonds, forest fours, anywhere they can get access to the soil, especially sandy soil.
So they're much more ground nesting bees in general, and much more common in sandy loose soils where it's a lot easier to dig.
Including a lot of our agricultural land outside of the Champlain Valley.
And then there's this whole other cast of characters that are these kleptoparasitism species.
There's an example on the top row here and then at the bottom.
These are parasitic species that take over the nests of non parasitic host bees, but the way their eggs and the bees nest and they develop in place of the larvae, develop in place of the bees larva.
There are totally natural, totally common part of the landscape.
They're never there.
I populations are dependent on their host populations and they sort of have been flow.
They're not necessarily gonna harm the abundance in general or be diversity there really a a, a good sign of a stable, healthy ecosystem when you have these multiple trophic levels within one taxa.
So I always like to find these parasitic species that they they tell you that there's a lot of thought to be diversity and a lot happening at a site and often near nest sites.
So ticularly sandy soils again.
We also have a number of non native species, the honeybee being the most common and ubiquitous one.
But there's some more recent arrivals, some from Japan and China, some from Europe and more coming every year.
There's a bunch of new ones, and Massachusetts in Montreal that we're keeping our eye out for.
That's that.
And then the question that the sort of leads to is and everyone I get often what I'm explaining what I do to people that come across in the field, but how are the bees doing?
We wanna know how the bees are doing and that's why we set out to do this project, but also it's kind of an unanswerable question, at least at the moment, mostly because we don't have enough data prior to these two projects that I've just

explained.
We really don't know what the natural, native healthy E fauna of Vermont looks like.
We have basically no information prior to about 1900 and even through the much of the 20th century, we have very sparse sporadic data and it's really hard to piece together trend lines to say that particular species are doing well or not.
With the small exception of these bumblebees, that there's some really drastic changes that we were able to document pretty clearly.
And that that's a sign that there's probably other small W drastic or less well documented changes happening that we need to start monitoring for it.
And we started monitoring for, but we need to continue to monitor to detect these smaller changes and this figure here is showing the number of species of bees that were detected in each year.
So like I said, we have 353 species that have ever been detected in Vermont, and in some of our the height of our surveys, we detected like 250 of them.
But most years in the 20th century, we had records of less than 50 species.
Doesn't mean there were only 50 species in Vermont in any given year.
It just means that no one was working.
So and yes, the number of species detected per year is going up, but that is totally an artifact of sampling effort.
Umm.
And now I expect that this project wrapped up.
I expect this line to continue to drop as there aren't people surveying as intensive as we have been and we don't.
We're just not not working hard enough to find every last species doesn't mean they're not there doesn't mean they're disappearing, but they may be.
We just, we really don't know and this is just an A picture of this, a museum collection that we do have that shows like this one was collected in 1949.
I think in says Arlington or Huntington and from that specimen we can figure out what it is.
We can figure out where it was and we can start to fill in a little bit of a picture of the past, but it's pretty sparse.
Another graph showing the same thing, so that this is this number of species per year.
This is the number of records per year.
Which is even more drastic, showing the increase in starting in the early 2000s.

This is a.
This is the bumblebee survey and then this is the Wild bee survey.
And this is this growth here is mostly from community science platforms like inaturalist that are documenting records from people with smartphones in their backyard.
This record in the 60s and 70s, that's a single professor at Middlebury that did a lot of collecting.
Umm, but it's a very small area.
It's a very small number of records compared to what's happening currently, and it's hard to draw trend lines for anyone species that maybe only has path or percent of all these records.
I'll one more slide and then I'll pause for questions.
Umm this is looking breaking down the number of observations by species a little bit just to give sort of four different examples of.
Among those 355 species top left here.
Rusty Patch Bumblebee, Bombus affinis.
This is the one I mentioned that now federally, and Vanguard has not been recorded in Vermont since about 2000.
We think that decline is from a combination of umm, pesticides, disease, habitat, habitat change is a number of factors that are likely affecting bees in general and bumblebees in particular.
I suspect in other suspect that the drastic declines of a few species in the late 1990s is the result of an introduced pathogen from commercial bumblebee hives that were brought over from Europe for greenhouse pollination primarily, and they escaped.
But this got parasite that then hit a few of our native bumblebees really hard.
And that may be there's a number of cases where that may be sort of the most drastic, most obvious threat that individuals be species are facing is pathogens and parasites coming from mostly from commercial or Interstate commerce.
Of these, both domesticated and.
First domesticated species like bumblebees that are really weird commercially, bumblebees in Mason bees are the two right now that in addition to honey bees that people are transporting.
Umm.
Anyways, this is showing that there were quite a few records of, but if that's umm, will be historically disappeared.

Compare that to the common eastern bumble bee.
There's a smattering of records historically.
Note the axes are very different here, probably comparable to Rusty Patch, but then in the 2000s, with the advent of these two surveys and of community science platforms like inaturalist, the number of records every year of this species have drastically increased.
This is the.
This is the common B.
If you see AB and the likely most likely species is gonna be this common eastern bumble bee.
Large, easily identified.
It's quite common in urban areas and in agricultural areas.
It seems to do pretty well around human human dominated landscapes.
Whereas some of these other two species are a little less tolerant of human disturbance, although this one on the left, the broad footed cellophane B, this is a fun story.
This is this beast specializes in plants in the genus Physalus, which includes tomatillos and ground cherries.
These very minor specialty crops that a few farms are growing in Vermont and as are a few gardeners and I planted I tomatillos in my backyard in 2019 and the first record of this beat this bee showed up within a couple of months, and it was the first record that we had for Vermont.
Not that it just arrived spontaneously out of nowhere, but it had been here and no one had surveyed enough on these two plants.
They're pretty obscure flowers and kind of hard to get hard to see bees on, but once we started looking for this bee and a few others that are only on this genus of plant, we found them.
We know, we know they're here.
We know they're pretty widespread.
We have no idea if they were here historically.
Suspect they were, but we don't have any confirmations to prove that and we certainly don't know if they're populations are increasing or decreasing over time.
Maybe if we kept the survey up for another 100 years, we'd have a better we could get a good trend line, but such a specialized obscure insect that I, I kind of doubt that's going to happen.

But hopefully and then another.
Currently it's a moderately common species.
We have some historical records we don't know.
It's hard to know what's going on.
It's been here for a little while.
It's we find it.
Is that to say that it's is it increasing?
Is decreasing.
Is it staying stable?
Hard to know.
I'll pause now for questions.
And then assuming there's time allows, I will continue on with just some interesting Natural History tidbits about some of these groups.

GJ **Goss, Jill** 42:46
I'm wearing questions for Spencer.
Then.

RR **Ryan Rebozo** 42:51
I have a quick one.
It's, it's Ryan.

SH **Spencer Hardy** 42:54
I.

RR **Ryan Rebozo** 42:54
You mentioned pathogens being a a major threat.
I wonder, are there certain bee species that are more susceptible?
There's certain life history traits that make them more susceptible to managed bees.
Or are they kind of all equally threatened by pathogens?

SH **Spencer Hardy** 43:07
Cool.
Yeah.
UM, that's a that's a good question and I don't have a good answer, although I think

my biggest concern in pathogens right now is for wild native bees that are closely related to managed bees.
Uh, so in the case of the rusty patch bumblebee, it's in the same subgenus.
There's a as the European bombast terrestrials, which was the species that was first domesticated for crop cult, first available commercially for crop pollination, and I suspect that that similarity is part of why it gets hit really hard by this gut parasite.
Now if you notice it, we're not seeing the same trend with the common eastern bumblebee same genus but different subgenus.
So it's a little less closely related to the domesticated, the commercially available species of the 1990s.
And now I'll note that I think because of this trend and maybe a few other reasons, but the common eastern bumblebee is now the species that is available commercially in the eastern US and instead of bringing colonies from Europe, there were breeding them in Michigan and they're available.
Still available for tomato and blueberry growers currently, but they're coming from the US as opposed to Europe, and it's the it's a northeastern native species, so better and, but there's still, I think there's still the possibility for pathogen spillover there.
But the one that really scares me is the Mason bees.
So there's enough people familiar with the blue orchard bee.
It's sort of a classic orchard pollinator.
They nest in these tubes, B hotels that you can put in your orchard to.
They come out really early in the spring when the apples are blooming, but you can buy blue orchard bee pupa from online from the 1020 different places and they'll ship them to you to release in the spring.
And right now it's a totally unregulated industry that's really targeting, like the hobby backyard orchard keepers who think they need better pollination.
Any chances are they probably pollinations probably fine.
I haven't seen much evidence of pollination lacking at the small scale for tree food.
We've got most of the state has a decent mix of wild native bees that are able to pollinate small scale crops, maybe less of a more of a concern when you get into the larger monocultures of blueberries and apples in the Champlain Valley.
But the backyard scale?
I don't think Mason bees are particularly helpful, and the cocoons can and have been shown to carry various pathogens as well as parasitic Wasps that will come out and then spread into the environment where they probably attack native Mason bees and

maybe other tasks will be on that, and that's an open question, I think.
Umm so yeah path and spilled.
My concern is mostly for species closely related to managed species, but I think there's potential for spillover into a lot of other tasks.
There's some honey bee diseases that have been detected in just about any insect taxi you can think of.
So lady beetles, dragonflies, crickets.
They have.
There's fungus and varices and various diseases that are been shown to come from or from shown to be present in honey bee hives and then also be present in these wild populations of totally unrelated species.
So it's not just bees that with this is a concern.

RR **Ryan Rebozo** 46:43
Thanks.

GJ **Goss, Jill** 46:43
Yeah.
Yep.
Uh, Pam, last question in the room here.
Hi I have a big pile of dirt in my yard so I'm over here.
I'm sorry.
I'm off the camera and I can't weed it because I'm afraid of disrupting my ground nesting bees.
Can you describe briefly what the ground nesting depth profile?
Like what does it look like?

SH **Spencer Hardy** 47:05
Umm.

GJ **Goss, Jill** 47:05
How do they go?
Is it really big?
Is there any rule of thumb since so many of them do seem to be ground nesters?

Spencer Hardy 47:12

Yeah.
I usually have a slide in here.
I talk about this B that was nesting in my driveway and I was parking on top of them for 2 summers and and then like, that's not as I was wondering what was happening with me driving over.
I'm this paper came out that showed that that particular species, at least in one site, was nesting 3 feet down in the ground.
Umm, so they're tunneling down in that case 3 feet, putting their eggs down there.
I don't know.
It's not necessarily the rule.
There's probably as many variations as there are species.
A lot of them are pretty deep, though, and some of them are probably getting trying to get below the frost line.
Some of them are probably trying to get to drier sites to avoid moisture fluctuation, and I think it really depends on the substrate and and the species.
Bumble bees will nest in the thatch right on the surface of the ground.
And then this is for people that aren't haven't seen ground nesting be aggregations.
This is a observation that someone posted to inaturalist recently at a baseball diamond in Killington or somewhere down.
That way, each of these little red circles that look kind of like Ant hills or like acne, they're nests of this trout Lily minor and doing erythronium eye, which is a specialist on yellow trout Lily.
This essential spring ephemeral and baseball diamonds are popular places for a lot of nesting species because it's exposed, often sandy soil, easy access.
Umm.
And they huge aggregations like this must be a thousands nests in this one picture.
And then about in terms of weeding it, I think this picture also shows that there may be some disturbance is beneficial.
You can see the nest seemed to end where the sod starts, so they want some species won't want their soil because it makes it, I assume makes it easier for them to find their nests or to dig into the start those nest holes.

Goss, Jill 49:27

Thanks.
Ohh so try I also this Morgan.
I had one other question kind of going on, something that you said about.
Umm, when you're talking about your concerns, people buying blue orchard bees and and backyard pollination, you haven't seen a problem with.
But I wonder if you could expand on what you were just saying about their maybe concern for pollination and crops like boogers and apples and can maybe explain a little bit more about that?

Spencer Hardy 49:57
Yeah.
UM, certainly.
So at one end of the extreme, you have the California almond or trades where I did some work where the ground is bare dirt.
There are no plants that intentionally managed to avoid any competition of plants for moisture, so that and then there's these acres and acres and acres and acres of almond trees.
And that's the only flower.
So you bring in these, they pollinate the almonds and then you have to take the bees out because there's no other food for them.
The rest of the season and almonds are blooming and February, so there's not a lot of native bees in that system.
That's 100% dependent on managed pollinators, umm.
And then Vermont, obviously that doesn't happen at the same scale and there's there's wild habitat within 3/5 hundred, 1000 feet of many of our farms and there's some wild bees doesn't take much for there to be a decent population of wild bees nesting, and a hedgerow or.
A pathway even through a field, even nesting in some vegetable fields.
Umm.
And bumblebees in particular, and some of the other bees will fly a kilometer or more so.
Most most Vermont farms that I've seen have enough natural habitat around that.
If they're not actively killing all the bees, there will be bees there and pollination should be should be good to at least.
OK.

Umm, but then you get like some of the bigger blueberry farms that there's been some work on and CC, Nicholson and Taylor records at UVM have a pretty cool paper from like 2015 where they looked at a bunch of blueberry and Raspberry farms in the northern Champlain Valley and quantified the wild pollinators.
And they found that an increase in wild pollinators on the farm led to a I think they calculated like a $1500 per acre increase in yield for the farmers.
Umm.
And that's blueberries are particularly interesting because they are buzz pollinated, so they the pollen needs to be shaken at a certain frequency to release the grains, so that otherwise the pollen doesn't come off the flower as well and doesn't get moved.
And there's a bunch of our native bees have evolved with blueberries because we have native blueberries, and they're really good at this buzz pollination.
Whereas the European honeybee can't buzz pollinate and it's a much less effective pollinator of blueberries.
So having a healthy native bee population in a large blueberry plantation is beneficial both to the to the wild bees that are feeding on it and to the farmer's bottom line in terms of increased yields.
Is that you get to your question.

GJ **Goss, Jill** 52:57
That then that's great.
Can you see those two names again that you can break it?

SH **Spencer Hardy** 53:01
Taylor, Taylor Ricketts and Charlie Nicholson was his PhD student, and if you want, I can send you a link to the paper.

GJ **Goss, Jill** 53:05
Thank you.

SH **Spencer Hardy** 53:10
It's a classic one that I cite pretty often.
It's really discreet and showing that agriculture, the commercial value of leaving some unmanaged wild habitat around the farm for these wild pollinators.

Goss, Jill 53:23
Yeah, that's great.
All included in our yeah, in our minutes is up.
If you send it so that's always good for us to kind of have that next step of looking at things.

Spencer Hardy 53:27
OK.
Yep.

Goss, Jill 53:32
Go ahead, Wendy soon.

Wendy Sue Harper 53:34
I just wanted to know your thoughts on why bringing in these organisms isn't regulated has so much of stuff is regulated?
What you can bring in thank you.

Spencer Hardy 53:44
Yep.
I'm simple like insects are flying under the radar somehow and I brought this up to the state entomologist a couple times and I think there's appetite there.
And I think the concern is recognized that multiple levels of society and but I just don't, it's unclear to me at the moment.
Hi if where in like honey insects other than honey bees fall within state statute and regulations.
I know, I know, like bringing in plants is somewhat regulated, bringing in vertebrate animals is certainly regulated, but it's I guess it's tricky with online sales and it's it's sort of a the Wild West right now.
Umm.
And I'd love to see some work done to at least make sure that the rules are being applied if there are any that would apply.

Goss, Jill 54:46

Thanks. Yeah.
Any other questions before Spencer alone?
Alright, go for it.
Transfer.
Thank you.

Spencer Hardy 54:59
Alright, yeah.
So just to sort of expand upon what I've said about the diversity of BJ's and of Natural History in Vermont, I'm just going to talk a little bit about a few groups that people might appreciate.
These are the bumblebees, obviously the big fuzzy ones that right now you're seeing them, they probably about the size of your thumb and these are the Queens that overwintered, they will start a new colony any day now.
And actually I saw my first worker last week, and that's basically the same, but half the size maybe like the size of your pinky nail instead of, are you, pinky instead of your thumb?
And there, umm, they're females that do all the pollen collecting from for the most of the summer, and they're feeding the colony while the queen is goes underground for the rest of the summer.
Laying eggs umm underground or in the thatch?
Or even some some bumble bee nests are in like above ground cavities and rotten logs or something.
But umm, they're they're one of the few true social species.
They have this workers, these Queens and then these worker casts and then the end of the season.
The males come out.
Here we go.
So yeah, right now it's the Queens.
Workers are gonna come out soon throughout the summaries.
You see the workers, and then again in the fall, you start seeing Queens and males.
So these are new Queens that were just born and then the males that come out just to fertilize those Queens and then they die with the first hard frost.
And the Queens which have been fertilized find a space to spend the winter underground.

And this phenology depends a little bit on the species, but that's the general sense of the life cycle.
This is a picture of a bumblebee nest that was found in a thatch above ground in a a pasture or hay field, I think.
Each of these sort of blood cells has a larva that will develop into a new worker, and then this is the work you're carrying.
The pollen back to the nest on the hind leg.
Umm and you'll start seeing that you don't see it right away, but when the Queen's first emerged case they haven't established a nest.
This indicate the polling indicates that they've established a nest and they've actively foraging.
And then in the fall, the males a can't sting and B don't collect any pollen.
Umm, but their whole purpose is to reproduce and to fertilize the queen for the next winter.
And that's pretty different from some of these other species.
So this is that one I just mentioned.
This trout really specialist.
It only collects pollen from trout Lily.
Therefore, the females, which is this picture only fly while the trout Lily is blooming.
So late April 1st, half of May, umm.
And their their solitary and their nonsocial species.
So it's just a a female has her nest.
One of these little red holes, he goes down a foot 2 feet 3 feet, makes a loaf of fallen lays an egg on it, and then does it again the next day.
So probably one or two eggs, one egg a day weighing a wolf, an egg on a ball of pollen and with a little nectar mixed in underground.
That egg, assuming it's not parasitized by a parasite, hatches developed into a larva, spends the winter entire summer and winter like 11 months out of the year.
That'd be is underground in the cell that it was born in developing and then right before the trout will is bloom next spring.
All of these eggs that were laid in these holes will pop out as males and females.
They'll mate and then the the females will start it all over again.
This is an we've like 35 genera.
Obviously, no time to talk about all of them.
Bumblebees being one of them with 17 species or something, but then this is.

This is a interesting genus of really small bees that like and a lot of quarter of an inch or less.
Umm this is another one that's a specialist on ground cherries and tomatillos.
You only find it on these two plants and it nests and it needs, like really fine sandy soils to nest.
So you only find it where there's ground cherries growing over, like the best sandy soils in the state.
Burlington, Intervale has it.
I found it on a number of small vegetable farms that are growing ground cherries basically, and some on the wild ground cherry, which also is in the similar places.
And this is a same genus, more common species that's on goldenrod.
So it's only active for a month in the fall when the golden rods blooming.
This is the mating pair.
Females collecting pollen she nest in the ground.
This is a another interesting one that we just recently discovered.
In the last few years, it's a specialist on a single species of whoa, the sandbar, Willow, which blooms in, like, July along all of our major rivers.
Winooski, Lamoille some along the shores of Lake Champlain.
It's probably on the Connecticut River, but this this well isn't confined to these sandbars.
The B is confined to that species of Willow.
Probably all get buried in the flight in July, but there's there may have.
Probably there's most of them survived.
Some of them survived, at least, and then, if you're familiar with the state S rankings for tax organisms, birds and mammals, particular, but.
Taxes can be ranked on a sort of a rarity score from one to five.
It's a.
IUCN or no, it's nature serves criteria that assesses the rarity of a species within a state.
So as one is the rarest of the currently present species, meaning it's only known from a few places and Oregon it's facing significant threats as two is known from a handful of places, maybe facing some threats, S3 is a little more common, but pretty localized all the way up to five, which is things like the common eastern bumblebee, which are quite widespread and don't seem to have any immediate threats.
And we did.

We did this ranking for all 350 species in Vermont.
And I think about 30% came out in the S1 to S3 range.
So likely imperiled somebody like this one species are more critically imperiled.
Based on the fact that they occurred a few sites and that very specialized needs or things like the, some of the bumblebees that we know have specific threats that are making their survival much less certain in Vermont and like the and the rusty patch bumble, we ranked historical.
So it no longer occurs in Vermont.
And then we started this project.
We found I don't know, 80 species that had never been found before in Vermont, and we're still continuing to find new bee species that are not found in Vermont that hadn't been previously found in Vermont.
Umm.
In part because we've been communicating with other people, doing somewhere work in other states, and they've given us some hints of species to look for.
Maybe there's some new new introduced species that are arriving, but this is an example of one of the ones we found.
I guess two years ago now the UM, the sunflower miner is a fairly common specialist on sunflowers, so we really only find it on where you have wild populations of the perennial sunflowers, mostly along rivers.
And then this, the parasitic species that only parasitizes the sunflower miner, and after a bunch of searching for it, we finally found some again Burlington Intervale and one other place and go along the White River.
Uhm, there's so this as an example.
This is an S4 is a pretty common species.
This is now where we ranked as one because we only know it from 2 locations.
It's certainly at risk of disappearing if it only has two populations within Vermont, although probably are more populations that we just haven't found yet.
I think that's all I have for you now, but I'm happy to stick around and ask questions if there's time.

GJ **Goss, Jill** 1:03:20
Yeah.
Do think we had time?
Anybody else have any?

More questions for Spencer Stephanie here on the room.
I've a question to you said you had data from 2000 to 2000, the 14.
What's the plan going forward?
Like, I'm just that.
I'm sorry.

SH **Spencer Hardy** 1:03:41
No, I hadn't talked about that.
And I it's an open question and I think we now know a lot more.
So we can we can go forward and do a lot more with a lot, a lot more efficiently, but it it's an intensive project to I've been working on this full time.
We've had other staff that have been dedicating significant time to this.
And it's not sustainable to keep surveying at this intensity, but we there are ways that we can monitor certain species or certain areas more intensively and to keep a sense of working for changes over time, particularly with the bumblebees.
One thing that we've started doing is revisiting sites that we visited in 2012 when we started the Bumblebee survey and revisiting every year for the last few years to see what the annual variation is and how things have changed in 10 years.
So that's a project we hope to keep going.
It's a small scale and it's only a small percentage of the 353 species, but it should give us a little bit more real time information about how populations are trending as opposed to going back historically and retroactively deciding that species have disappeared.

GJ **Goss, Jill** 1:04:54
And as a follow up to that you reference I naturalist as being a citizen science platform or individuals to report these sightings.
Is that something that you encouraged?
Discourage.
Is there other guidelines like like and who monitors that?

SH **Spencer Hardy** 1:05:16
Yeah.
Yeah.
No, that's a good point to bring up.

That is a naturalist is this?
I don't know 10 year old online community it's it's an app.
If you're not, you take a picture of anything.
A plant leaf.
A fungus or squirrel be.
You can upload the app.
The app has an AI built-in that'll try and identify it for you, and then there's this whole online community of experts and armchair naturalists that will confirm or refute or discuss identifications.
Once enough people have agreed on the on the identification, it becomes what they call research grade and it can be used for research projects like ours.
So right now we have 80,000 records of bees in Vermont and it over the last 200 years, like be at time and place like 80,000 of those and like 20,000 of those are now from my naturalist, just within the last five years or so.
So I'm definitely encouraging people to keep using it.
It's been growing rapidly, which is awesome.
Uh, it's a really cool way to find, like we've had new species discovered for Vermont through our naturalist.
Just people taking pictures of things in their backyard and and there's people all over the world that are monitoring these photos as they come in.
There's a guy in Singapore that manages to look at almost all the bees that have reported anywhere in the world.
I try and keep an eye on the Vermont bees to make sure that things are getting identified correctly and that new things that get posted or will become aware of them and we can react to them and add them to our list.
So yeah, I naturalist is great, continues to be A and probably will continue to be our largest data source at least until another project like this comes along.
But that said, it's really it's all it tells you is that this bee was at this place at this time.
It doesn't tell you it's really hard to make inferences about population decline.
Umm.
Or disappearance of certain species just from that data alone, because we don't know how many people were looking or how hard they were searching.
And it doesn't do species that you can't identify from photographs, which is maybe half of the species, so it has its limitations.
But it is nice.

Goss, Jill 1:07:31
Thank you.

Spencer Hardy 1:07:32
And I'm sorry follow.

Goss, Jill 1:07:35
No, no, thank you.
Thank you for the information.

Spencer Hardy 1:07:38
And I want to jump in and answer Emily's question in the chat here.
I'm curious to see what Emily asked about what we're abundance of bees and areas that flooded in July or multiple times in the last year.
Unfortunately umm, it'll be really interesting to see I there was some initial surveys last summer and late July in the interval in Burlington, which I know was under like many feet of water for the entire area and at least some of the bees including this squash bee, that is an important pollinator of the squash down there.
The squash seemed to bounce back and be be present in good numbers.
Truly, after the flood, meaning that some are all of them survived being inundated.
I suspect there was some loss.
I mean, the hillside washes away and he'd be nesting in.
It is probably toast, but temporarily saturation may be OK for some of these ground nesting bees, or if they're, if they're adults, were out and flying around at the time of the flood, they may be able to survive and repopulate a new area pretty quickly, but to be determined.

Goss, Jill 1:08:55
Uh, thank you.
Any other.

Ryan Rebozo 1:08:59
I got one more quick one.
This is Ryan again.

Umm, just kind of thinking about, you know, some of what we know about wild bees at the farm scale, a lot of recommendations are kind of around plantings or or creating pollinator habitat for foraging.
What else?
What are some low hanging fruit that could kind of help improve pollinator habitat on farms beyond just planting a pollinator metal?

Spencer Hardy 1:09:23
Yeah.
Umm, this is something I've been working on a little bit with folks at give M extension but pollinator like planting A there's a couple ways to approach a planting. I think that my preferred method is to establishing shrubs in marginal areas that aren't being used.
Flowering shrubs in particular, because that provides both nesting habitat and long term flower sources.
There's a lot of I have a lot of questions around tillage and how tillage impacts ground nesting bees.
I've seen recently tilled fields that will bees had colonized and we're nesting and left and right, and I don't know, there's probably a lot of nuance to it, but the timing of tillage may or may not destroy ground nesting species.
It might be OK if they can be get below the the level of the tiling.
Certainly, if you're telling and then covering with black plastic, you're gonna smother anything that's in there.
Or if you're tilling and planting a thick stand of cover crop, it might be hard for the beast to define their nests quickly.
UM, and then I mean, pesticides are the big one that you guys are tackling certainly. And I'm not an expert in but umm avoiding sprays during bloom to the extent possible, paying attention to blooming crops in the margins that might get hit by sprays or absorbed neonics.
Umm, there's a lot there that others are probably better able to speak to.
And then and then flowering cover crops or something, that is UVM extension is experimenting with that as providing a mass flowering source for bees.
Most of those are non native plants and they're maybe good, great for bumblebees and honey bees and a few other species, but certainly they're not doing much to conserve.

The trout Lily minor or these obscure specialists.
But some of those also persist on the margins of of smaller field farms.
If you think of other questions.

GJ **Goss, Jill** 1:11:42
Yeah.
Uh.
Ohh no sorry, I was just gonna say Spencer with my.
I mean you, I don't know if you caught umm some of what we were talking about.
So there's a potential that we'll be thinking about the MP's beyond just Munich treated seeds.
So you know, more just the general use of your neck pesticide.
So if you want to be part of that conversation, you're always welcome.
And and we might we could bring you in.
And yeah, I mean, it's the more great minds thinking about it the better.
So we're happy to have your expertise because we tackle them.

SH **Spencer Hardy** 1:12:18
Yeah.
OK.
I was gonna say feel free to reach out if more questions come up after this.
Umm.
And I I know the neuronic and Apple issue is complicated and complex and there's maybe benefits to not spraying other insecticide replacement insecticides.
And yeah, there's a lot there that I'm happy to advise on as I can, although I'm certainly not an expert in the pesticides part of things.

GJ **Goss, Jill** 1:12:48
All.
Happy to have you as the expert in the B side of things.
So thank you very much for taking the time today.
Any last questions for Spencer?
Then.
Awesome.
Well, thanks for that.

Know that you're technically on break right now, so we really have greatly appreciate.
Congrats.
And yeah, we appreciate your time today.

SH **Spencer Hardy** 1:13:15
Thanks for having me.

GJ **Goss, Jill** 1:13:17
Yeah.

SH **Spencer Hardy** 1:13:19
Sounds good, right?

GJ **Goss, Jill** 1:13:22
Center.
Umm.
All right, let's just going there for good for it.
So next time we have Pam, so we're back to take a nice uh, good break from legislature talk.
And now Pan's here to.
Just more I don't know how I feel about that.
I'd much rather talked about it's.
OK, so I'm over here.
I just turned my camera on, so maybe you guys can see me.
I have been asked to talk about feedbacks and to recap what has happened in 2024.
And this morning, when I was checking my slides, I realized that they were not completely up to date because I was gonna make it a joke.
I spoken to this group.
Umm, before about the fast and when I did it was S 197 and that's been rolled into S25 and S25IS has this big being title about cosmetics and menstrual products and I really thought it would probably not be what AIB members thought they were gonna do today.
But the bill has actually been changed.
The titles is pretty generic now.
It's an act really didn't to regulated consumer products containing P fast or other

chemicals.
That's where we're going now.
I am.
I have a bunch of really boring slides.
I don't.
I don't know how else to put it.
A lot of my slides have this format where I've just taken the bill text and put it on a slide and I like I just mentioned.
I'd rather talk about bees, and for me, I'm talking about policy kind of moves at a snails pace, so I have provided a a graphic for all of you to watch as I talk.
Umm.
If that is more entertaining.
So the legislature has proposed to amend Title 9, Chapter 63.
They're adding a subchapter which is 12, and there's three components to that sub chapter, and I'm gonna step us through that and then a couple other sections.
So we're gonna get into the consumer products portion and that's just a second.
The subchapter B for it's 12B is a prohibition on the use of Class B firefighting foams, and that's throughout this state and one of the things I wanted to point out about this is this may sound like it's a real deviation from agriculture, but some of the scuttlebutt that's been going around about PFAS actually talks about the different types of firefighting foam in the context of when there are massive depopulation efforts for chickens, specifically of like, imagine HP AI comes in and a flock has to be depopulated or euthanized.
One of the techniques they do is they flood the surface of the barn with foam in, so there have been some folks saying ohh no, they're putting pets in barns and I have reached out to manufacturers and it's not the class BP fast or a triple F phone that's being used in these efforts.
It's actually a Class A firefighting phone, so it's related. Umm.
And they they're using the same kind of machine that creates the phone, and I can't.
I don't at this point have a really good understanding the complete history of the use of these phones, so I can't say that there has never been a feedback phone used in chicken depopulation, but I can say that currently we do not do that.
That's all practice.
That's not practical.
So good packaging again, this is pertinent 4.

Ohh agriculture it because we have a lot of really important food manufacturers in the state that are agriculture contributes to and for them they're going to need to be applying some thought as they move forward into the type of packaging that they select from their distribution lines so that they can be compliant with this rule.
Yeah.
Every.
This Section 8 is not really anything we have to do.
The Department of Health will be creating outreach for the citizenry, but I wanted to include it just so that you know that there will be a significant public outreach campaign involved with communicating the risks PFS.
What we what most of my slides are today are talking about this Section 9 and the implementation plan for consumer products containing P fast.
So the General Assembly, they bandied about a lot of different concepts and they were trying to move to the ability of a ban on consumer goods that contain P fasts or registry of goods that contain P fasts.
So people could tell if it had PFAS in it and make the right decisions.
And how can there were so many questions really that came up?
They shifted instead of moving forward immediately with specific requirements of directing the Agency of Natural resources to come up with a program which are proposed.
The program within Vermont that would be doable, that could restrict the sale of consumer items that contain P fasts, the agency of natural resources is to consult with the agency of AD ad food markets, the Department of Health, and the Attorney General's Office.
And there are 9 components to the implementation plan that the General Assembly has requested.
The first one is that and aren't needs to identify categories of consumer products that could have an impact and they have already established some of these consumer products.
In in this bill, it's mentioned and.
Is there something else I wanted to say about that?
No, I think I get back to this in a second, but definitions.
The second item is to propose a manner in which manufacturers can determine if an item has PFAS and then how that information could be communicated to the state, and this is really two separate asks that are really quite different in terms of what the

Agency has to do.
So for this first one, how how can a manufacturer say you have roadside sales of a dairy product and when you put your item up for sale, you become the manufacturer of the consumer item and how are you going to make sure that it does not have pee fast?
Is it OK enough for you to get an affidavit from your supplier or you going to be required just to test that equipment to make sure it complies with the PFS?
Will I think that some of that thinking needs to go into the first half of this and how that information is communicated to the state and this really implies that there will be a registration somewhere that somebody is keeping track of all the different consumer products that have PFAS in them.
And this could look like a registry maintained by the state and I actually know the poor one single person in the state of Maine.
Who is responsible for receiving those records for every product created?
That is, an enters main commerce and I did like to think about her in a dark room with piles and piles of paper from thousands and thousands and thousands of consumer goods that come into the state.
And I think that that's actually pretty close to what it seemed looked like me and actually had two extends their data collection timelines because the task of collecting that information is really monumental.
It's really like a really good that you have in your life, like this sticky note, right?
Like there's there's pee, fast and sticky notes.
So it really manufacturers have a huge burden for this or whoever is going to be keeping keeping track of every consumer item with be fast.
That's a huge lip.
Some I won't name names, but I know one person who has a really great idea of pushing this off to a third party so that manufacturers wouldn't liaise with the state they would raise without a registry.
In this kind of fits into some of the logos and brandings or kind of follows the National Organic program or somebody else is out there checking for veracity of the P aspect.
But that's part of what the implementation plan is is for an hour to collect input from all of these different industries on how this could work well for the statement.
#3 is address information on the presence or lack of PFAS in the consumer in the product and how that is related to the public, and this is already starting to happen

where we're seeing things that say P fast free on them and what does that really mean?
Like what does it mean today if you see a product that says P fast free, umm, some folks are being pretty specific and they're saying PFOA free, which is just one of the P fast chemicals.
I think that's honest, but we're going to be I think there is a room here putting guide rails on what is the concentration that you can use that you can detect and call it free or you gonna be measuring just fluorine or is it P fast specifically and which group of PFAS is it that you're going to be able to call so that that is all stuff that needs to be worked out.
And #4, I don't think the agency of Bag has a great deal of input on, but it it is to figure out at the state level what agency or department will be administering that program and what are the costs associated with it.
#5 is determine what the other states have done.
Like I I just mentioned, Main started with a program and had to back off and set their deadlines back because the sheer volume of information, the rulemaking hadn't been done in time forms hadn't been completed in time.
In order to meet those deadlines.
So trying to pick from other states what has worked for them and what hasn't.
So that's part of the plan that and ours just suggest there are some definitions that need to be worked out.
And intentionally added this actually kind of comes home to pesticides discussions about pesticides.
When you're talking about fluorinated containers, so they're there has been a case where pesticide has been manufactured and tested to be PS3 or suite of 28 different pass and then put into a container that had been treated with fluorination gas technique and then it was found to have all eight of these different PFAS that are on the rectangle.
The left hand side of the slide and it was the interaction of the fluorine and the plastic that created pee fast.
Kind of like denovo and so intentionally added here comes into this discussion about what at what point are you going?
Where are you gonna draw the line of allowing the peak pass into the into commerce or not?
Right, because it's been demonstrated that fluorination of containers can lead to the

generation of P fast and it would be a shame to allow continue to allow the known contamination.
So the definition there is actually pretty important.
One of the things about the container fluorination is really salient for pesticides, household cleaners, and industrial products, and we know this because of a lawsuit that ESPN launched against the one big company that does most of the container fluorination in the United States.
They they fluorinated about 200,000,000 containers a year, and so EPA had sued them specifically over this idea of intentionally added or not, it was found that they were generating P fast, but they were not reporting that P fast generation to the EPA.
So EPA said that they had violated Tosca and about a month ago, I think it is no weeks ago, EPA has officially given up on that lawsuit.
It was challenged and it's import and they have pulled back.
So for pesticide manufacturer EPA's battle with this company isn't really salient.
Manufacturers still have to make sure that there is no P face in their pesticide products.
The EPA has been really clear that any amount of PFAS and a pesticide is toxicologically significant and that it must be reported to EPA in steps need to be taken if it is discovered to make sure that that product doesn't get distributed, that one instance where it's been clearly demonstrated the manufacturer of immediately did the recall of all the products that had been shipped in those containers and then replaced.
All that pesticide, product and steel containers to those customers in that summer.
So that's how the important what is a consumer product?
This is.
It's gonna be really important.
Again, it is salient to the discussion and pesticides.
This is a snippet out of other Vermont law.
Ohh, chemical regulation and you look down here.
So consumer product is a product used for personal family or household products purposes, but it shall not include you go down to D&E and it has a pesticide regulated by EPA, a drug or biologic regulated by FDA.
So there's a little bit of a pretext there for things that are already regulated under other programs to not be included in the consumer product definition, except in S 25 down in purple.

That box you can see the intent of the General Assembly is to definitely include pesticides in the definition of consumer product.
So the discussion of how they're going to be regulated I think is an important part of the discussion that needs to happen over this summer.
The definition of what app asks is.
This is a whole discipline onto itself.
I have sat through and actually given our long discourses on the definition as it is right now, the generally the the most popular definition interpretation of what PFAS is in the movement right now includes up to depending on how you interpret it, 93 different pesticide active ingredients and 42 veterinary medicine, active ingredients and one of the.
Robes.
I think with this is that sounds like a lot, but if the goal was to prevent all fluorinated chemicals from reaching commerce, this definition doesn't capture all of those.
So there are key facts in addition to these, I mean there are pesticides in addition to these 93 that have fluorinated moieties on them.
And how this definition moves forward is gonna shape whether or not about somewhere around 1200 products in the pesticide world or none of the products become part of the consumer product ban in Vermont.
So this material about what is a P bass is gonna be really important for pesticides.
#7 is another plug for making sure we do public service announcements development for website to communicate the information about the faster the public #8.
Uh.
Provide recommendations for the regulation of P bass within consumer products that are recycled materials and this is, I think, gonna touch on some different areas to agriculture.
When I was making my slides last week, I did one of those like sit back and stare off into the distance.
Don't tell my boss.
Set up and there was a an old container on my desk from a trip.
I check on the train and it was in big letters, 100% recycled.
So imagine the fluorinated container that generates P fast being recycled into the plastic that goes into food uses, and so that's a obviously something that needs to to be tightened down to make sure that we're not adding P facet to the recycled plastic

screen stream.
And I think though compost is a consumer product at some volumes and you know you start to go down those paths of trying to figure out other areas where consumer products do have recycled components.
And #9, I think #9 is would seem like one of the farthest from our concerns, but it's to make sure that PPE is appropriately regulated, right.
So it is on one aspect we all know about.
The Teflon is app fast, but Gortex is another PFAS.
So personal protective equipment that has water repellency has the potential for having P fast components as part of his makeup.
And so I think there are some some background digging that we need to do to make sure that pesticide applicators have access to.
If you see that works or even you know, it could be that none of the equipment relies on feed fast, and so it seems like there's some a work for the agency to do there.
This portion also includes drugs, medical devices, and dietary supplements, and and to make sure that they are appropriately covered under this concept of does it contain P fasts?
Is it a consumer product and should it be banned?
OK, so now for my laser fast quick summary.
Moving past the snails, the General Assembly has looking for ways to protect Vermonters from PCs.
And when you think about PFAS in the big picture, taking it out of the environment, once it gets into the environment, it's really cost prohibitive and technically challenging.
So the best way moving forward is to prevent more PFAS from entering the environment and so that's why a consumer product ban makes a lot of sense.
And then the other thing that the General Assembly did was direct A&R to create this proposal on.
You know, we just went through all nine components of it on how to implement a consumer product ban in education campaign in, in our has until November 1st to produce this document for the general assemblies for that.
So they connect.
Consider it next session.
OK, so that's all I have to say.
I just wanted to show you briefly all of the pictures of snails that I did not include on

because my favorite picture image source had these beauties on it and you can tell when something is AI generated.
Do you see the one on the skateboard?
So it's nails do not actually have three eye stocks or three mouthpieces, and AI doesn't know that.
So with that, I've gotta stop sharing her and take any questions that you might have.
Right.
I know I.
I'll go ahead and here you can go first.

OS **Owen, Sarah** 1:33:55
Umm OK thanks.
I think I've turned my camera on.
I just have a comment if you.
If you look at the section that you know you pointed out in the beginning, most of this is entitled 9.
So S 25 at one point was in Title 18, which is the health status.
But this is all moved to the Attorney General's Title 9, but the one part that you included, the health depart and this responsible for submitting.

GJ **Goss, Jill** 1:34:27
Oh, you cook, you've gone out.
But I don't know if the people on you can't hear her either.
No.
So we can't hear you.

OS **Owen, Sarah** 1:34:40
Ohh yeah, my Wi-Fi is awful right now.
Can can you hear me?

GJ **Goss, Jill** 1:34:45
I can hear you now.

OS **Owen, Sarah** 1:34:48
OK.

Yeah, just just to point that we're response, we have to submit the plan, but there's no funding to actually implement it and that's you know something that we provided a lot of comment on.
But creating the plan for community engagement is is a good thing and A and a first step.
But it's not the same thing as implementing it.

GJ **Goss, Jill** 1:35:10
Yeah.
I mean, you say we we is everybody and RND OHN.

OS **Owen, Sarah** 1:35:18
Yeah.
So I I'm sorry.
My I don't know where I left where my where I dropped off.
But there's there's one section that the health department specifically is charged with the community engagement plan, which is reaching out.
I'm about various aspects of the bill that are not not P fast and cosmetic and menstrual product related, but the charge there is to only submit the plan, prepare and submit the plan, not to implement it.

GJ **Goss, Jill** 1:35:29
Yes.

OS **Owen, Sarah** 1:35:44
So just Pam, I think your comment was there's gonna be a lot of engagement and outreach about that.
Yeah, that's still a lot of thought.

GJ **Goss, Jill** 1:35:54
There'll be a lot of thought.

OS **Owen, Sarah** 1:35:57
Yeah.
So I mean basically our feedback was you know things cost money and things we

need staff to do things.
So yeah, it was just just a comment.
Sorry if that was a really lengthy you my Internet.

GJ **Goss, Jill** 1:36:08
No, thank you.
That's good.
Do you have any more information about some the timeliness of it when it's the governor's gonna sign it or when or?

OS **Owen, Sarah** 1:36:20
Honestly, I haven't looked at this single thing since the legislature ended, so I was looking forward to your presentation because I had no clue.

GJ **Goss, Jill** 1:36:25
Cool.

OS **Owen, Sarah** 1:36:27
I I forgot where everything kind of landed.
So no, I am the least in the loop about any of those things.

GJ **Goss, Jill** 1:36:33
Yeah.
I asked the sporting at and we don't have any additional information besides, what about you?

OS **Owen, Sarah** 1:36:39
Mm-hmm.
Thank you, Pam.

GJ **Goss, Jill** 1:36:49
Thanks.
I was just gonna ask, this was my download.
Just trying to take notes and listen all the same time of.
So all of those nine things for this implementation plan are basically 2.

Influence.
If anything happens in the next session, yeah.
OK.
Yeah, I I distinctly remember hearing Senator Lynn say that that reports it doesn't.
Doesn't want to report.
The really big and they take a lot of time and then a lot of time to read.
So she was looking for a suggestion on what they should do.
Like what is?
What would the agency think works as they move forward?
Because there was a lot of discussion.
Like a queen. Thoughts.
Right.
Umm.
And I think there's some stuff for that day I need to consider.
Right.
Because it it depending on how this conversation goes the next couple months will drive what happens for us.
That would be my second question of I don't know why I didn't do a great job of listening to these discussions because it's so far reaching of consumer products.
That kind of like in your opinion, was was pesticides, something that was hot topic or brought up or did it just kind of sneak in the ads consumer product?
You know what I mean?
Yeah.
No, I mean S 197 had a real focus on pesticides.
Yeah.
So I think there's definitely interest in making sure.
It's OK.
Umm.
Does anybody have any questions for?
Sam and or Sarah?
She's been pretty involved in this.
Yeah.
So obviously this one for AB is one whole.
Keep track of.
I think that it will.

The in our best interest to keep listening to see how much pesticides are going to be affected by this, and how we might be able to.
Umm.
Provide any expertise or provide any recommendations from that point of view.
I know it's just a small snippet of this figure picture, but I don't know.
We have to, uh, maybe we can brainstorm away to.
Share any recommendation that we wish to share?
Umm, so that's kind of why we're we're keeping it on our agenda so that we know what's going on so that it's something that is relevant to what we should be looking at.
On so that kind of leaves us too.
So that the next thing on the agenda was just, yeah, what's next?
So after this meeting, we are back to our regularly scheduled 4th Monday of every month.
We recognize summer as a a hard time.
We're gonna stick to it whether we have.
We do have some things coming up for June, so Jill's gonna provide us with a a seed report.
Umm, in the June meeting.
And then also we should know kind of the status of the Munich bill at this June meeting.
So we're gonna, basically, we're gonna start the process now of understanding that we should be thinking about that expanded recommendation for BMP's to include new and pesticides in general.
And so if Members could come to June thinking about what they might want to hear, what we haven't heard yet, if you know, we we really, really drilled in on on treated seeds.
So what do we wanna know?
What more do we need to hear?
I feel comfortable expanding to neuronic aside in general, so I'd like to hear that for June and then.
I did want to give an update.
I did reach out to Margaret Skinner.
So on our surveys or other responsibility has been to survey every year.
So we did get we presented last time we did get our three questions out during an

applicator meeting put on by Searchingly Richards that you'd be on extension.
And so we did get some results from a survey.
We also planned to include those three questions in another VM extension survey that's going to be disseminated by Margaret Skinner.
She it was an action item for me to find out the timing of that.
She has said that because it's so busy right now, if we recognize it's gonna be later in the summer, which is fine with our timing.
So, but I'll keep you up to date on when those questions are.
Shared through her survey as well.
And then lastly, I know Steve Darnell not here.
When our Members and our director here and he wanted to make sure that everybody knew from an agency perspective.
We are still taking the AI's, so we now I'm saying as agency of AG is taking the recommendations provided by AIB seriously and we're moving towards trying to implement some of those recommendations.
So for example, so again we're contracting with have their Darby and UVM extension.
So we will hear from her later this year.
She's expanding her Munich research.
What she doing?
The same research that we heard about this past year, and then she's also collecting dust samples during planting.
So we should learn a little bit more about that and also doing some research into different alternative scene lubricants.
So alternative to the talking graphite containing seed lubricants.
So we're kind of expanding that research with other Darby and she rocks and is even starting even though contracts not signed.
So we're working our best to help her do that, and so that helps with that recommendation of further research on and then in addition or uh working with Vermont Center for ECO studies to try and I find exactly kind of what Brian just asked of how can we make recommendations, how can we implement some sort of program to increase pollinator habitat without affecting umm, our cultural production.
And so a project is in the works for that as well.
So kind of those are two highlighted projects that were planning that directly relate to the recommendations that the AIIB made to the agency.

Umm, so we just wanted to kind of say we're listening and we're we're trying to implement some of those recommendations as well.
So there was not for not and now we just get to expand our BNP's so that office AG can continue to do more.
I think that was all I really needed to say before I go to public comment.
Does anybody have anything else they want?
Need to look into for future meetings this summer?
Things you wanna hear about and you wanna learn about more just what's going on in your head.
Oh well, if you think of something, please.
And you know, if you really interesting article that's pertinent to what you know, making recommendations for new Nick pesticide use, these surveys.
Increasing pollinator habitat.
Any of those things, feel free to send them my way off.
So those of you who are eligible, it's on our minutes every time.
But please send me the forms for reimbursement.
I'm happy to process those.
So you can be reimbursed for your time and I will open it up for public comment, so anybody have.
You can say.
Wonderful.
That's right.
Alright, if we're we're good, then I am OK.
And here, early on this beautiful day.
So get out, enjoy and look for the minutes.
Feel free to look at last meetings. Minutes.
Give me any edits.
And then Sarah, I did see that you sent a note and then I'll do the same.
I'll get the minutes outputs one, so thank you all for your time and we will see you June 24th.

OS **Owen, Sarah** 1:46:40
Thank you.

GJ **Goss, Jill** 1:46:40

But.
Alright, thank you.

Griffith, Morgan stopped transcription