



Transcript for *Pollen: Darwin's 130-Year Prediction* written by Darcy Pattison (Mims House)

Introduction (approximately 0:00 – 4:48)

Hi everyone! This is Colleen from the KU Natural History Museum, and I'm so excited for this week's Story Book Science. We are going to be reading *Pollen: Darwin's 130-Year Prediction*.

While we wait for people to join us I thought I would go ahead and just talk a little bit about the title. So when we look at the cover of the book pollen is written in a very large font. So pollen is super important not only for the story but also for plants, because pollen is, uh, something that is produced by cone-bearing and flower-bearing plants; and they help pollinate the plants and also help to make seeds, which will then grow into new plants.

So this is an example of a seed. It's from an orchid tree, which is a flower-bearing plant; and I just think it's really cool thinking about how – sorry my camera is a little messed up – but thinking about how this seed is produced with the help of pollen, which is really small. It's yellow, greenish-yellow in color, um, but then it can grow into a much bigger thing, which then grows into a plant.

You may have noticed pollen if you've been outside recently. Um, humans don't tend to like it too much this time of year because that pollen, although it's really small, uh, can cause allergies, but there are plenty of animals that really like pollen. Um, we think of our pollinators like bees, but even moths and butterflies can help pollinate flowers and other plants too.

Now the other part that I want to mention is Darwin's 130-year prediction. So Darwin, who is a scientist; he is illustrated right there, and we'll read a little bit more about him in the book. He had this prediction, and it took a pretty long time, uh, for it to be resolved; and what I want you to do is, I want you to imagine a scientist; and I want you to imagine that scientist and a question that that scientist has. So that scientist, they will need to, um, come up with a series of tests that they need to perform in order to resolve the question and discover something about the world they live in. Now I want you to think, what does that scientist do? How long does it take them to perform those tests? Does it take a really long time, or is it something really quick? I also want you to think about who helps the scientist. Are they doing everything alone, or do they have someone helping them out? So that's what I want you to think about.

Now that we have a couple more people who've joined us I'm going to go over the regulations and rules of Story Book Science. We are not in the museum, but museum rules apply. So that means that you must be kind and considerate, um, and make sure everyone here in this space feels welcome. Uh, that means if you have any questions or comments, please feel free to write those, uh, but again remember to be kind and considerate. Also be patient just because if you write a question, I may not be able to answer it immediately. So you'll just maybe have to wait if there's time at the end.

So I'm going to go ahead and get started. Our book reading today is *Pollen: Darwin's 130-Year Prediction*. It is written by Darcy Pattison and illustrated by Peter Willis. We are reading this book with permission from Mims House; and one of the things I really love about this book is how it tells us that it's good to be patient and sometimes we have to be patient, especially when it comes to the scientific process.

Now one of the things I do want to mention is if you are super interested in this book, there is more information, um, in the description. There's a link to Mims House – Mims House's – website where the book page is linked. Additionally, there is a link in the description to the museum's website where you will be able to find a partial transcript of this reading later today.

So with that, we are going to go get started with *Pollen: Darwin's 130-Year Prediction*.

Reading from *Pollen: Darwin's 130-Year Prediction* (approximately 4:49 – 12:02)

Pollen: Darwin's 130-Year Prediction includes copyrighted materials, and we do not have permission to include the written text of the book in this transcript.

Conclusion (approximately 12:03 – 19:12)

The end.

Now I really like that story, because, again, it reminds us that we need to be patient, not just, um, in everyday life but even when we do science; but what I want to share with you are some specimens that I have brought from the museum; and before I show you the specimens, though, I want to show you a couple pictures.

So in the book we talked about this hawk moth from Madagascar, and we talked about its proboscis. So its straw-like mouthpart. Now this is a picture, a couple pictures actually of the hawk moth, and this one right here: that is a close-up of the hawk moth's face. I'll let you see that; and what you'll notice is this coiled bit right up against its head. That is the proboscis, so it's all coiled up, because remember it's 11 inches long. If the moth was flying, an 11 inch long proboscis just totally elongated would get in the way. So it keeps it coiled up until it needs to feed, and so that's what you're seeing in this next picture. That's the hawk mouth from Madagascar; and that right there is the star orchid that we were talking about in the story; and it's kind of faint, but I'll put this close, maybe you can see it. There is a line. So it's between the moth and the orchid, and that line is the proboscis. So it's no longer coiled up. Since the hawk moth is going to feed, it elongates that proboscis and inserts it into the nectary of the flower.

And I keep saying that its straw-like, and so I thought I would do a little demonstration. I have a straw here; and this straw, I can use it to drink liquid. So if I had a glass of water I could use a straw to help me drink it. Now if I was a moth, I wouldn't just have this straw out and just hanging loose. What I would do is I would coil it up. So I'm going to do just that; takes a little bit of time so please bear with me. Alright. So my straw is all coiled up, just like this; and if I were a moth, I would keep this close to my mouth or my head. So it would go somewhere like right here. Once I found a glass of liquid or another source of liquid, what I would do is elongate or uncoil the proboscis like this; and then I could drink the liquid. So that is how a proboscis is straw-like.

Now the moth we talked about in this story, like I said, it's the Madagascar hawk moth which is found in Madagascar. It is one species of sphinx moth; and so it is in a very big family of sphinx moths, and there are hundreds of sphinx moths, some which you can find where I live in Kansas, um, and in surrounding areas; and I have two examples of sphinx moths that are and can be found in Kansas. This first one it is – and again I apologize for the reflection – that is the white-lined sphinx moth; and just like the Madagascar hawk moth, it has a proboscis. So it has that straw-like mouth that allows it to drink the nectar from flowers; and another sphinx moth – again apologies for the reflection. I'm going to try my best to make sure you can see it without

the windows. This is a tersa sphinx moth; and again, it has a proboscis just like the Madagascar hawk moth we read about in the book.

Now I think that the sphinx moths are really interesting, because like I said they're this huge family that has so many different species; and one of the reasons why these specimens are so great is because we can look at them and we can study them. We can see things that make them different, and we can see the things that make them the same. So we know that they both have a proboscis, but I'm going to put them up to the camera again. I'm going to give you a moment just to look at some of those things that make these moths different: so things like color, wing shape, um, size, all of those things.

So here is the white-lined sphinx moth; and here is the tersa sphinx moth. Alright. So really think about some of those differences that you see, um, if there's any colors, things like that.

One other thing I want to show you is not a sphinx moth, but if you're from Kansas, you're probably really familiar with this specimen; and it's closely related to sphinx moths, but, again, it's not a sphinx moth – and again, apologies for the window reflection – but these are monarch butterflies; and just like the sphinx moths that I showed you and that we read about, the monarch butterflies also have a proboscis. So they have a mouthpart that is straw-like, and they suck up the liquid just like the sphinx moths do; and even though they're not sphinx moths, monarch butterflies are still closely related to the moths that we saw a little earlier.

Um, so thank you so much for joining me for the Story Book Science, um, and also for letting me share those specimens with you; and I just want to remind you that next week we'll have a new story. We are going to be reading *Up the Creek*. It's by Nicholas Oldland, and we'll be reading it with permission from Kids Can Press. So I hope to see you here. Our Story Book Science, again, is at 10 o'clock AM on Facebook Live, and I hope you'll join me. Bye!