LEO
THE RESEARCH SCIENTIST

TREES, TALES, AND TIME CAPSULES
Can you tell me another story, Uncle Leo?

Sure. Let’s see now...

Ok, here’s one I began telling way back in college.

College College College
I was always writing—fiction, poetry, you name it. I took every creative writing class I could find. But I also loved being outside.
SO I TOOK A COUPLE BOTANY CLASSES, FIGURING THEY'D HELP ME GET A JOB OUTDOORS. IT TURNED OUT I LOVED PLANTS!
AFTER GRADUATING, I LANDED A JOB AS A RANGER.
IN A FOREST?

IT WAS ACTUALLY IN AN ARBORETUM—AN OUTDOOR LIVING TREE MUSEUM—AND IT WAS AMAZING.
Exploring the grounds every day, I wondered about the plant diversity I saw.

What is a species?

How many are there?

How are they related?
I soon realized it would take scientific research to figure out the stories about where plants come from and why there are so many.

So I headed back to school to study botany, the biology of plants.
Each plant species we see today has its own story to tell.

You can think of them kind of like characters in a novel.
And the way these characters relate to each other is what makes the story so interesting.
WAIT, THE PLANTS TELL YOU STORIES?

YEP! BUT WE HAVE TO TEASE THEM OUT OF THE PLANTS. WE START BY COLLECTING PLANTS IN THE FIELD...
AND DEPOSIT THEM IN OUR HERBARIUM, A LIBRARY OF DRIED PLANT SPECIMENS, SAFEGUARDED FOR FUTURE GENERATIONS.
Herbarium cabinets are like time capsules.

The specimens inside should outlive the plants they were collected from by hundreds of years or longer.
We also freeze plant parts to preserve their DNA for future research.

DNA-based research helps us figure out whether collections may be undiscovered species and infer how species are related.
YOU MEAN, LIKE HOW YOU AND I ARE RELATED?

EXACTLY! BUT THE RELATIONSHIPS CAN GET REALLY COMPLICATED.
DNA data helps us estimate how many millions of years in the past two species shared a common ancestor. We use this information to describe the tree of life that connects all species.

Those same DNA data show us that gene movement between species makes some portions of the tree of life more of a web. Biodiversity is complex!
The story really comes to life when other researchers help me tell it. My colleagues from all over the world share plant samples and knowledge for species they study.
What’s your favorite part of the story?"

Good question. The truth is, I enjoy every part of figuring out the story.
I love being in the field, collecting and finding plants where they live,
STUDYING PLANTS IN THE HERBARIUM, MAKING CLOSE OBSERVATIONS AND IDENTIFICATIONS
THE PROGRAMMING, THE DATA ANALYSIS, WORKING WITH MY TEAM OF AMAZING, PASSIONATE SCIENTISTS,
TEACHING, MENTORING, AND WORKING WITH STUDENTS.
AND OF COURSE, WHEN WE’VE FIGURED OUT SOME PART OF THE STORY THROUGH CLOSE STUDY, I LOVE TELLING PEOPLE ABOUT IT. SCIENTIFIC PUBLICATIONS, BLOG POSTS, POPULAR ARTICLES, CHILDREN’S BOOKS...

THERE ARE SO MANY WAYS TO GET IT OUT THERE!
How the world is put together — it's a huge story to tell and I've been at it most of my life.

And most of it has yet to be figured out!!!
Maybe you focus on your marshmallow and I'll tell the next story?

Deal.