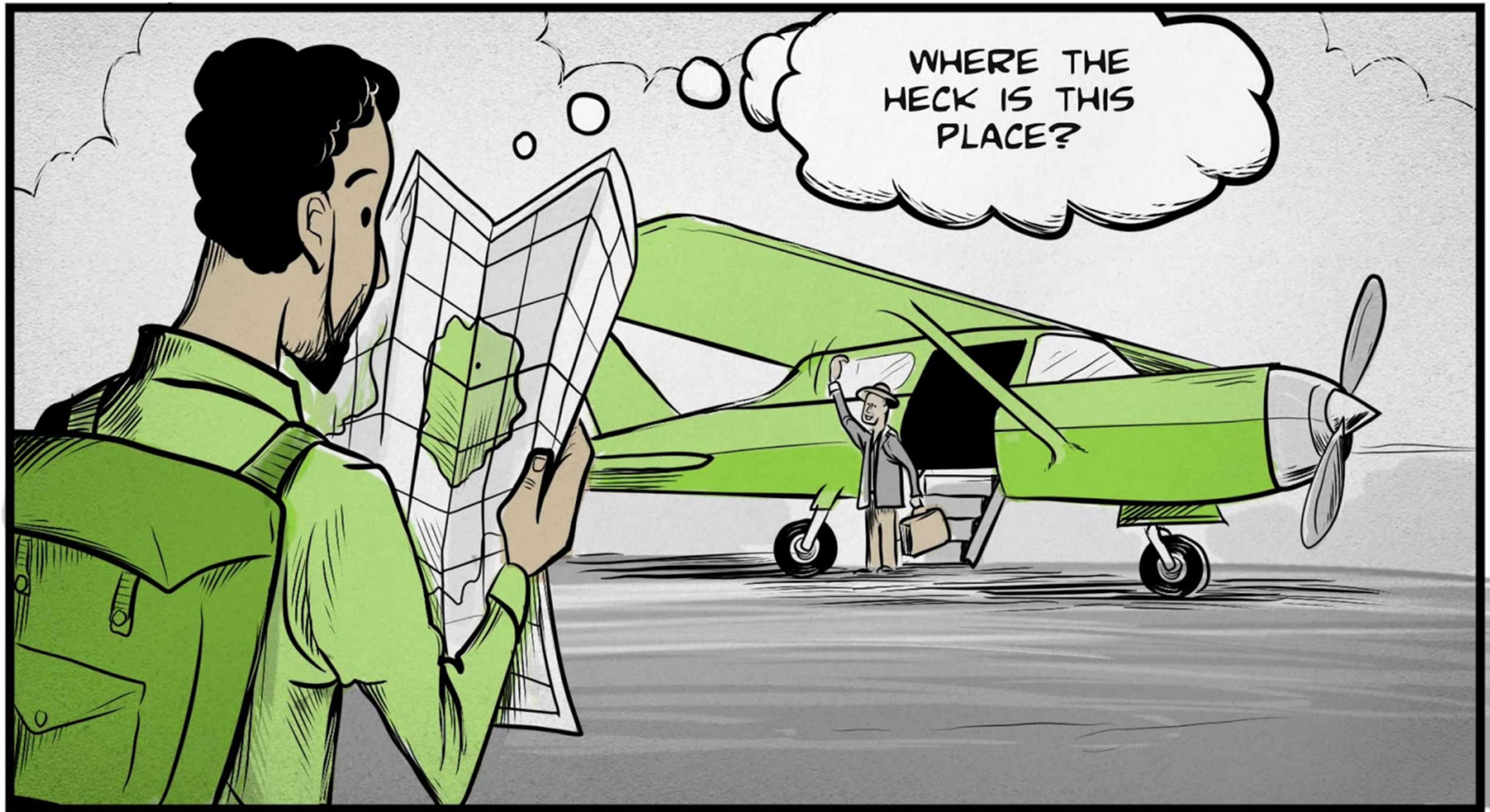


FELIX

THE RESEARCH LEADER

*IT TAKES A LOT OF IMAGINATION TO
THINK LIKE A TREE*



WHERE THE
HECK IS THIS
PLACE?



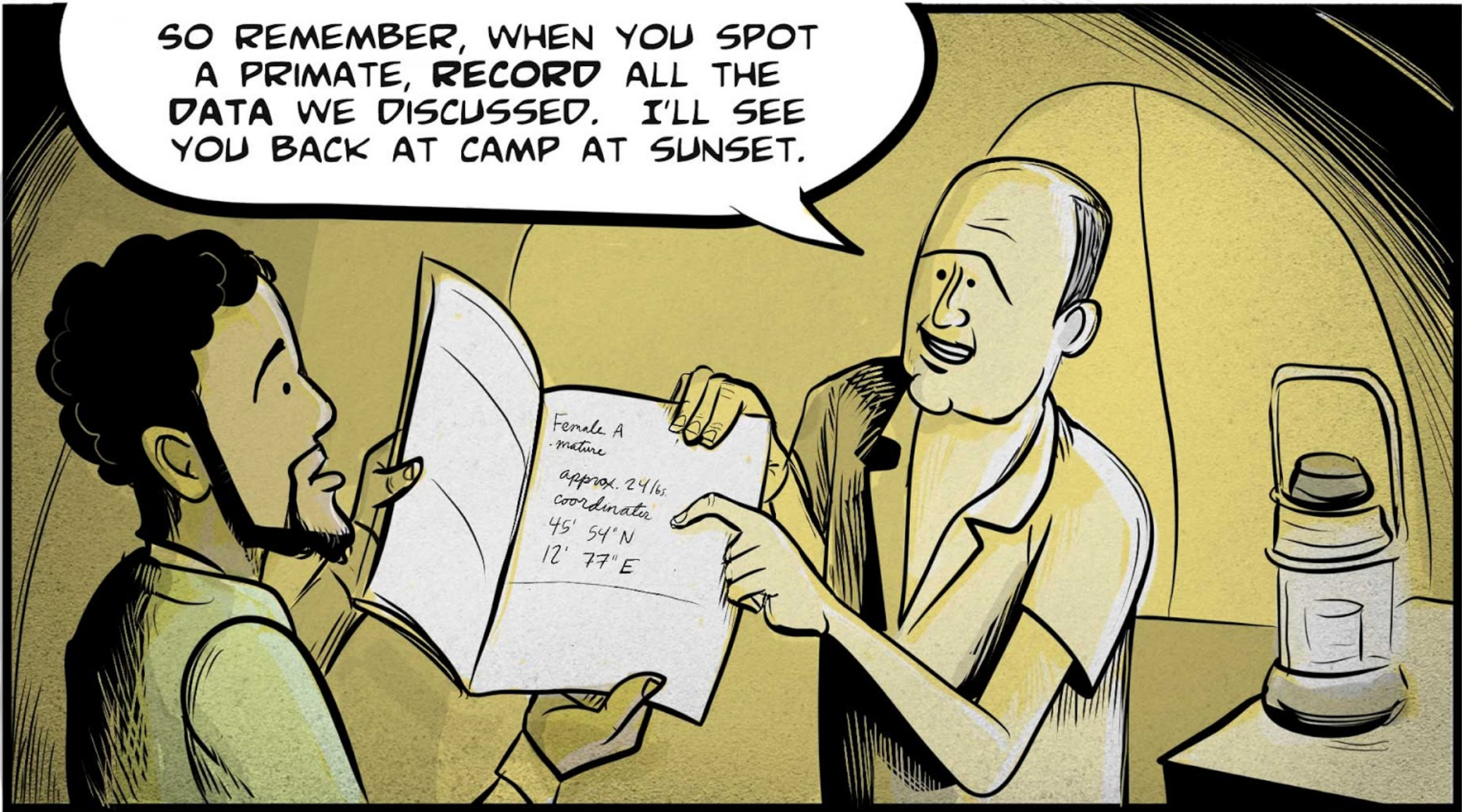
MY CHILDHOOD UNDER
THE BLUE TEXAS SKY
DEFINITELY DIDN'T
PREPARE ME FOR THIS.

I APPRECIATED
THE
OPPORTUNITY
TO JOIN MY
PROFESSOR IN
THE FIELD, BUT
I DIDN'T ENJOY
IT MUCH AT
FIRST.



SO REMEMBER, WHEN YOU SPOT
A PRIMATE, RECORD ALL THE
DATA WE DISCUSSED. I'LL SEE
YOU BACK AT CAMP AT SUNSET.

Female A
- mature
approx. 24 lbs.
coordinates
45' 54" N
12' 77" E

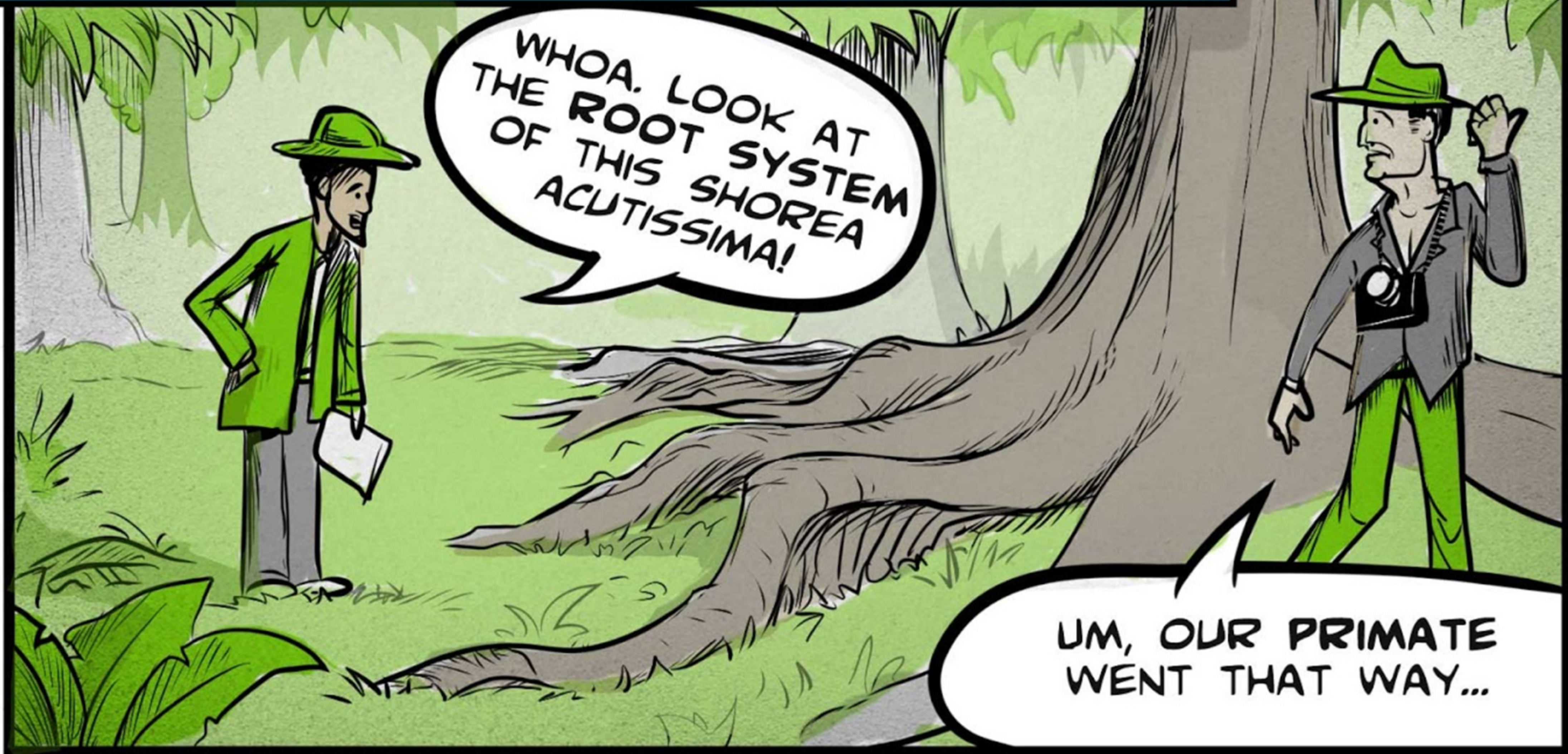


CHASING PRIMATES AROUND WAS HARD WORK.
AFTER MONTHS I'D ONLY GET A SLIVER OF DATA.



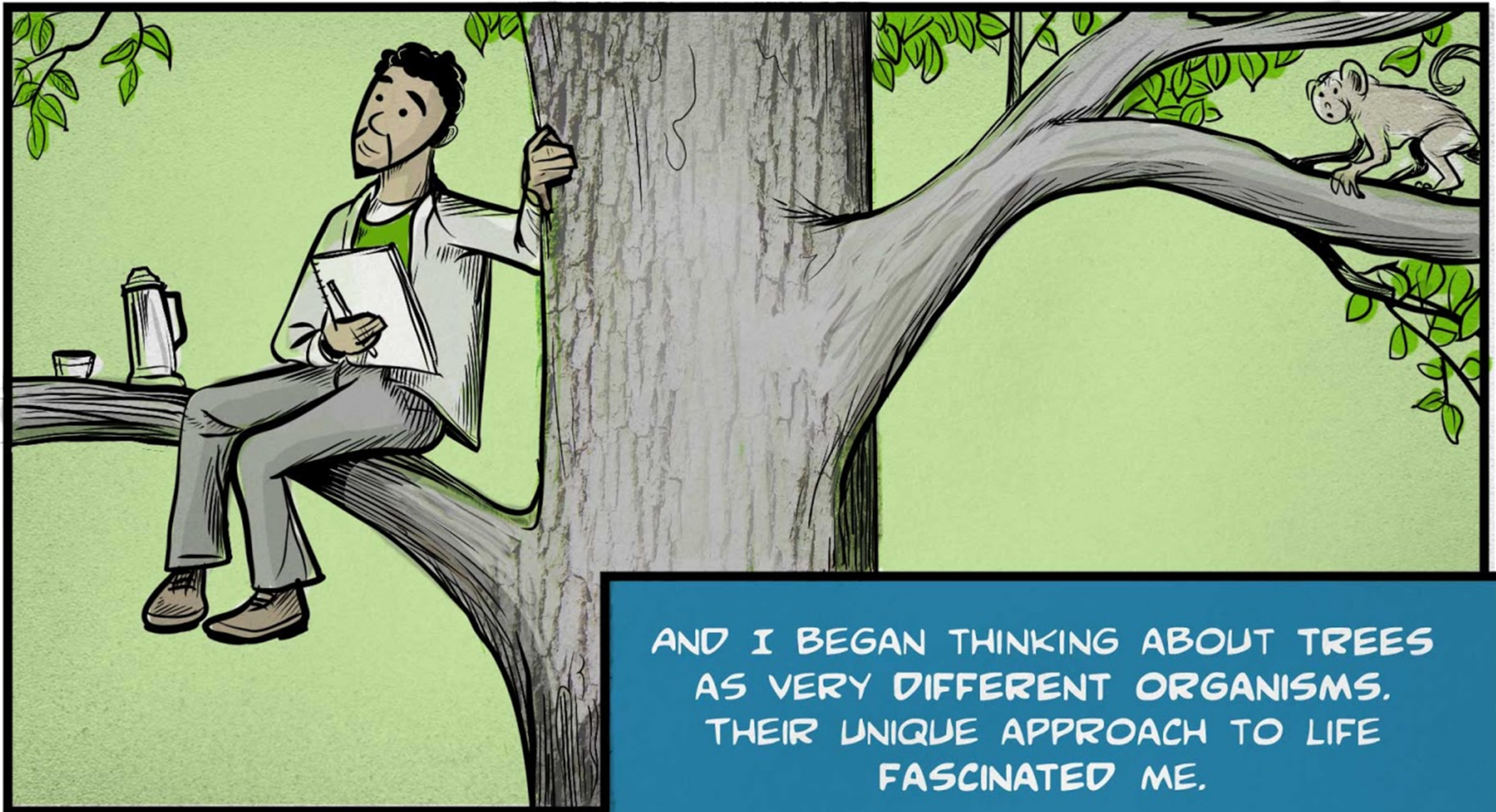
WHERE DID
THAT MONKEY
GO THIS TIME?!

BUT SOMETHING UNEXPECTED STARTED HAPPENING. I WAS SPENDING MORE AND MORE TIME IDENTIFYING AND OBSERVING TREES.



WHOA. LOOK AT THE ROOT SYSTEM OF THIS SHOREA ACUTISSIMA!

UM, OUR PRIMATE WENT THAT WAY...



AND I BEGAN THINKING ABOUT TREES
AS VERY DIFFERENT ORGANISMS.
THEIR UNIQUE APPROACH TO LIFE
FASCINATED ME.

SO, I SHIFTED
GEARS FROM
PRIMATOLOGY
TO BOTANY AND
HAVE BEEN
STUDYING
TREES EVER
SINCE.



OUR PERCEPTION
OF TREES IS THAT
THEY APPEAR TO BE
INERT--THEY DON'T
REALLY DO MUCH.



BUT WHEN YOU
LOOK AT THEM
CLOSELY, YOU
DISCOVER HOW
DYNAMIC THEY
REALLY ARE.



THE LIFE OF A TREE
IS SO ALIEN TO
MAMMALS - NO
MUSCLES TO MOVE
OR PUMP BLOOD
AND FLUIDS, NO
CENTRAL NERVOUS
SYSTEM TO
COORDINATE ACTION.
AND YET THEY ARE
SOME OF THE MOST
SUCCESSFUL
ORGANISMS ON
EARTH!



HOW DO THEY DO IT?



THEY'RE SENDING OUT SIGNALS
THROUGH CHEMICALS THEY
RELEASE IN THEIR LEAVES.
AMAZING!



A man with dark curly hair and a beard, wearing a green shirt, is shown in profile, looking thoughtful with his hand to his chin. A large thought bubble above him contains a tree with several ants on its branches. The tree has a thick grey trunk and green foliage. A jagged lightning bolt symbol is drawn on the tree's trunk. A speech bubble from the top of the tree says "EEEK! WE'VE GOT INSECTS EATING UP SECTOR 16." Another speech bubble from a lower branch of the tree says "ROGER THAT, INVADERS IN THE AREA. BE ON HIGH ALERT!".

IT'S LIKE
DIFFERENT PARTS
OF THE TREE ARE
TALKING TO
EACH OTHER.

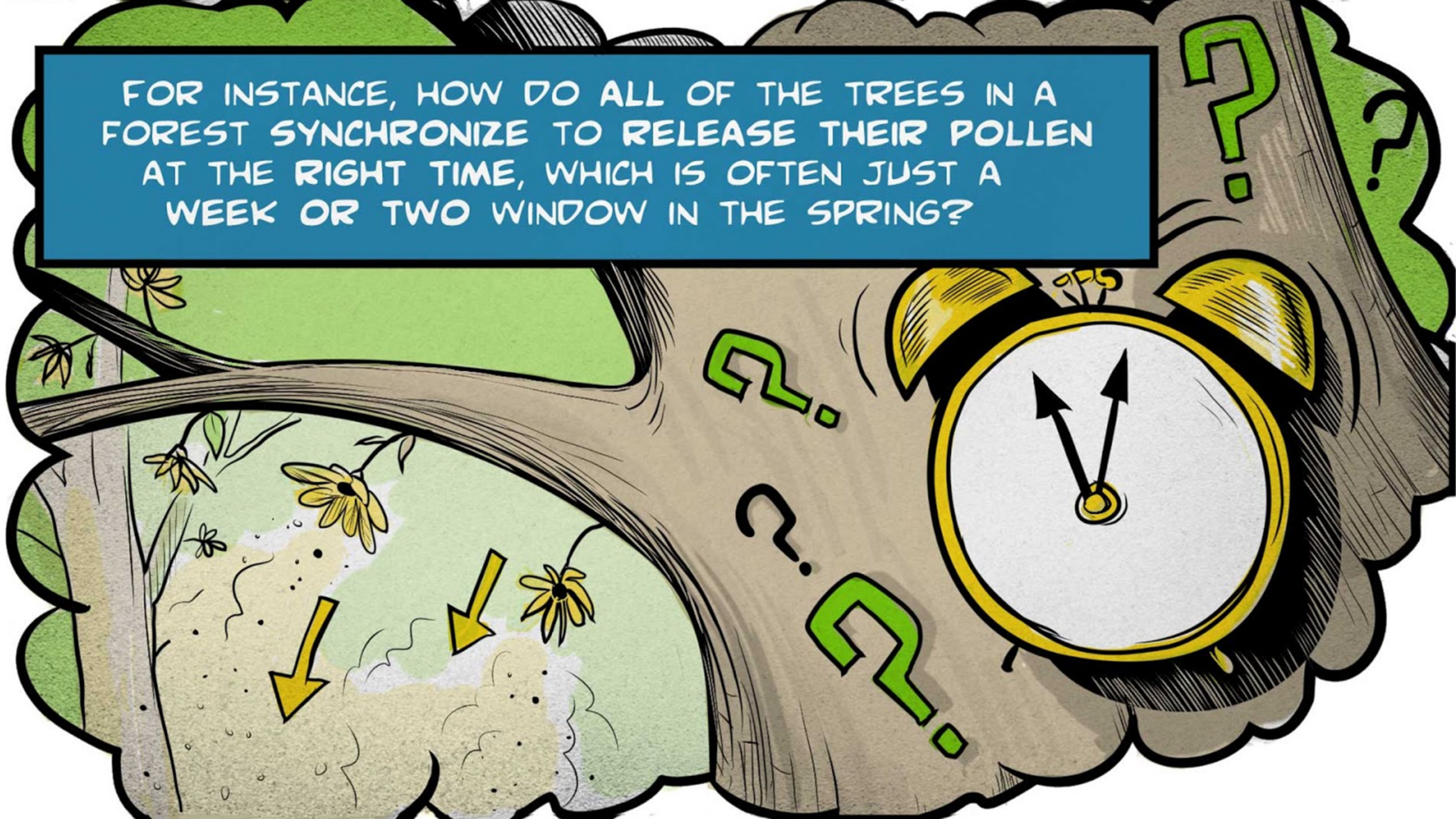
EEEK! WE'VE GOT
INSECTS EATING
UP SECTOR 16.

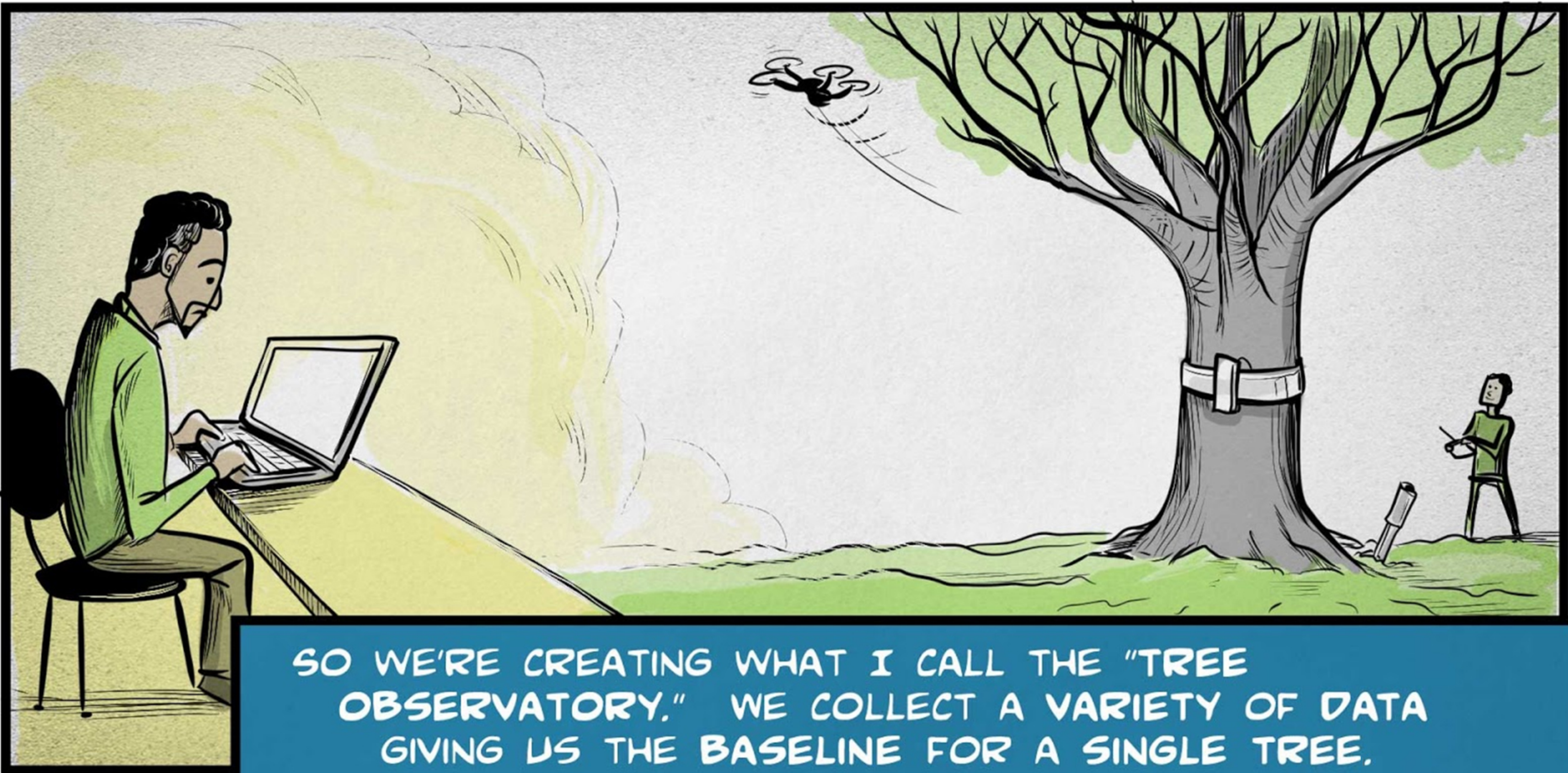
ROGER THAT,
INVADERS IN
THE AREA.
BE ON HIGH
ALERT!



WHAT DRIVES RESEARCH AT THE CENTER FOR TREE SCIENCE IS THAT TREES LARGELY REMAIN A MYSTERY. WE KNOW DISCRETE, SEPARATE THINGS ABOUT THEM AND THEIR BEHAVIOR AND ACTIVITIES BUT WE HAVEN'T INTEGRATED ALL OF THESE THINGS

FOR INSTANCE, HOW DO ALL OF THE TREES IN A FOREST SYNCHRONIZE TO RELEASE THEIR POLLEN AT THE RIGHT TIME, WHICH IS OFTEN JUST A WEEK OR TWO WINDOW IN THE SPRING?





SO WE'RE CREATING WHAT I CALL THE "TREE OBSERVATORY." WE COLLECT A VARIETY OF DATA GIVING US THE BASELINE FOR A SINGLE TREE.

TO UNDERSTAND A TREE'S "HEART RATE" AND "BLOOD PRESSURE," WE USE A TOOL SORT OF LIKE A FIT BIT TO MEASURE SAP FLOW --THE MOVEMENT OF WATER AND NUTRIENTS FROM ITS ROOTS TO LEAVES.

BECAUSE IT'S CLOUDY RIGHT NOW, THE FLOW IS SLOWER.





DEEP
BREATH
AND
RELAX...

KIND OF LIKE A DOCTOR
CHECKING VITAL SIGNS
DURING A CHECKUP.

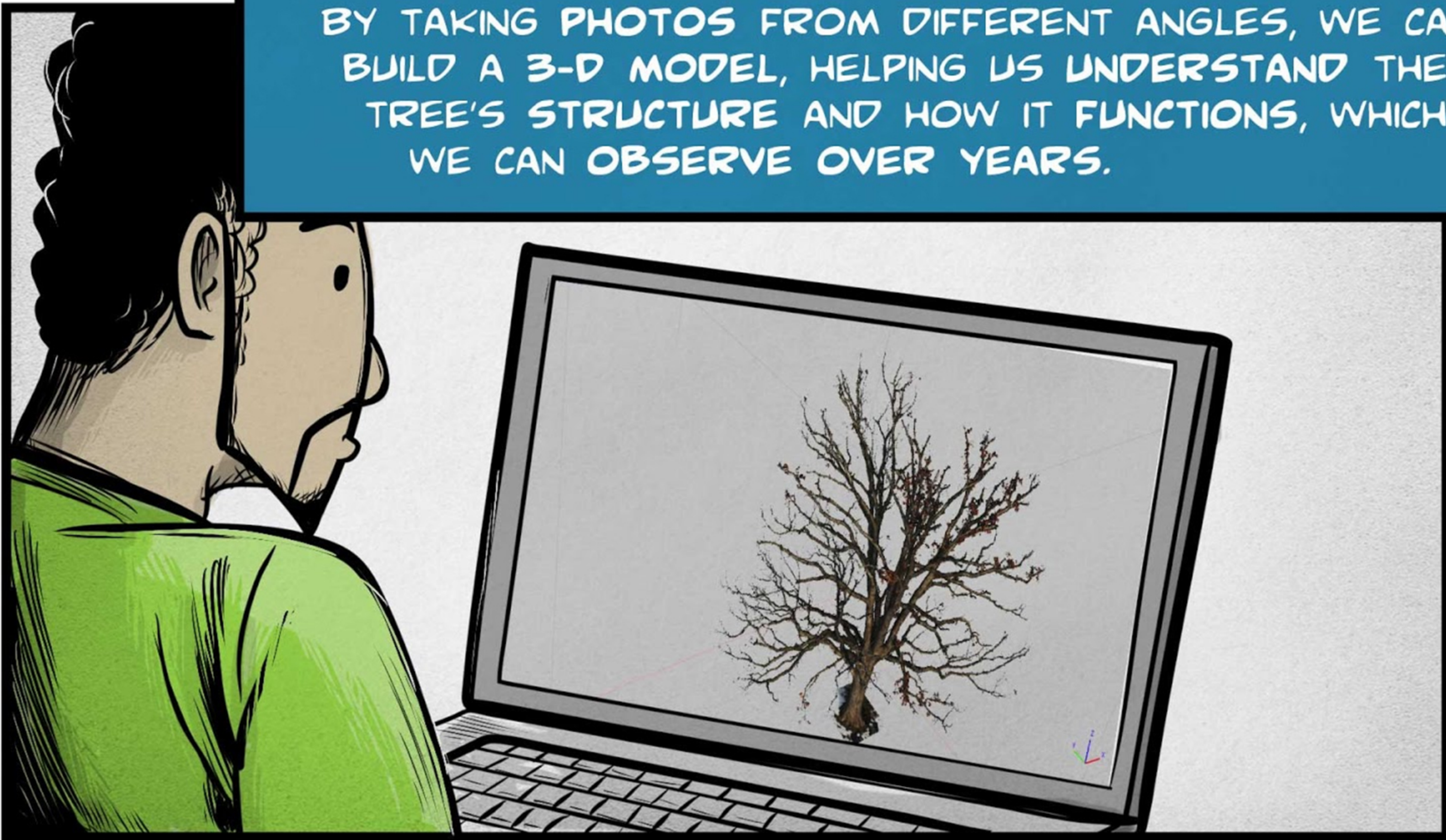


THE DATA GETS UPLOADED TO THE CLOUD SO THAT WE CAN MONITOR IT IN REAL TIME.



**DRONES ARE EXCITING
TOOLS FOR US TOO.**

BY TAKING PHOTOS FROM DIFFERENT ANGLES, WE CAN BUILD A 3-D MODEL, HELPING US UNDERSTAND THE TREE'S STRUCTURE AND HOW IT FUNCTIONS, WHICH WE CAN OBSERVE OVER YEARS.

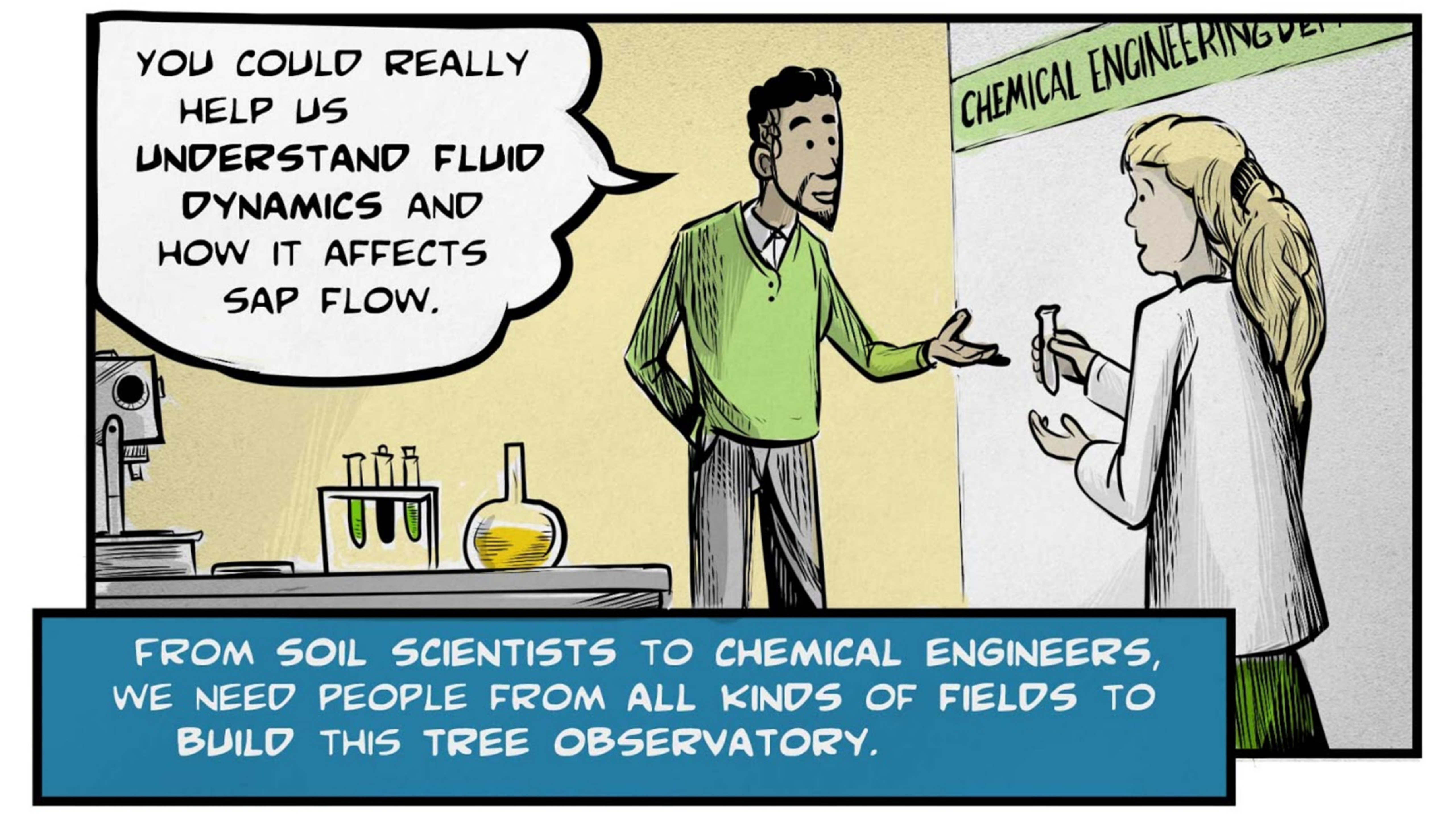




I'VE GOT THIS.

OH, YEAH. THAT'S WAY EASIER.

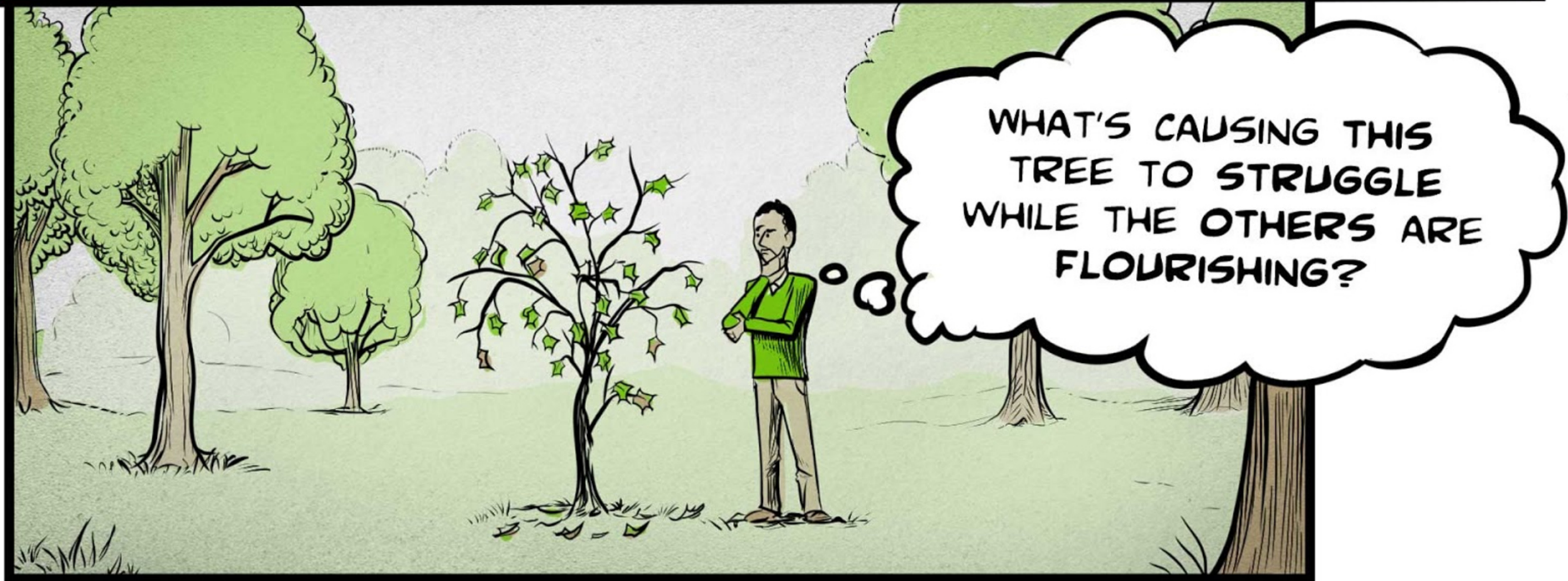
WE'RE ALSO WORKING WITH A CANADIAN RESEARCHER WHO'S TRYING TO USE DRONES TO COLLECT LEAF SAMPLES OR DEPLOY SENSORS UP IN THE CANOPY. THIS WOULD BE FAR FASTER THAN HAVING TO CLIMB THEM!



YOU COULD REALLY
HELP US
UNDERSTAND FLUID
DYNAMICS AND
HOW IT AFFECTS
SAP FLOW.

FROM SOIL SCIENTISTS TO CHEMICAL ENGINEERS,
WE NEED PEOPLE FROM ALL KINDS OF FIELDS TO
BUILD THIS TREE OBSERVATORY.

EACH TREE IS UNIQUE, JUST LIKE WE'RE ALL UNIQUE FROM EACH OTHER. IN FACT, I'D SAY THEY VARY EVEN MORE THAN WE DO. UNDERSTANDING TREES AS INDIVIDUALS MAY HELP US BETTER CARE FOR THEM IN THE FUTURE.





WE HAVE ACCESS
TO SO MANY
TOOLS--IT'S
EXCITING TO BE
ABLE TO PUT
THEM TO USE.

WE'RE ON THE CUSP OF DISCOVERY.
IT'S REALLY JUST THE LIMITS OF YOUR
IMAGINATION HOLDING YOU BACK.