This is ambition

Changing the climate crisis starts with changing your mindset

Justin Borevitz, PhD
Maya P. Lim

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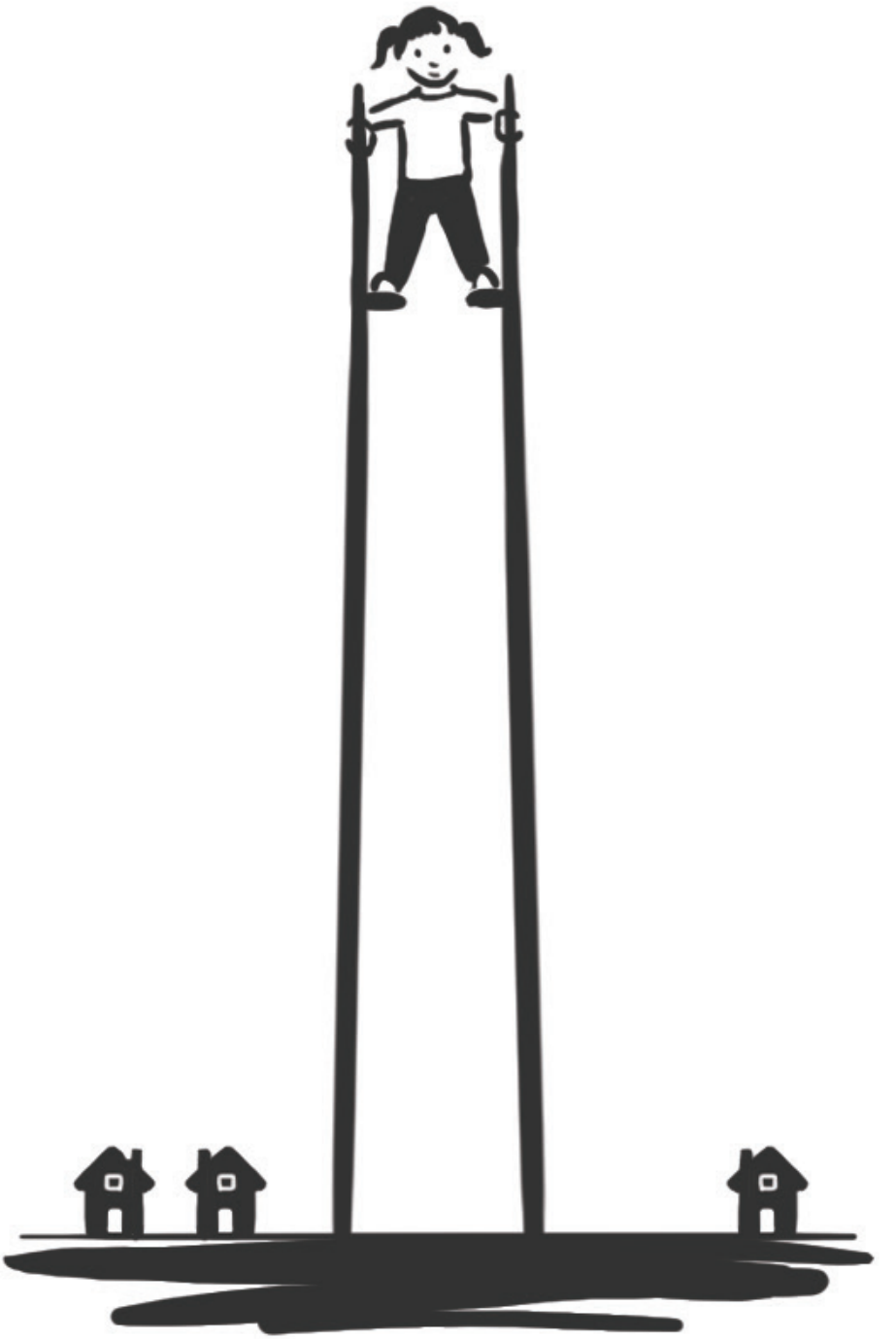
For those who will set the
bar where it needs to be



am·bi·tion

/amˈbiʃ(ə)n/

noun

1. A strong desire to do or to achieve something.

   1.1 Desire and determination to achieve success.

They all laughed...

Ideas and inventions that were thought absurd, unlikely, or simply impossible

The Earth is round

The Earth travels around the Sun

The printing press

The germ theory of disease

The umbrella

The cotton gin

The railroad

Vaccines

The steamboat

The telegraph

The telephone

The electric lightbulb

Alternating currents

Aspirin

The bicycle

The airplane

The Ford Model T automobile

The theory of continental drift

The television

Films with audible dialogue

The sewing machine

The Xerox machine

Green Eggs and Ham

Landing on the Moon

The Walkman

The personal computer

The cell phone

The World Wide Web

Harry Potter and the Philosopher's Stone

The iPhone

Google Glass

CHAPTER

1

It always *seems* impossible

…until it's done, said Nelson Mandela.

Every innovation, every cultural shift began this way.

It takes a few people who are willing to imagine the invisible. And who stand up to try something that had never been done before.

We call these people "visionaries," "innovators," and "ahead of their time." (After we've called them crazy.)

Our attitude towards climate change is no different. It seems impossible to solve. It seems too great a challenge, almost like touching the Moon.

It's much easier to believe climate change is impossible to solve, that too many laws have to be written, that too many systems would have to be undone.

The reasons come quickly, because it hasn't been done before.

And because it feels safe to think about what we know—the world today.

Visionaries and innovators know the danger of complacency. They know that

denial, despair, and inaction are the greatest dangers to progress.

They know that the only way to lead the future is to imagine what the crowds don't see. To think beyond the immediate. To design solutions for tomorrow.

And to tackle what hasn't been done before. They pursue the "impossible" challenge.

Everyone knew it was impossible,
until a fool who didn't know
came along and did it.

Albert Einstein

MINDSET N°

2

Innovators embrace the hyperobject

A hyperobject is a thing of such vast dimensions that it is hard for human minds to grasp. Like 7.7 billion people (the current human population). Or 0.004 millimeters (the size of a human brain cell). Or 384,400 kilometers (the average distance to the Moon).

Visionaries know better than to hide from something hard to understand. They embrace what others are unwilling to imagine. Especially if they know it is an imminent threat.

Global climate change is a hyperobject. Its scale feels impossible to fathom. Atmospheric carbon dioxide is invisible, making it even harder to imagine what's happening. And what's worse, we can't seem to act fast enough.

It's so overwhelming that most people throw their hands up and say, "Nothing I do can make a difference."

Others bury themselves in researching details, as if an accurate understanding of snowflakes has ever prevented an avalanche. As if the climate will wait until we're ready to take action.

The Intergovernmental Panel on Climate Change (IPCC) says we emitted more

than 50 gigatons of carbon dioxide in 2017, and that we must reduce emissions to net zero by 2050 to prevent a rise of 1.5 degrees Celsius.

Hang on. Let's think about that.

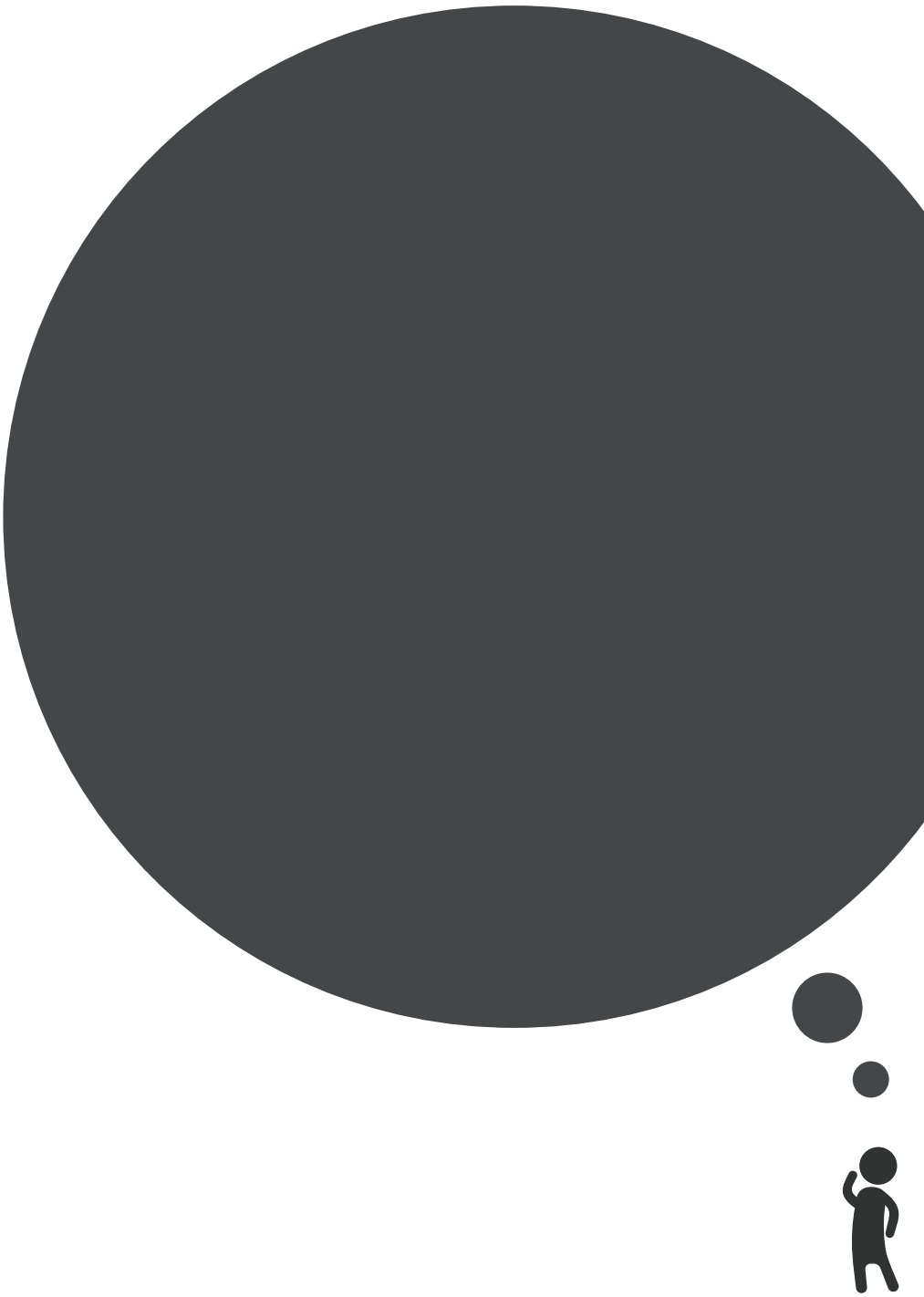
Visualizing the invisible

It’s hard to imagine 50 gigatons of carbon dioxide. Why?

First, it’s hard to picture a ton of anything, much less a gigaton. Second, it’s hard to picture the weight of a gas. Let’s put them in everyday terms, and see how trees can help.

Let’s embrace the hyperobject.

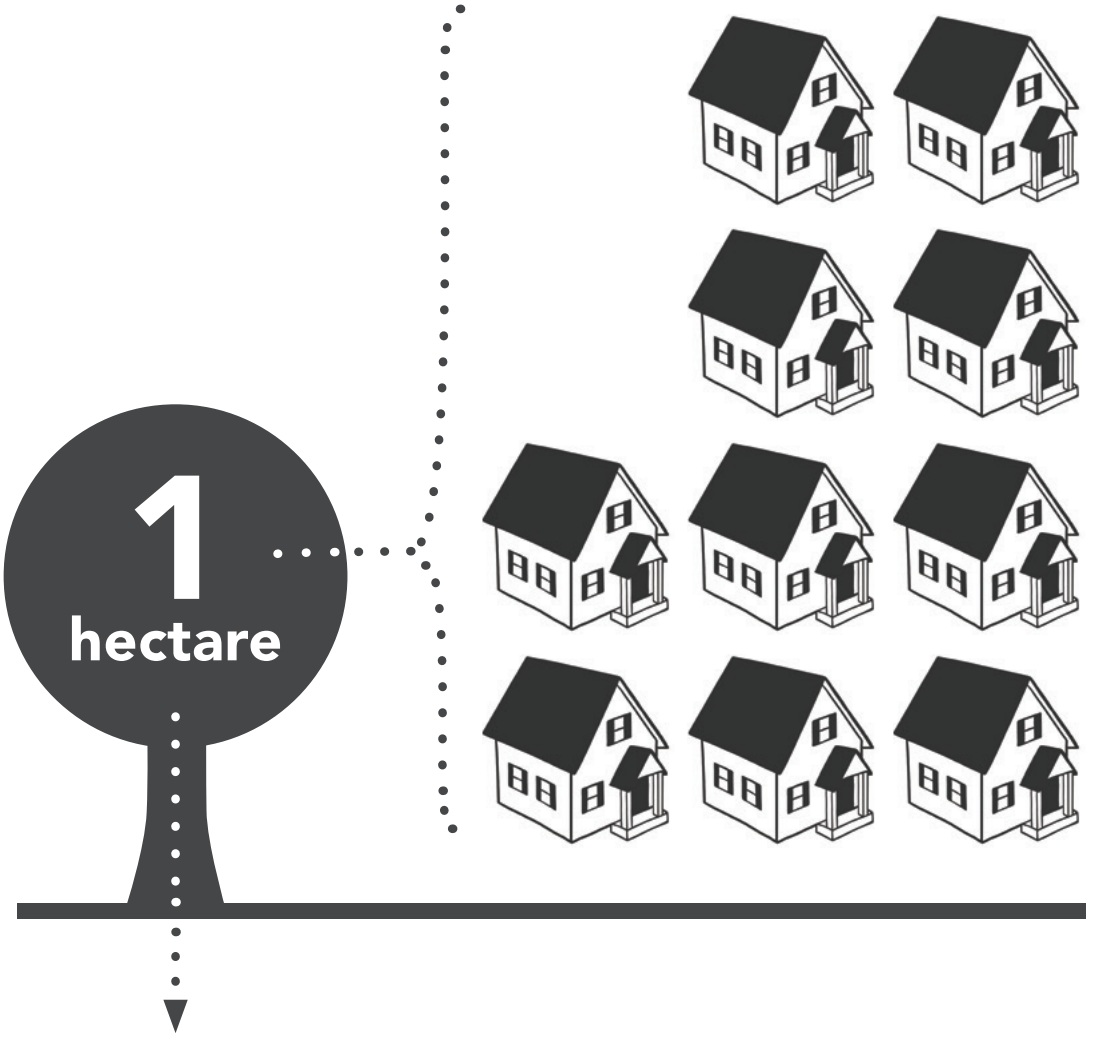
»



One ton of carbon

A two-story house is a little over eight meters tall. A cube that size is what one ton of carbon looks like in volume, more or less.

How much carbon is drawn down if you plant a hectare of trees? Let's start with 1000 trees in a hectare. If each tree draws down 10 kg of carbon each year, that's…



10 TONS

of carbon every year.

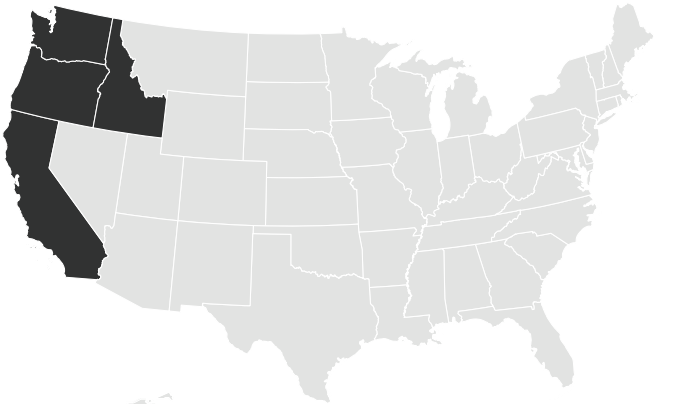
(At 100 USD per ton, that's a tidy sum!)

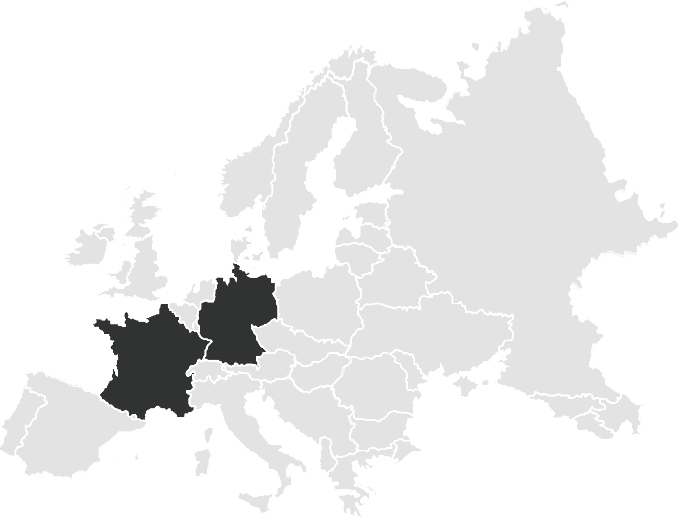
How many hectares would draw down 1Gt of carbon?

100M hectares

if 1000 trees are in a hectare and each tree draws down 10kg of carbon each year. That's about the area of…

Washington, Oregon, Idaho, and California





…or France and Spain

Is there enough land available to make a meaningful difference by planting?

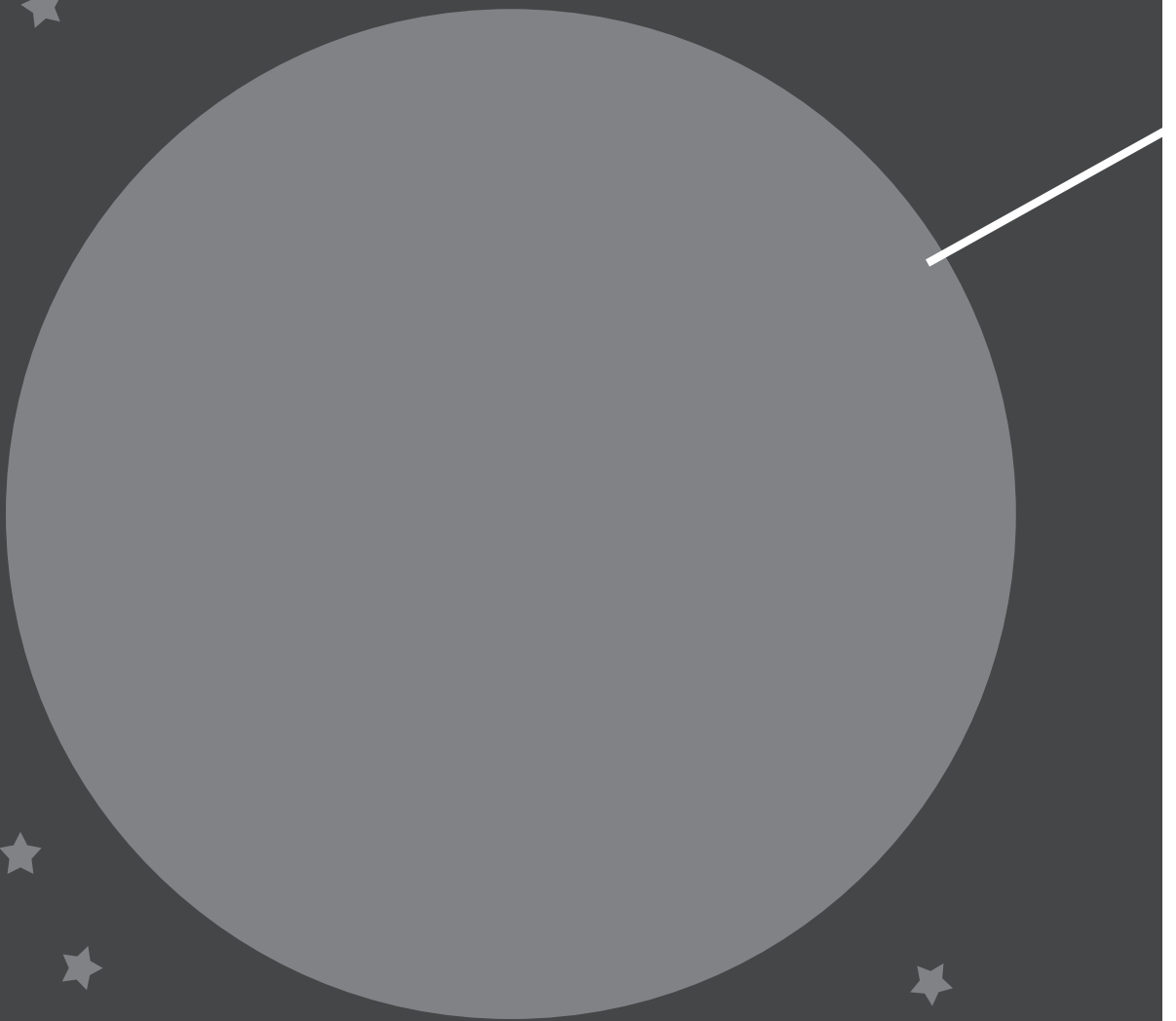
Yes, just enough. At least **1B hectares** around the world are considered degraded. Some estimates pass 6B hectares. "Degraded" means different things to people. We're thinking of those marginal areas that are often abandoned farmland.

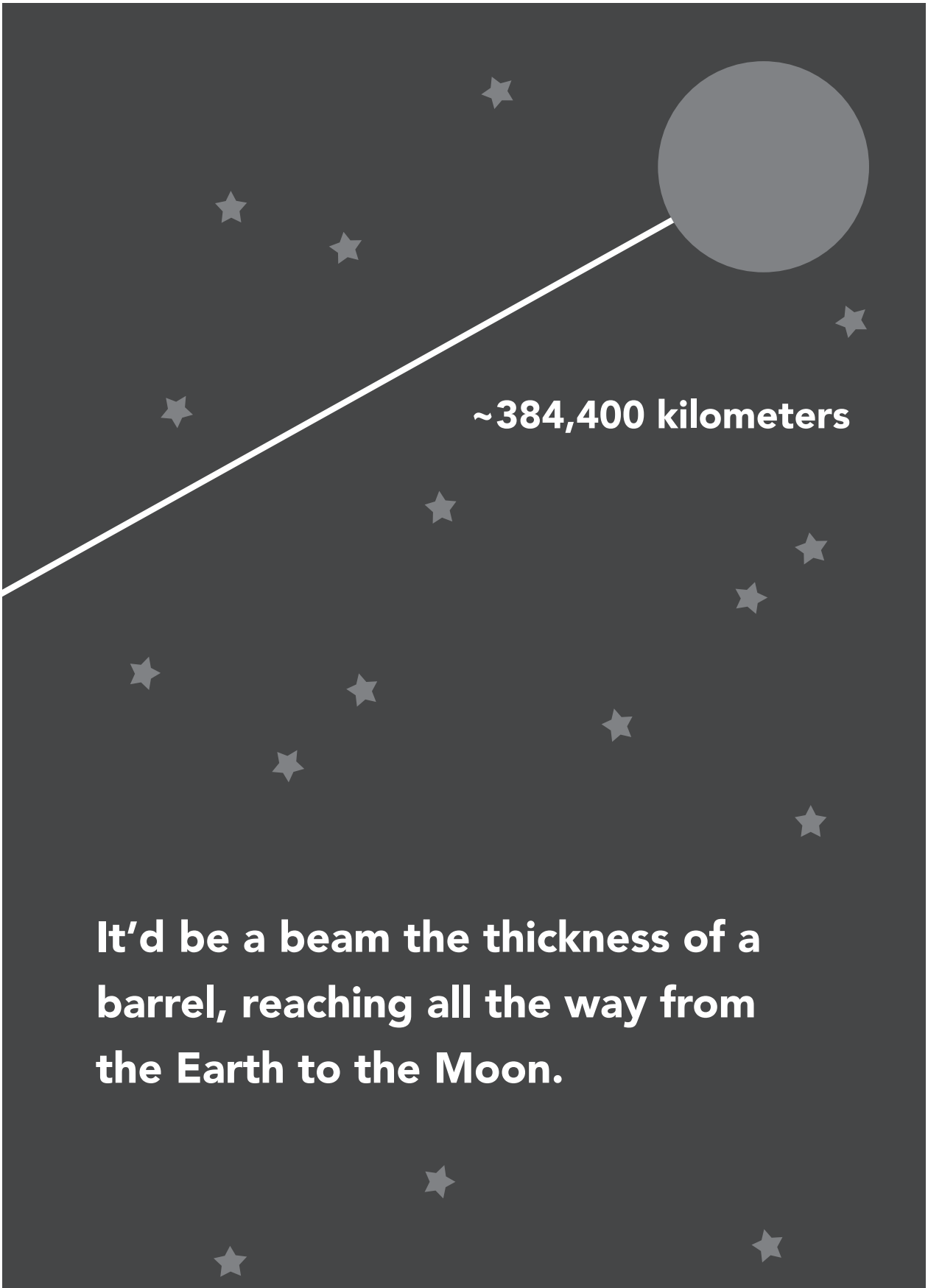
Australia holds a special opportunity.

Australia
769.2M ha

Only 10 percent of land there is considered habitable, leaving roughly 700M hectares that could be planted with more trees and potentially be turned productive.

What would 1Gt of carbon look like?





It'd be a beam the thickness of a barrel, reaching all the way from the Earth to the Moon.

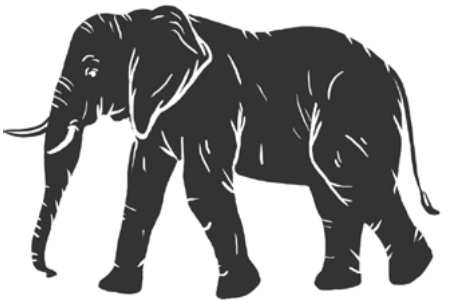
What does a gigaton (1Gt) feel like?

1Gt = one billion metric tons

A small car
1 metric ton

A male hippo
3 metric tons

A male African elephant
6 metric tons

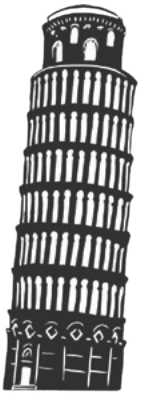


An empty city bus
12 metric tons

An adult blue whale
146 metric tons

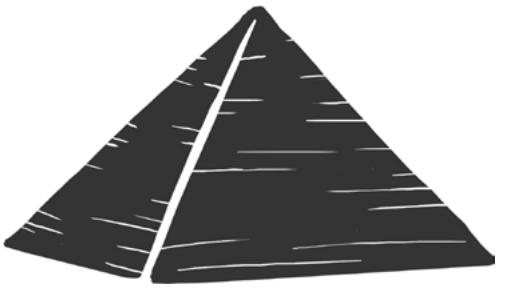
The Statue of Liberty
204 metric tons

The Eiffel Tower
10,100 metric tons



The Tower of Pisa
14,500 metric tons

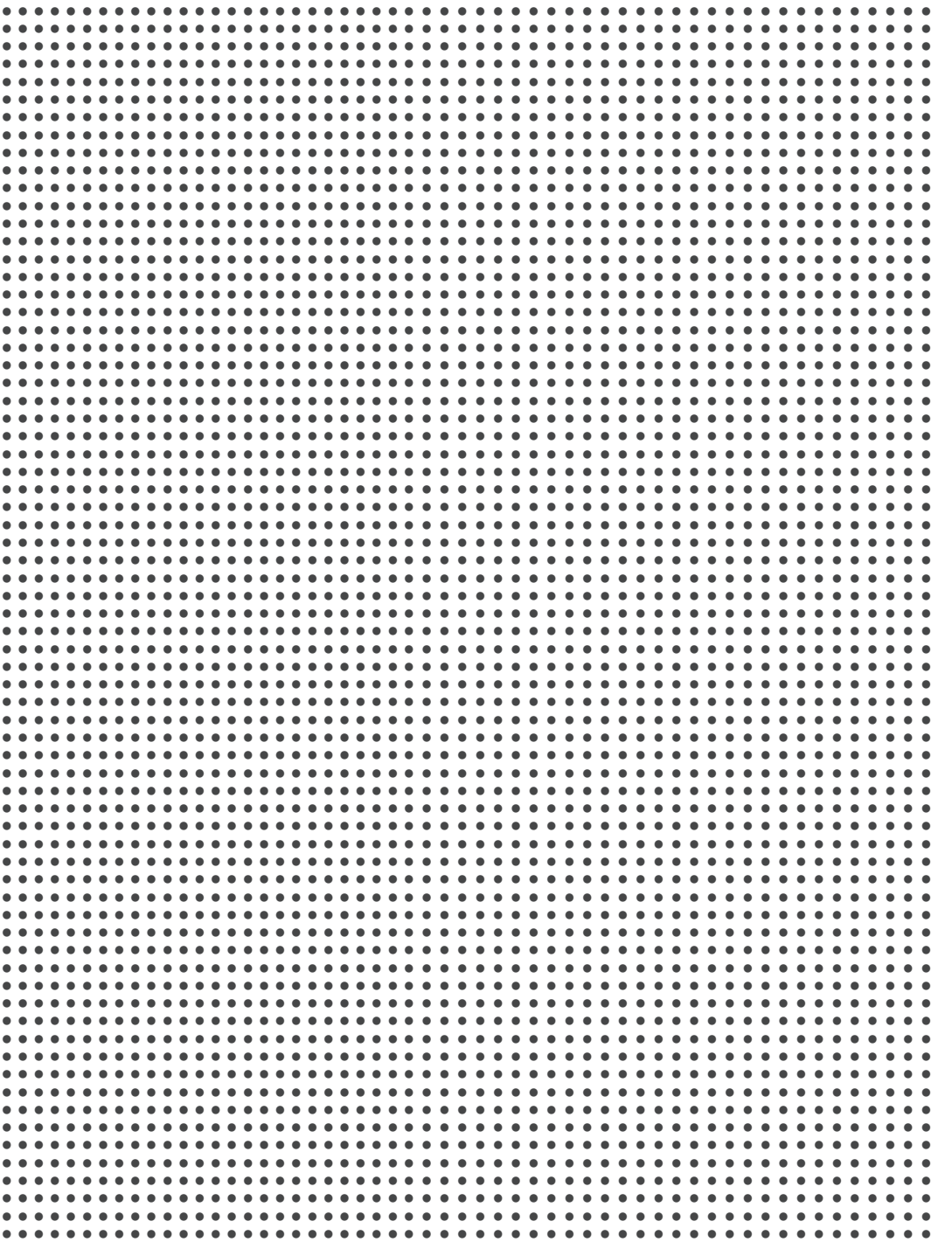
The Great Pyramid of Giza
5,216,308 metric tons

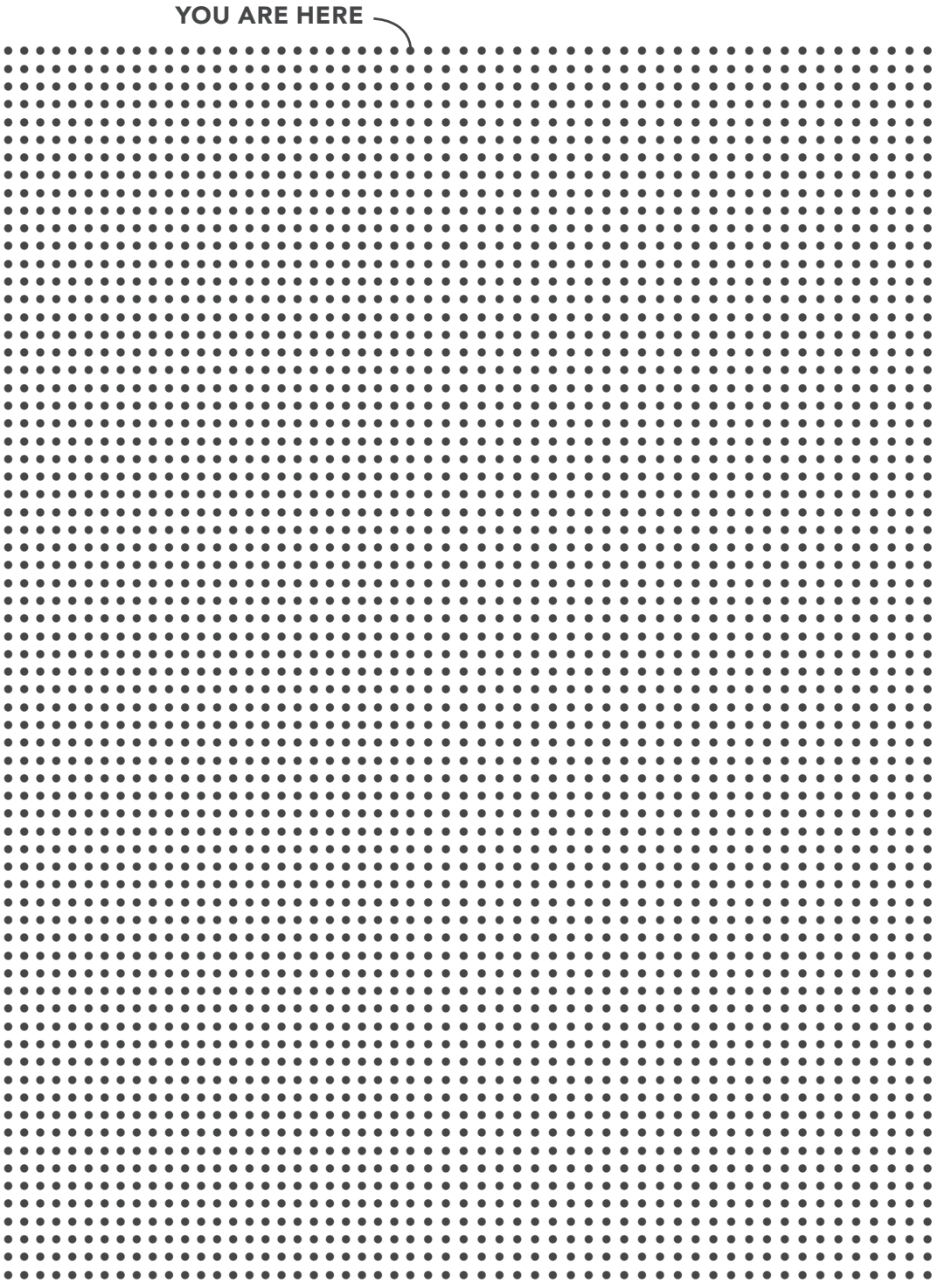


The Great Wall
52,702,897 metric tons

...ALL of that weighs about 1/20th of a gigaton. This is what 1/20 looks like:

Global human population





Now open **1 million copies** of this book to this page. That's what **7.7 billion** looks like. It's a lot of mouths to feed.

...So, when the IPCC says we must cut emissions from 50+ gigatons to net zero by 2050, it's clear that we need great ambition.

At this point, no single solution can solve our climate crisis—not even planting trees on every bit of degraded land on the planet.

We need to stop burning fossil fuels and entirely replace them with renewable energies. And we need to preserve existing forests. And we need to plant new trees. And more.

The special thing about planting trees is that they also will restore degraded

lands, which we need to feed, house, and power our growing population.

Motion despite uncertainty

Visionaries embrace the hyperobject of climate change. They run towards it. Because in the face of climate change, visionaries see an urgent opportunity to redirect the world, to write the future, to lead and leave a greater legacy.

They say, “We can never know everything. But we know enough to see there is a problem. And we have enough information to try solutions.”

They experiment and iterate rapidly. They know that we can’t afford to wait to plan all the details perfectly first.

This is the attitude we need to confront climate change. Great ambition involves **bold impatience**.

The people who are crazy enough
to think they can change the world
are the ones who do.

Steve Jobs

MINDSET N°

3

We must set bolder standards

“Sustainable” is a cheap standard. “Sustainable” isn’t proportional to the progress we need.

Sustainable means you exercise just enough to burn off today’s calories—and stop there. But…you won’t lose much weight if you do nothing else.

To reach climate stability, we must aim beyond sustainable—we must aim for reduction. Carbon drawdown.

This isn't just about wording. It's about attitude. To reach climate stability, we need to prevent messes AND clean up old messes. "Sustainable" promotes an attitude that doesn't cover both parts.

Small wins are good, not great

Ambition means going for what is possible and needed at scale.

A city-wide charge for plastic bags? That's good. But not great.

We need greater scale. Greater speed. Small wins can be models for much bigger, faster change.

And this can start with bigger, bolder standards.

Enforcing carbon offsets? That's good. But not great. Because an "offset" implies an acceptance of emissions. In other words, an "offset" mindset can reinforce and enable our old behavior.

"Less bad" is not good enough.

Consider this: If your dog has a habit of peeing in the house, would you focus on spritzing air freshener to offset the odor? Or would you immediately target the root cause and design a system to reach a new standard—immediately?

Who sets standards?
We all do. We either contribute to the status quo or set new standards.

The standard is what's normal, and that's based on what we see others around us doing.

Standards are disrupted by those who dare to be different. Who dare to lead change.

At the currently acceptable rate, we aren't moving fast enough towards climate stability or food security. We need new cultural standards for meaningful progress.

We must set them ourselves.

To make a meaningful, global difference for climate change, aim beyond sustainability. Stop setting goals based

on what others around us are doing. Take greater risks, faster.

True innovators are those who are brave enough to be wrong over and over, in pursuit of greatness.

When someone calls you “ridiculously ambitious,” that’s because you’re setting a new standard.

That’s the stuff legacies are made of.

What you do makes a difference, and you have to decide what kind of difference you want to make.

Jane Goodall

MINDSET N°

4

We could start today

We have something that is optimized to take in carbon dioxide and store it safely for decades. While it's doing that, it filters water, provides protection against storms, and stabilizes soil against erosion. At any point, it can be sold at a decent price. It requires no batteries or WiFi. Oh, and it automatically updates its versions.

It's the most obvious solution we have to reverse climate change.

Sound too good to be true?

We didn't invent this amazing thing. (Maybe if we did, and designed a nice logo for it, people would be buying it like hotcakes.)

It's a tree.

Why is it so hard to accept this as an excellent solution? Maybe because it wasn't designed with a computer and hasn't won any innovation awards. Maybe because it's not new and SHINY.

But its design has been selected by something far more cutthroat than any panel of judges: Nature. Perform or die.

Trees are a solution that can adapt to change with the planet. They auto-

update by design—only the seeds that survive to make more seeds are suited to the environment. Our science and tech today provide us with the data that can inform and enhance our plantings.

And there's land out there. About 75 percent of the world's land is degraded. This is land that trees could help to restore into fields for food, fiber, and fuel production.

We could start reversing climate change today. Not just by planting one tree (that's a small win). But planting enough to make meaningful progress.

Enough to set a new standard. Enough to leave a legacy.

It always seems impossible until
it’s done.

Run to the fire; don’t hide from it.

Meg Whitman

MINDSET N°

5

We need something from you

We have almost everything to get started today.

Seeds are cheap. Land (degraded land, especially) is out there. We have robots to help plant trees quickly, and drones to monitor their growth. We even have science (decades of it) to inform our efforts.

What we need more of is within you. The ridiculous ambition. The goal to surpass any other goals that have been

set. The willingness to run faster than anyone else thinking. To compassion and wisdom to start something of which you won't see the results in your lifetime. (But others will.)

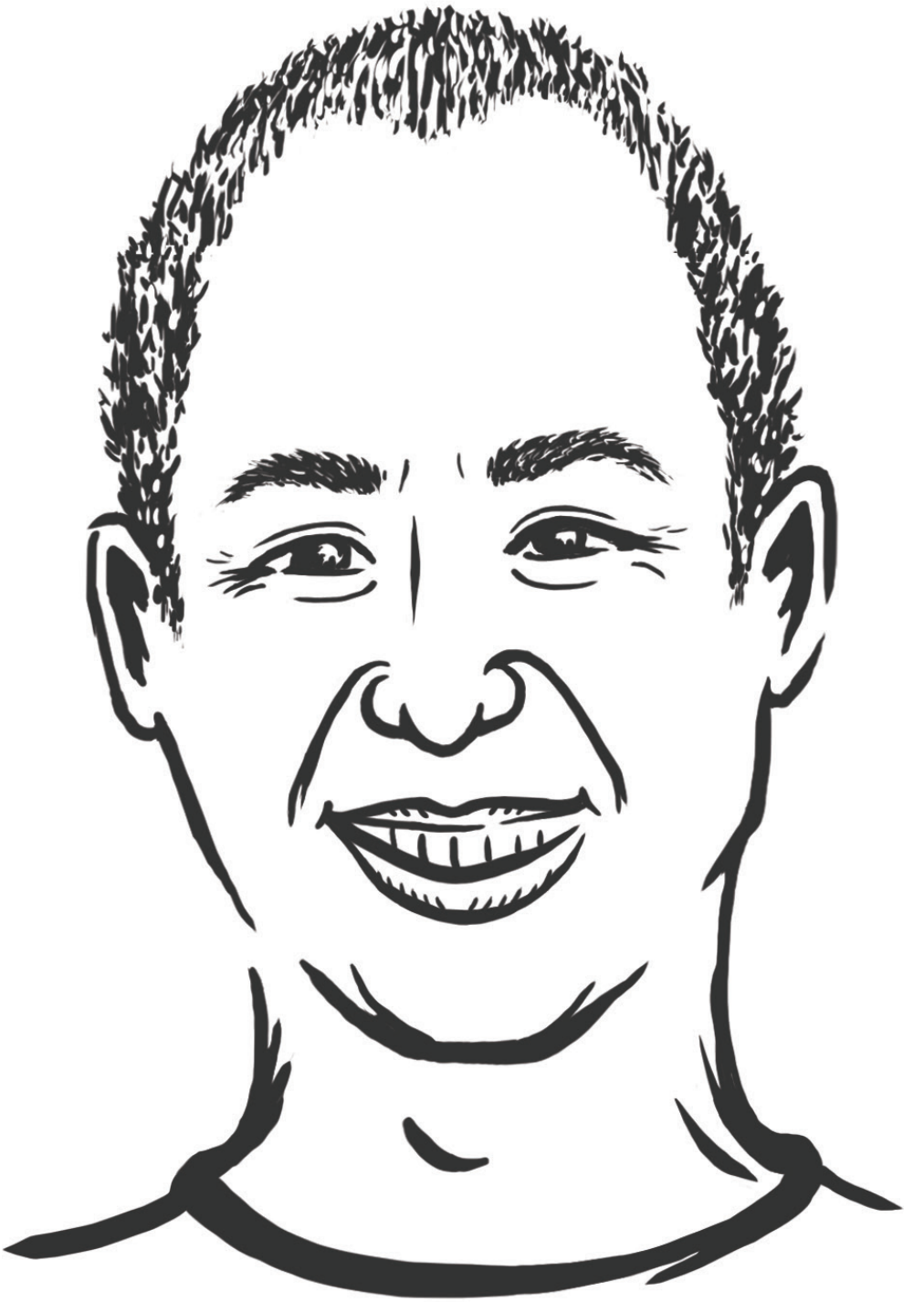
Imagine the "impossible:" YOU, leading our world to climate stability, food security, and wellbeing.

You don't have to be a scientist to be a visionary. You just have to see what others don't: the obvious solution of getting trees in the ground—as soon as possible.

And then help make that happen.

Big results require BIG ambition.

Heraclitus



Let’s go: A note from Justin

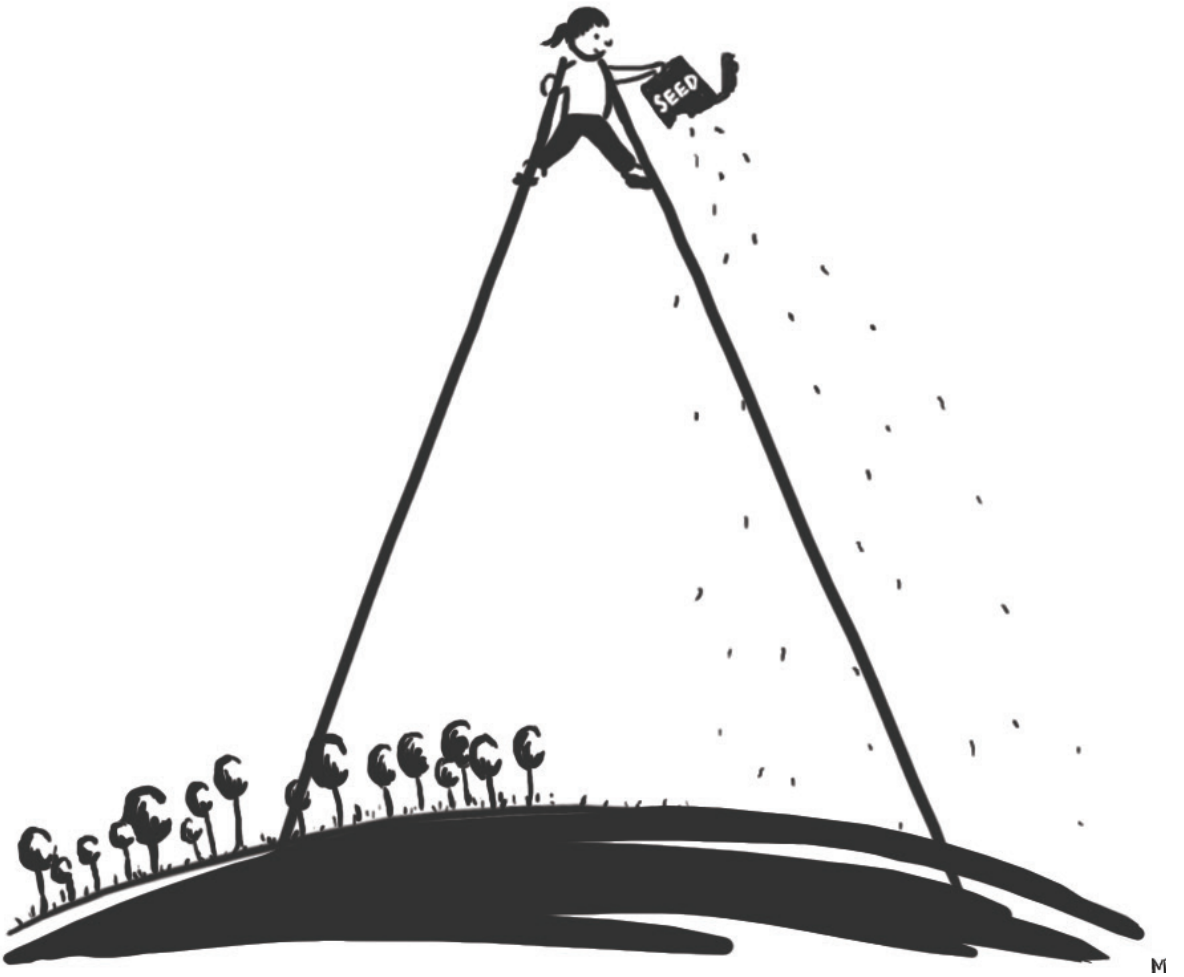
I direct a team of scientists and technologists focused on using plants to solve our climate crisis.

We’ve been called “ridiculously ambitious.”

We’re proud of that. But when it comes as a reason for rejection from funding, we decided to seek support from people who have uncommon ambition themselves.

If this sounds like you, let’s make a greater difference together. Today.

›› justin.borevitz [at] anu.edu.au


SEED

If you're holding this book, there's something uncommon about you.

You see things differently. You know that a single person can make a great difference—change the world, in fact.

But when it comes to climate change, it feels insurmountable. As though no single person can do enough to help.

You'd be willing to do something bold about it…if you knew where to begin.

Here. This is ambition.

BOREVITZ LAB