

The Great Big Lesson

For Climate & Nature

Resource Pack



AIMHI
EARTH

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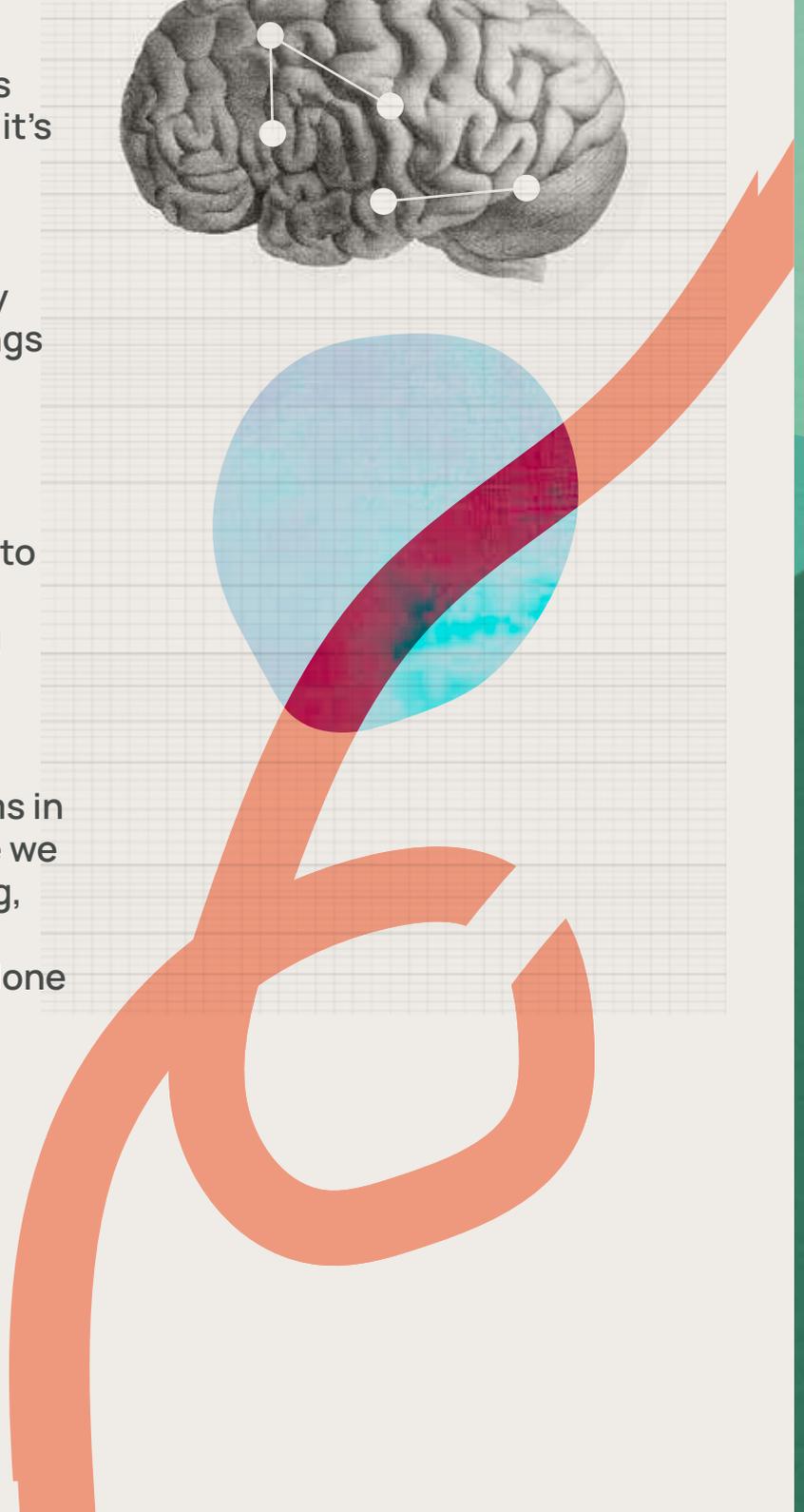
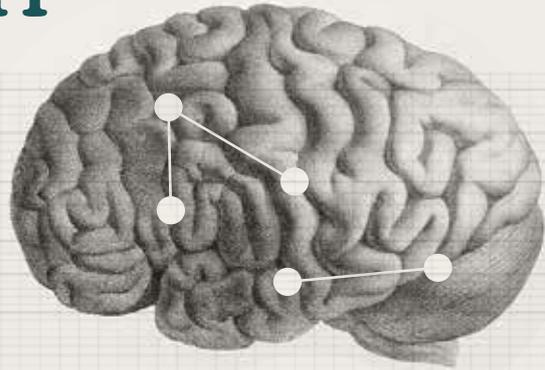
Human psychology & perception

The climate and nature crisis isn't just a science problem; it's a perception problem too.

We're not wired to intuitively understand how quickly things can change when they're speeding themselves up.

We cope well when reacting to immediate threats, but we don't take slow moving, long term problems seriously.

Many of the biggest problems in the world exist, not because we don't know they're damaging, but because we struggle to imagine how they could be done differently.





Fossil fuels

These burn to release CO₂, alongside other pollutant gases. Most (over 70%) of human-produced greenhouse gases come from energy production. We generate most (about 85%) of our energy by burning fossil fuels.

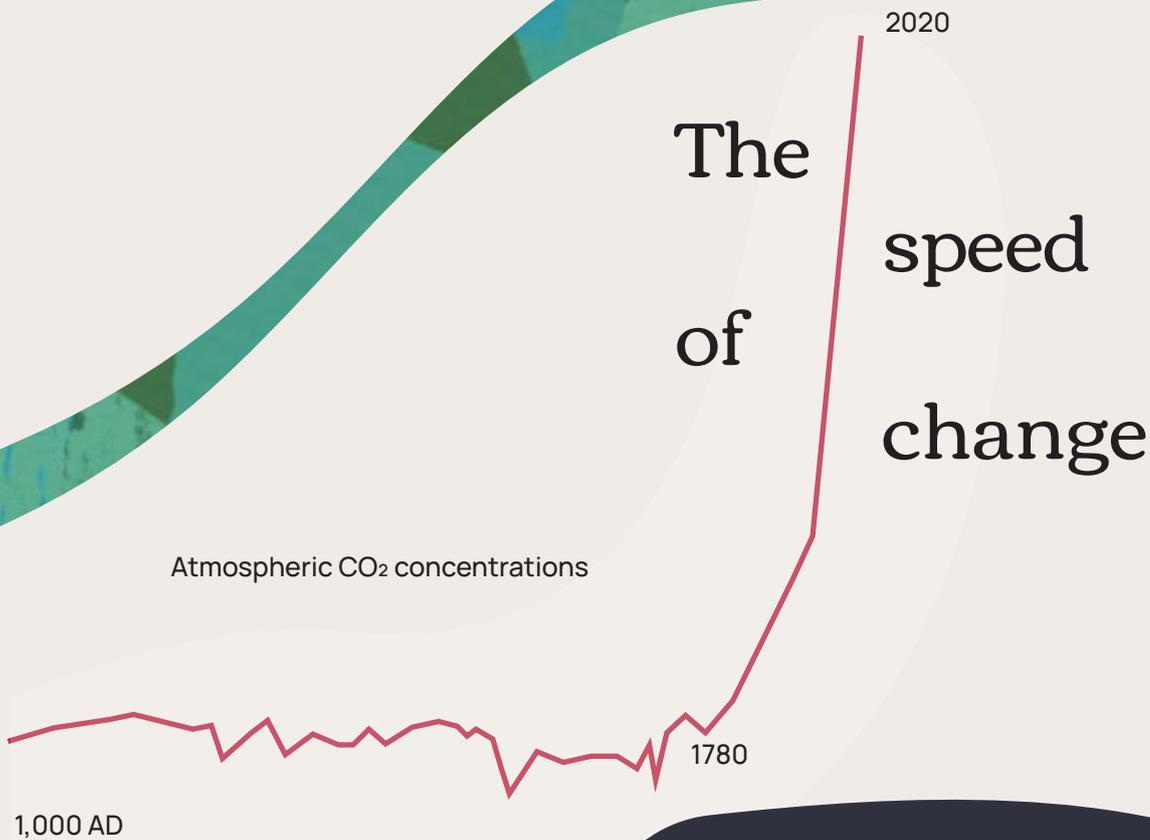
Greenhouse gases

Carbon dioxide (CO₂), methane, water vapour and other greenhouse gases cause the greenhouse effect, which traps heat on our planet. As the greenhouse effect gets stronger, it causes global warming / heating. We are generally most worried about CO₂ and methane levels increasing, though other gases are problematic too.

Positive feedback loops



As the world heats up, some of the consequences (like increasing forest fires, melting ice and extra water vapour) cause the heating to accelerate even more. These are called positive feedback loops. When they develop enough, they will reach potentially irreversible “tipping points” and accelerate beyond control.



CO₂ concentrations in the atmosphere have been higher and lower before in the past. It's not the fact that CO₂ concentrations are going up that we're worried about; it's the speed that they're going up, and the inability of all the life on Earth to keep up with these rapid changes.



Role models

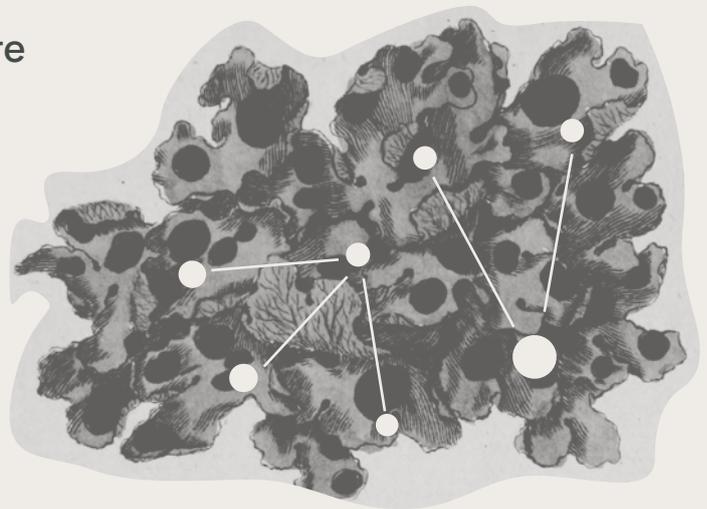
Our role models shape our aspirations and ideals. Over the last 300 years, the world's societal role models have shifted away from thinkers (like philosophers and scientists), towards celebrities.

Values



Winning

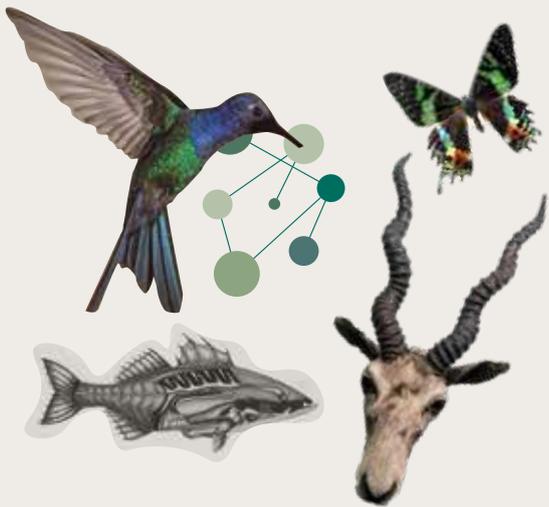
We are often taught that to win is to dominate, but this is at odds with nature. The big winners in nature are those that become a valued part of their communities.



Nature & wildlife



The nature and wildlife of our planet is in rapid decline, with much of it already gone.



Biodiversity is the scientific name for the complex diversity and variety of all living things. Almost all living things depend upon other living things to survive.

Mobility gives us the illusion of being separate from the Earth, but we are part of Earth's biodiversity and entirely dependent upon it, for our food, oxygen, medicines and more.



Food, farming & land

Farms take up **50%** of all the habitable land on Earth: they're the main thing replacing forests and wild spaces.



Much of the greenhouse gas emissions from farming aren't because of cows burping or tractors burning fuels; they're due to the opportunity cost of the land not being what it would be naturally without human interference.

Animals are inefficient.

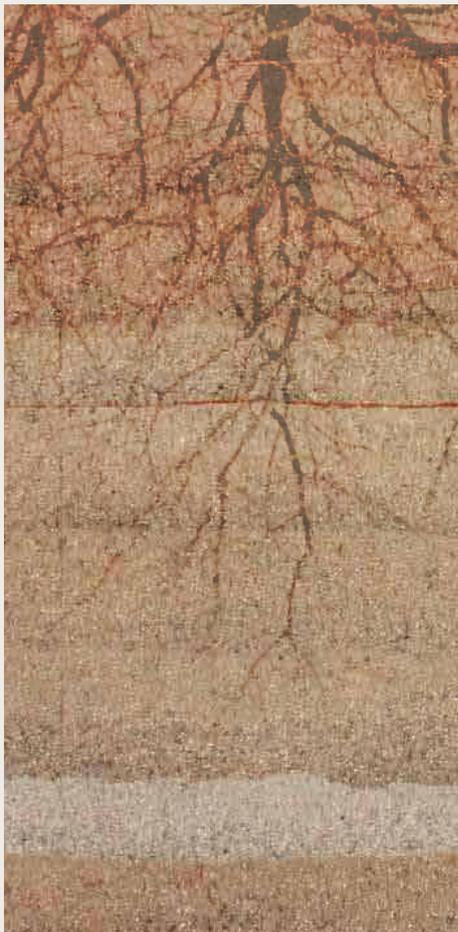
77% of the world's farmland is used to create animal products, which account for only **18%** of our food. The main reason why it takes a lot of space to create a small amount of "animal products" is because we need to grow a lot of plants to feed the animals, which they convert to meat, milk etc. very inefficiently.



Plants are efficient.

23% of the world's farmland is growing plants for humans to eat. This supplies most **(82%)** of our food.

Soil



One teaspoon of soil contains more living things than the entire human population. Adding chemical fertilisers kills many of these living things and upsets this balance.

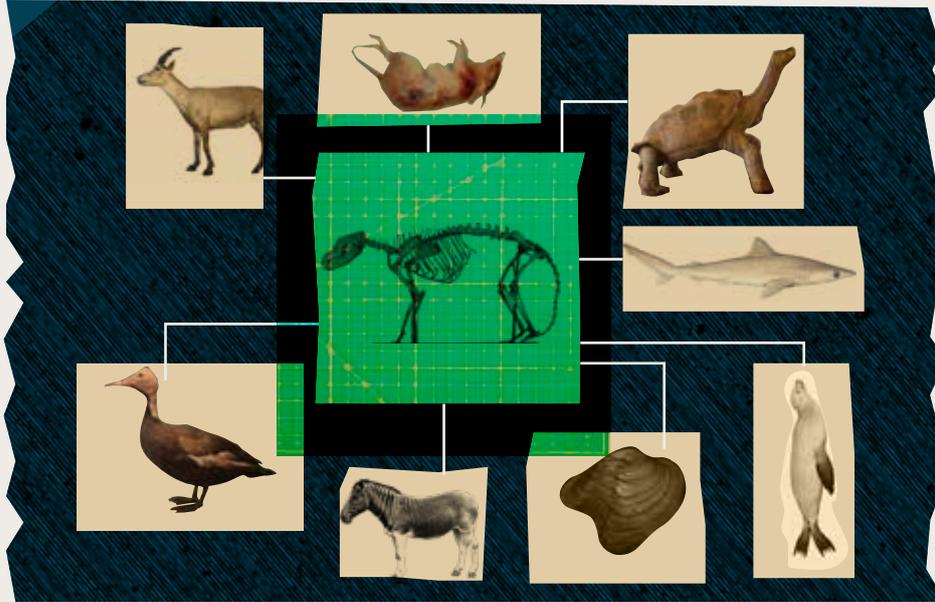
If we look after the soil, it will produce much healthier food for us: we shouldn't be putting the plants first; we should be putting the soil first.

The top couple of meters of soil contain about three times as much carbon as the entire atmosphere. Restoring degraded soils to their former health has the potential to capture a significant proportion of our carbon emissions.

Healthy soil is interconnected by vast, complex networks of fungal strands, which ploughing destroys. These networks make the plants healthier, more resilient and better to eat too.



When one plant dominates the landscape, it's bad for the health of the soil and surrounding nature in the long term. We use monocultures because they're easier to farm industrially on a large scale. The soil under every monoculture is gradually dying.



Extinctions

We are entering a period that many are calling the “sixth mass extinction”. Living things have only disappeared five times before in the history of the Earth.

There are now **1,000,000** living species on the brink of disappearing forever.

Species are going extinct 1,000 times faster than normal.

40% of all plants are at risk of extinction.

40% of amphibians,
25% of mammals
14% of birds
are on the brink of extinction too.

Geoengineering

We can cool down the earth by making artificial clouds or increasing the reflectivity of ice using glass beads.

However, there is so much that we don't know about the Earth's natural systems and ideas like these could be more damaging than beneficial. We must always ask the question, "yes, but what's the impact on nature?"

We have to be wary of "magic bullet" solutions that cannot be properly tested.

We are a part of nature, not separate from it. Risks for nature are risks for us.



Carbon capture and storage

Carbon Capture & Storage (CCS) means capturing CO₂ from the atmosphere, mixing it with water and pumping the resulting fizzy liquid deep under the ground.

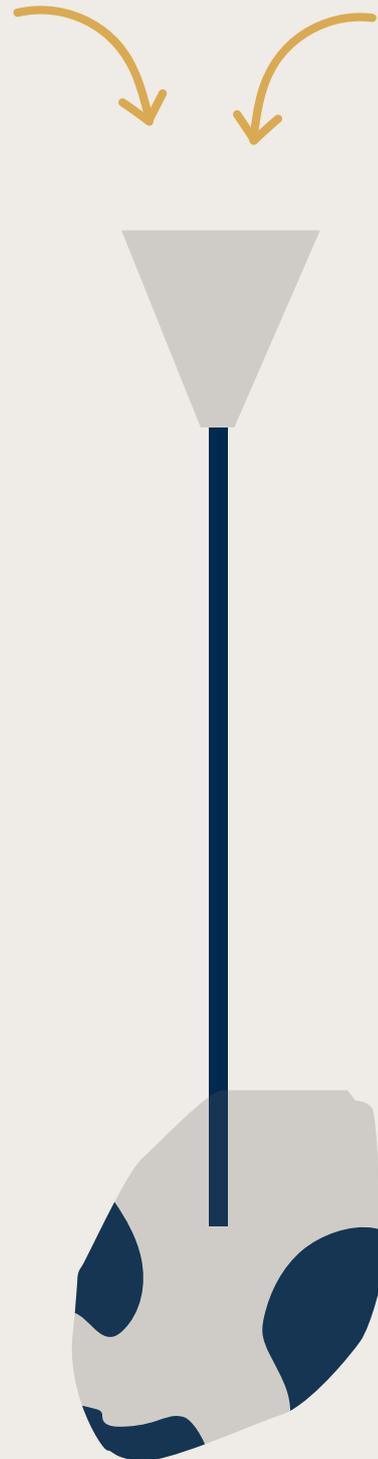
In theory, this liquid then reacts with rocks to form minerals that will hopefully stay under the ground for millions of years.

The CO₂ that we have emitted since the industrial revolution could take 100,000 years to return to preindustrial levels unless we intervene.

However, effective and scalable CCS technology does not exist yet.

The fossil fuel industry is using the assumption that we'll be able to develop CCS to justify keeping its polluting projects going. Policymakers also use CCS as an excuse for delaying cuts to greenhouse gas emissions.

Whatever happens with CCS, we need to think of it as a way to repair the climate, rather than as an excuse to keep emitting.



Solutions



Stopping fossil fuels

This is by far the best way for the world to combat the climate and nature crisis. This can be done by reducing energy wastage and inefficiency, and by switching to greener sources of energy production (solar, wind, wave and so on).

Despite what is often said, it is true that we can power the world without fossil fuels.

Nature positivity

“Nature-positive” means enhancing the resilience of our planet and societies to halt and reverse nature loss.

However, here at AimHi Earth, we think it also makes sense the other way around...

Reversing nature loss to enhance the resilience of our planet and societies.

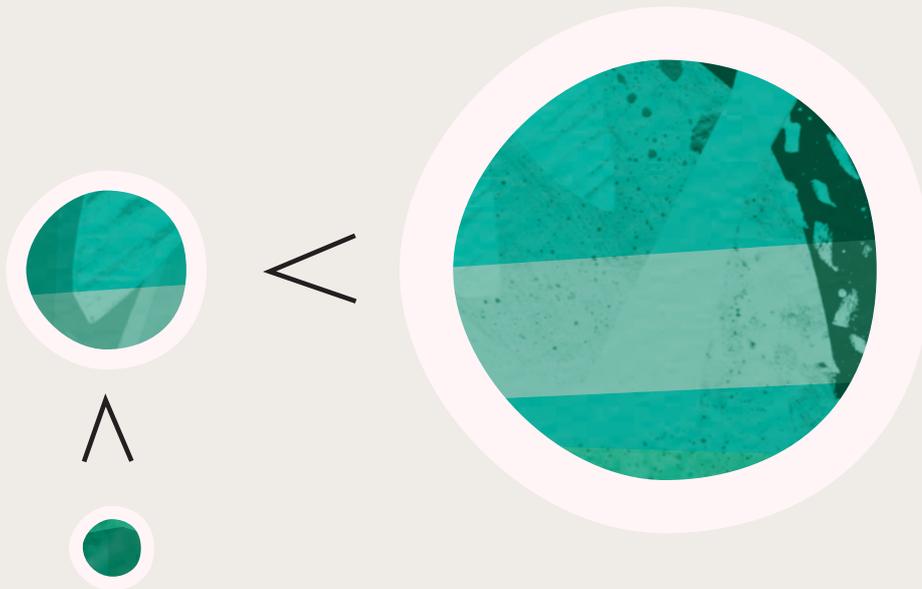
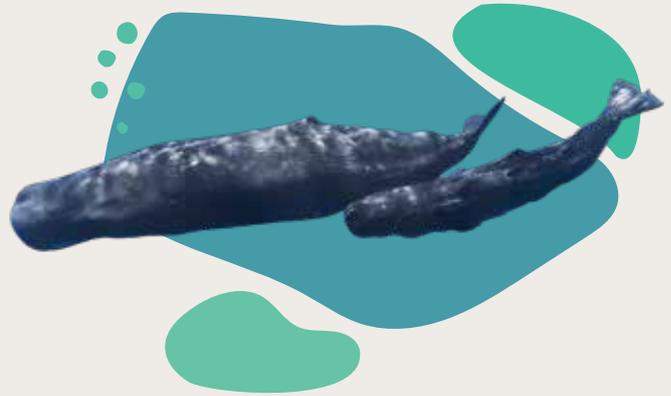
However we look at it, we need to make more space for nature in our lives, our hearts, our minds, our cities, our jobs and our classrooms.



At the moment, many governments and organisations are being seduced by the one dimensional simplicity of measuring the success of a project only in terms of carbon emissions, but this can have many negative, unforeseen consequences.

Nature-based solutions

Natural systems store massive amounts of carbon. They are the driving force of storing more of it.



Right now, nature makes up only 10% of the climate conversation and gets only 3% of the funding.

Individual changes

Some of the most effective personal changes we can make ourselves and encourage others (especially adults!) to do to reduce the usage of fossil fuels are...

Move our money



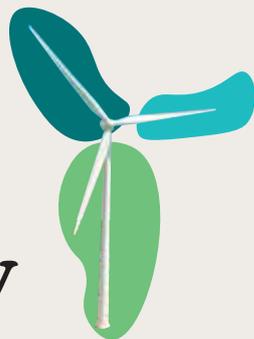
Most banks, pension funds etc. invest in fossil fuels. One of the most powerful things we can do is to move our money to organisations that don't.

Vote



If we live in democracies, then by voting for parties with very green policies, we shift the political conversation, even if our party doesn't get elected.

Get green energy



By finding a way to pay the little bit extra for energy generated from renewable sources, we transform the system.

Fly less



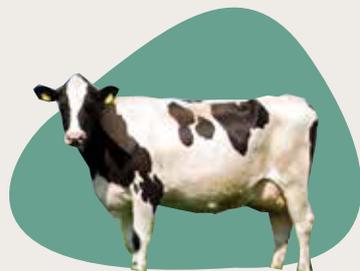
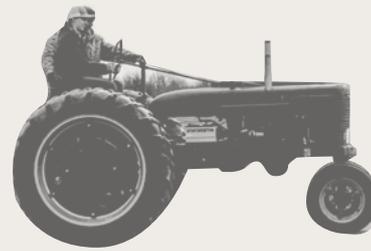
For those of us who fly, one of the most effective things we can do is to stop.

Supporting farmers



Farmers can easily be the heroes of this story, if they're empowered to put soil first and focus on producing plants more than animals.

By spending a little more money for food grown on diverse, mixed farms, with minimally ploughed soil and no chemical fertilisers, we're moving the dial towards storing more carbon, protecting nature and improving human health too.



Farming is complicated

Some animal products claim to be “sustainable” or “good for nature”, but these claims are often not backed by the science. That’s not to say that animals can’t play some part in the farms of the future, but if in doubt about how sustainable animal products are, it’s best to avoid them.

Shifting diets

We can significantly (and easily) contribute to protecting nature by shifting to a more plant-based diet. The more we shift, the more easily we can feed everyone, and more space we leave for the rest of nature



Supporting diversity

Two thirds of all crops come from just nine species of plants. This makes us all very vulnerable to one of them getting a disease or becoming poorly adapted to a changing climate.

We can help to make our food system more secure by choosing to buy diverse fruits, vegetables and grains to eat.



Reducing waste

By minimising food waste, we reduce our negative impact on nature.

At the moment about 1/3 of all food on Earth is wasted before it's eaten. We could feed a lot more people a lot more efficiently if there was less waste.





System changes

Individual changes play a vital role in changing perceptions, and have a much bigger impact than our intuition tells us they do. In order to achieve the rapid systemic change required, we need governments to be very proactive. COVID-19 changed the world almost overnight. We need an equally rapid response to the climate and nature crisis. It'll happen if all of us are in this together!

Teaching, communicating & empowering

We are living through a crisis of imagination, held back by engrained normalities. There is so much potential for things to change and perceptions are beginning to shift: it's up to all of us to accelerate this rising tide by talking to one another, spreading knowledge and becoming the change we need to see.

Collectively, we are so much stronger than any seemingly unchangeable inertia.

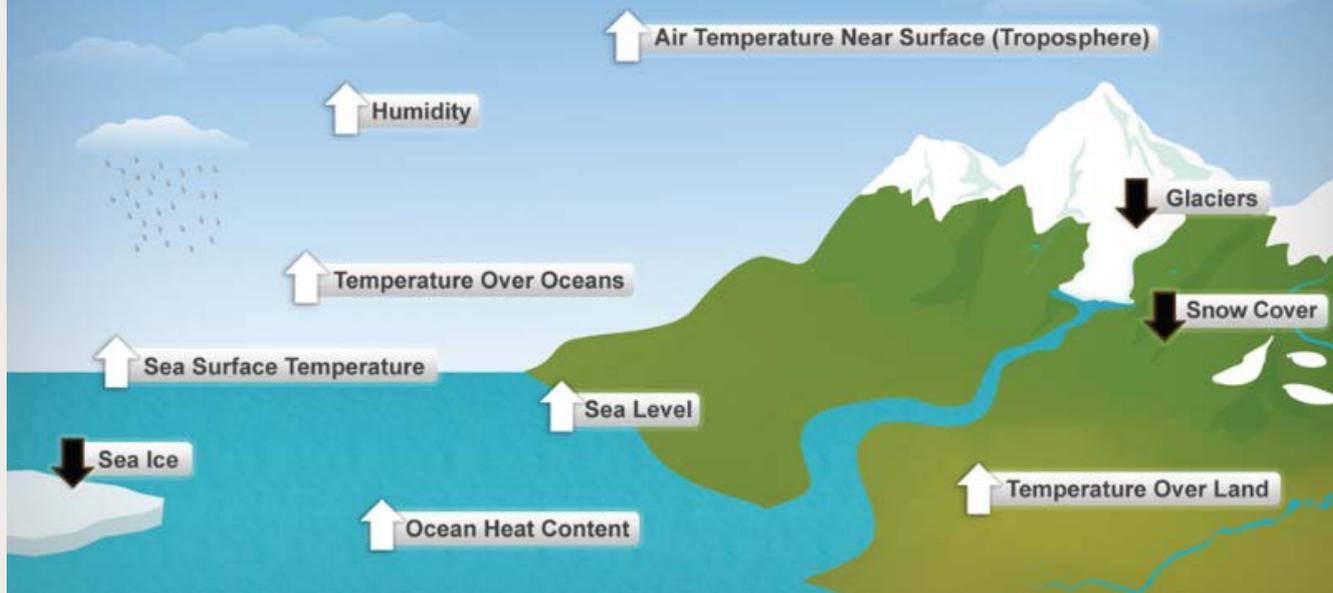


Diagrams

Here are some key indicators of a warming world. You may have seen pictures of glaciers disappearing and felt spring arriving earlier.

NOAA Ten Indicators of a Warming World

Ten Indicators of a Warming World



Diagrams



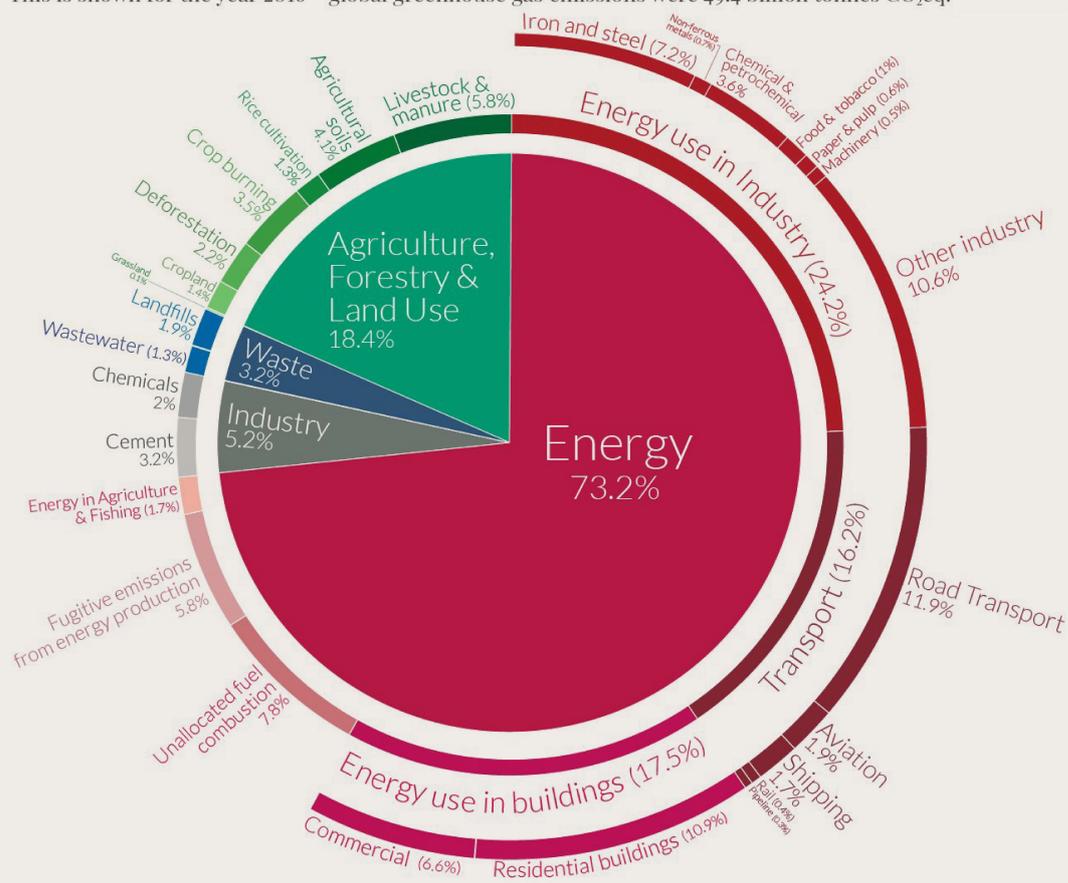
If you were to put all of the world's land mammals into a pile, then this chart shows approximately how the total weight of that pile would split up. Over 50% of it would be cows and sheep.

Diagrams

A large array of human activities result in the release of greenhouse gases. The largest contributor by far is **energy production**.

Global greenhouse gas emissions by sector

This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.

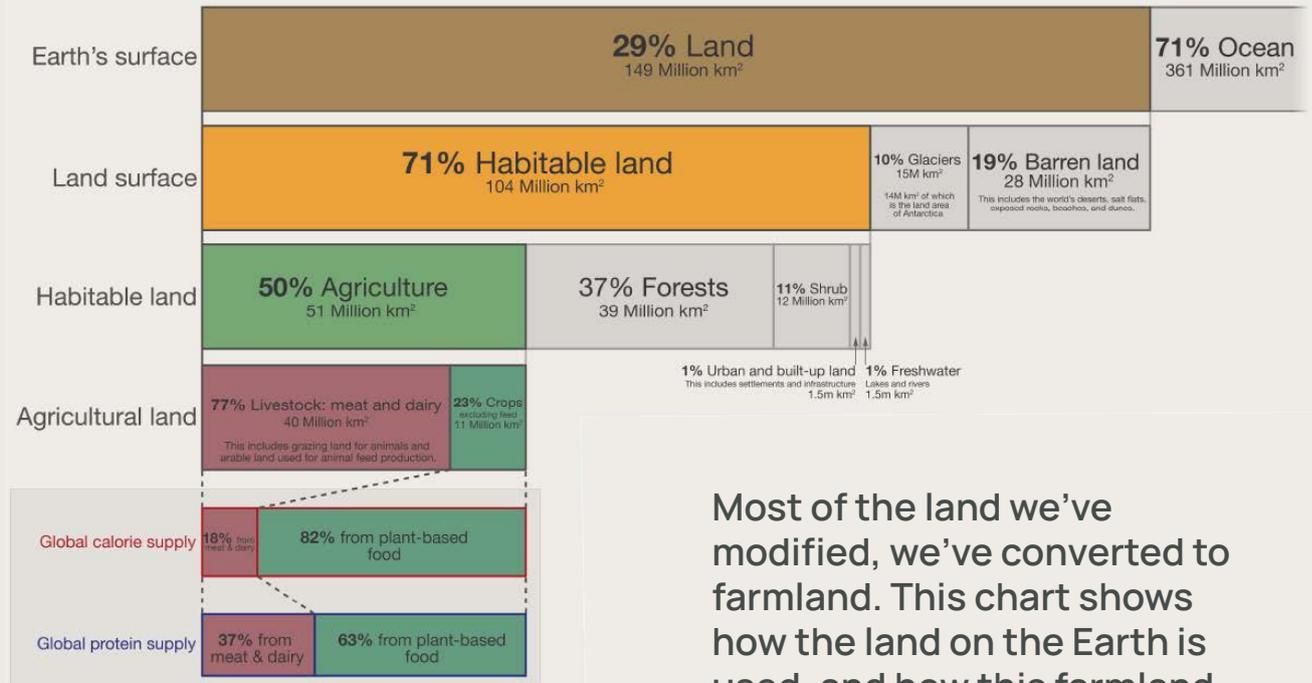


(Our World In Data)

Diagrams

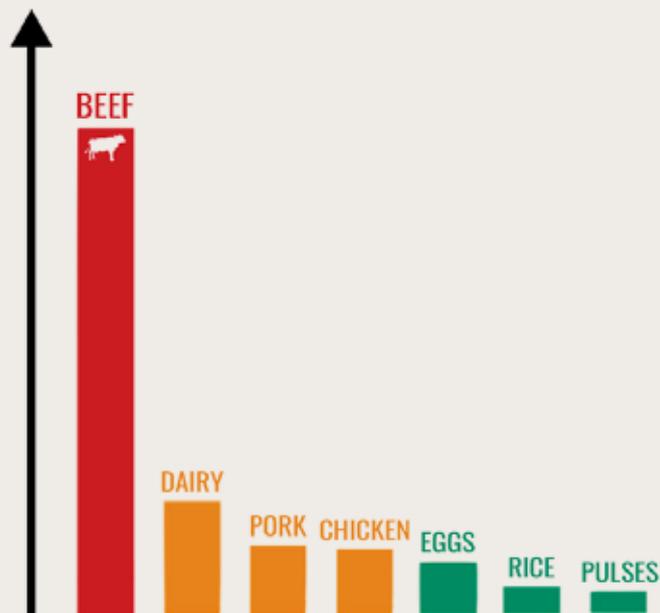
Global land use for food production

Our World in Data



Most of the land we've modified, we've converted to farmland. This chart shows how the land on the Earth is used, and how this farmland contributes to our food supply.

GREENHOUSE GAS IMPACT



This is a simple chart created by AimHi's Matthew Shribman to show the relative greenhouse gas emissions of certain foods per unit of protein.

(Matthew Shribman, based on data from WRI, Shifting Diets)

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