

# Hike for the climate

-It's bad, however we have a key role!

Beyond Horizons 2023-20-18



Jean Esselström, Friluftslivssamordnare Länsstyrelsen  
Västernorrland

## Stop 1: Mindset of exploitation.

The root cause of both the climate and ecological emergencies is what we can call the exploitation mindset.

Thinking that some humans should dominate other humans and that humans in general should dominate nature.

Human exploitation of the land, water and oceans is killing a lot of life on Earth. This is both morally wrong and stupid. We need nature to survive and to feel our most human.

Human – nature, dualism underpins the climate crisis of the Anthropocene.

Human desire satisfaction underpins modern economics.

This is the geological epoch of humans which arguably began in 1950 with the great acceleration.



## Stop 2: It's warming!

**Earth has warmed by 1 degree since I was born.** This is because of our emissions of greenhouse gases.

Under current policies, **Climate Action Tracker** estimate end-of-century warming to be 2.7°C (range from 2 to 3.6 degrees).

**Let's place that range of numbers in perspective.**

This stop is on one of several glacial polished surfaces on a hilltop. These are *roche moutonnée* ("rundhäll"). These are landforms which were sculpted by the

movement of ice sheets. We are looking at a landscape shaped by giant rivers of ice.

Everything you see was covered by 3 kilometres of thick inland ice 10 500 years ago. The heavy ice pressed the Earth's crust down about one kilometre.

When the ice melted slowly away, it released the pressure, and the land started rising towards its original position. This phenomenon is called postglacial land uplift.

The land continues to rise nowadays with a speed of about 8-9 millimetres per year in the World Heritage area.

How much colder do you think Earth was then?

Temperature reconstructions (Shakun et al., 2012) show that Earth was only 3 degrees cooler during the last glaciation.

**The change we are causing is of the same size as the difference between a glaciation and the climate of today.** In the other direction.



### Stop 3: It's us

This stop is at a mire or a swamp. The setting is intended to conjure images of the swamps of Carboniferous (before the dinosaurs) and Jurassic-Cretaceous (age of the dinosaurs). By burning fossil fuels, we emit 43 billion tons of the greenhouse gas carbon dioxide. Every year.

This is equivalent to wrapping the Earth in a blanket of pure carbon dioxide that is several centimetres thick. And then another one. And another. Every year.

This carbon dioxide comes from the air that the dinosaurs breathed.

Plants, algae and plankton captured carbon dioxide from that ancient air and stored it. They became coal, oil and natural gas. Fossil fuels.

When we burn them, we put carbon dioxide from the age of the dinosaurs back into the air. **The climate crisis as a geological problem.**

Dig into the bog or sphagnum moss, show different stage of decomposition and finally forms Lignite and coal.

## Stop 4: We're sure

There are two carbon cycles 1. the slow carbon cycle (granite boulders) 2. The fast carbon cycle (living and dead trees)

Let's have a look at the three factors control Earth's climate on geological timescales.

1. **Heat from the Sun** (which is sufficient to give Earth a temperature of **6 degrees**),
2. **Albedo effect** (which lowers Earth's temperature to **-18 degrees**) and the
3. **Greenhouse effect** (which raises Earth's temperature to **14 degrees**).

Adding 1 degree of human-induced warming, we get **15 degrees**. Use flashlight, earthball, a white blanket and a black blanket.

Over geological time, the greenhouse effect is controlled by the **slow carbon cycle**.

Slow carbon cycle: CO<sub>2</sub> is added to the air by volcanoes (0.1 billion tons/year) and taken away again by the slow chemical weathering of rocks (0.1 billion tons/year).



When Earth warms, CO<sub>2</sub> is removed from the air faster by the weathering of rocks. This weakens the greenhouse effect, making

the Earth cooler again.

When Earth cools, rocks weather more slowly, and CO<sub>2</sub> from volcanoes builds up in the air. The strengthens the greenhouse effect making the Earth warmer again. This happens very slowly (on a timescale of 100s of thousands of years).

By burning fossil fuels, we release 78 times as much carbon dioxide to the air than volcanoes do. Rocks cannot weather fast enough to remove it. This is why the amount of carbon dioxide in the air keeps rising.





## Stop 5: It's bad

The climate changes are here and now. And it's going fast.

We already see the signs:

The planet's average temperature shattered the previous September record by more than half a degree Celsius. Copernicus estimates annual average temperatures this year are expected to end up about 1.4 degrees Celsius above preindustrial levels. Heat waves, floods and

forest fires are happening more as a direct cause to a warming planet.

More and more animals and plants are becoming extinct.

The seas are rising.

We have to acknowledge and make space for grief. To honour what we are losing and to motivate us to fight for what's left.

Climate and ecological breakdown have caused are causing and will cause irreplaceable losses of things we love and that's really sad.

This is the climate crisis. It is here and it is now.

Group discussion by sharing method. Have you experienced climate change in your life? How did this make you feel.

Share without interruption or question. Just listen to one story at the time

Change happens by internalising the urgency of the climate crisis and accepting personal responsibility.



## Stop 6: We can fix it

We can solve the climate crisis with emissions reductions (70%), nature-based solutions (20%) and technical solutions – carbon dioxide removal (10%).

We need to change our mindset from exploration and economic growth. Show stone quarry and wind power plants.

We need to learn to live well within the material limits of the biosphere to do so.

We need to redefine what a good life looks like.  
Three principles to guide us in uprooting the

exploitation mindset and cultivating the regeneration Mindset.

1. respect and care for people and nature.
2. Reduce harm at its source.
3. Build resilience, the ability to recover from setbacks.

You all have a key role too show the paths to a good life, with less urge for possessions. And more time with friends and close ones doing what you enjoy in nature. Along with seeing others around us, take action. Walk the talk is important.

A lot can happen in a decade and that one ahead is critical. Fine bright spots where climate action is working and help spread them.

Nature is no longer a resource with only one purpose: Exploitation to satisfy the desires of humans. Regeneration means giving and taking from nature equally. The same way volcanoes give CO<sub>2</sub> to the air and by weathering, rocks take it away. It is an equilibrium. A balance. **We must reunite with nature.**

Based on the work of Kimberly Nicolas (Under the sky we make – how to be human in a warming world) and Alasdair Skelton KTH