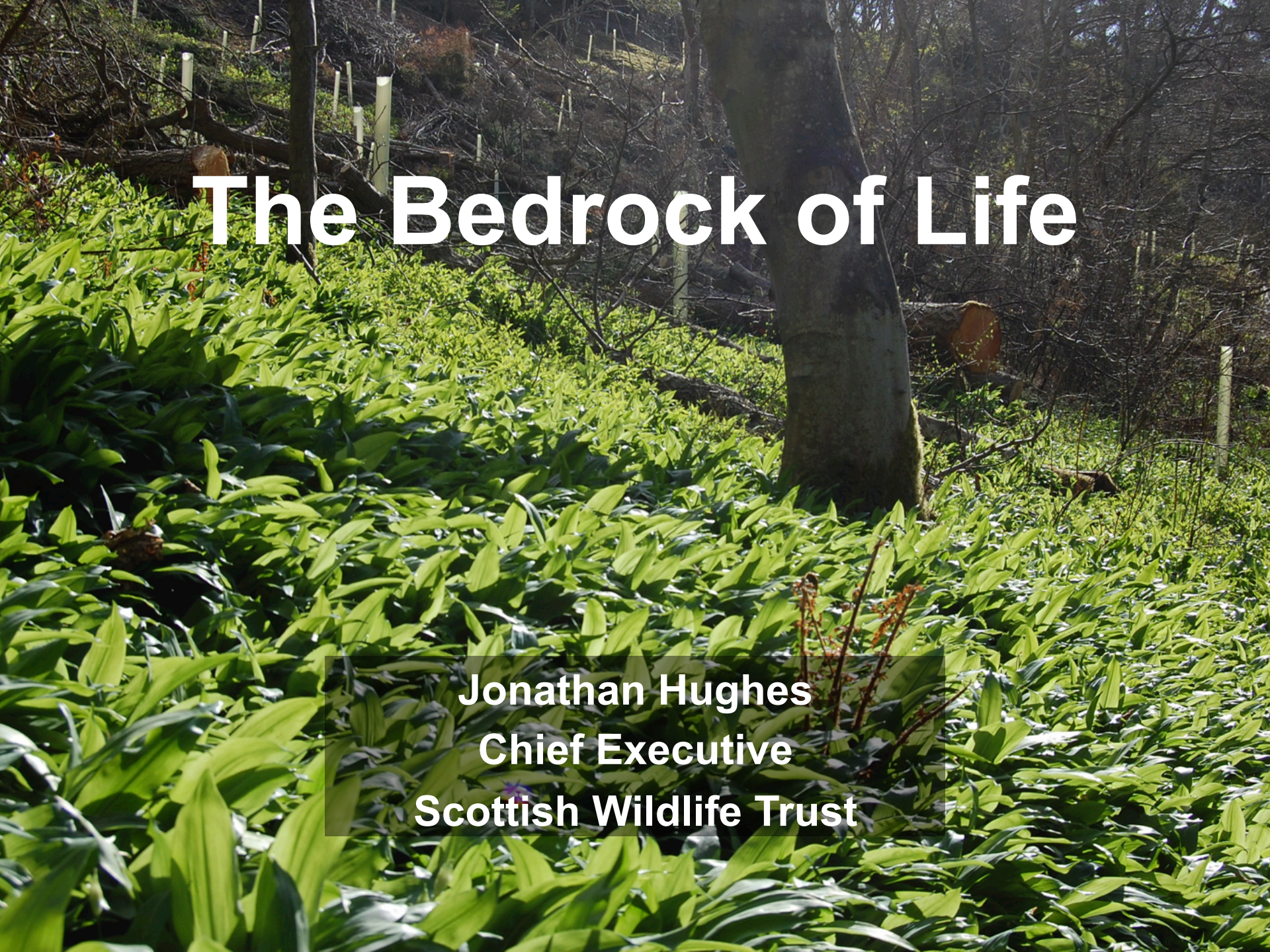
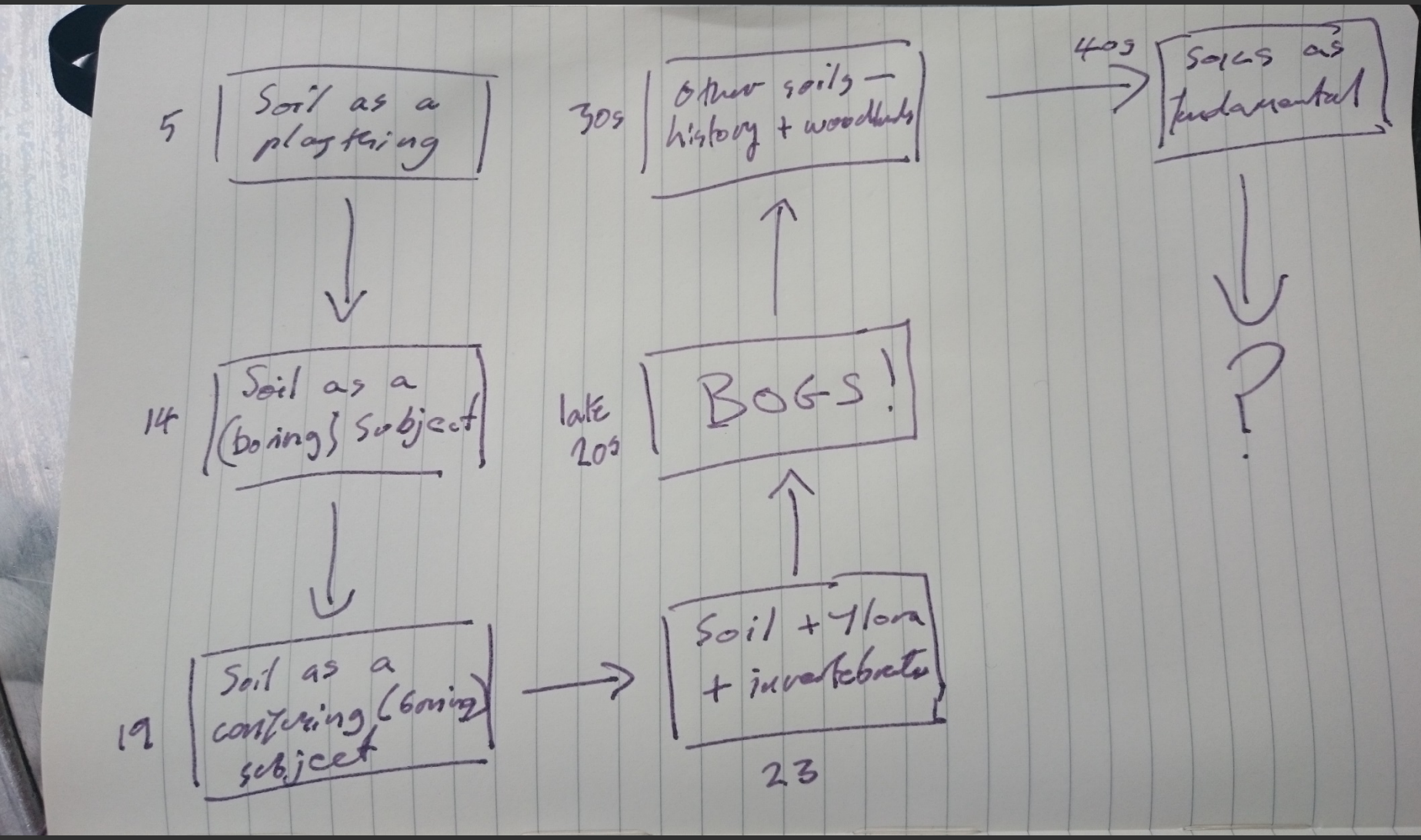
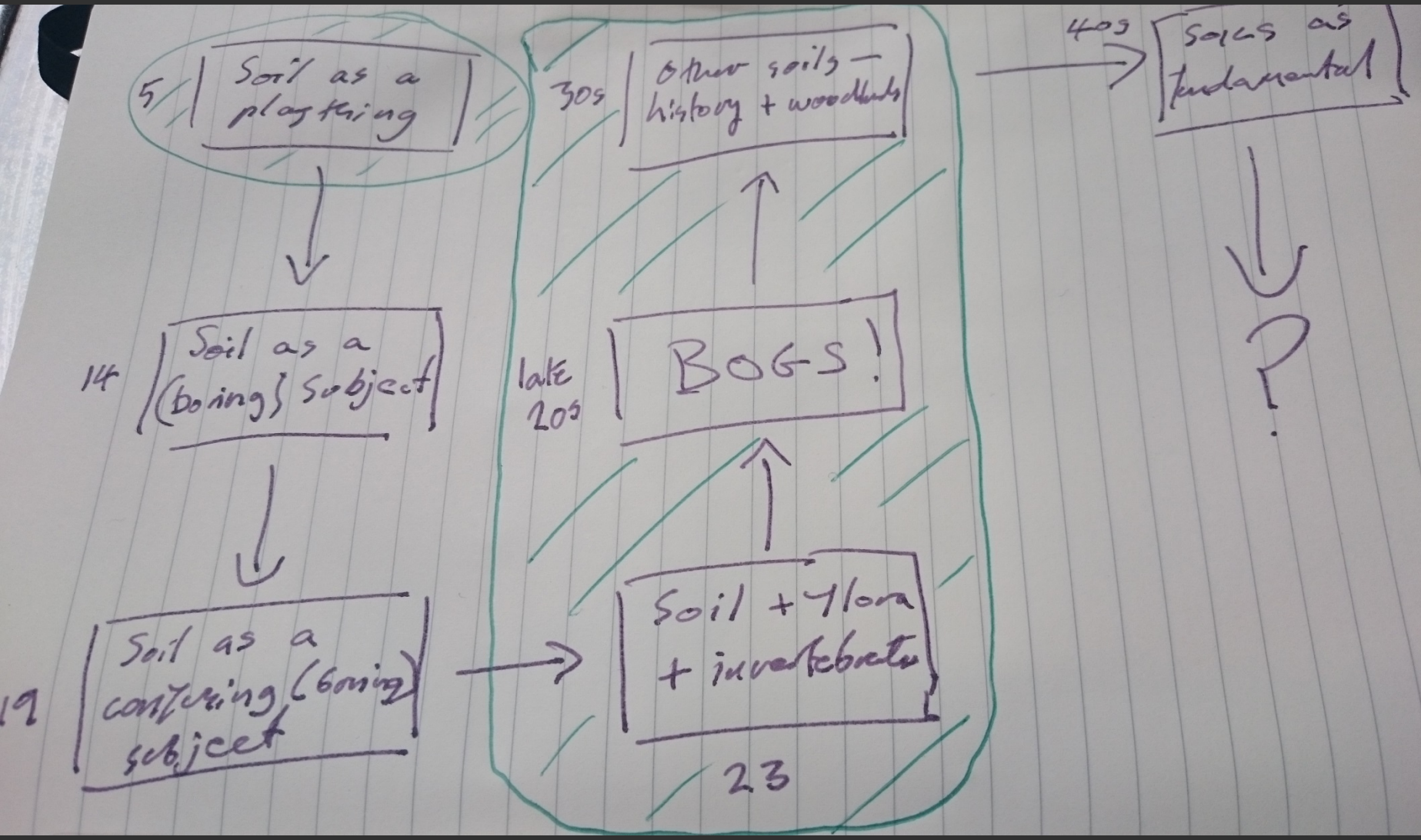

The Bedrock of Life
Jonathan Hughes
Chief Executive
Scottish Wildlife Trust


5
Soil as a plaything
14
Soil as a (boring) subject
19
Soil as a conferring (boring) subject
30s
Other soils — history + woodlands
late 20s
BOGS!
Soil + flora + invertebrates
23
40s
Soils as fundamental
?


5
Soil as a plaything
14
Soil as a (boring) subject
19
Soil as a confusing (boring) subject
30s
Other soils — history + woodlands
late 20s
BOGS!
Soil + flora + invertebrates
23
40s
Soils as fundamental
?

The nature of the soil

Soil nature as a service: why is soil biodiversity so vital?

Soil nature as an engine: what drives productive healthy soils?

Soil under threat: what's causing soil loss and degradation

Soil as a nature-based solution: what can we do to heal the soil for good?

Soil as a service 1

Living things are the **creators** of soil through decomposing organic matter

They **enable** the soil to store and release carbon, helping regulate the climate

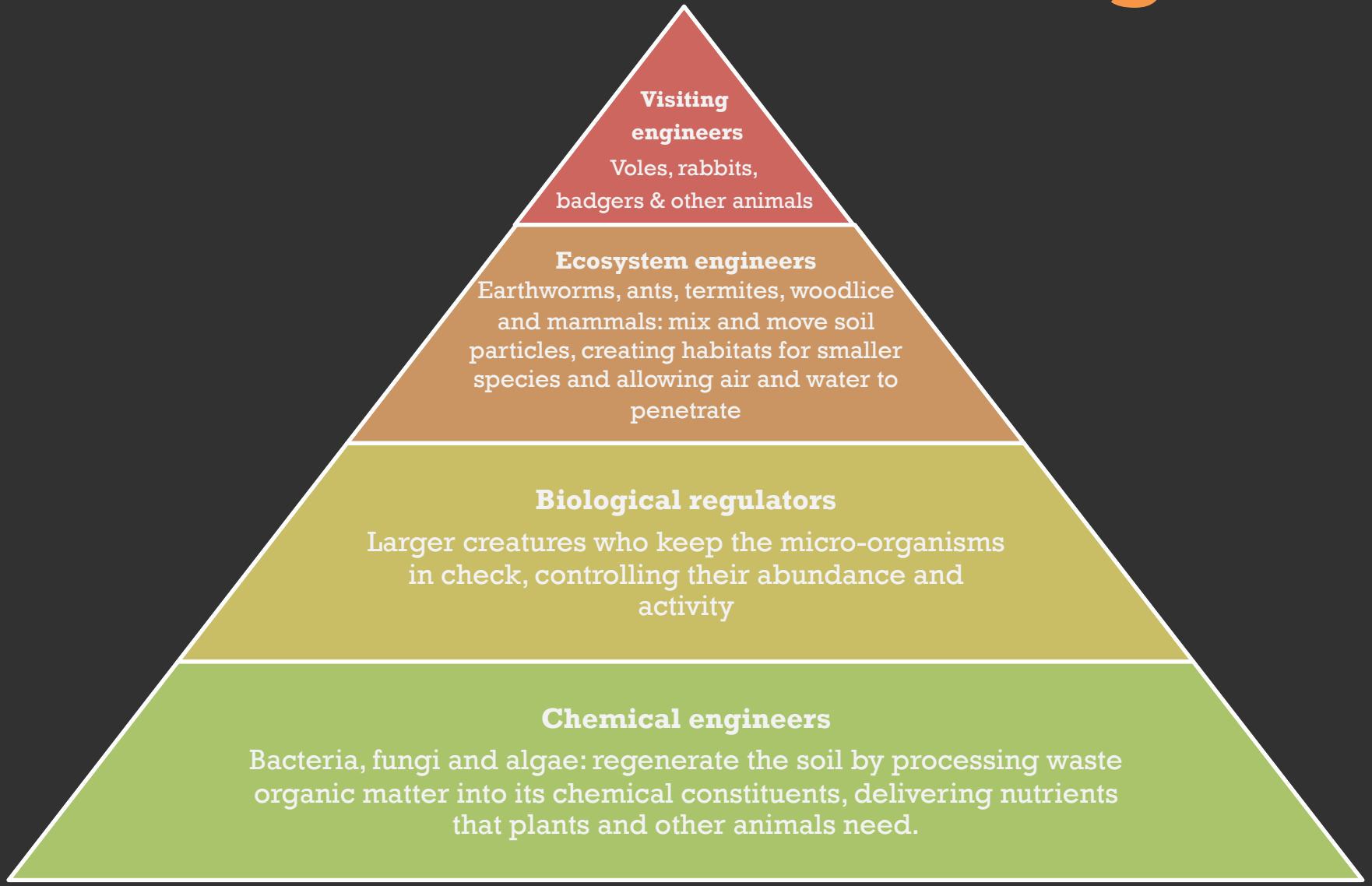
They **purify** water entering the soil, filtering contaminants and pollutants. They **provide** the structures required to retain and store water.

Soil as a service 2

Due to the rapid evolution of soil micro-organism, they are the **ultimate medicine cabinet**: penicillin was derived from a soil fungus by Alexander Fleming in 1928

They **control** pests: the richer the soil biodiversity, the lower chance one species will gain dominance

Soil nature as an engine



Soil under threat 1

Erosion: often linked to drainage, intensive farming practices and deforestation

Organic matter loss: starves soil organisms - linked to artificial mineral fertilizers, pesticides & burning

Salinisation: resulting from poor water management - kills soil biota and vegetation

Soil under threat 2

Compaction: heavy machinery and overgrazing destroys soil structure and biodiversity

Sealing: suffocates soil biodiversity and displaces water run-off, worsening erosion and flooding.

Climate change:

- Changing moisture and temperature
- More erosion, drought and wildfires
- Negative feedback loops causing carbon loss

Nature-based solutions

Peatlands restoration: 3% land area globally but 6% of anthropogenic climate emissions. Change to a carbon sink in 10 years.

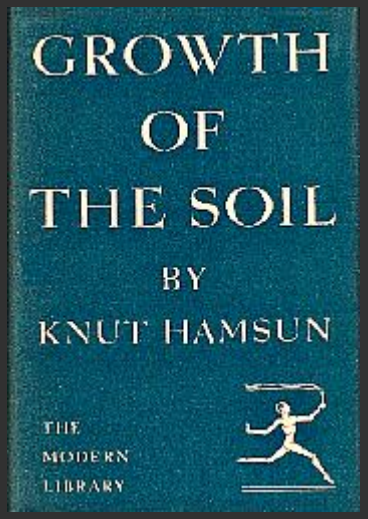
Global 'Soil for Water' initiative: rotational grazing, mulching, riverbank woodlands, hedges, low tillage, chemical input reduction – retain and recycle water

Subsidy reform: £3.5 billion farm subsidies in UK every year alone – put this money to work

Avoid a natural capital debt bubble: live off soil natural capital *interest*, not the capital asset. Calculate losses / gains.

“The nation that destroys its soil destroys itself”

Franklin D. Roosevelt

"Growth of the soil was something different, a thing to be procured at any cost; the only source, the origin of all"

Knut Hamsum