

Restoration of urban soils for environmental health, climate adaptation, and community well-being



Food and Agriculture
Organization of the
United Nations



**GLOBAL SYMPOSIUM
ON SOIL SEALING AND
URBAN SOILS**
*Healthy soils for
healthy cities*

Restoration of urban soils for environmental health, climate adaptation, and community well-being

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Life is in soil

Fungi



ARTE

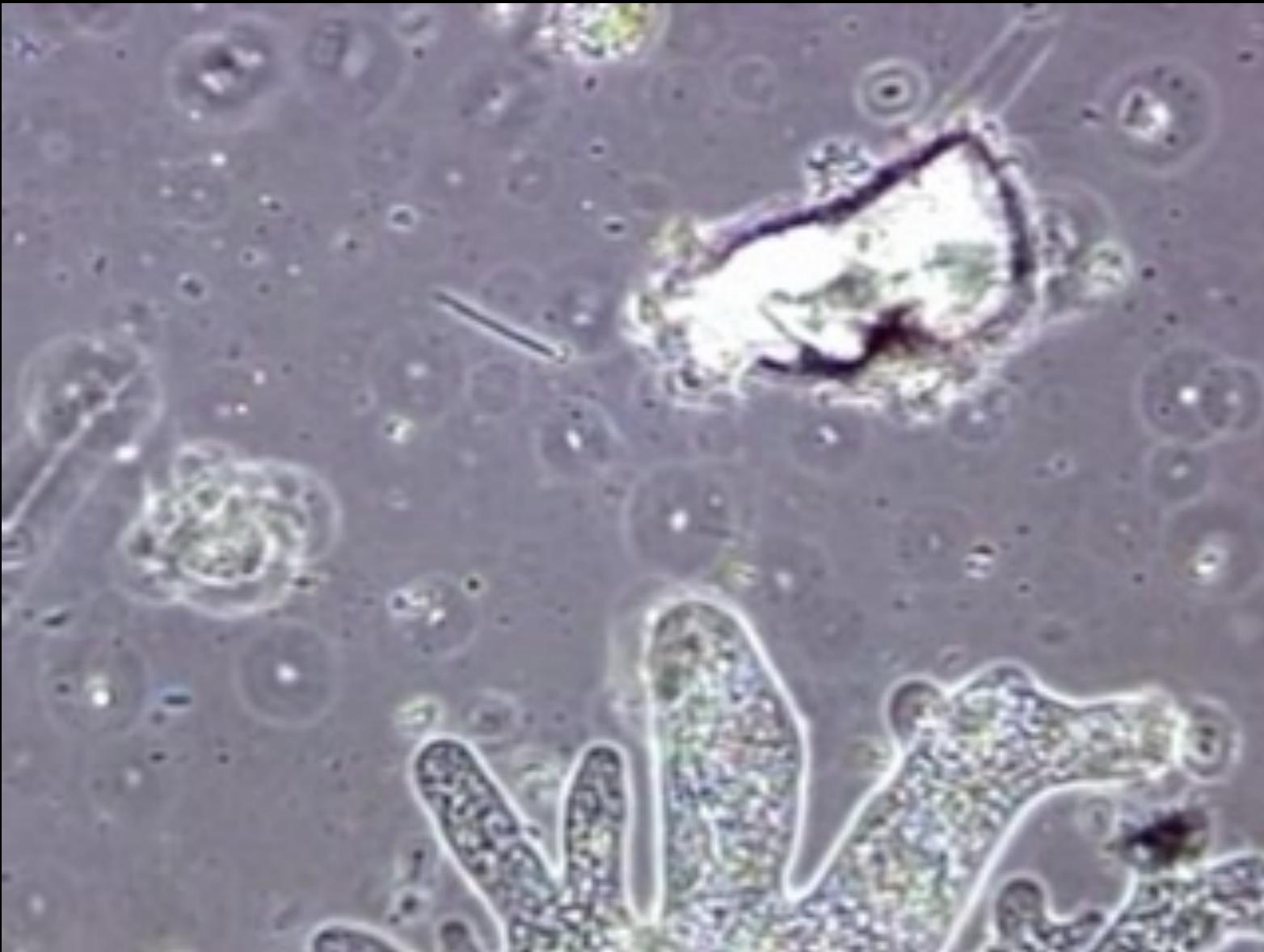
Bacteria



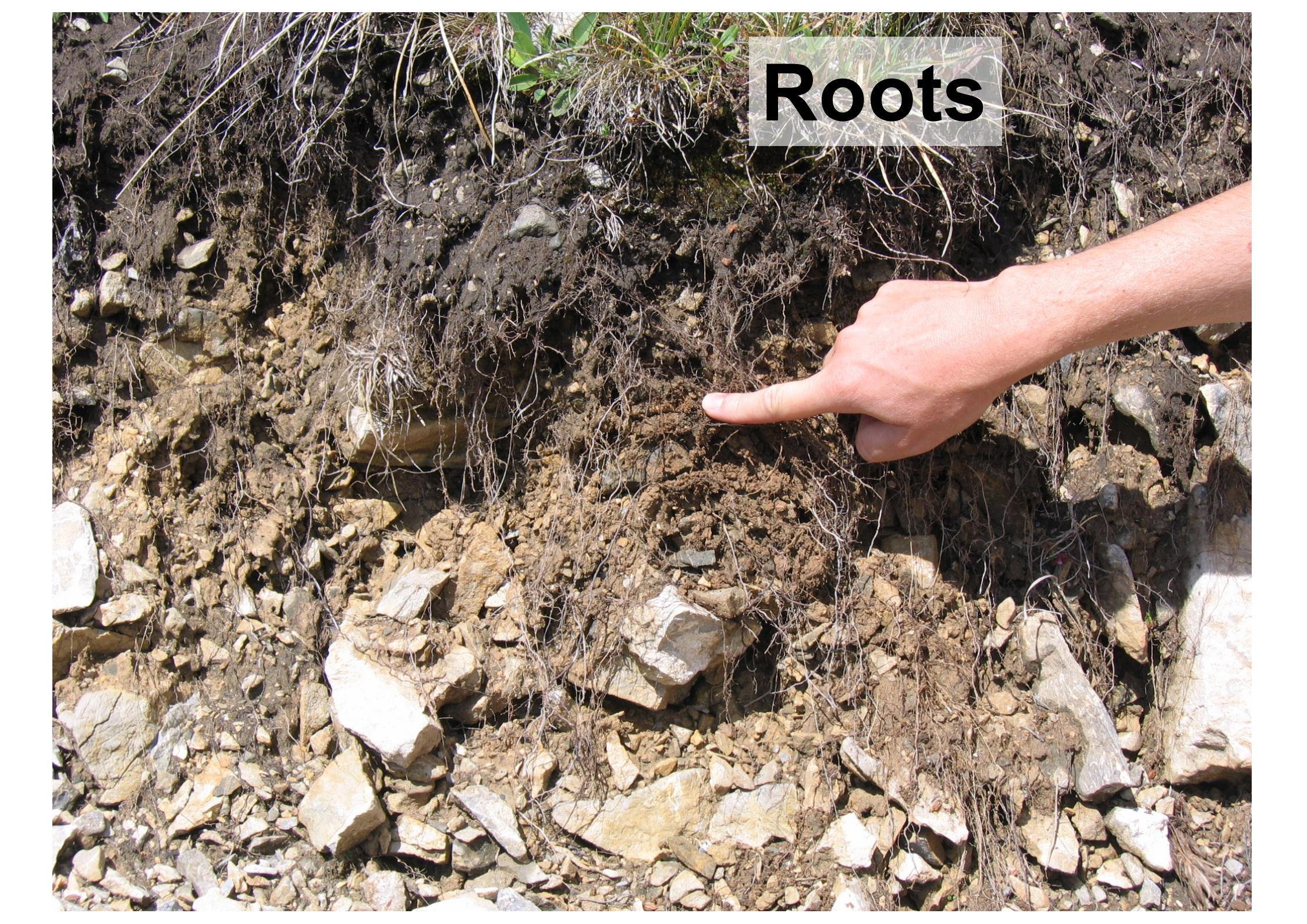
Streptomyces

Benjamin
Cummings

Amoebas



IWF



Roots

Animals

arte



ARTE

One gram of fertile soil...

one million of bacteria, thousands of species

one thousand fungal species

hundreds of amoeba species

25 to 60% of living species in soils!

50 à 75% of living biomass

60 à 90% of total organic matter (L+D)

One gram of fertile soil contains...

Decomposers recycling N, P, S and C



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Nitrogen-fixing bacteria



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Rock-dissolving biofilms (K, Mg, Ca, Fe... oligo-elements)



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Pore formation : water retention and aeration



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Pore formation : water retention and aeration

> what we eat, finally

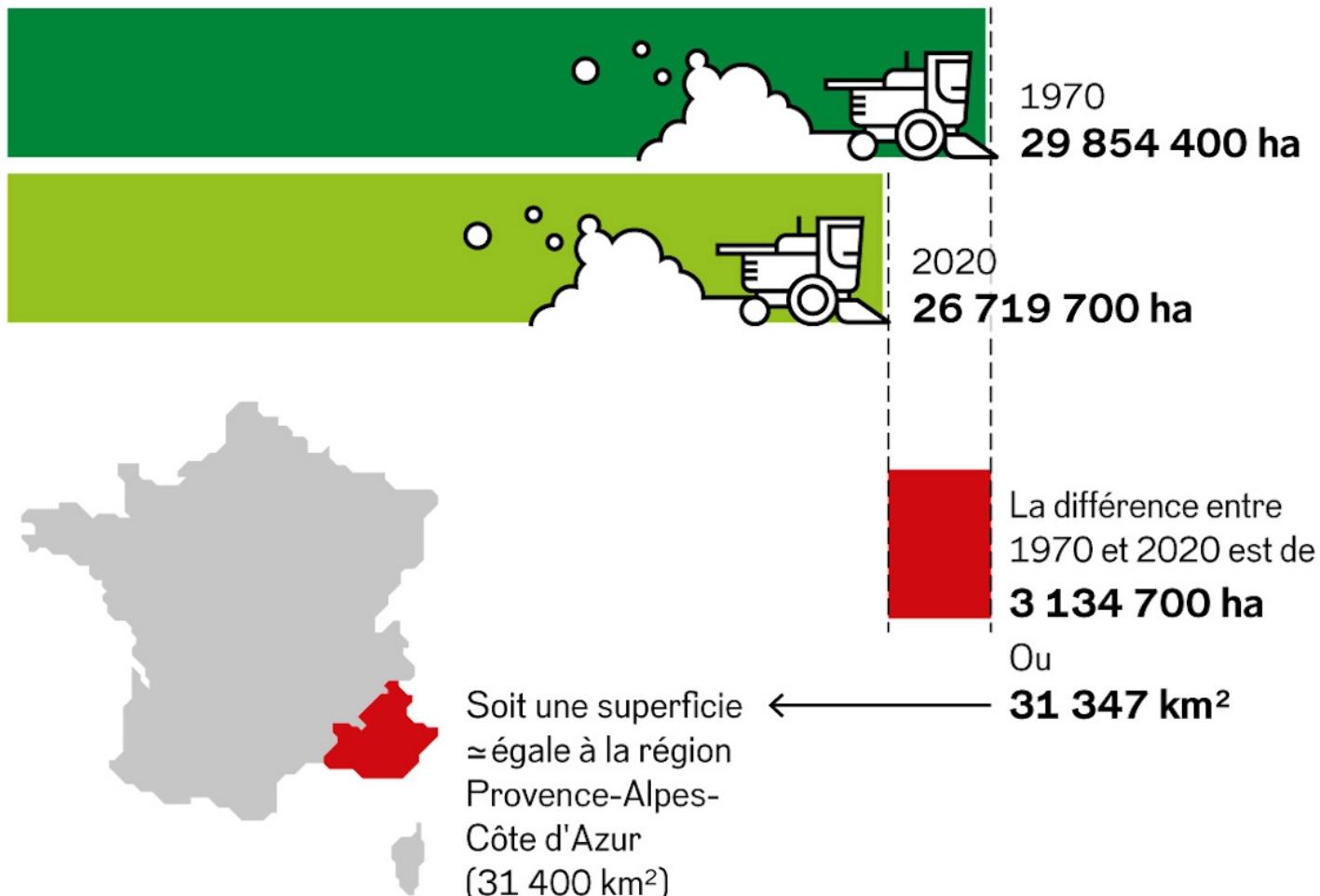


II

Artificialisation

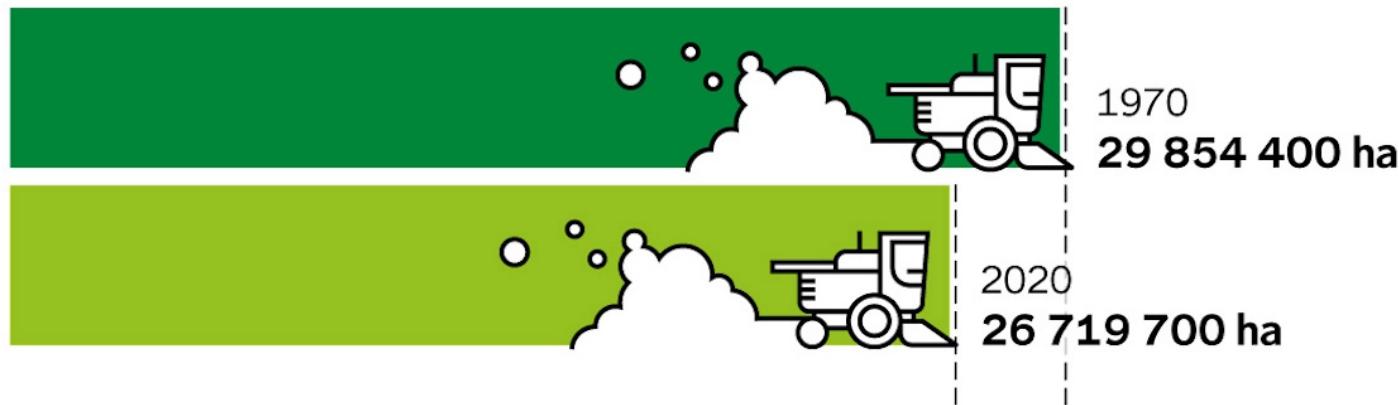


Artificialisation between 1970 and 2020



Source : Safer

Artificialisation between 1970 and 2020



In France:

5 football stadiums per hour
3,7x the demographic growth



STABILISATION DES SOLS

L'oxyde de calcium et l'hydroxyde de calcium jouent un rôle fondamental dans la récupération des sols et des matériaux du tracé dans la construction de routes et de chemins de fer, et constituent une option toujours efficace et rapide.





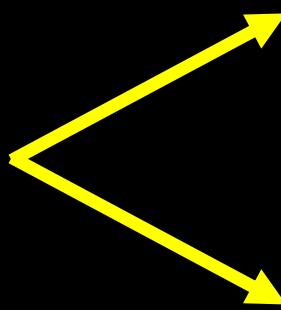
Sealed technosoil



Soil covered



Soil covered



No organic matter

**Few water
& air**



Soil covered

No organic matter

**Few water
& air**

Very few life, no C storage





De-artificialization





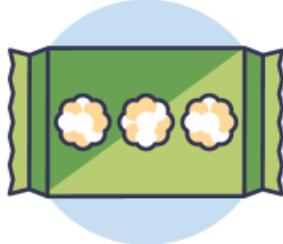
Heavy metals



Polyaromatic compounds



FIREFIGHTING FOAMS



MICROWAVE POPCORN BAGS



WATER RESISTANT CLOTHING



PAINT



STAIN RESISTANT PRODUCT

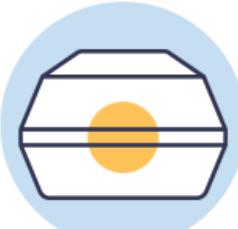


PERSONAL CARE PRODUCTS

PRODUCTS THAT CONTAIN **PFAS**



NON-STICK COOKWARE



FACT FOOD PACKAGING



STAIN RESISTANT FURNITURE



PHOTOGRAPHY



PESTICIDES

PFAs, etc.

Restoration costs:

95-390 millions
euros /km²

Better avoid
artificialization

III

Soils in the city





Phonic isolation
Thermal isolation
Cooling down in summer
Against floodings
Food production
Aesthetic, leisure
**Health (mental,
depollution)**



« Sponge cities »



A Placebo-controlled double-blinded test of the biodiversity hypothesis of immune-mediated diseases: Environmental microbial diversity elicits changes in cytokines and increase in T regulatory cells in young children

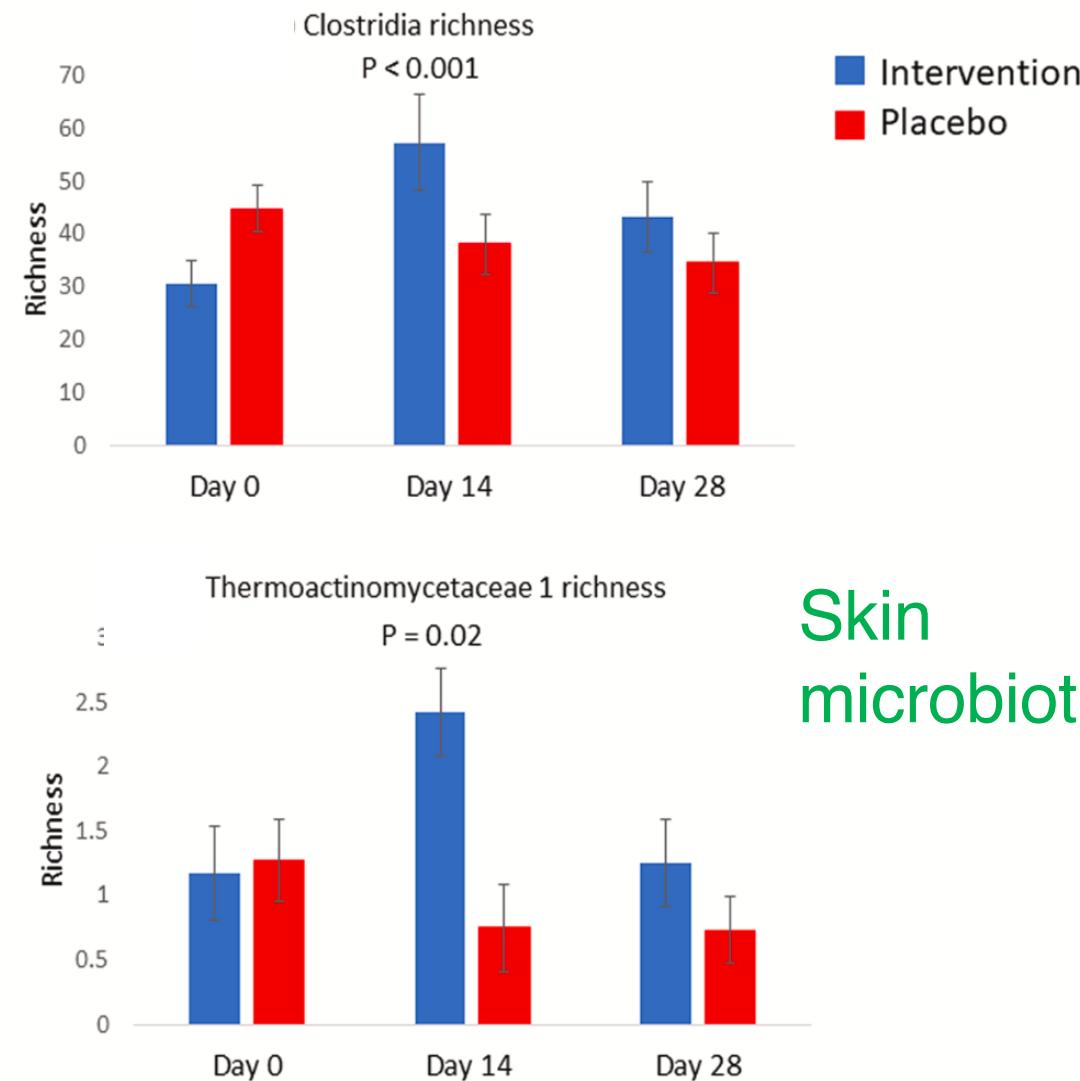
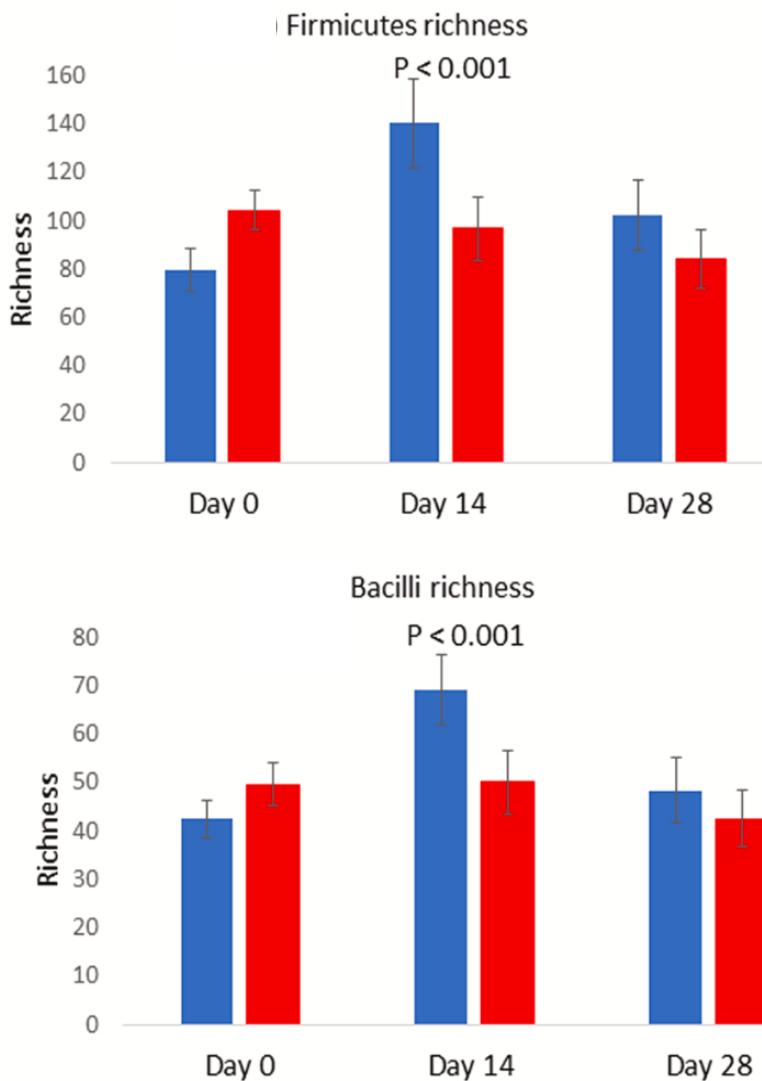
Children aged 3–5 years playing twice a day for 20 min in a sandbox for 14 days.

In the intervention group, sand is enriched with microbially diverse soil (n = 13).

In the placebo group, visually similar, but microbially poor sand colored with peat (n = 13).

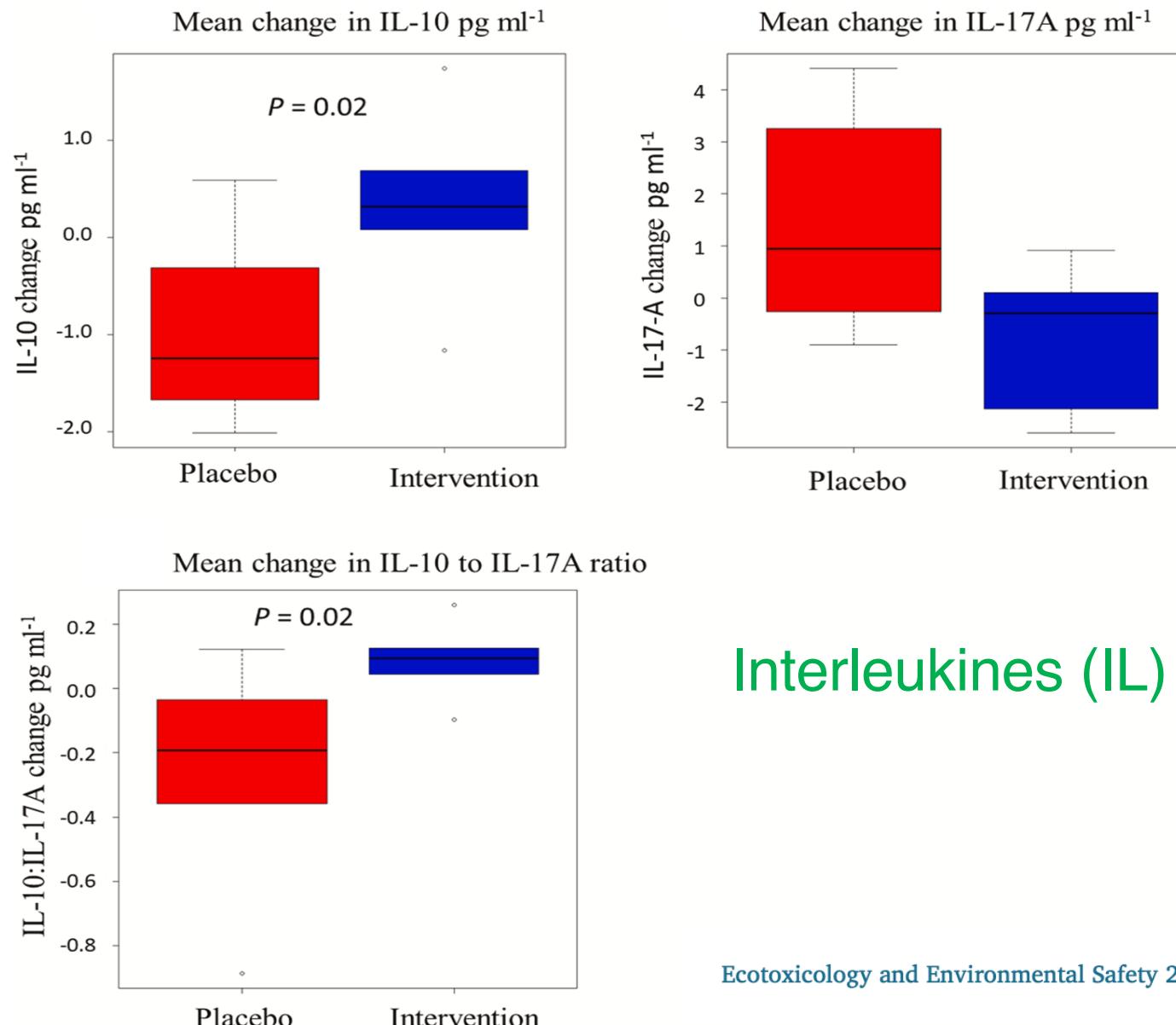
Analyses at days 14 and 28 (microbes / immunity).

A Placebo-controlled double-blinded test of the biodiversity hypothesis of immune-mediated diseases: Environmental microbial diversity elicits changes in cytokines and increase in T regulatory cells in young children



Skin
microbiota

A Placebo-controlled double-blinded test of the biodiversity hypothesis of immune-mediated diseases: Environmental microbial diversity elicits changes in cytokines and increase in T regulatory cells in young children



LE GROUPE CIAM-FRANCE

URBANISME DES C.I.A.M.

LA CHARTE D'ATHÈNES

avec

UN DISCOURS LIMINAIRE

de

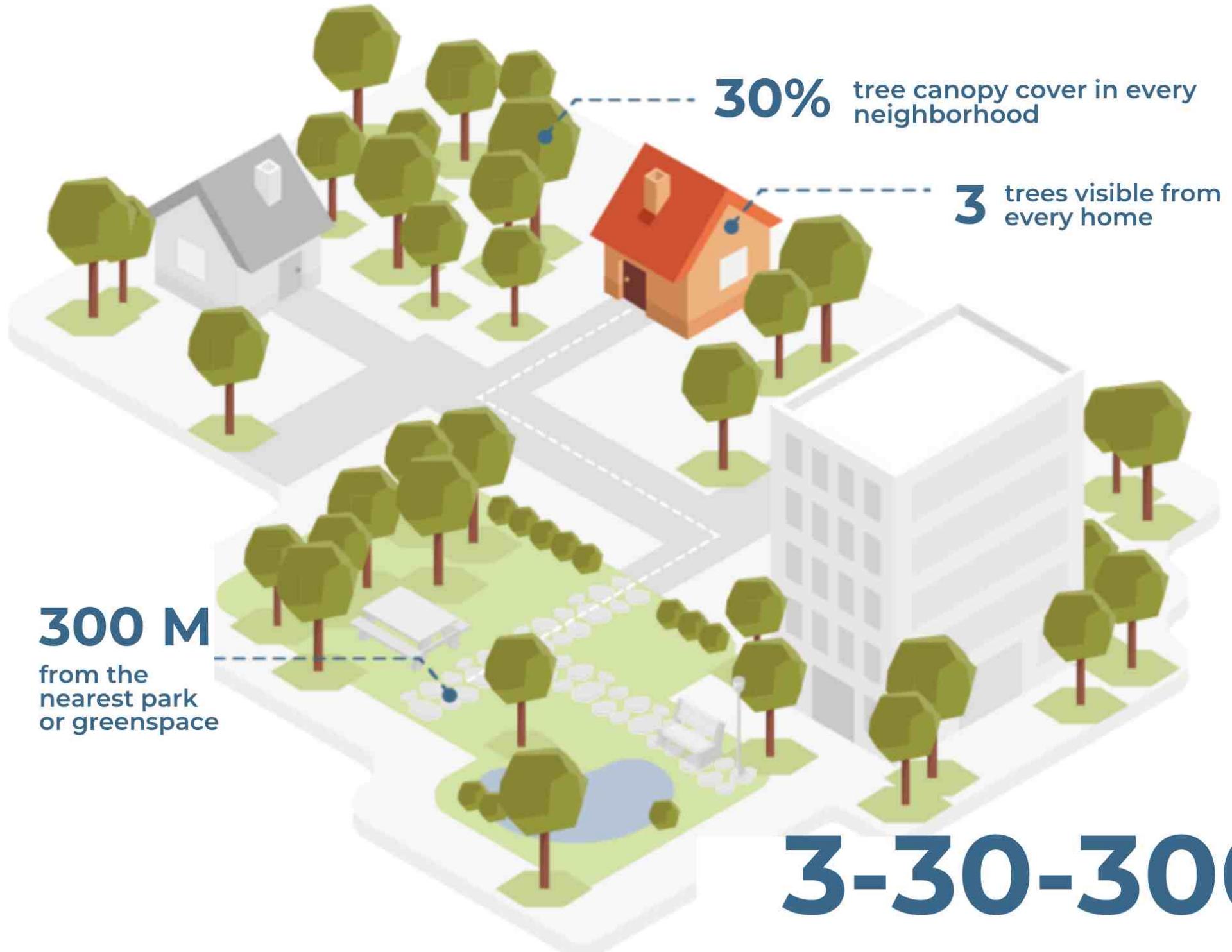
JEAN GIRAUDOUX

PLON

HABITER

TRAVAILLER

CIRCULER



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