

# Gradient-Based Assessment of Ecosystem Resilience

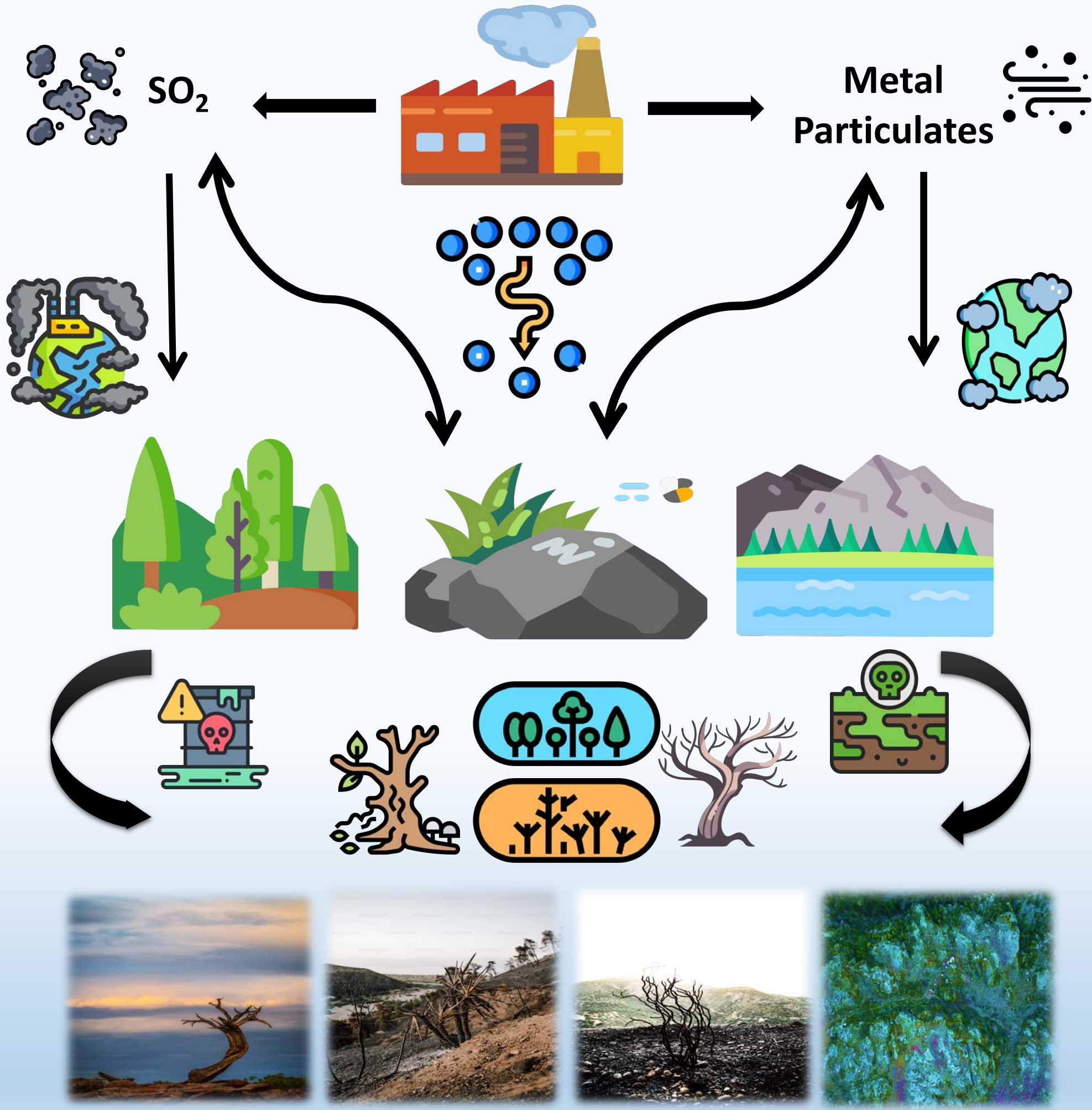
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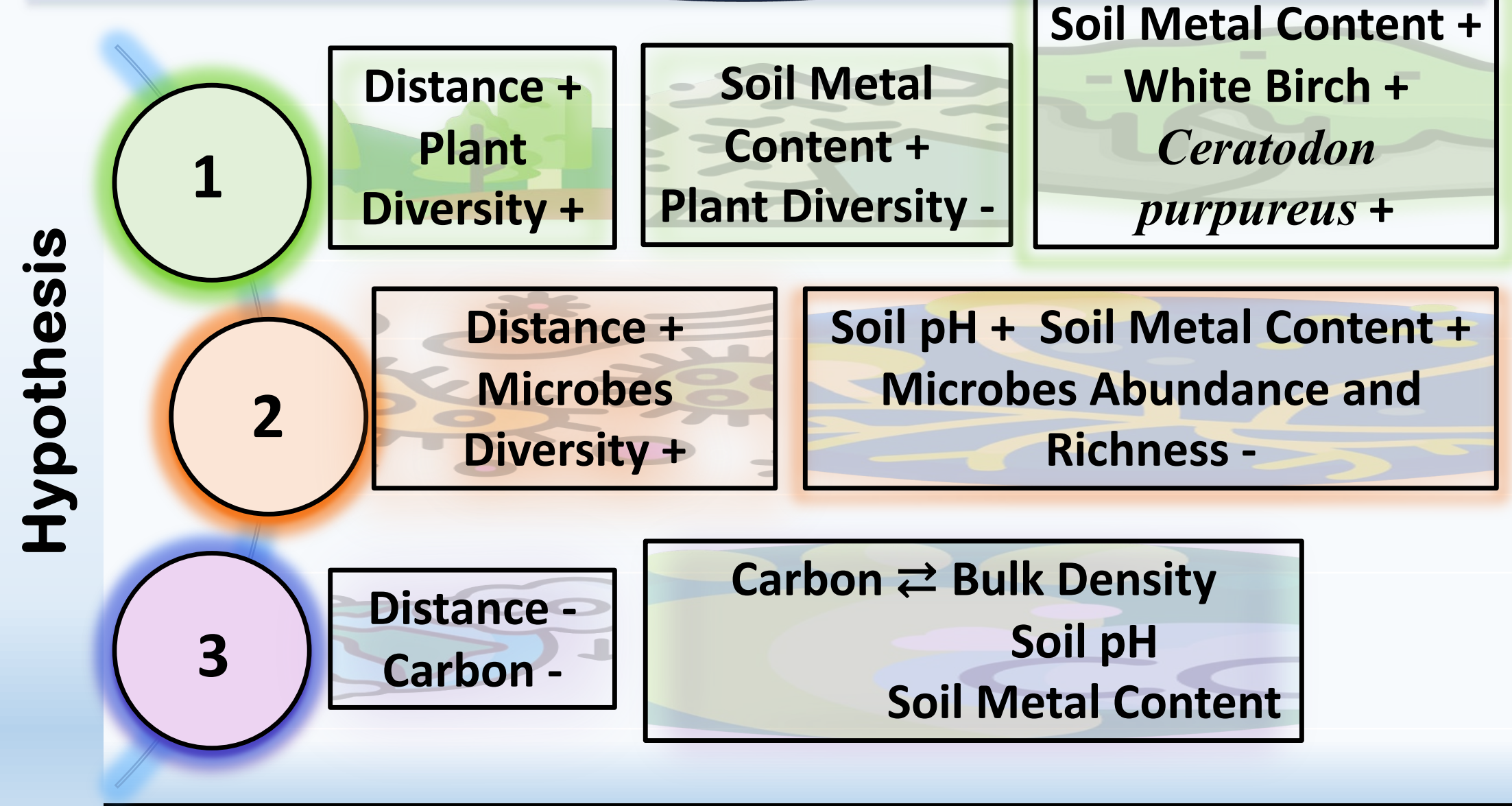
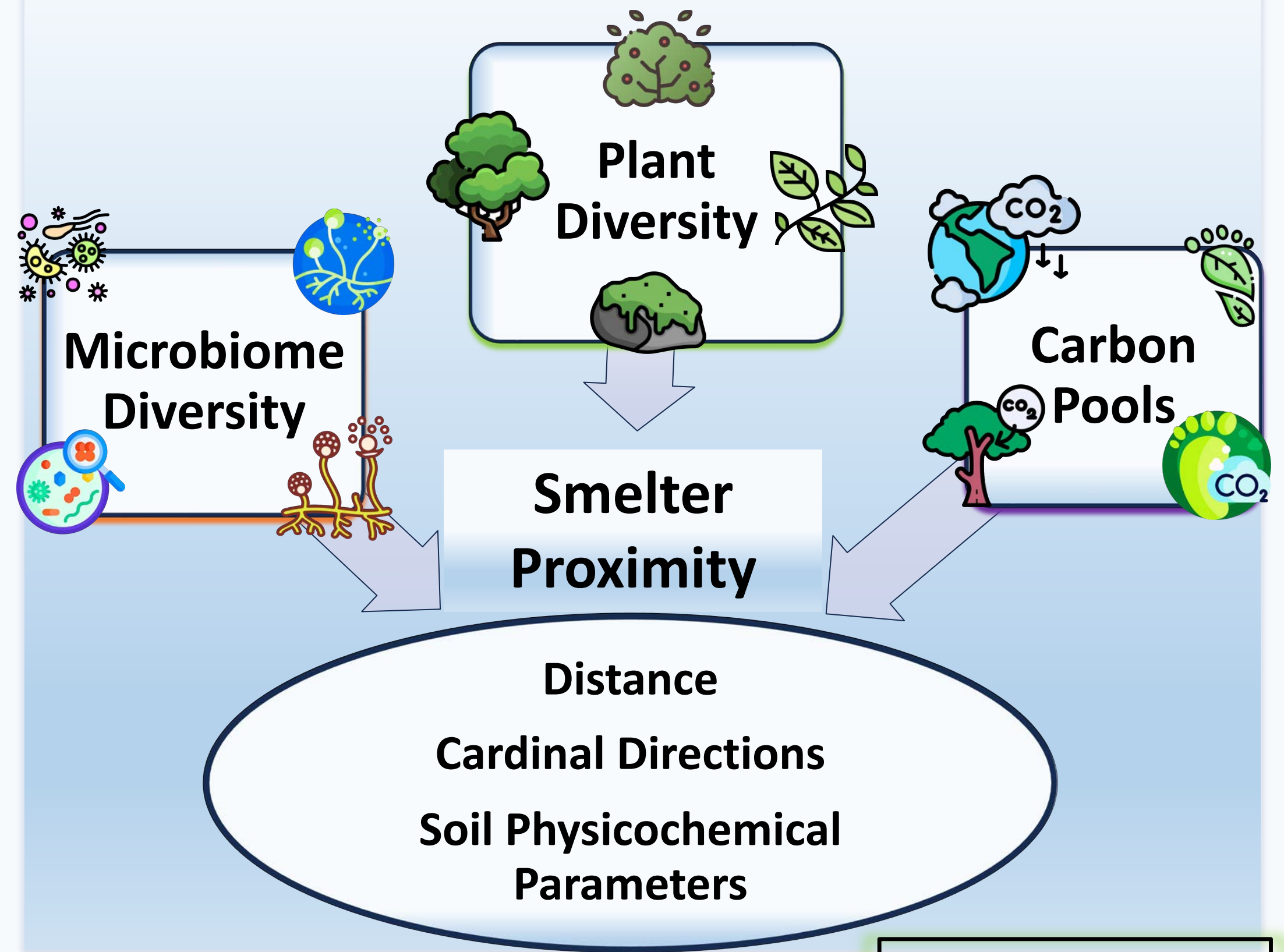
## (A) Context

SO<sub>2</sub> gas and metal emissions caused soil acidification and metal toxicity.

Impacted the surrounding ecosystem.

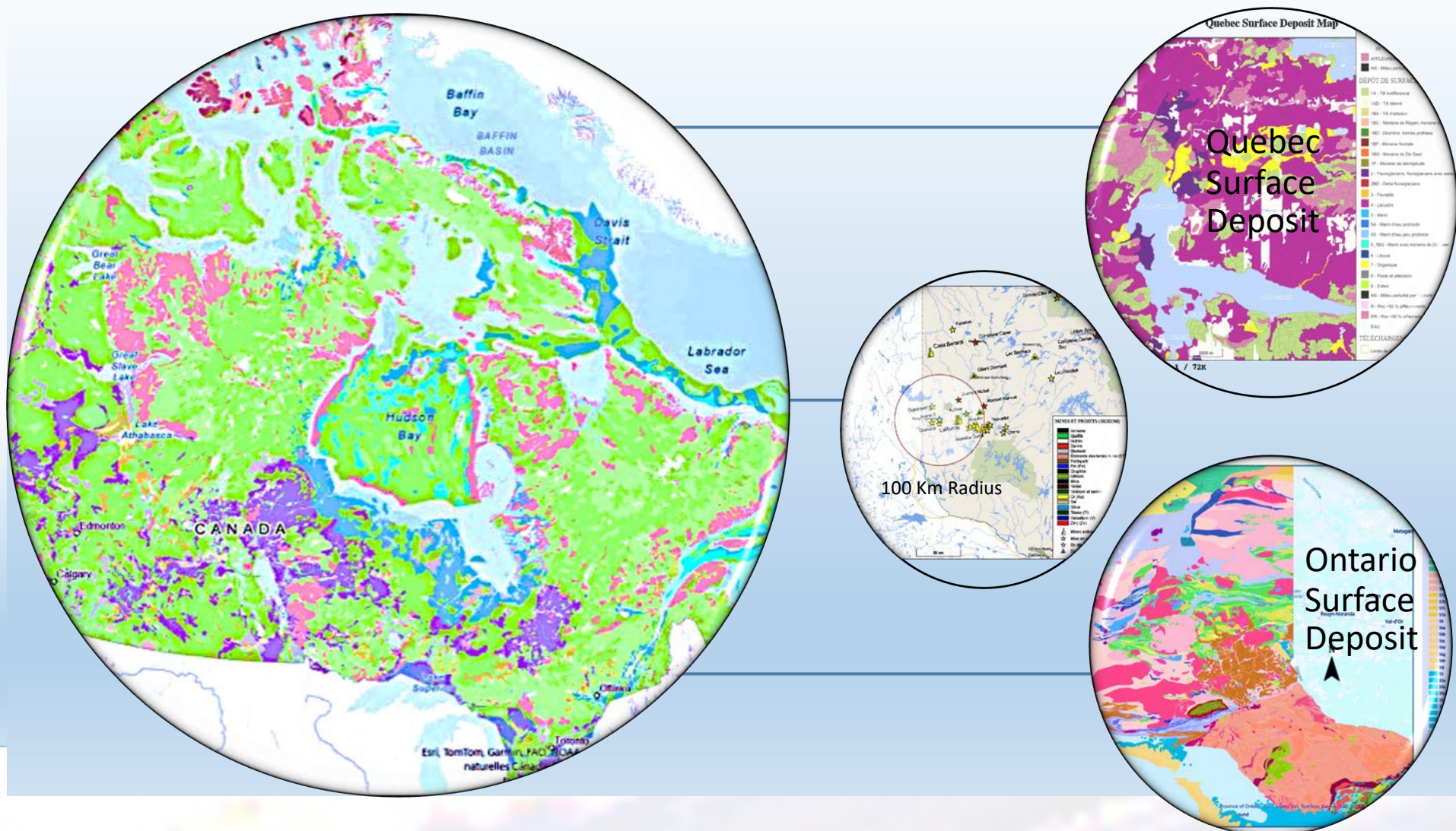


## (B) Objectives



## (C) Study Area

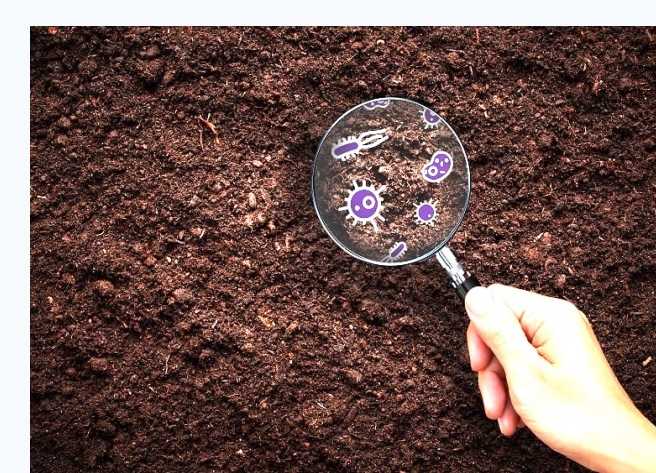
Rock outcrops will be sampled within a 100 km radius of Horne Smelter.



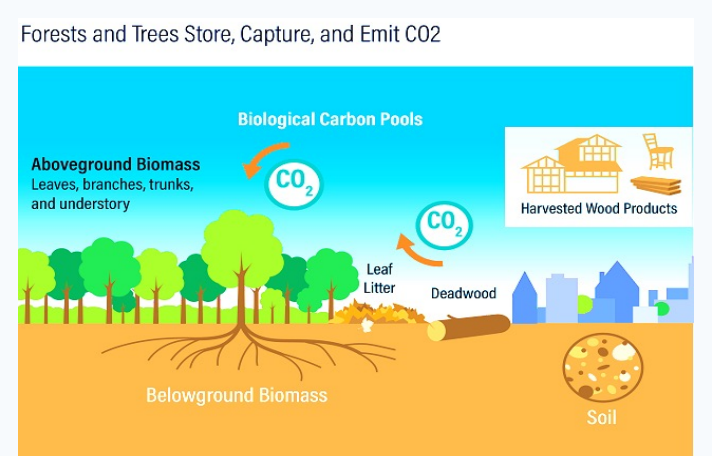
## (D) Methods



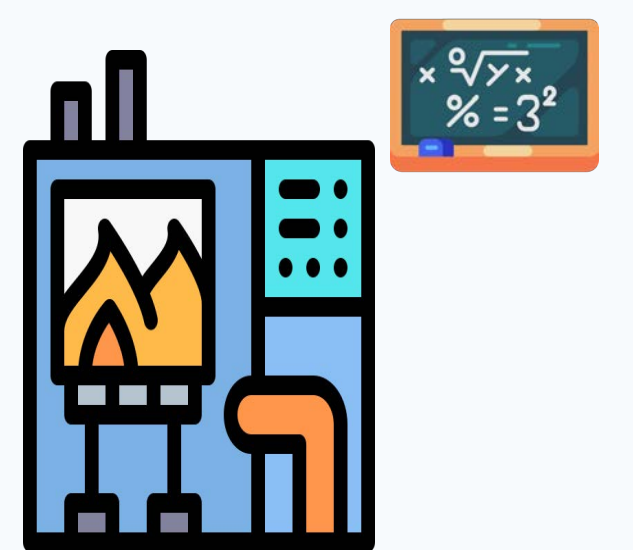
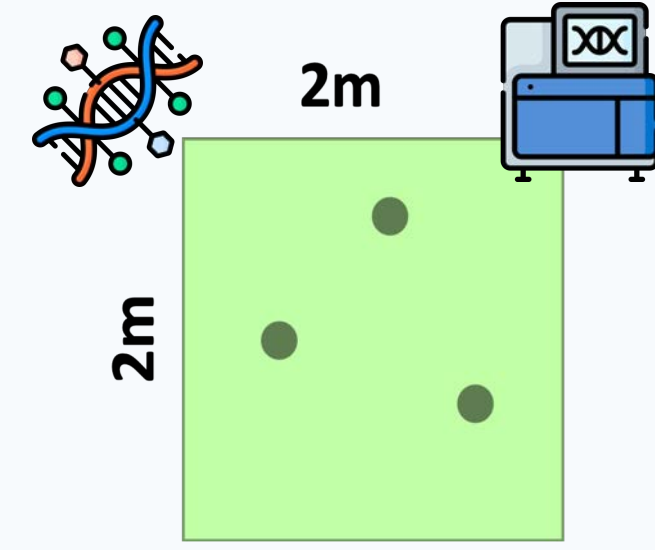
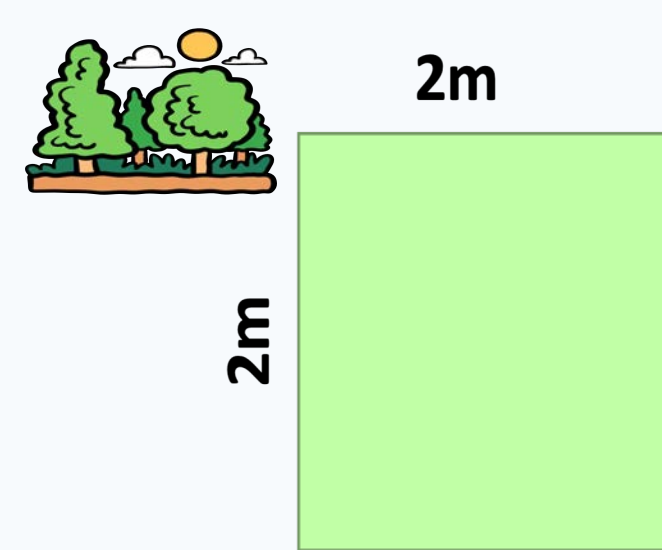
**Vegetation Sampling**  
2m x 2m plot  
Abundance  
presence/absence



**Soil Sampling**  
DNA Metabarcoding  
Physicochemical Parameters

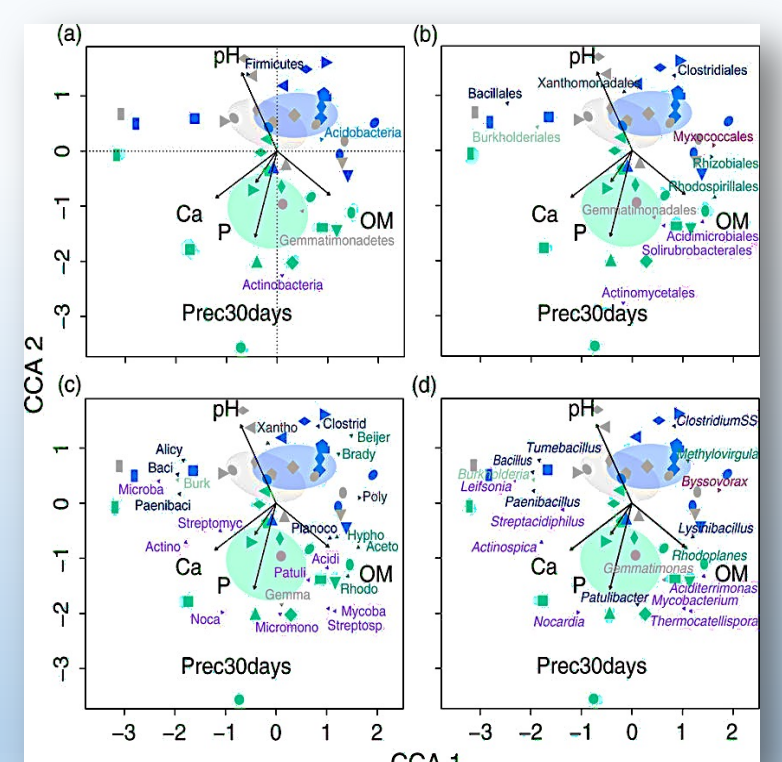


**Carbon Measurement**  
Above-ground  
Below-ground  
Organic Soil



## Data Analysis

Mixed models  
Ordination Techniques

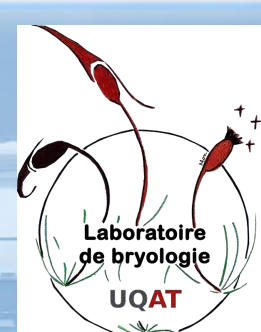


## (E) Possible Outcome

This study will shed light on the effects of the Horne Smelter on surrounding rock outcrops, including changes in vegetation, microbial diversity, and carbon dynamics.



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For References...



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