

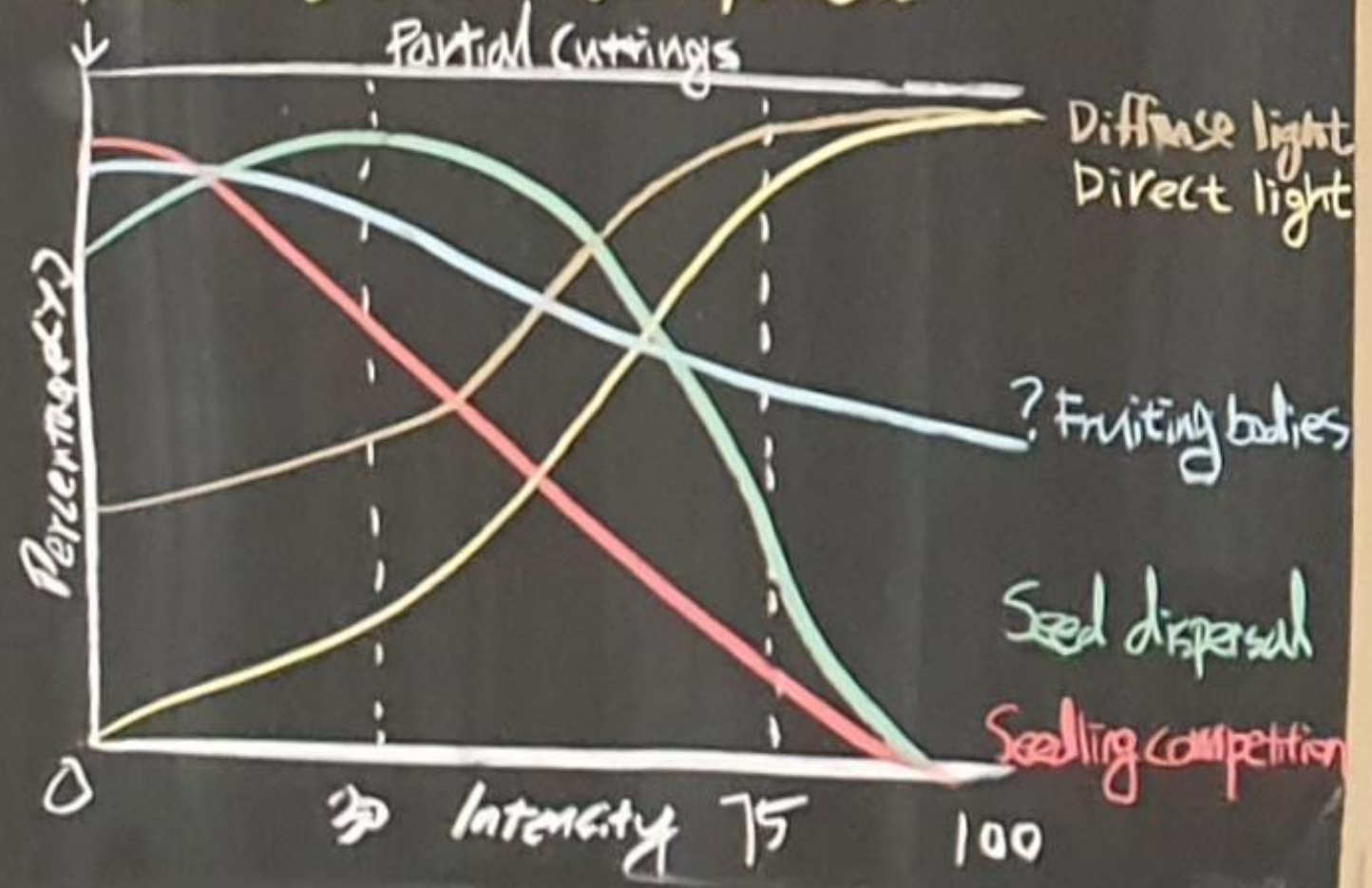
UQAT Can Partial Harvest Be a Next-Generation Forest Management? UQAM

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CONTEXT

- * Causes**
 - Deforestation
 - Intensive timber harvesting
 - Climate change
- * Consequences**
 - Forest degradation
 - Forest homogenization
 - Biodiversity loss
 - Regeneration failure
 - Soil infertility
 - Drought stress

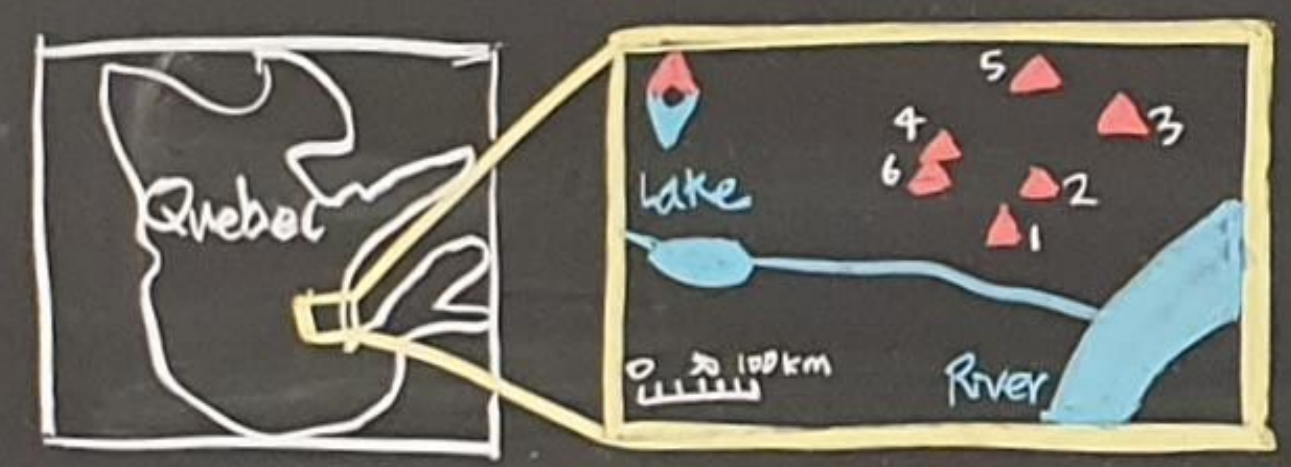
* Ecosystem-based Management



OBJECTIVES

- Evaluate the impacts of silvicultural treatments on seedling growth & density & their driving factors.
- Determine which microbes contribute to the seedling growth & density.

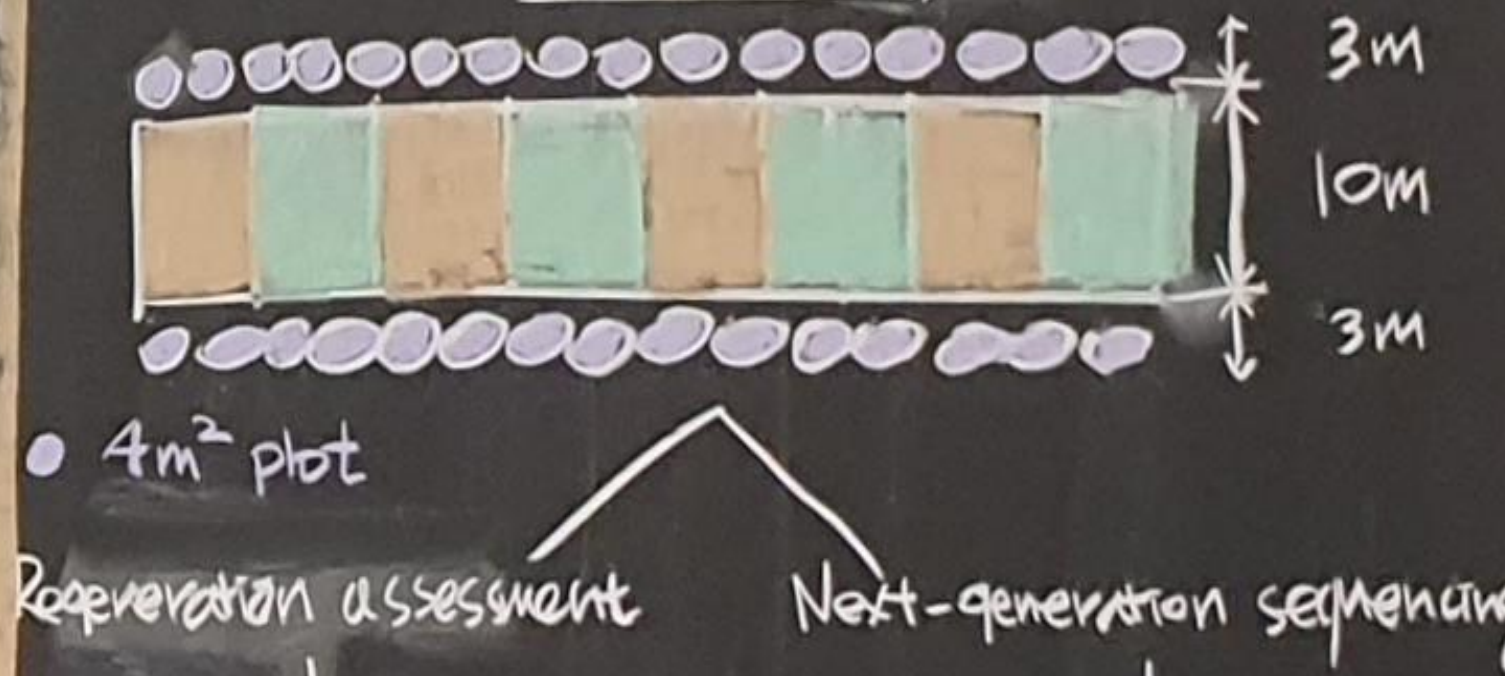
STUDY AREA



SILVICULTURAL TREATMENTS



METHODS



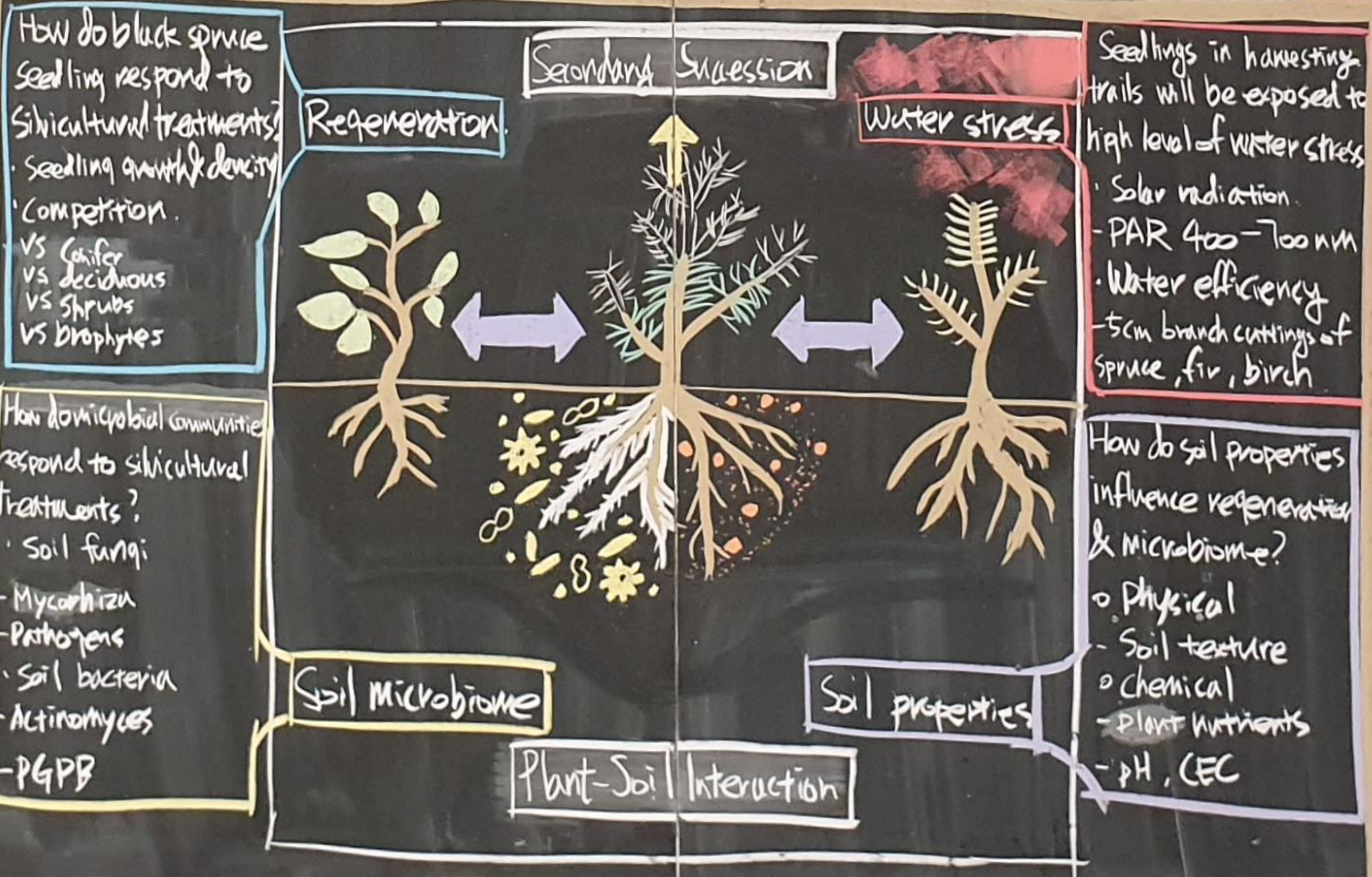
- Soil chemical analysis
- Taxonomic assignment

CONTRIBUTION

- Resolve the lack of ecological knowledge between partial- and clear-cut systems.
- Understand black spruce regeneration dynamics in post-harvest stands.
- Determine microbial indicators to contribute to dissimilarities between silvicultural treatments.

REFERENCE

- Girona et al. (2018). Front Plant Sci
- Girona et al. (2016). Forests
- S. Kim et al. (2020) F.E.M.



How do black spruce seedling respond to silvicultural treatments?

- Seedling growth & density
- Competition
- VS conifer
- VS deciduous
- VS shrubs
- VS bryophytes

How do microbial communities respond to silvicultural treatments?

- Soil fungi
- Mycorrhiza
- Pathogens
- Soil bacteria
- Actinomyces
- PGPB

Seedlings in harvesting trails will be exposed to high level of water stress

- Solar radiation
- PAR 400-700 nm
- Water efficiency
- 5cm branch cuttings of spruce, fir, birch

How do soil properties influence regeneration & microbiome?

- Physical
- Chemical
- Plant nutrients
- pH, CEC