From Litterfall to Respiration: Investigating Soil Processes in Differing Irish Forests

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Introduction

~45-95% of total ecosystem respiration

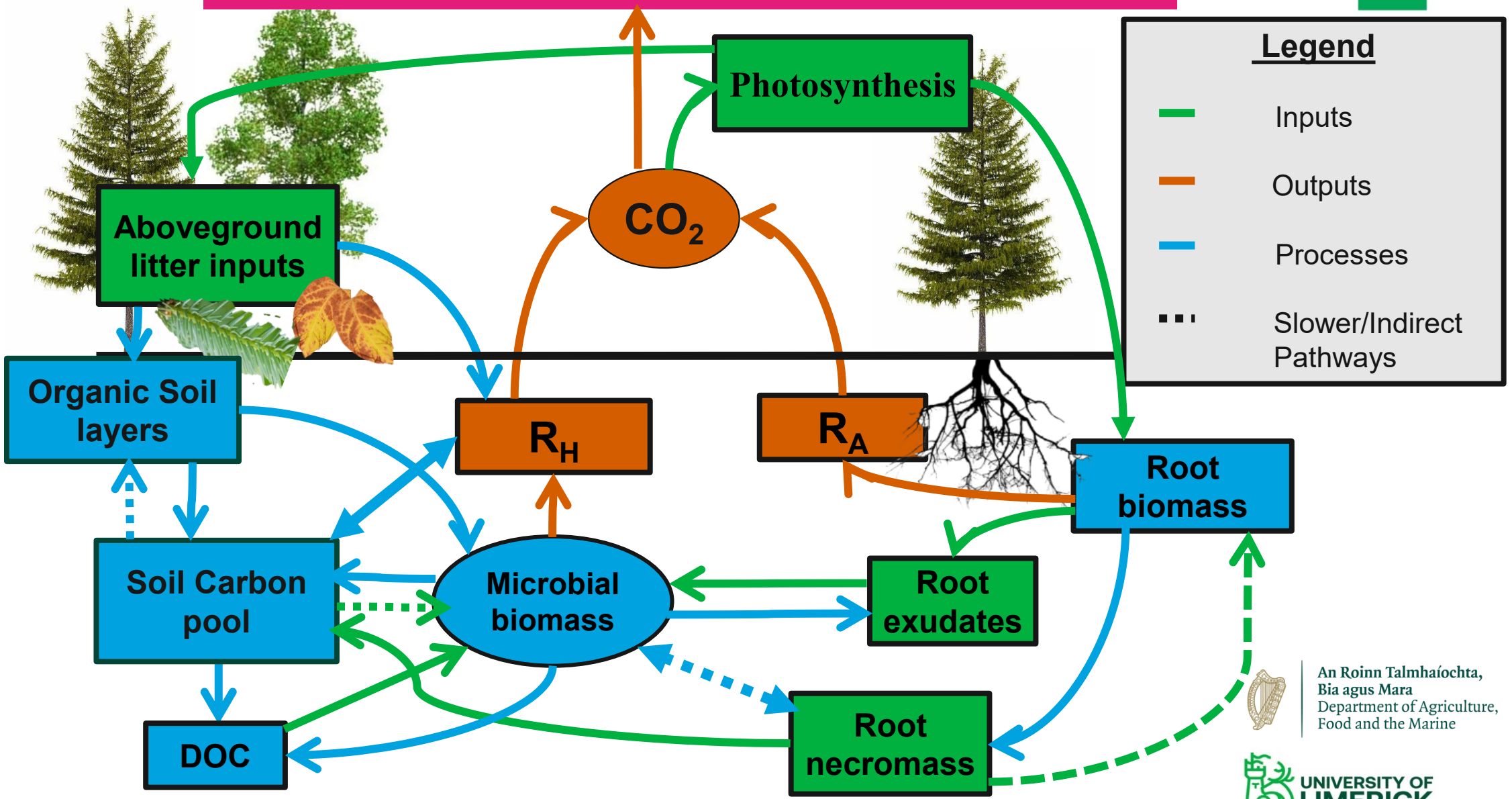

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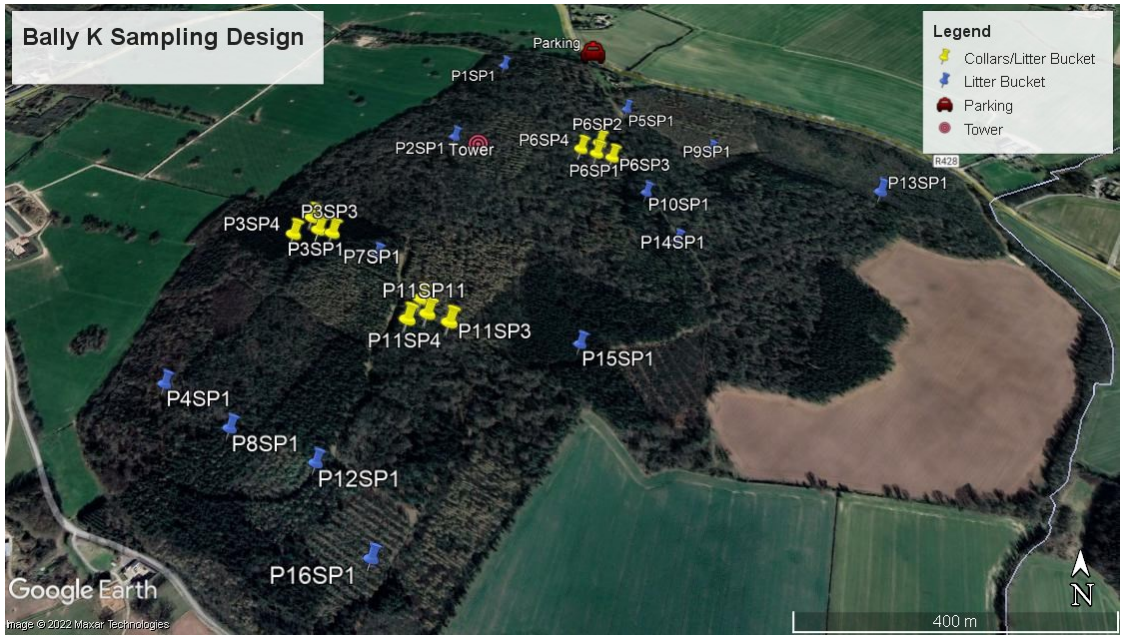
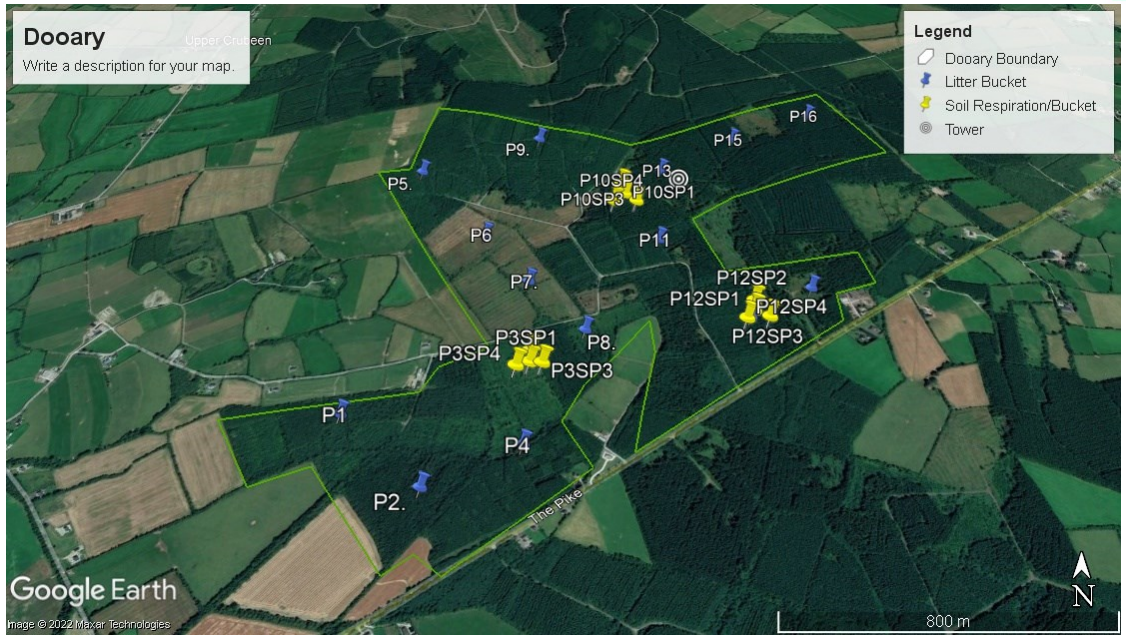
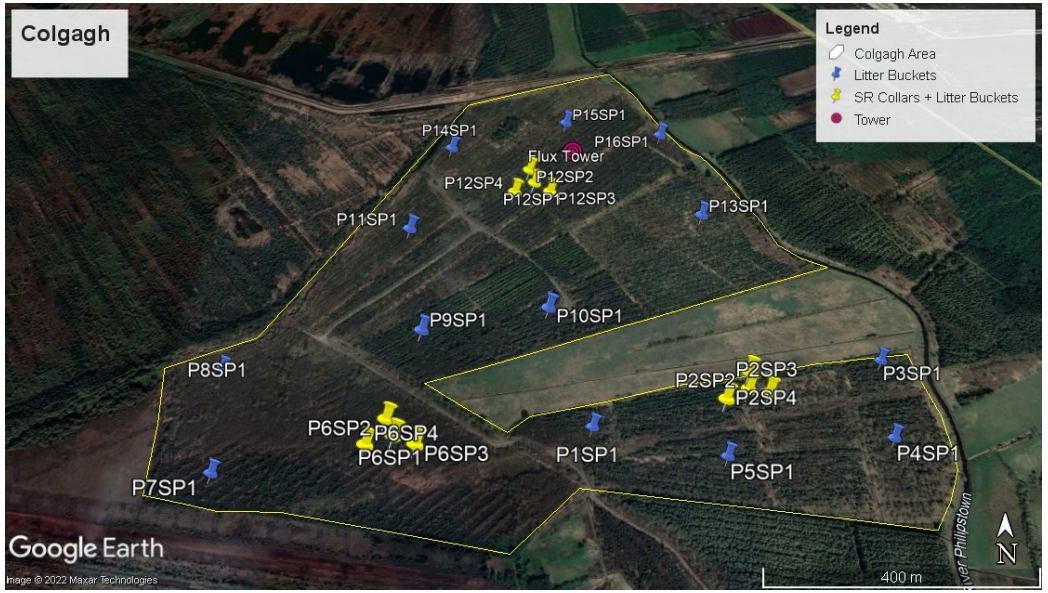
Figure adapted from Jovani-Sancho (2017)

Field Research Design







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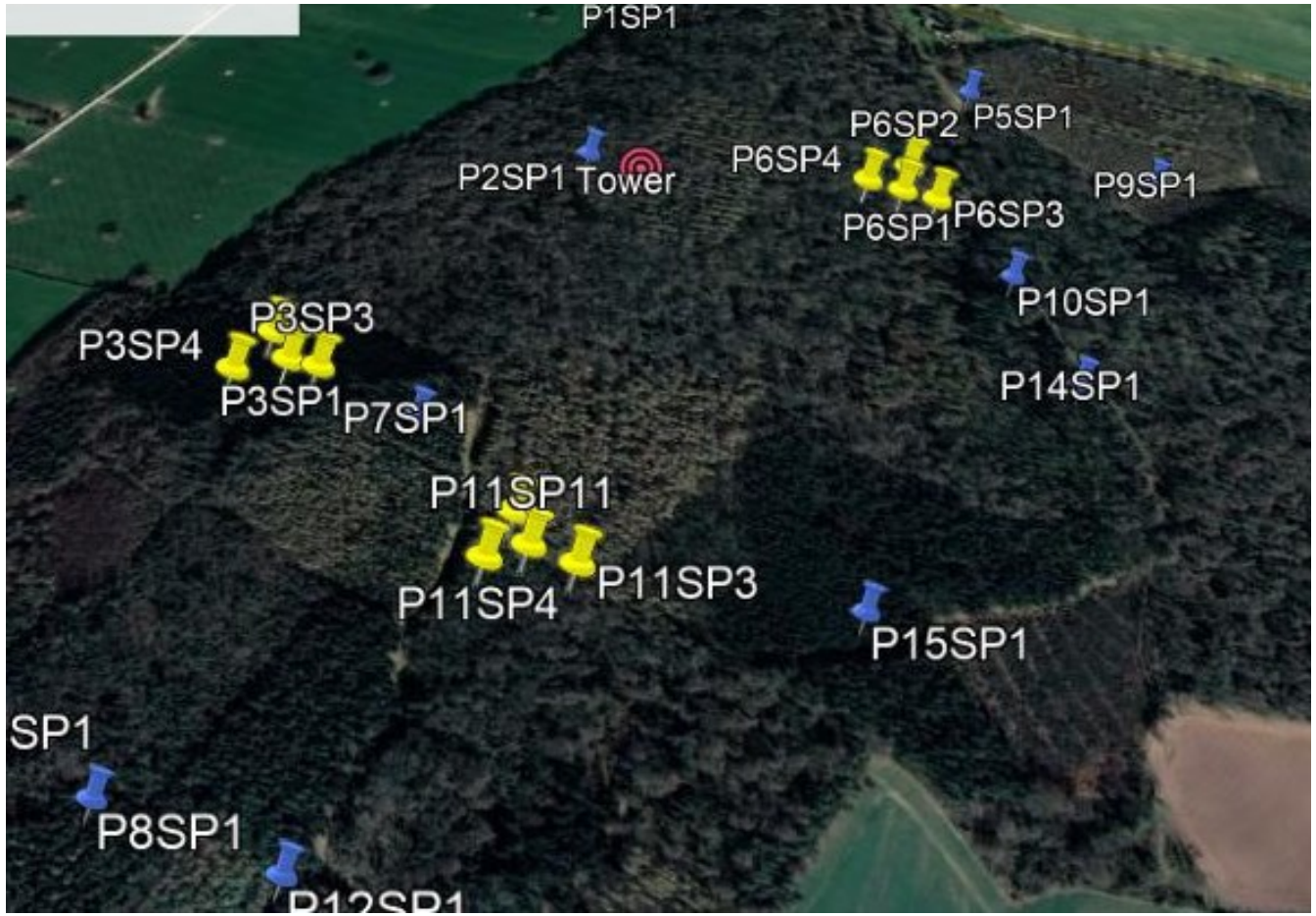

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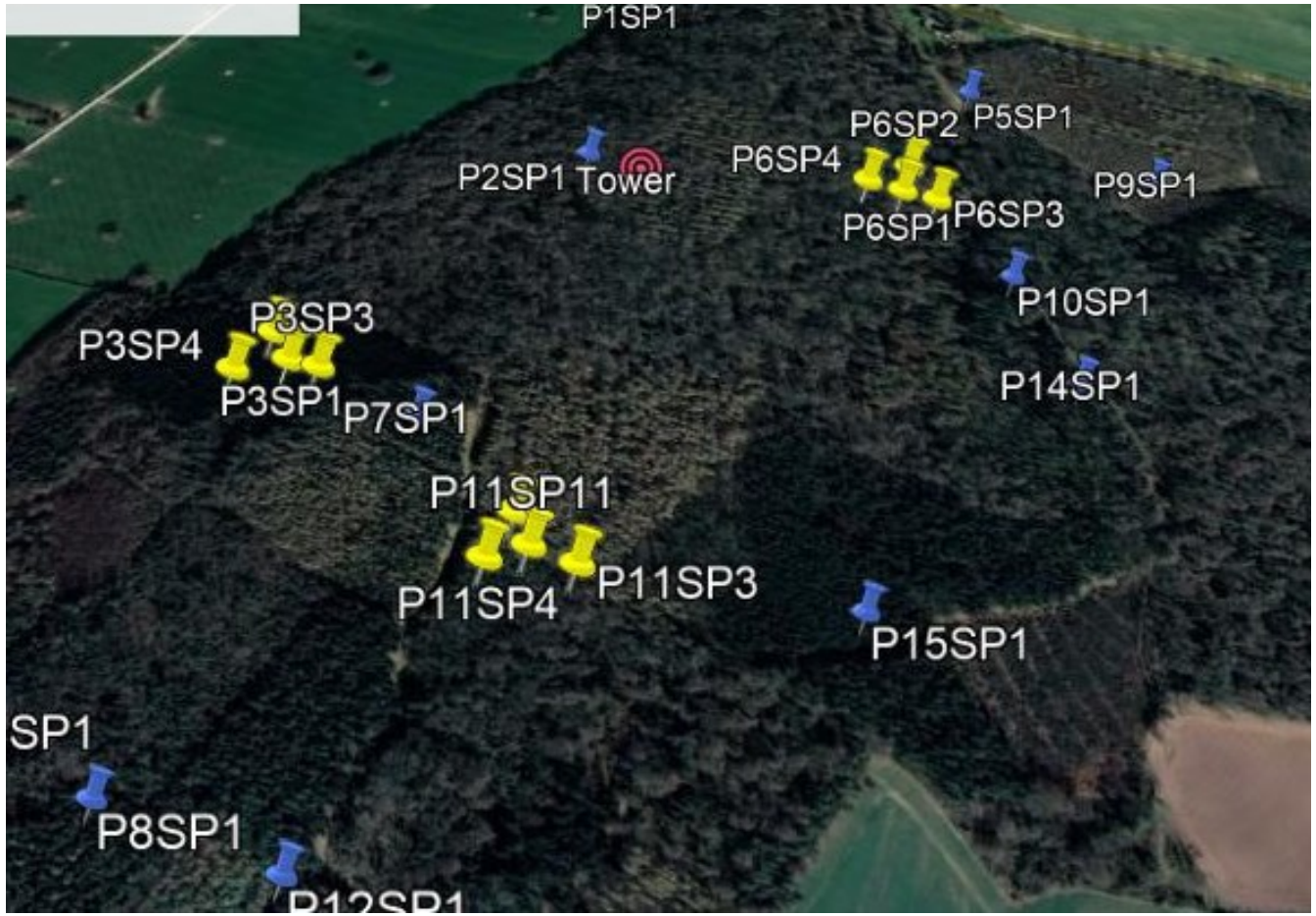

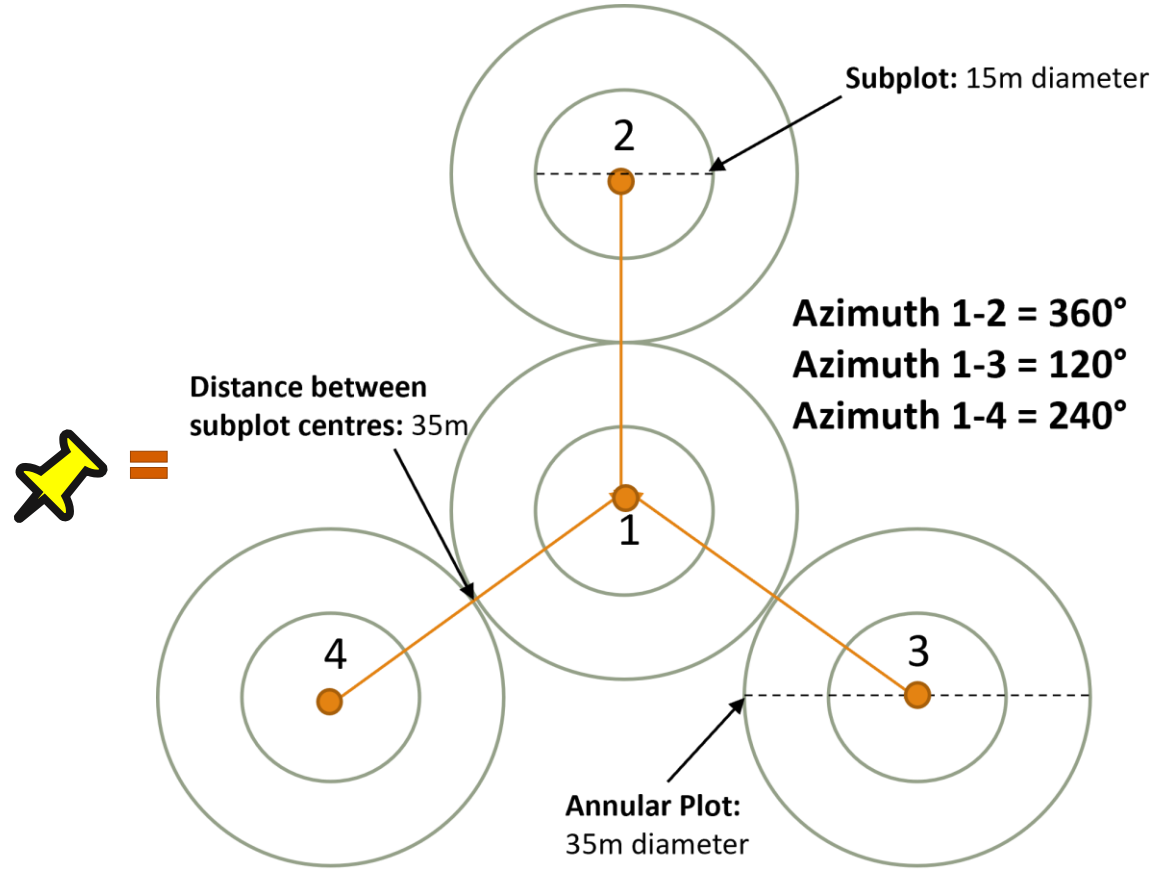

USDA Forest Service Forest Inventory and Analysis plot as in Hoover, 2008

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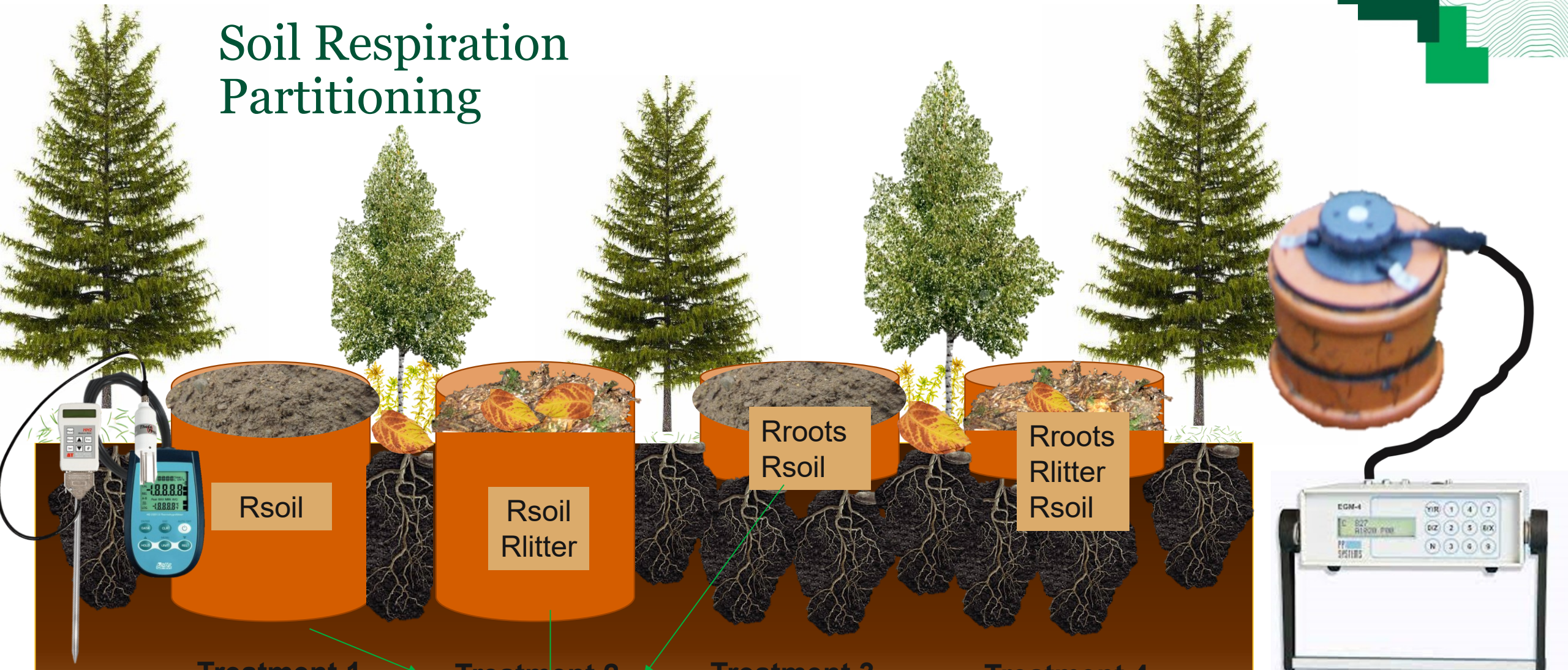
Soil Respiration Partitioning



Treatment 1
Roots excl
Litter excluded

Treatment 2

Treatment 3
included
er excluded

Treatment 4
Roots included
Litter included

Ra= Treatment 3 – Treatment 1

Rh= Treatment 2

Total Soil Respiration (Rs)= Ra + Rh

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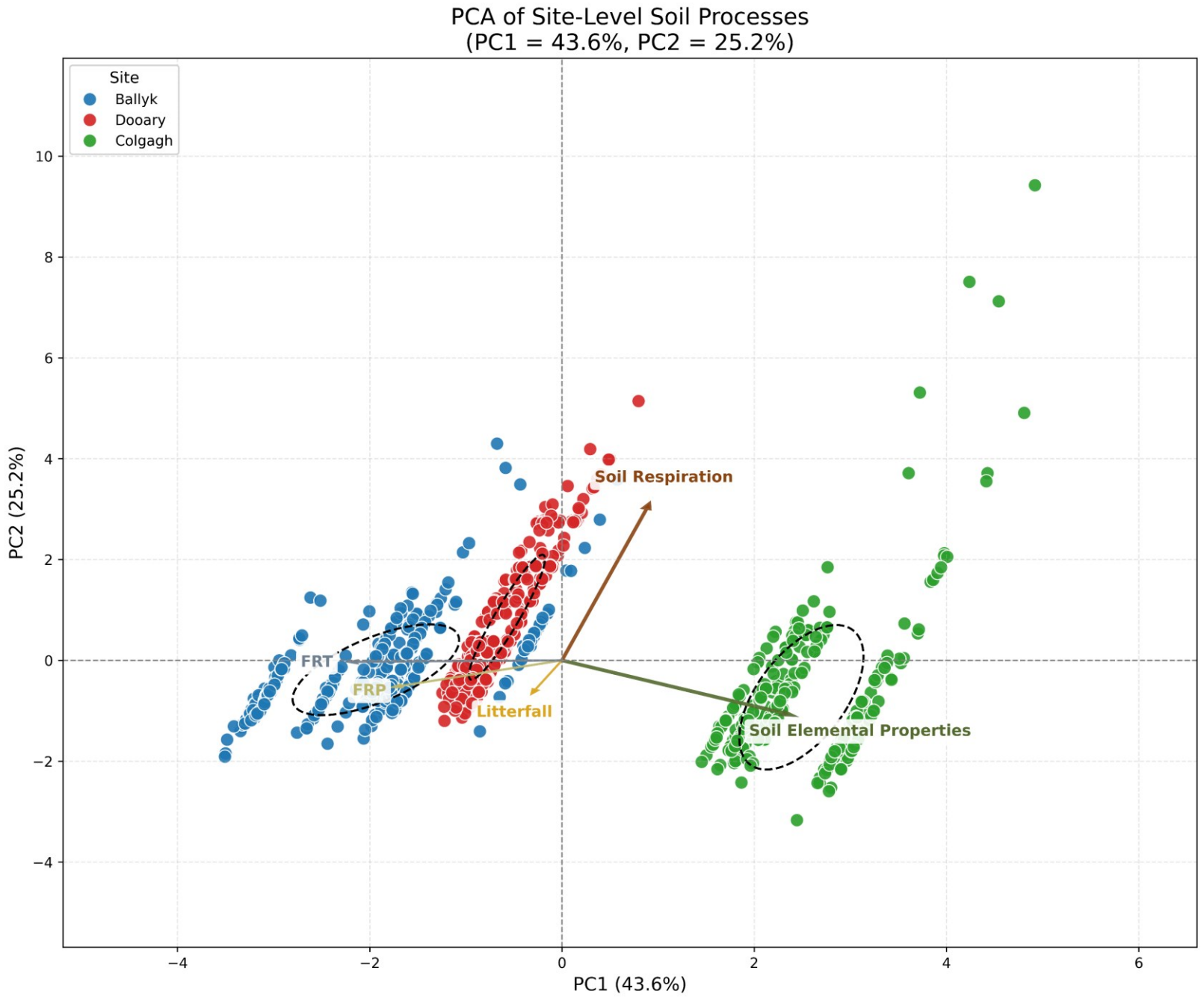

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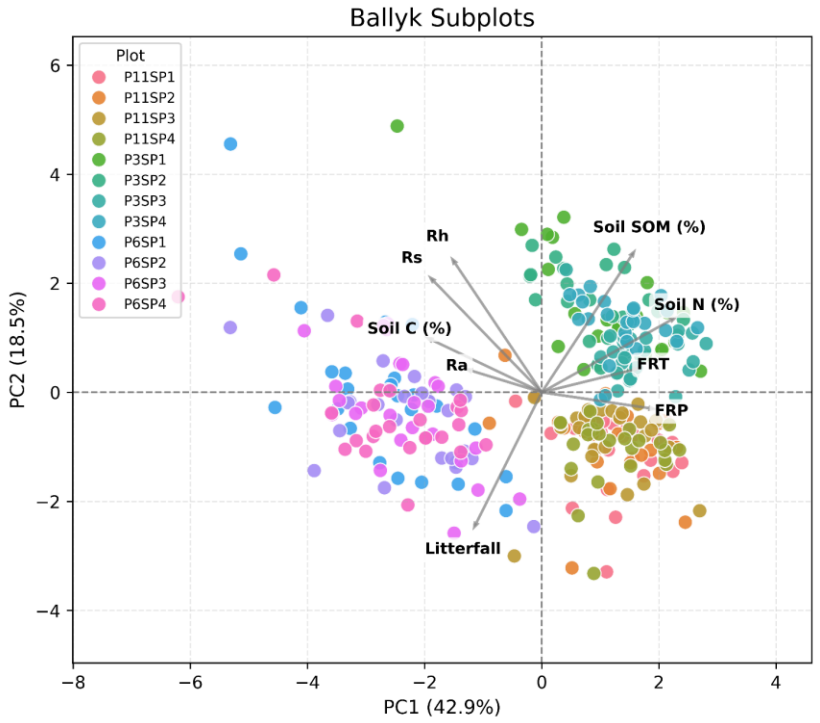
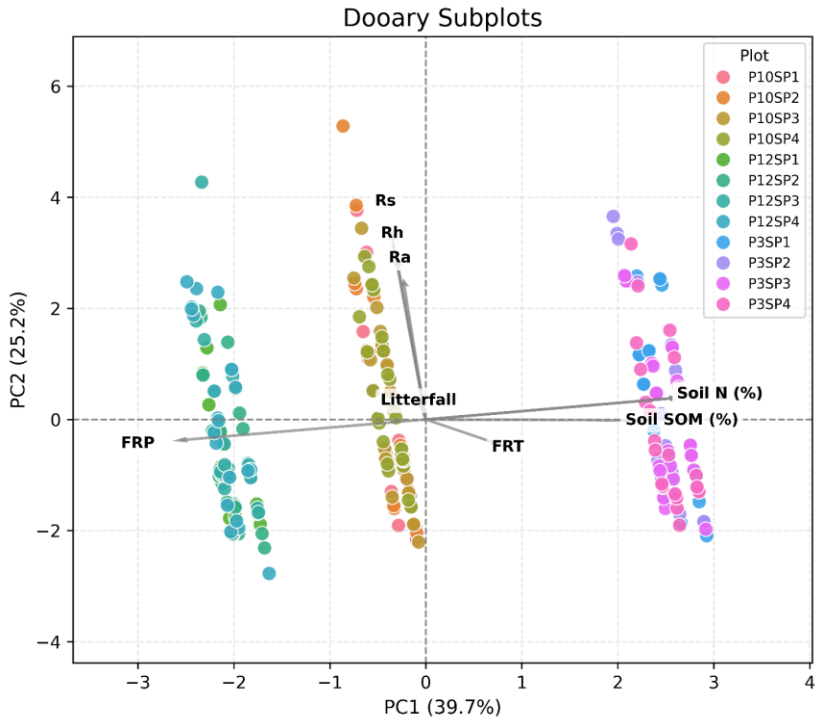
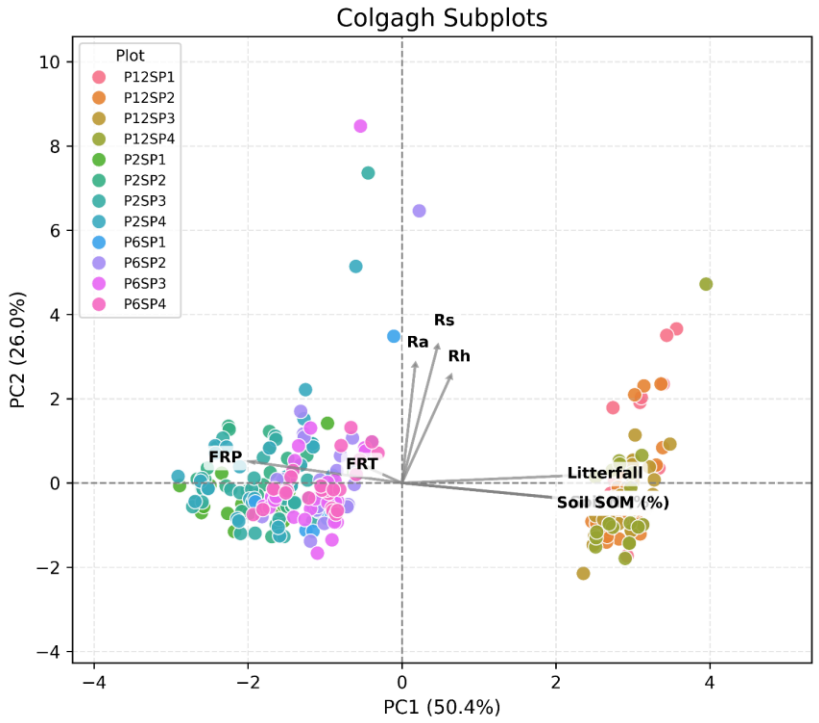
Intra-site variations with PCA







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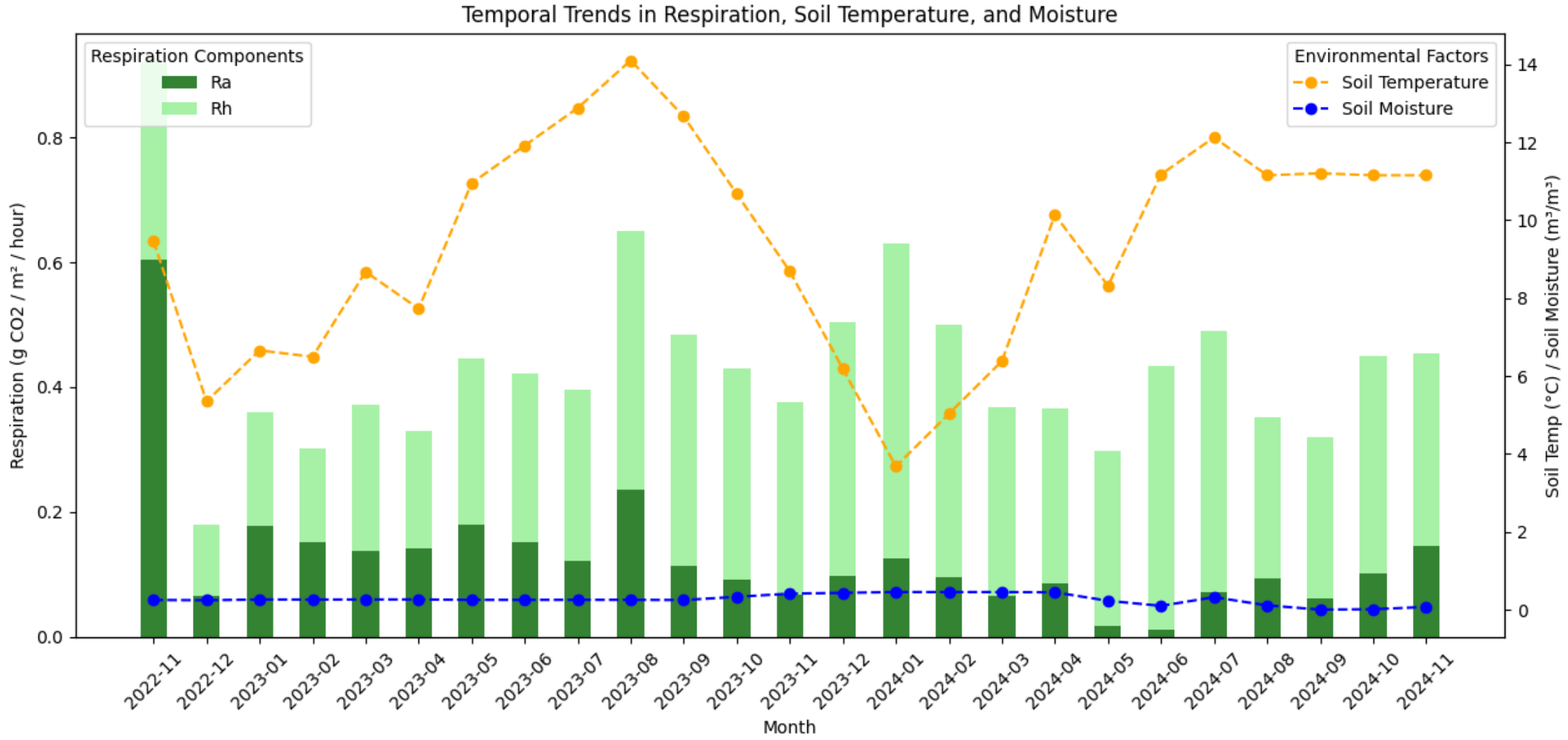
Ballykilcavan 2 Year Data Snapshot



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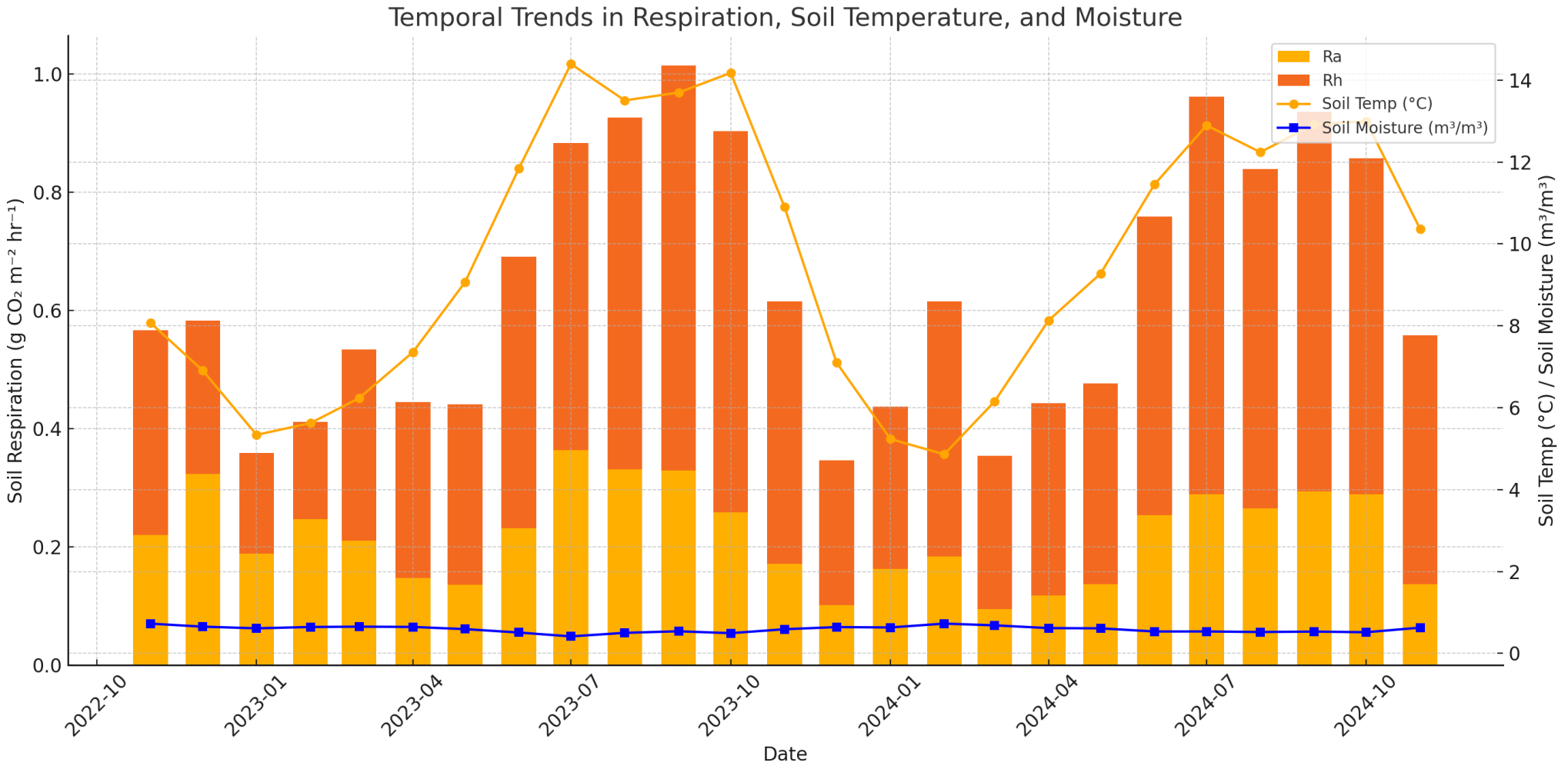
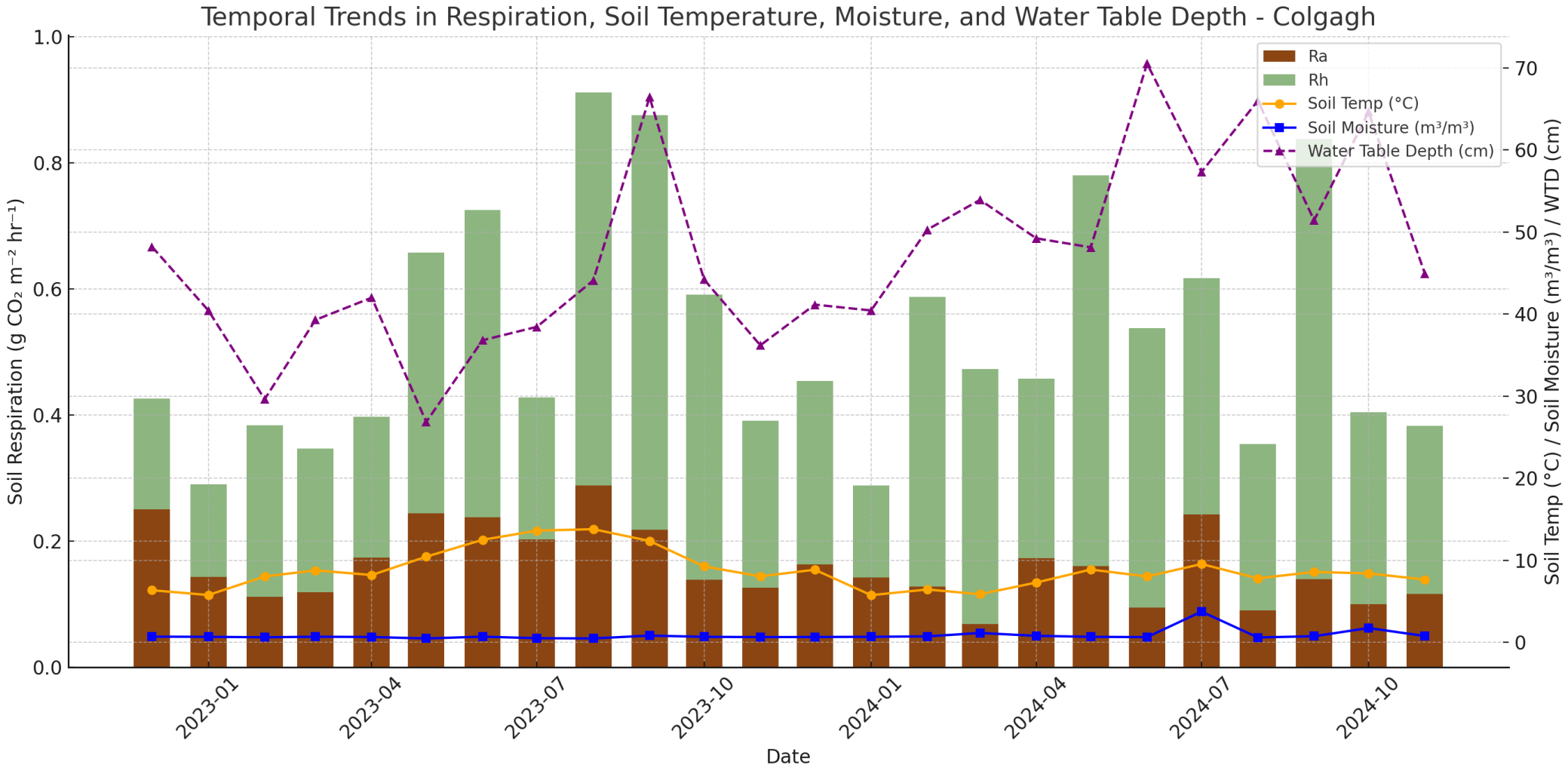
Dooary 2 Year Data Snapshot



Colgagh 2 Year Data Snapshot



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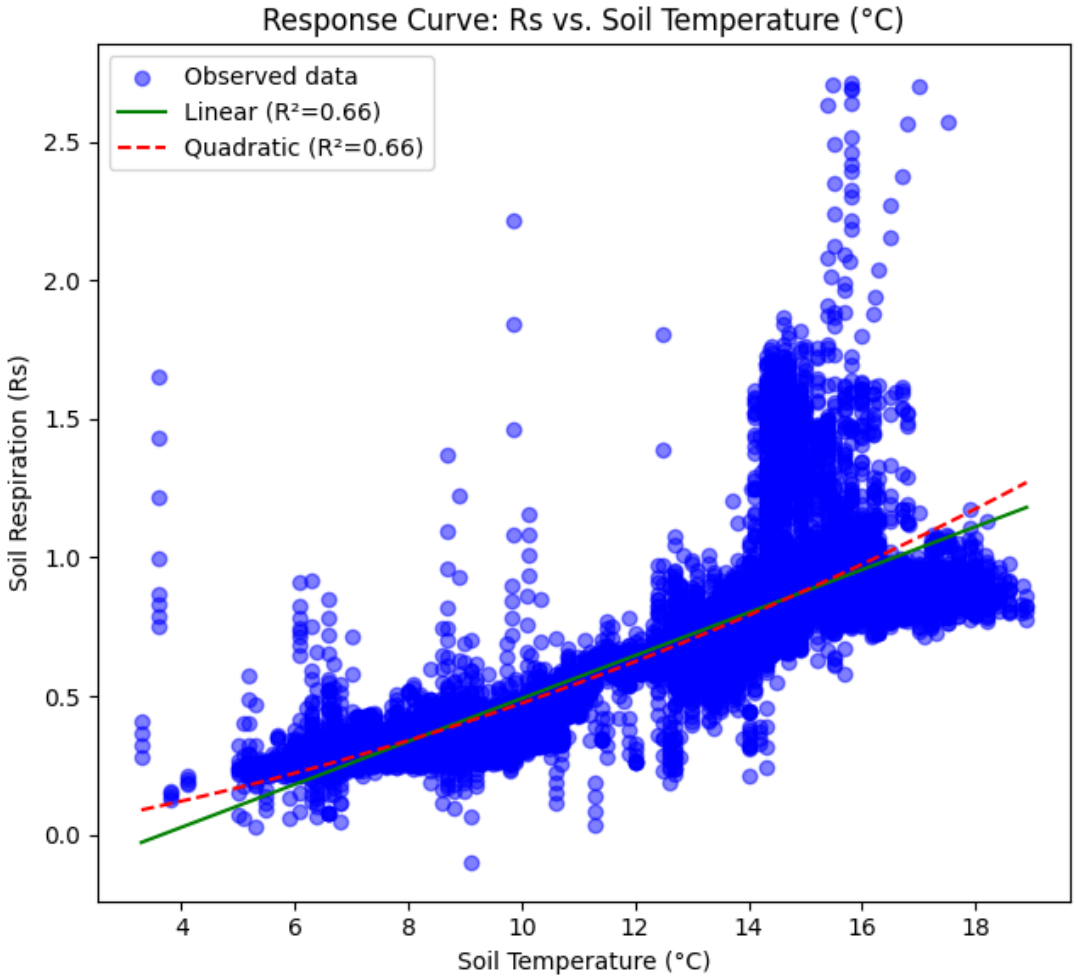
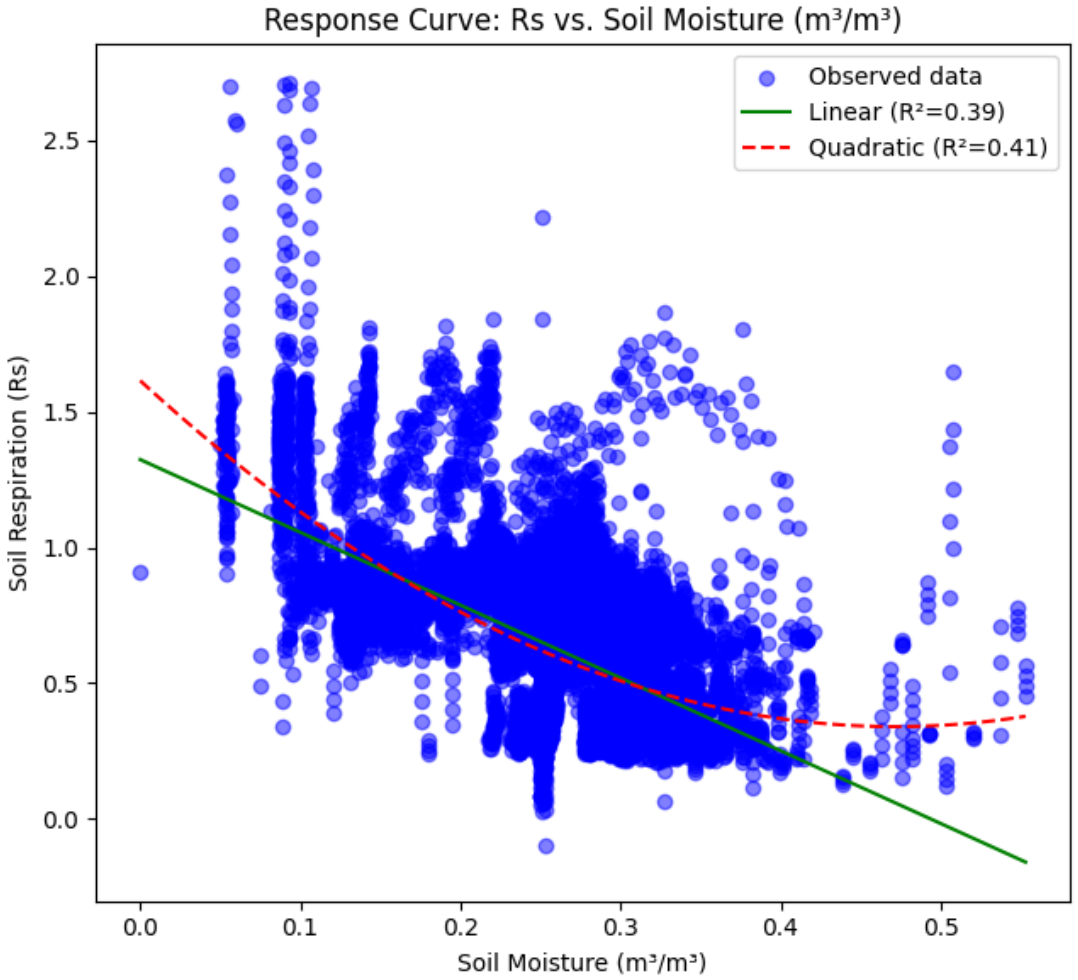
Ballykilcavan Response Curves





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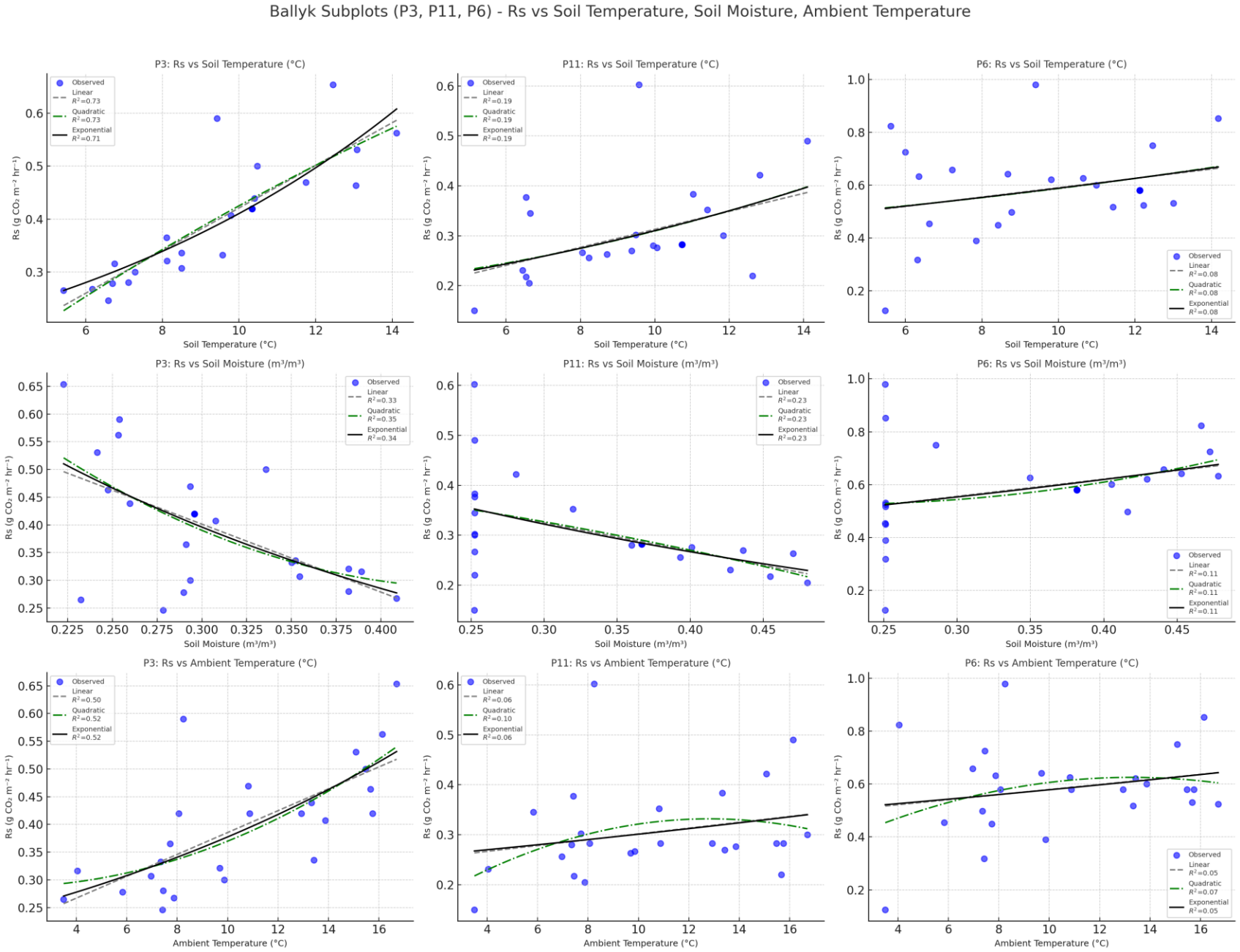
Ballykilcavan Intra-site Variability



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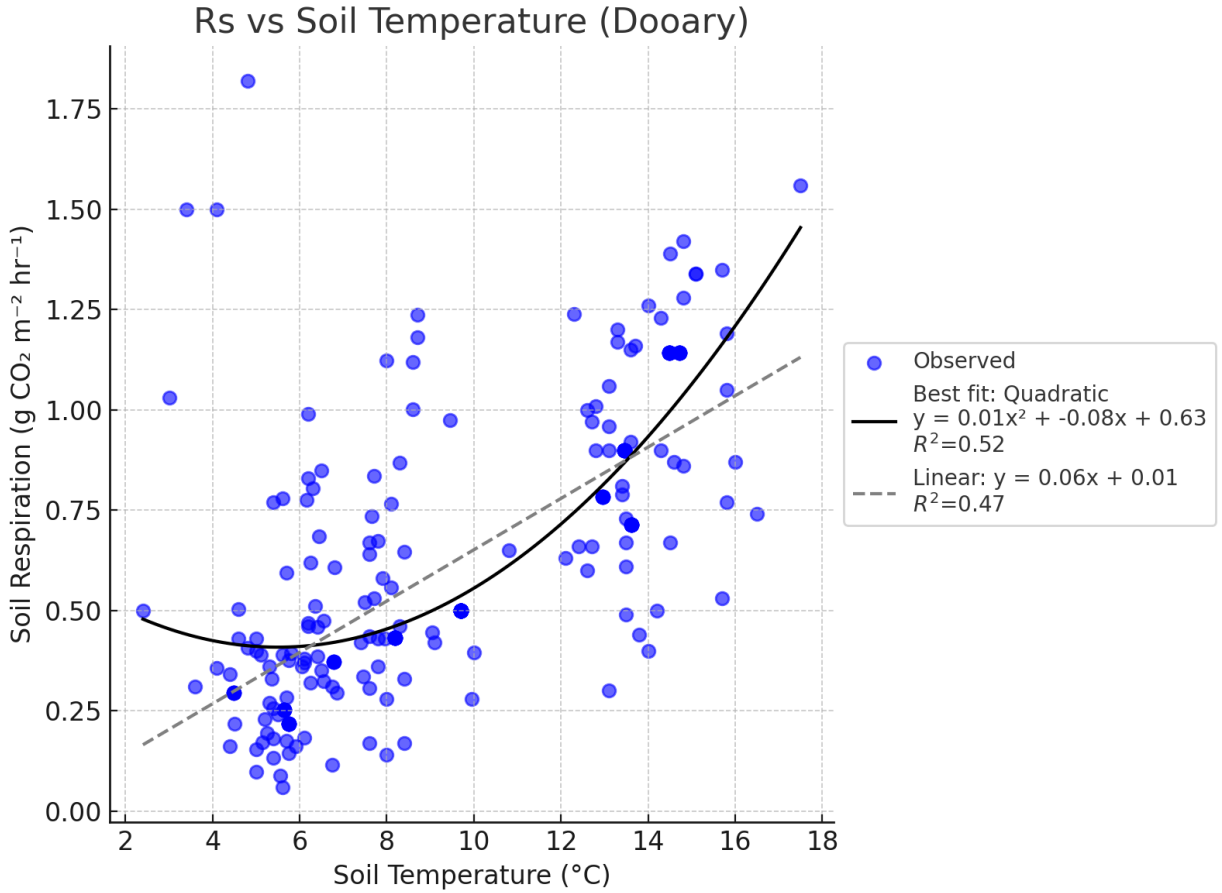
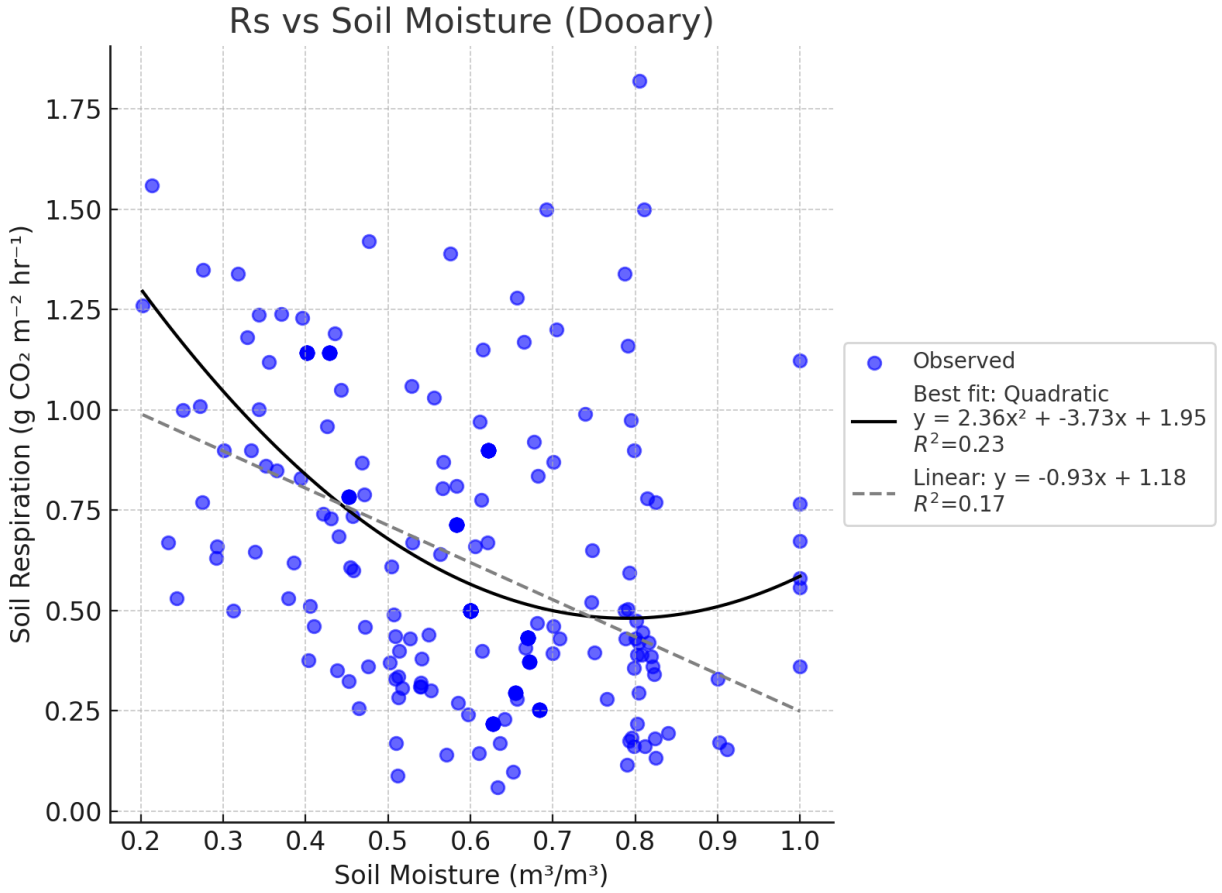
Dooary Response Curves





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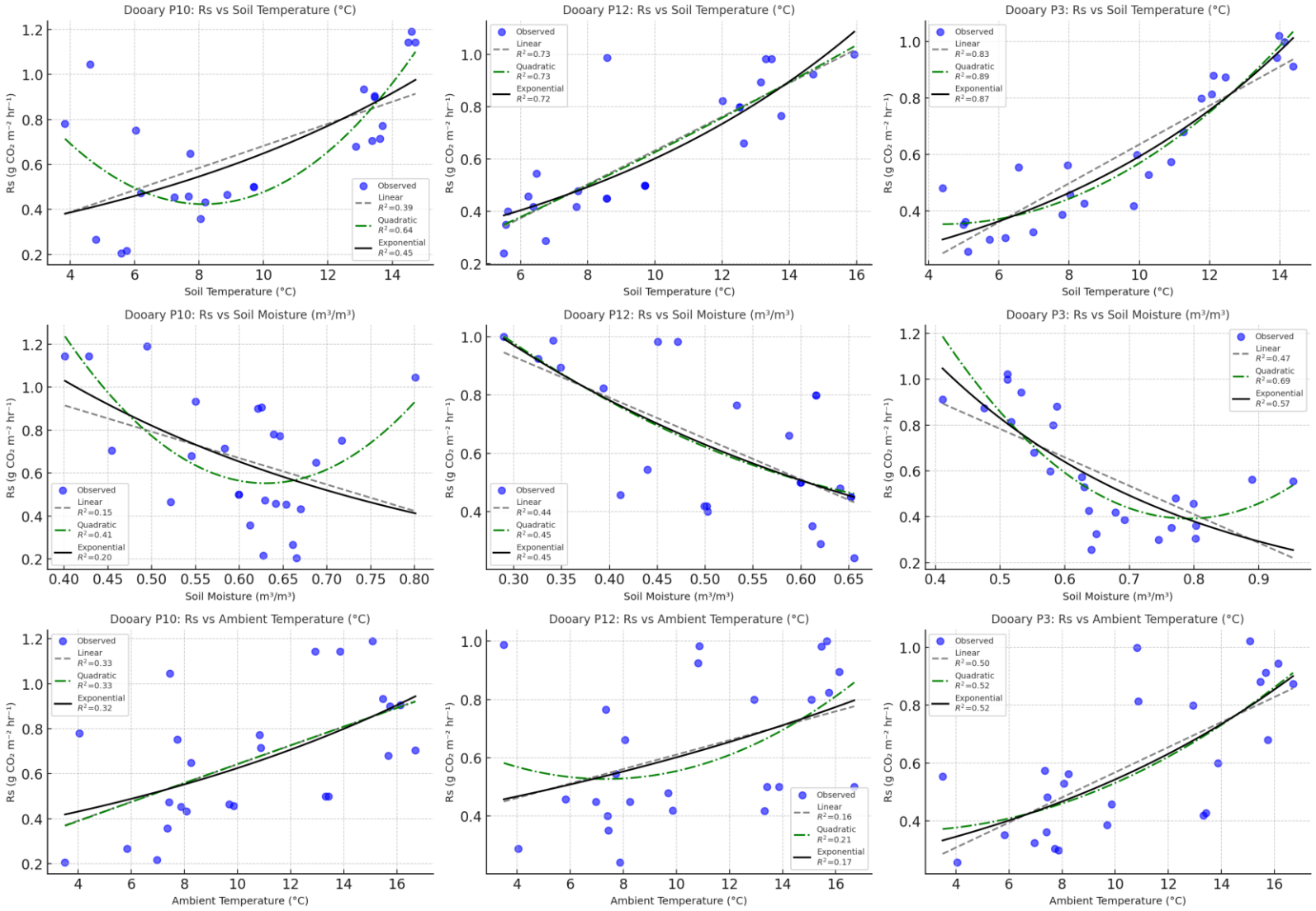
Dooary Intra-site Variability

Dooary Subplots (P10, P12, P3) - Rs vs Soil Temperature, Soil Moisture, Ambient Temperature



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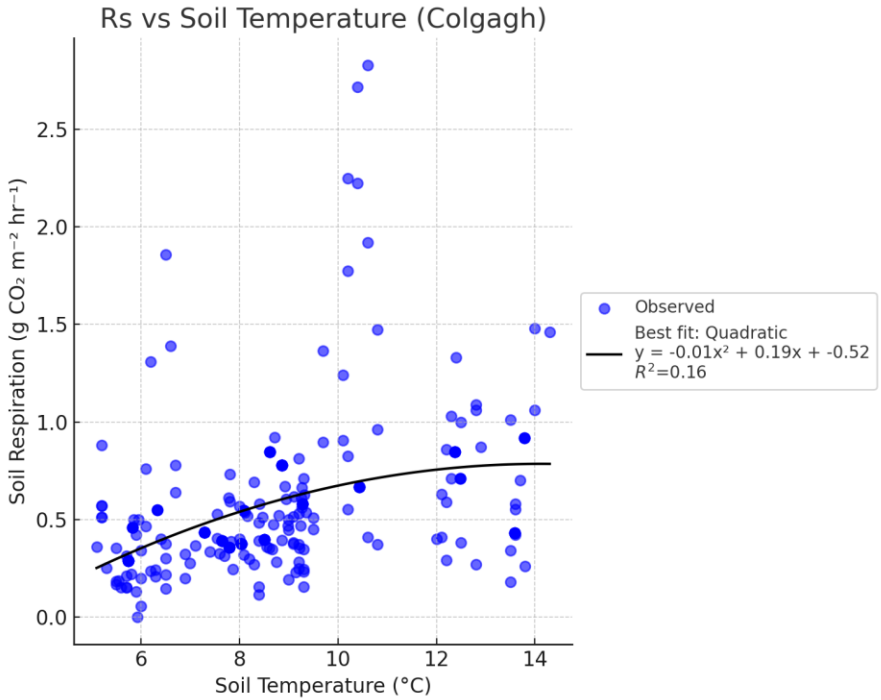
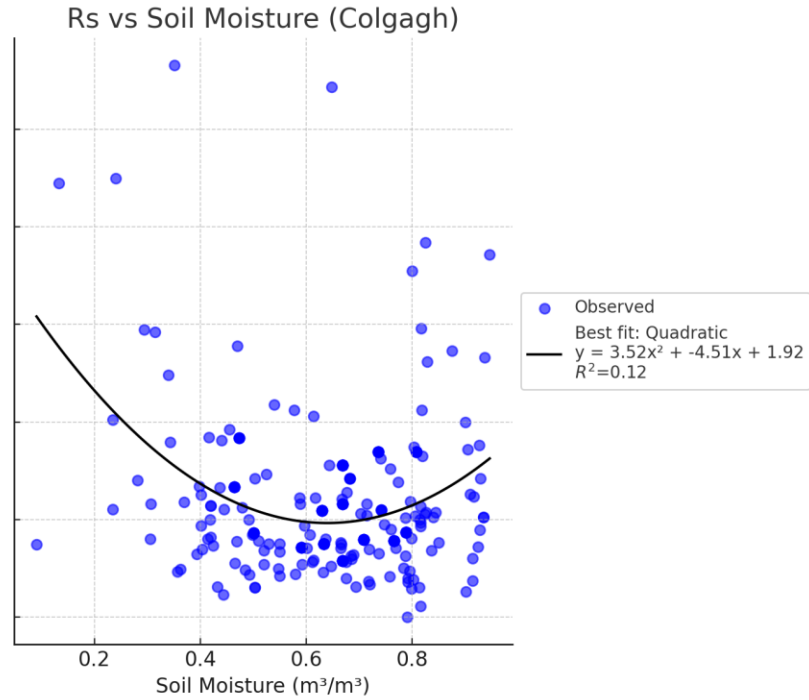
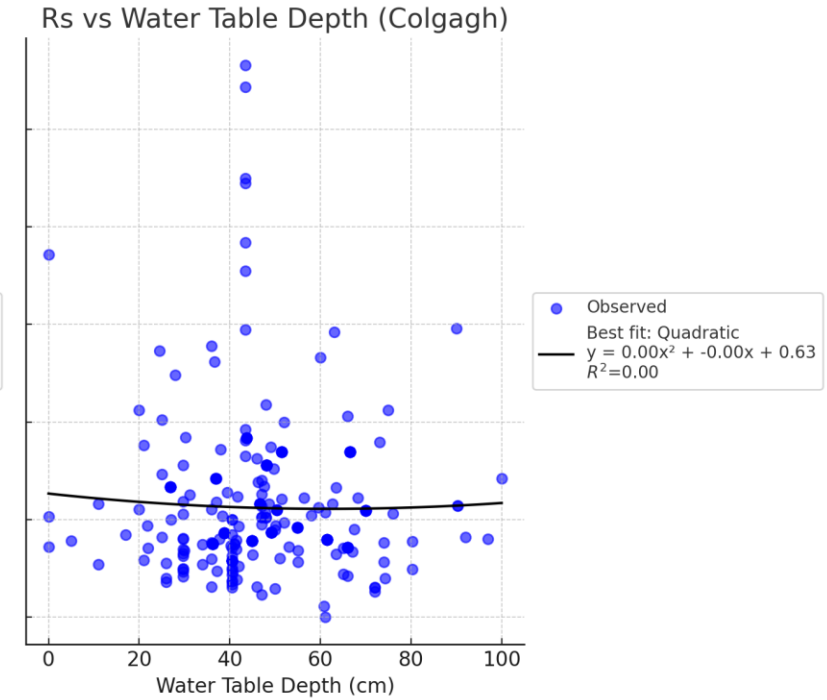
Colgagh Response Curves







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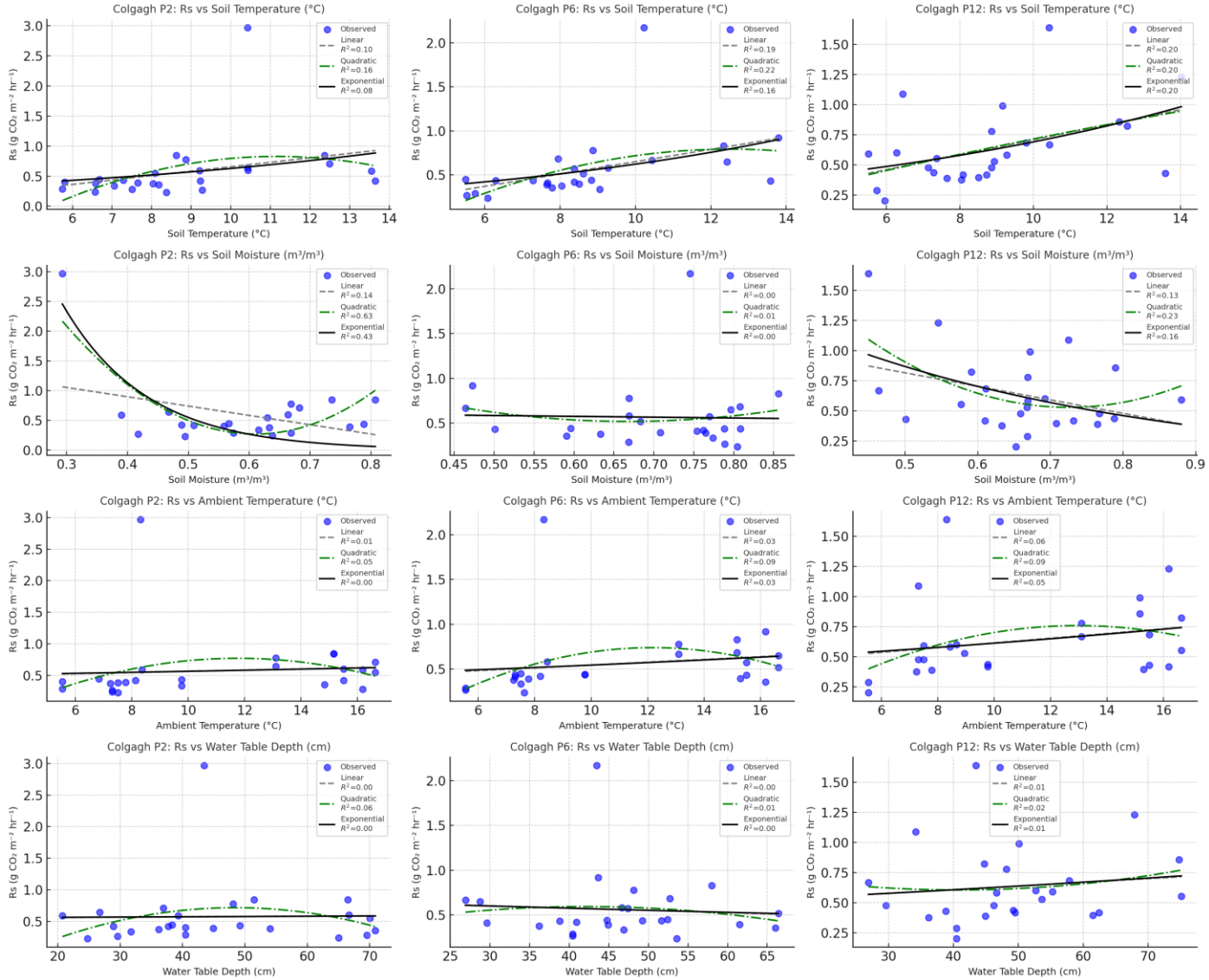
Colgagh Intra-site Variability

Colgagh Subplots (P2, P6, P12) - Rs vs Soil Temp, Soil Moisture (≤1.0), Ambient Temp, Water Table Depth



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