

A computer vision based assessment of post disturbance forest resilience

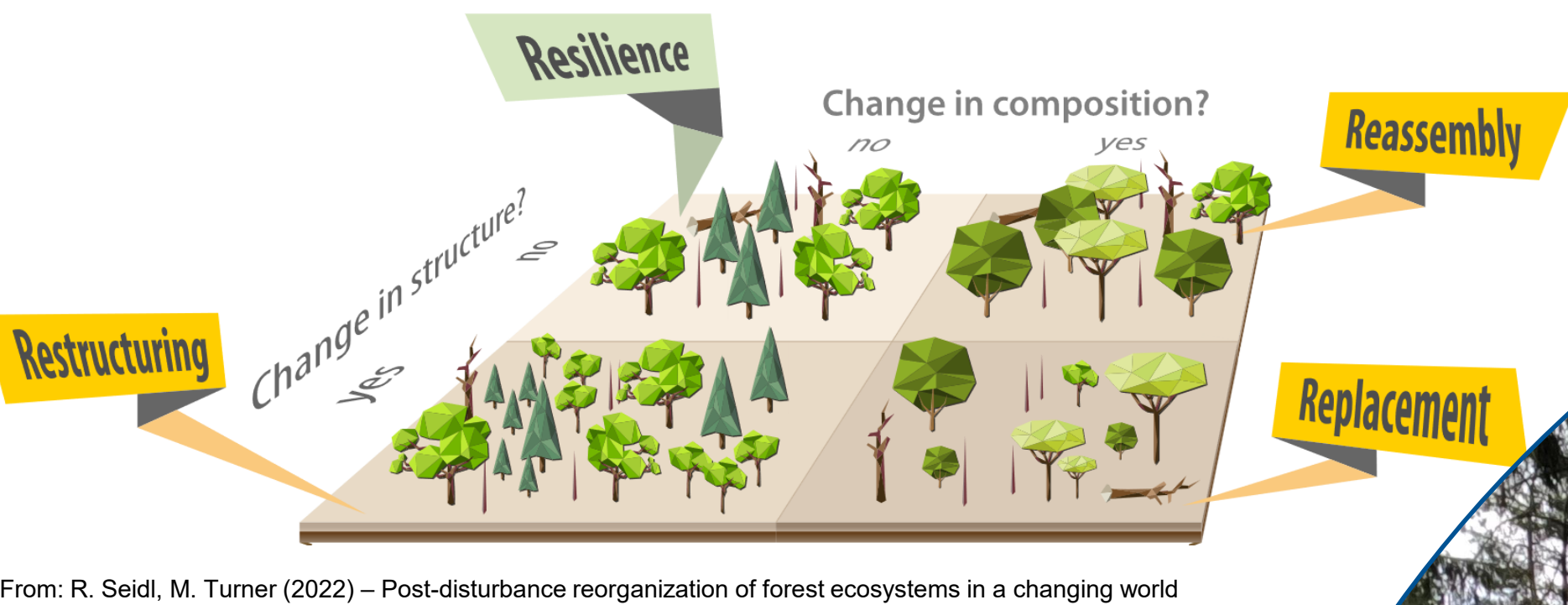
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Introduction

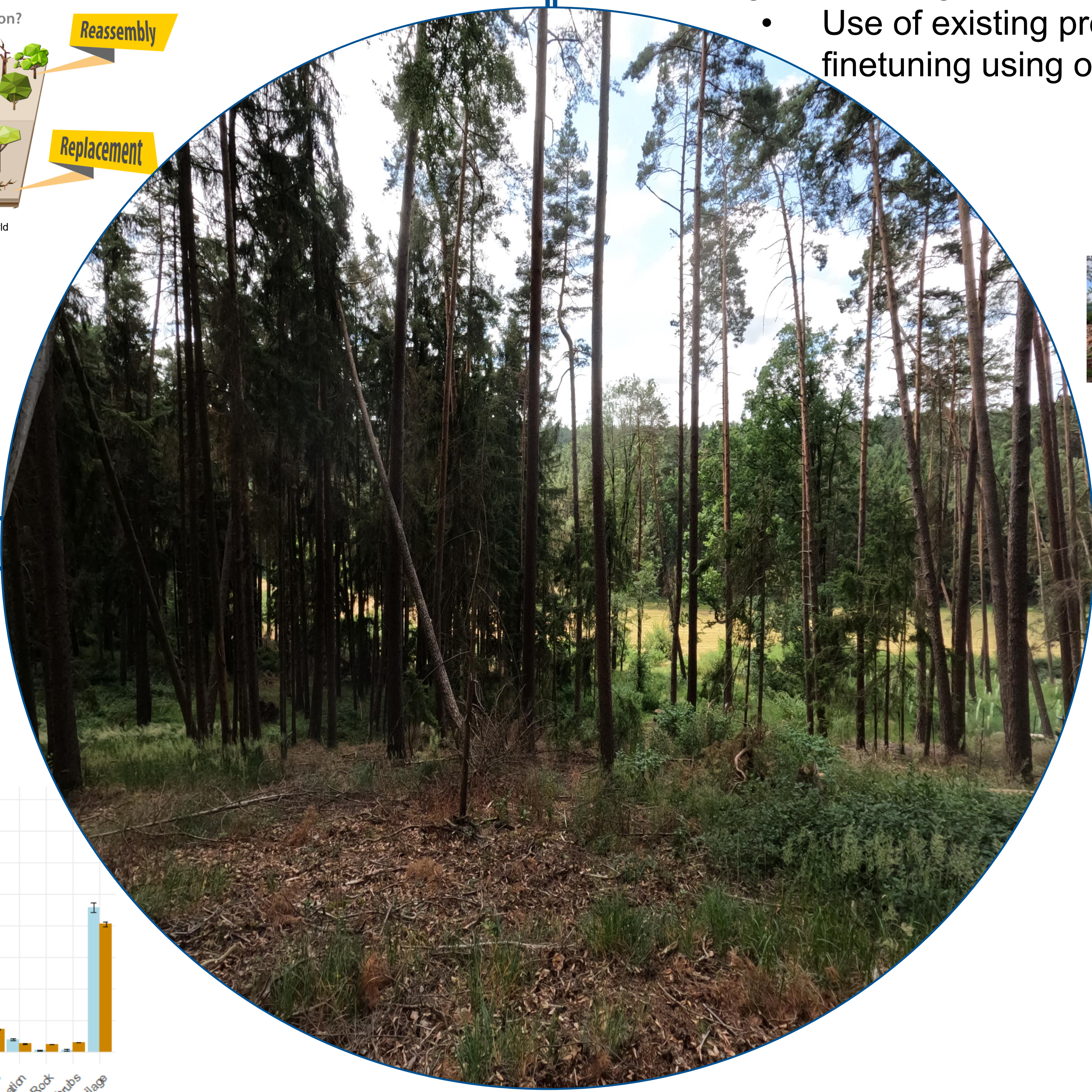
Climate change increases

- Disturbance severities
- Disturbance frequency
- After disturbance 5 development pathways

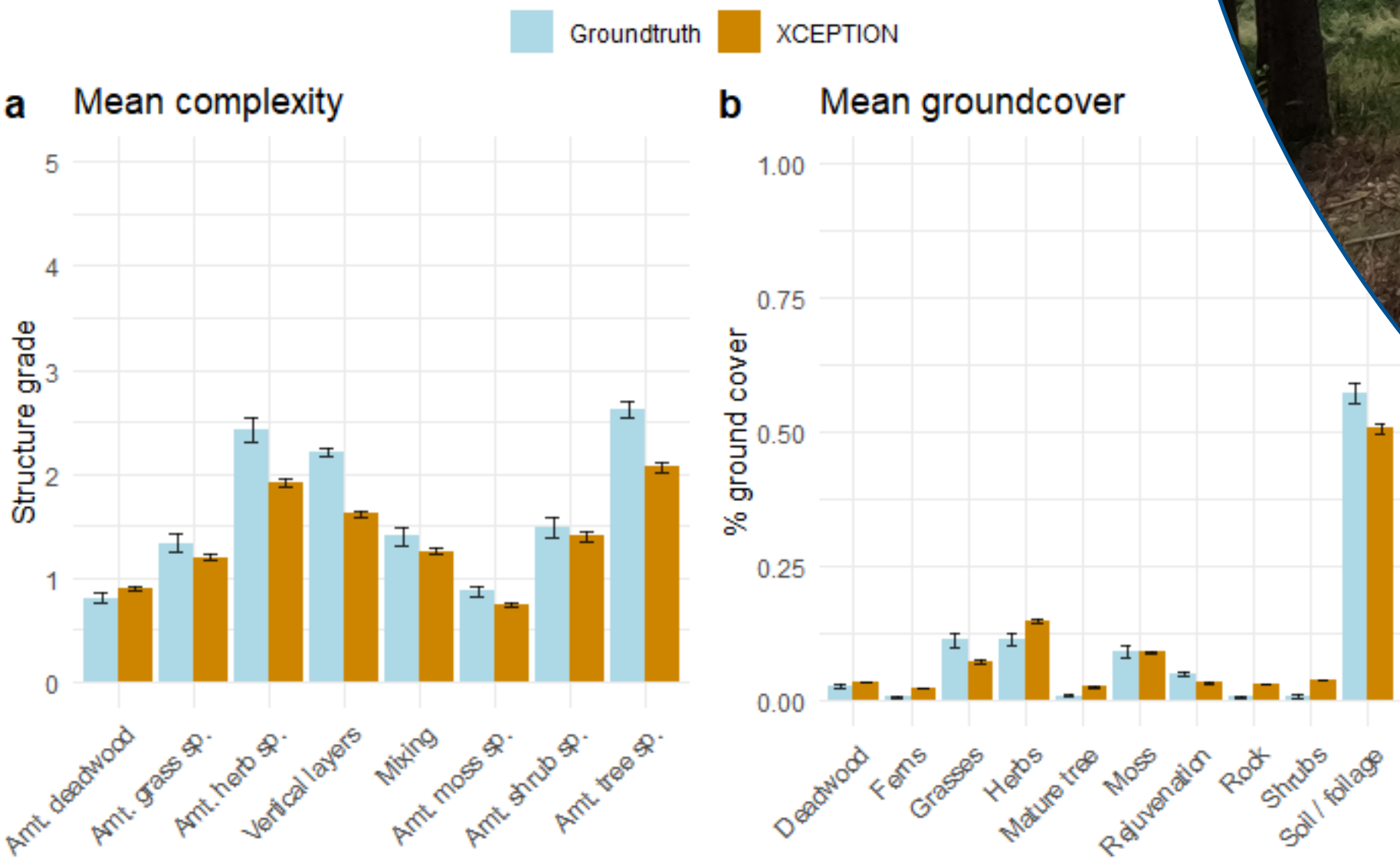


Methods

- Fieldwork on 40 sites with 3 patches and 5-15 plots (total 1244 plots)
- 3 Management types and 4 forest types
- 5 photos per plot (total 6220 photos)
- AI to gather ecological indicators from photos
 - Use of existing pre trained Neural Networks + finetuning using own data

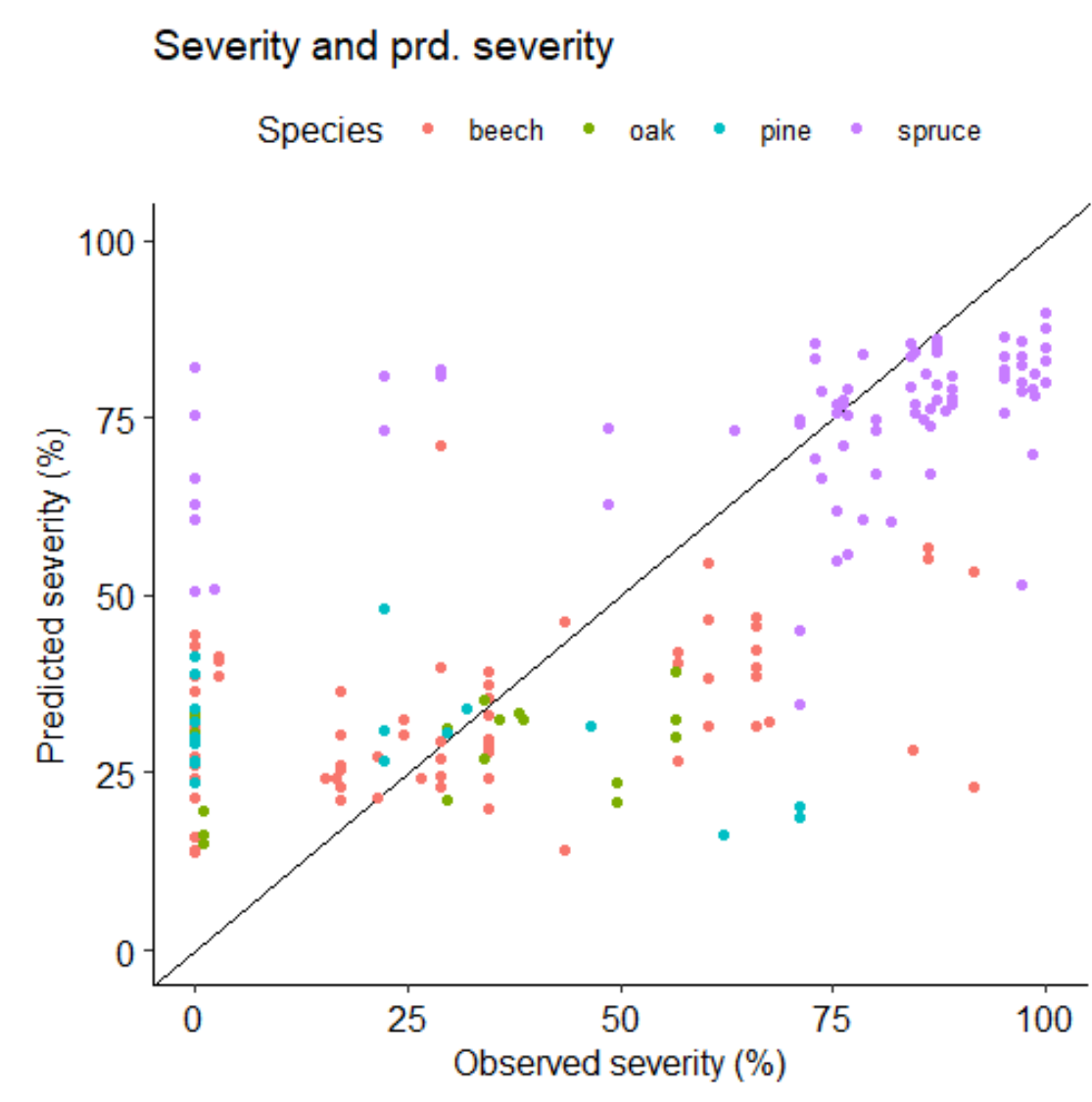


Accuracy of indicators predicted by AI



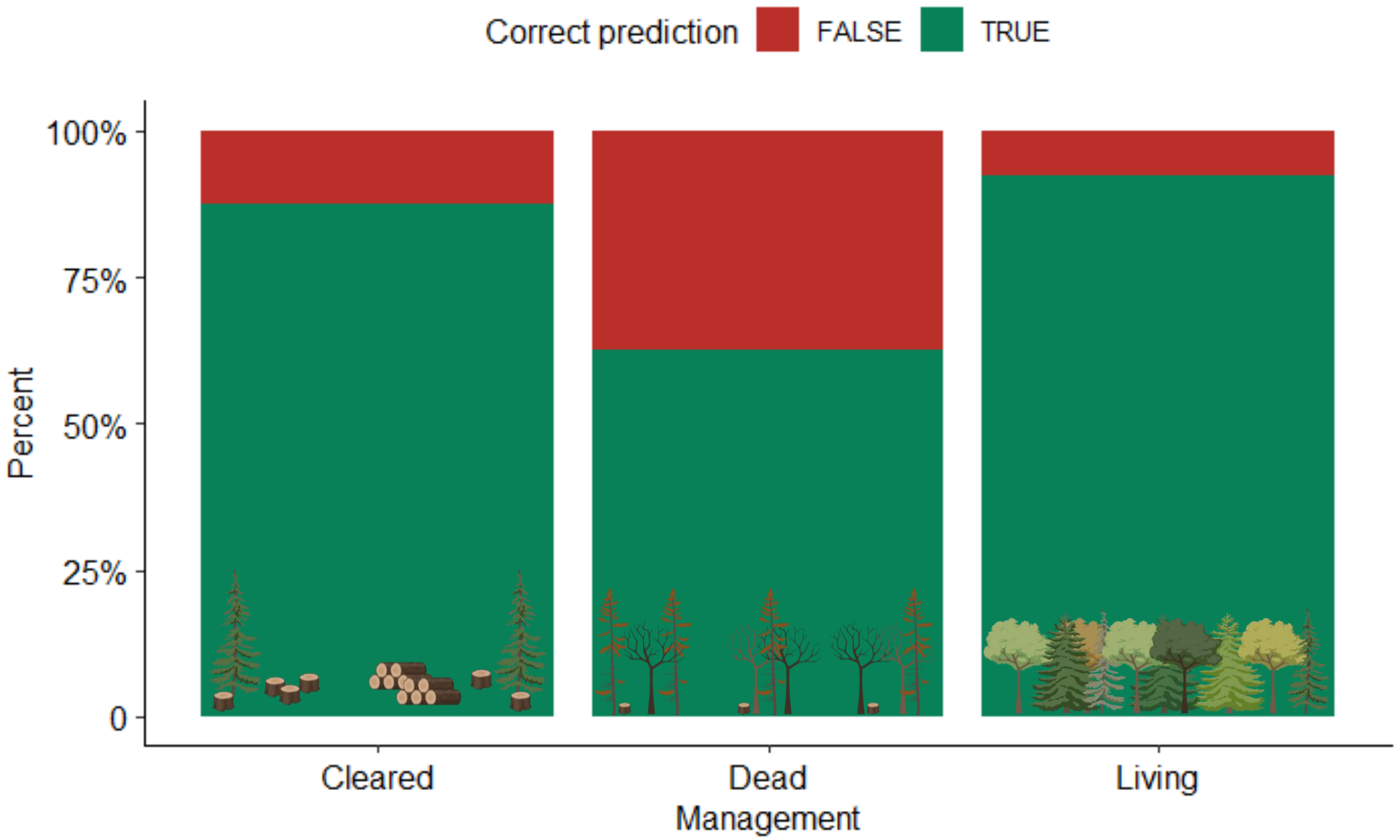
Disturbance severity

MAE = 19.5%, RMSE = 24.8%



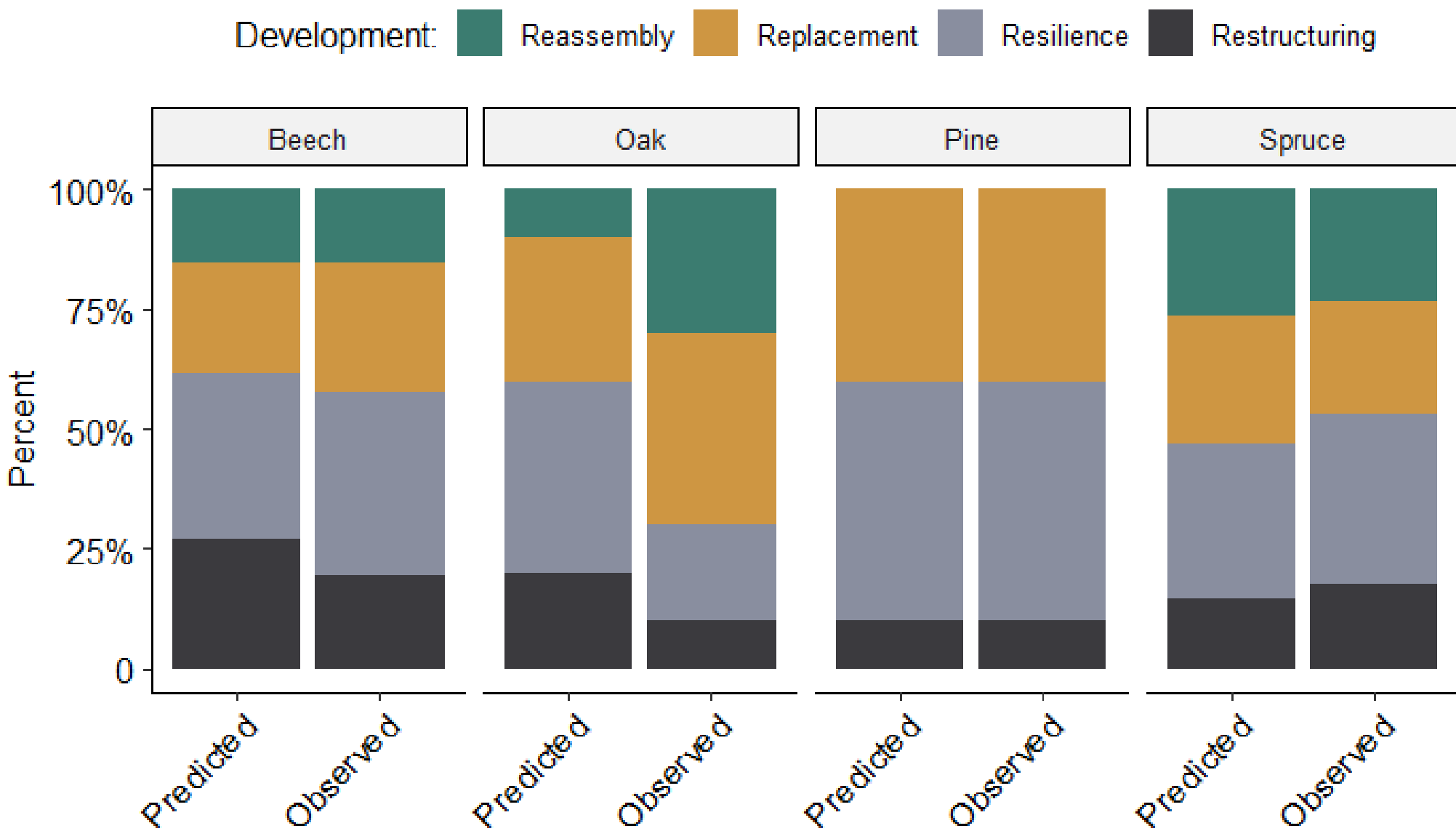
Simple

Disturbance detection overall 80% accuracy



Development pathway overall 86% accuracy

Complex



Indicators gathered from photos using AI can be used for simple and complex analysis!

Results



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