

SEMI-NATURAL GRASSLAND CHANGE DETECTION

From Satellite Observations to Sustainable Management

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01

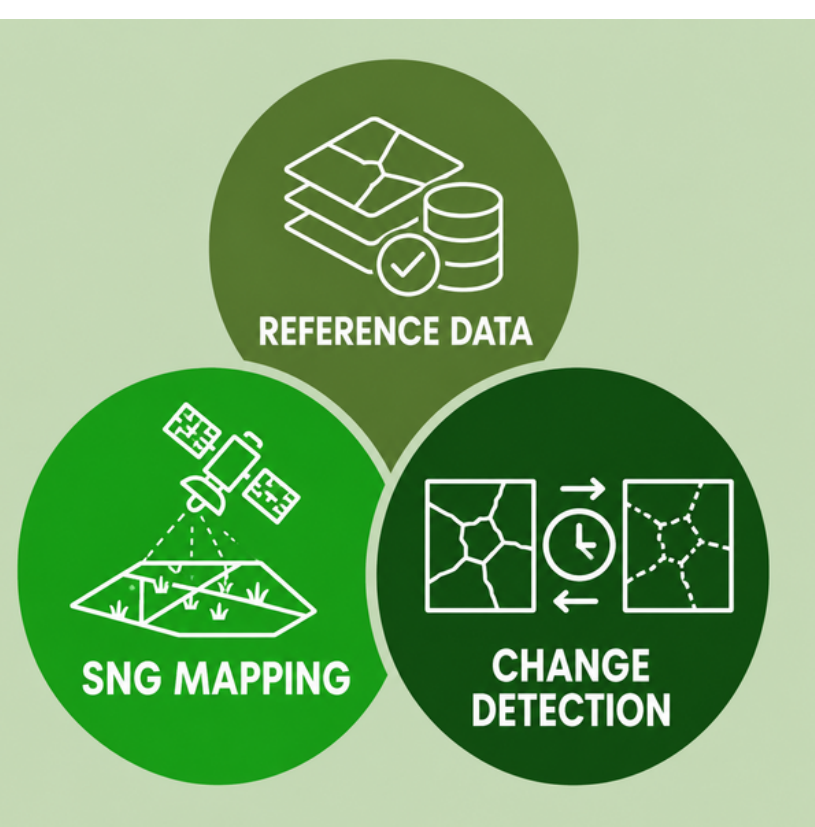
INTRODUCTION



Saaremaa, Estonia's largest island (2,673 km²), lies in the West Estonian Archipelago of the Baltic Sea. Its low-lying landscape comprises forests, wetlands, agricultural land and species-rich heritage meadows. Long-term mowing and grazing have shaped these semi-natural grasslands, making Saaremaa important for monitoring management change and conservation.

02

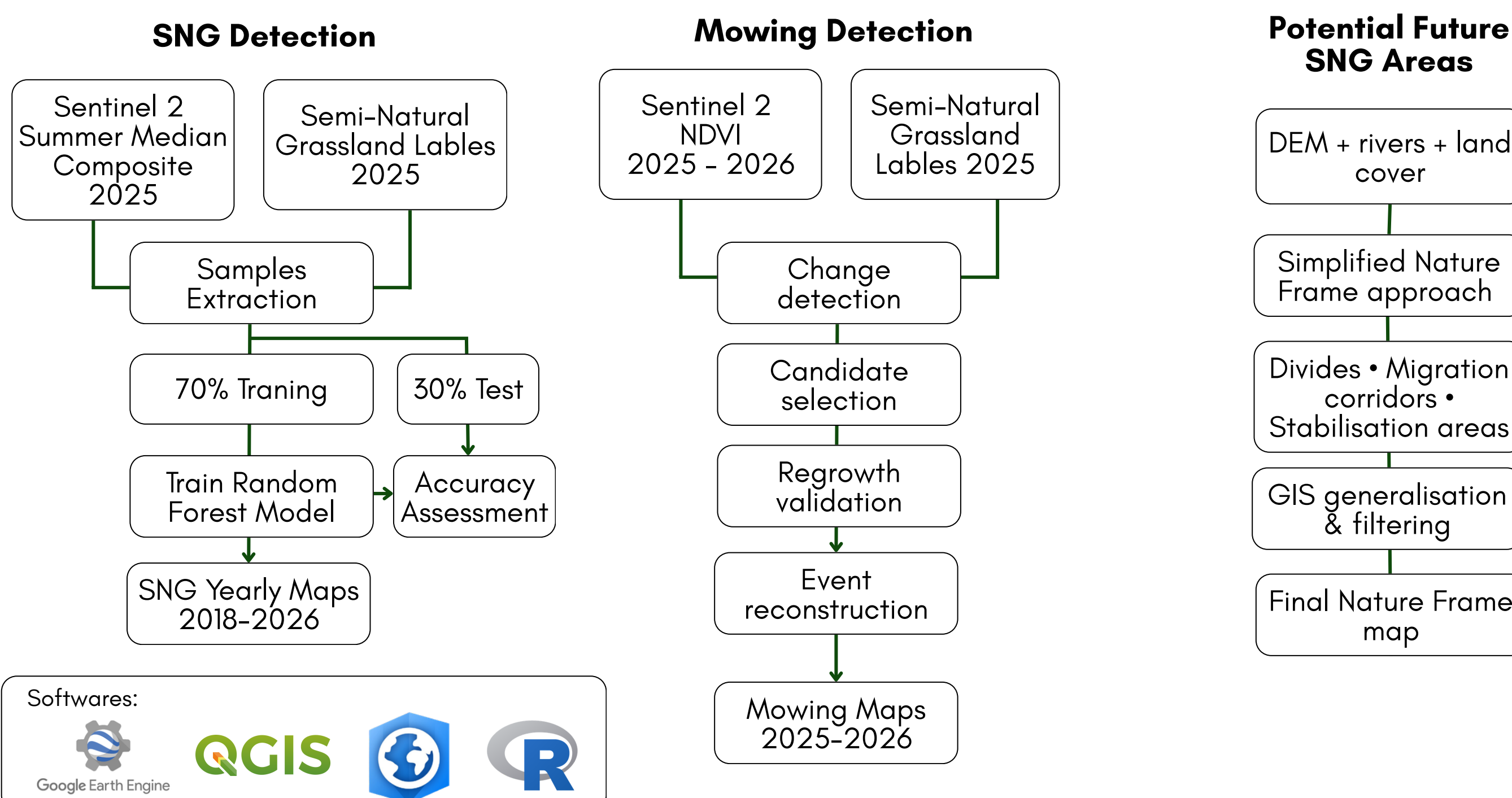
RESEARCH SCOPE



To develop a Google Earth Engine and GIS-based framework for monitoring and supporting the management of semi-natural grasslands in Saaremaa by integrating Sentinel-based grassland mapping, NDVI-based mowing detection, and landscape-based identification of priority areas for future semi-natural grassland expansion.

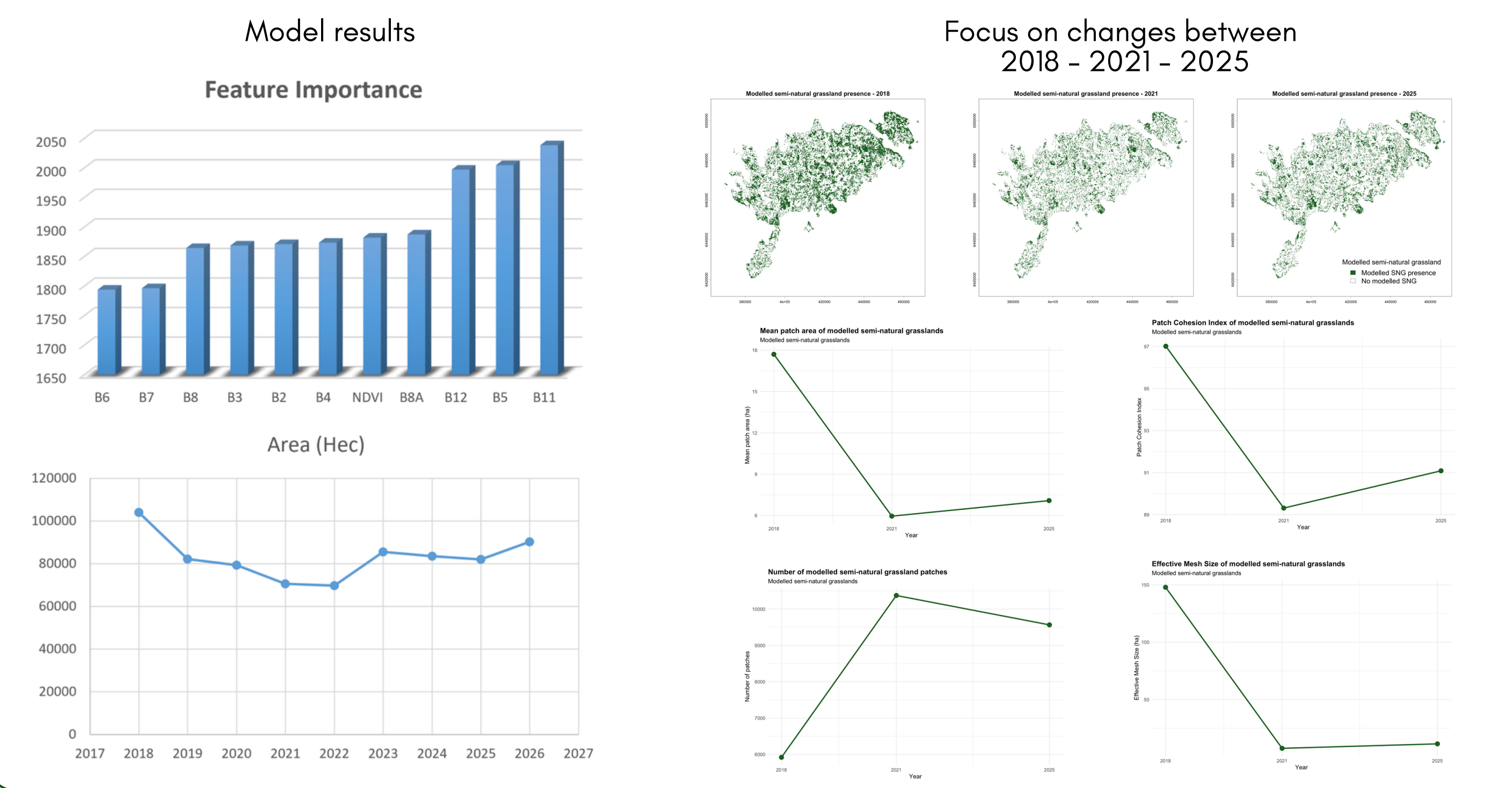
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METHODOLOGY



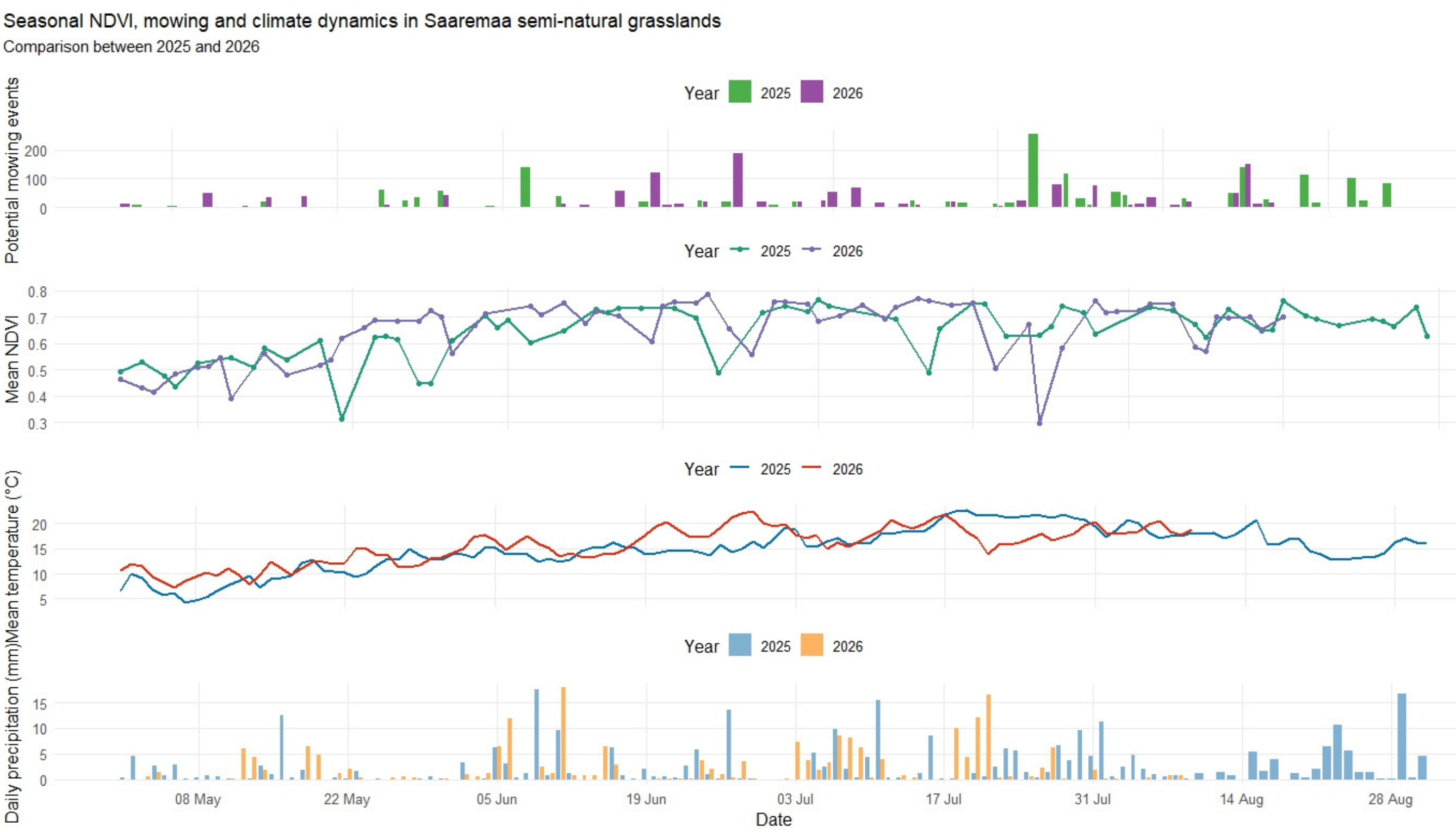
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SNG DETECTION



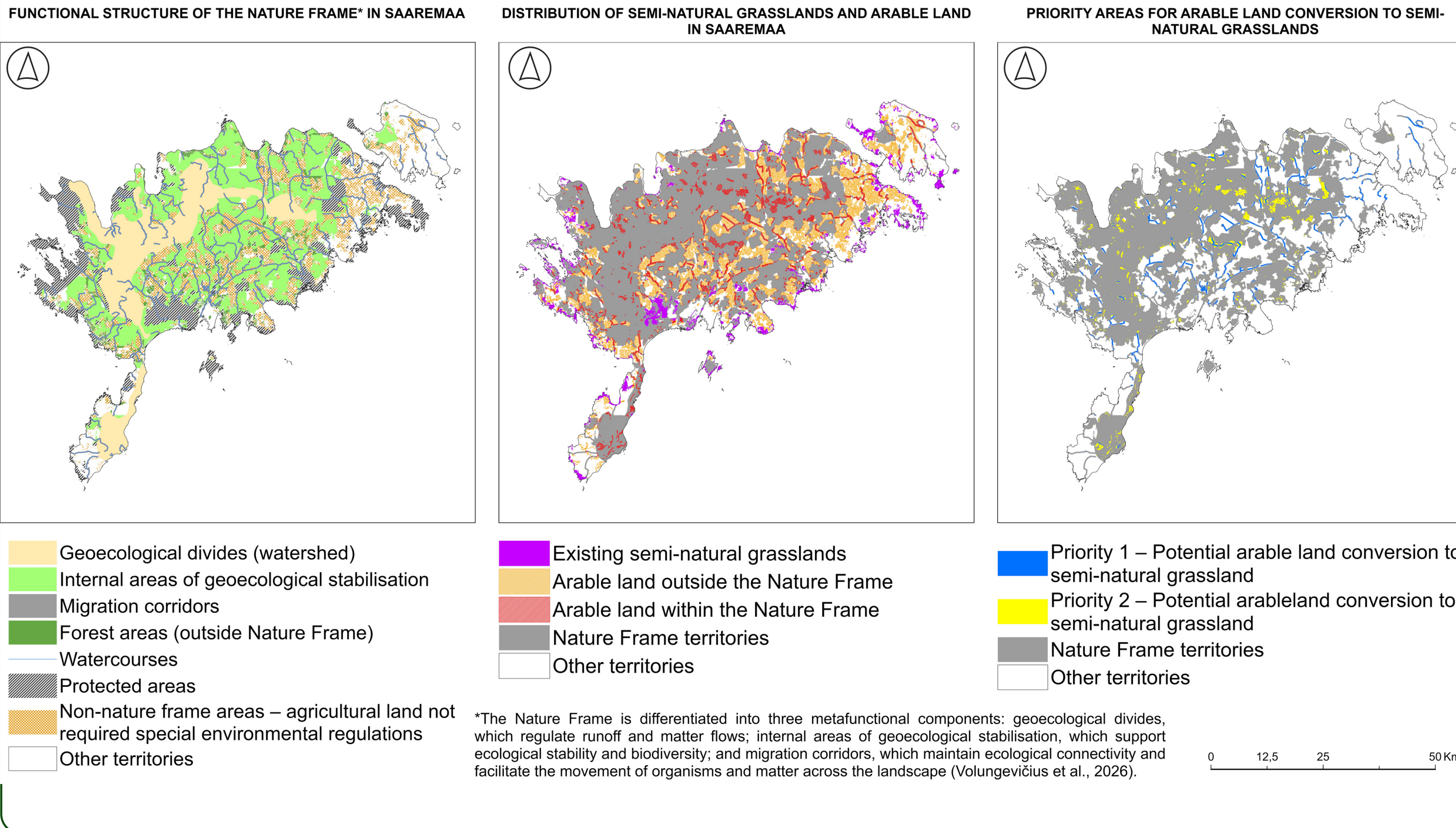
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MOWING DETECTION



06

POTENTIAL FUTURE SNG AREAS



07

CONCLUSIONS

To combat the severe loss of seminatural grasslands in Estonia, Google Earth Engine and Sentinel 2 provide a scalable mapping framework with immense future potential. While dataset harmonization is still required, tracking mowing frequency via Sentinel 2 NDVI creates a highly practical tool for controlling grassland management. When supported by physical field validation, this advanced monitoring system becomes exceptionally valuable for policy makers and supervisory authorities. It supplies the necessary empirical evidence to adapt rigid agricultural regulations, verify compliance for financial subsidies, and ultimately prevent further habitat degradation.



ACKNOWLEDGEMENTS:

