



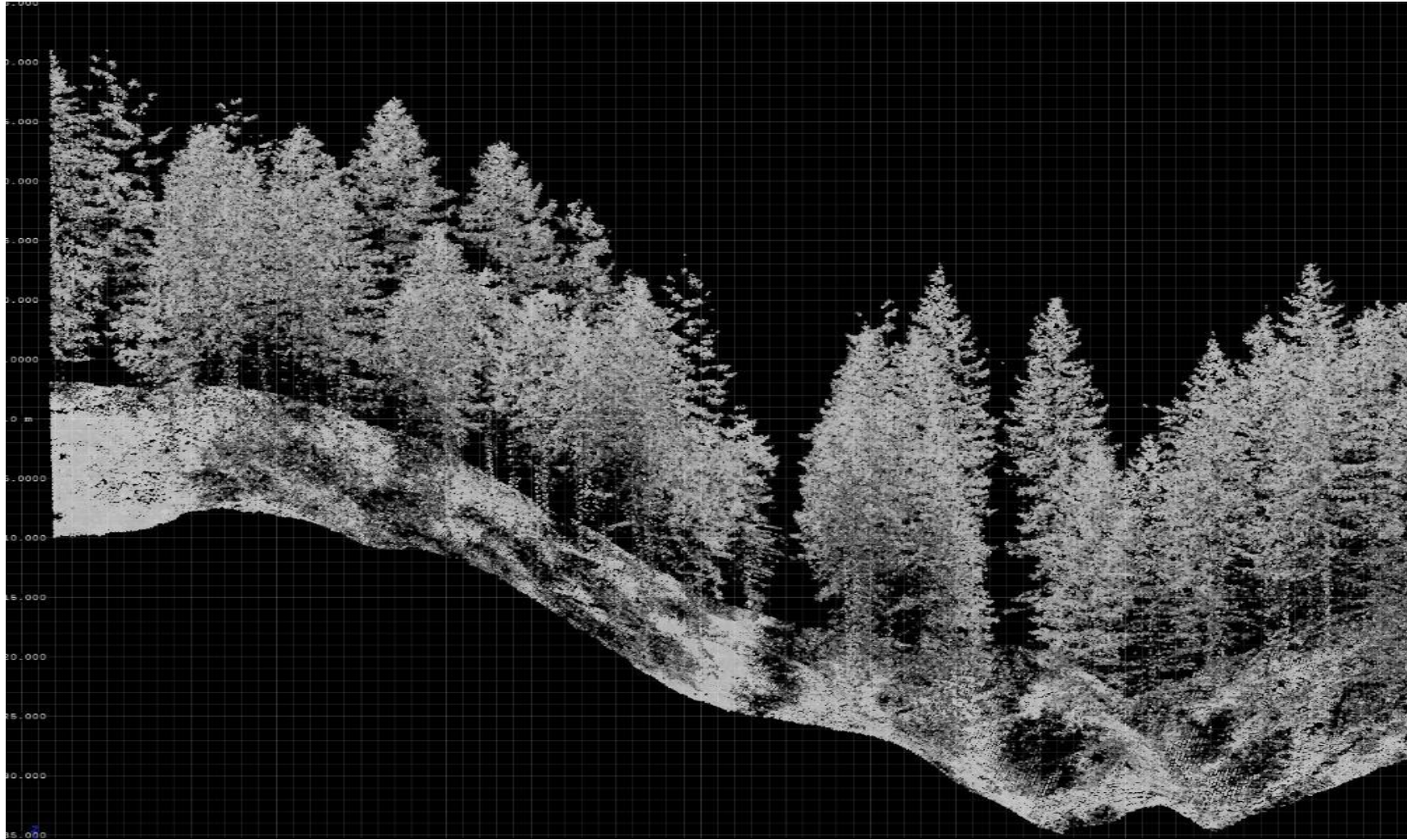
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# *3D Twins, Digital Data Acquisition, and AI in Nature Conservation – A Glimpse into the BioMONITec Project.*

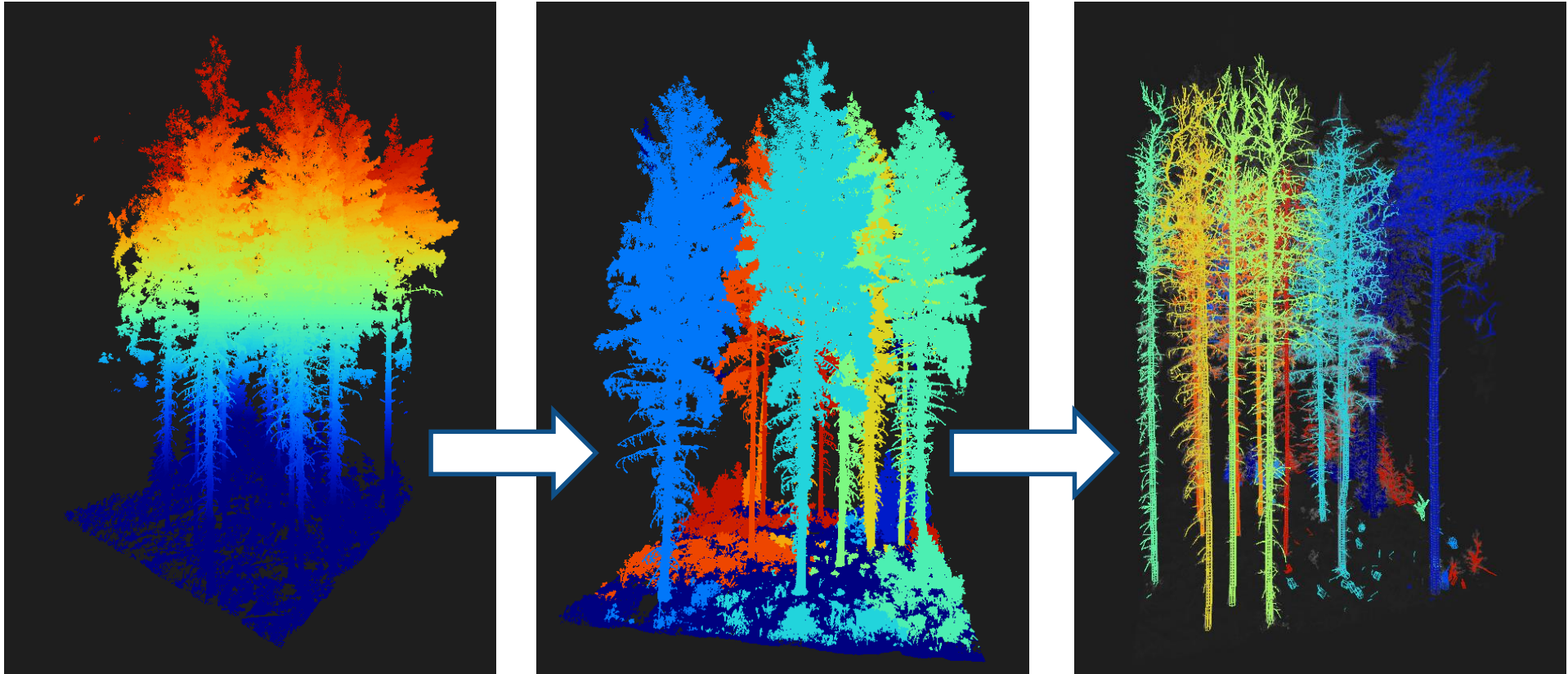
*Vanessa Berger – [v.berger@cuas.at](mailto:v.berger@cuas.at)*

EUROPARC Conference 2023 – Tribute to our landscape  
Where nature and people meet in harmony

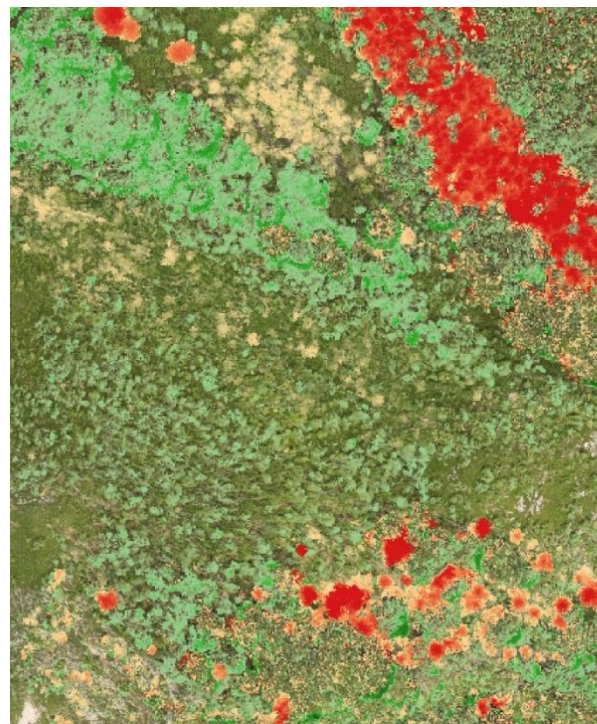
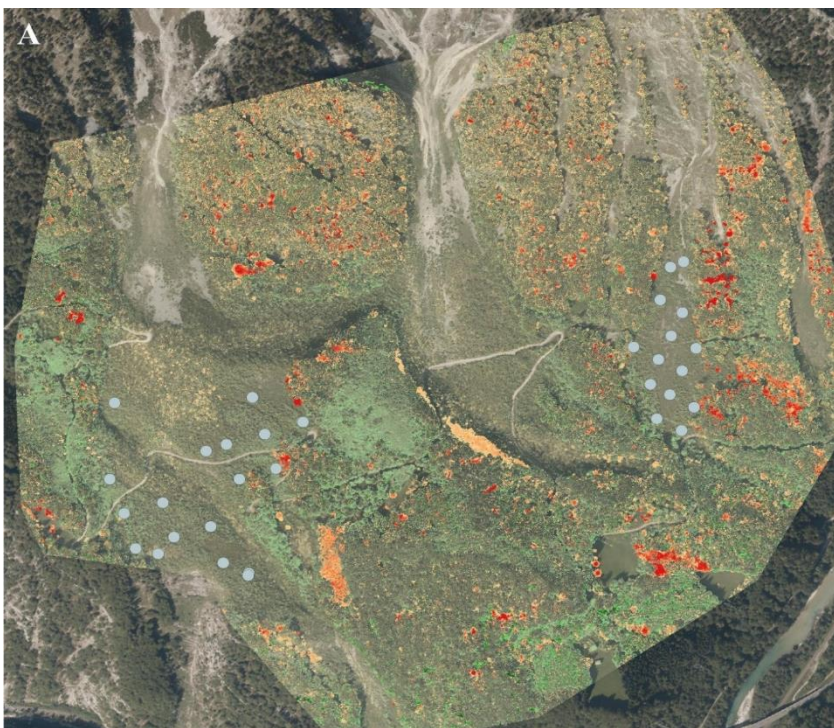


# Digital Twin of a Forest

## 3 D Digital Twin – LiDar based



# Change Detection - Biomass

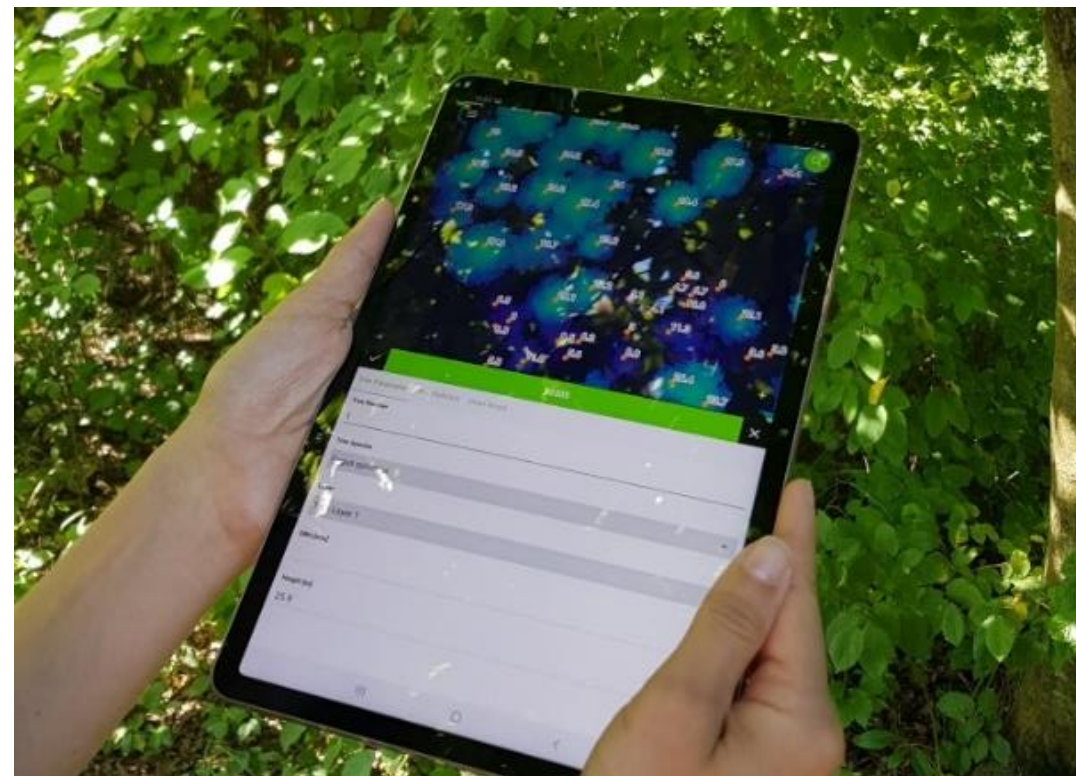
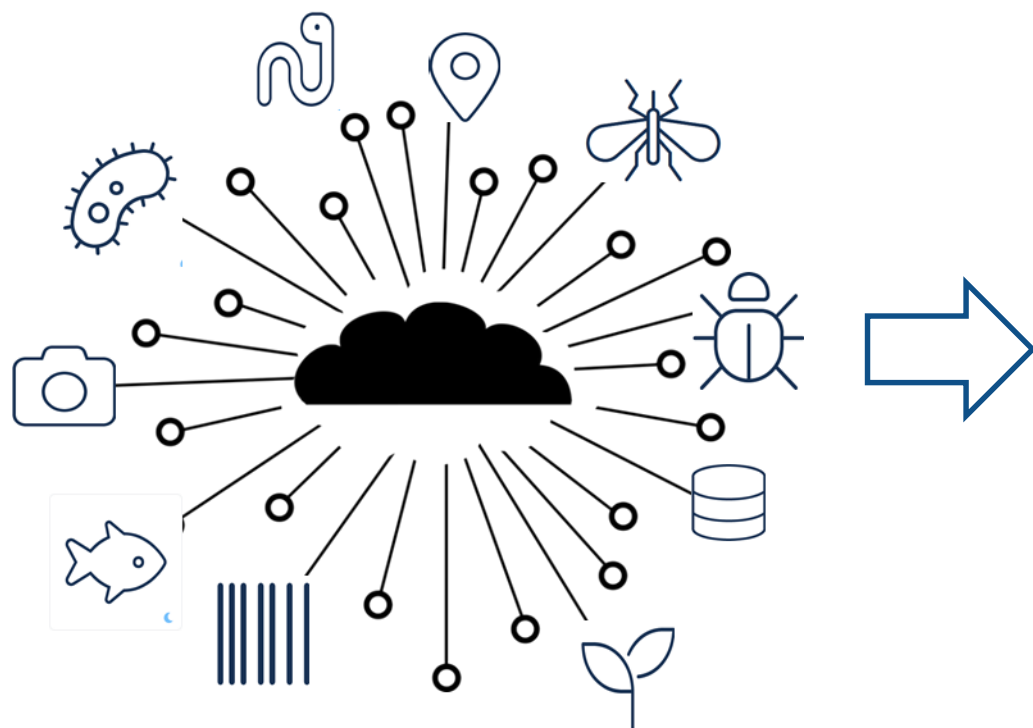


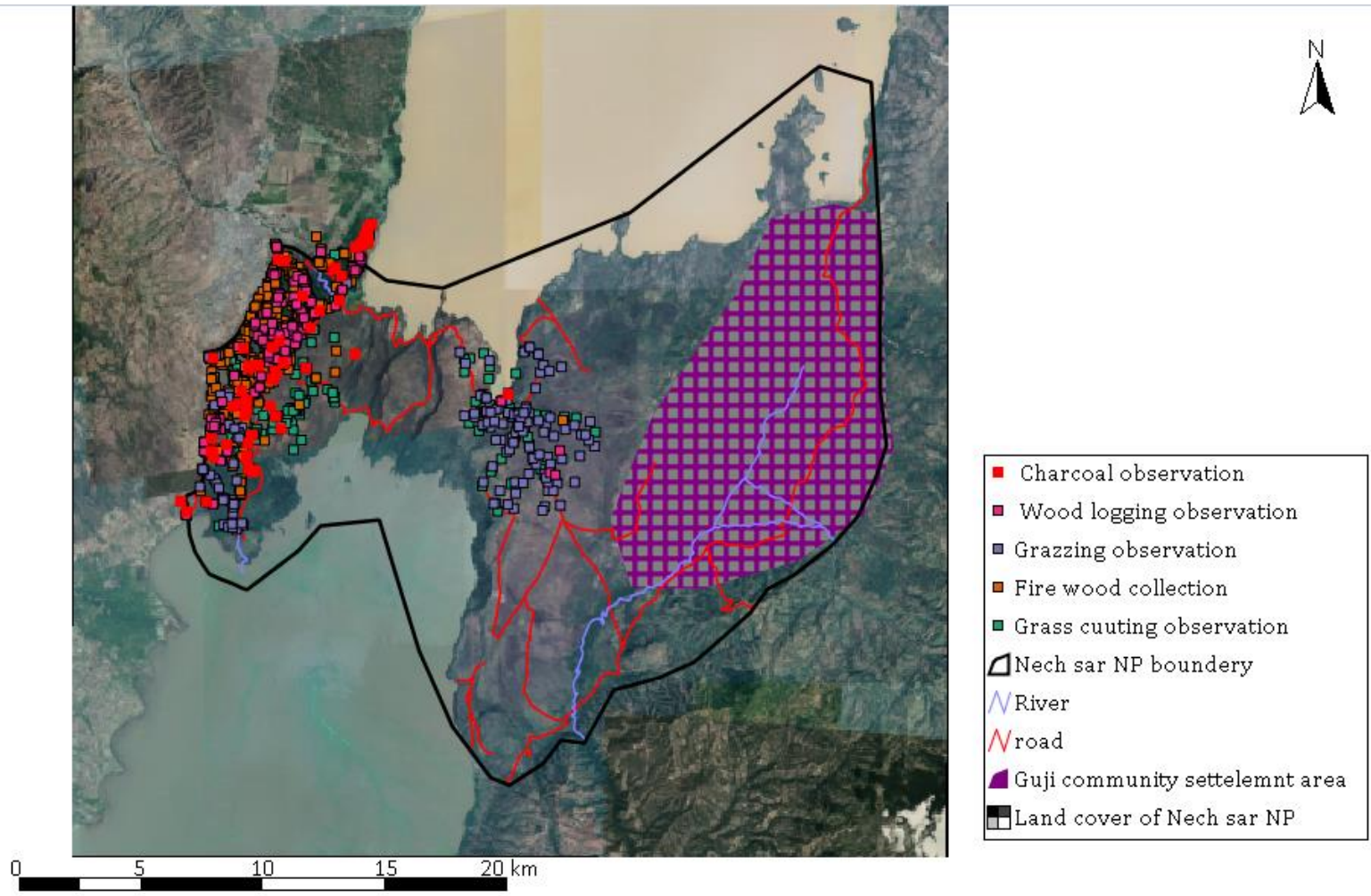
Berger, V., Kirchmeir, H., & Hirschmugl, M. (2021). Application-oriented approach to monitoring the dynamics of avalanche tracks using conventional forest inventory parameters and Lidar-based change detection. In Proceedings of the SilviLaser Conference 2021 (pp. 353–355). <https://doi.org/10.34726/wim.2034>

# Photogrammetric based 3 D Digital Twin



# Near-Real-Time





**Tamirat Haile, Zerubabel Worku & Dereje Abera:** Application of Spatial Monitoring and Reporting Tool (SMART) for Improving Law-Enforcement Effectiveness at Nech Sar National Park, Ethiopia. [Manuscript in preparation]

# *AI in Nature Conservation*



Source: Mohammad Sadoun







### Data Acquisition

Data overview  
and Taxonomy

### Data Annotation

LabelBox  
setup

LabelBox  
Guide

Annotation  
Progress

### AI

Pre-processing

AI Training

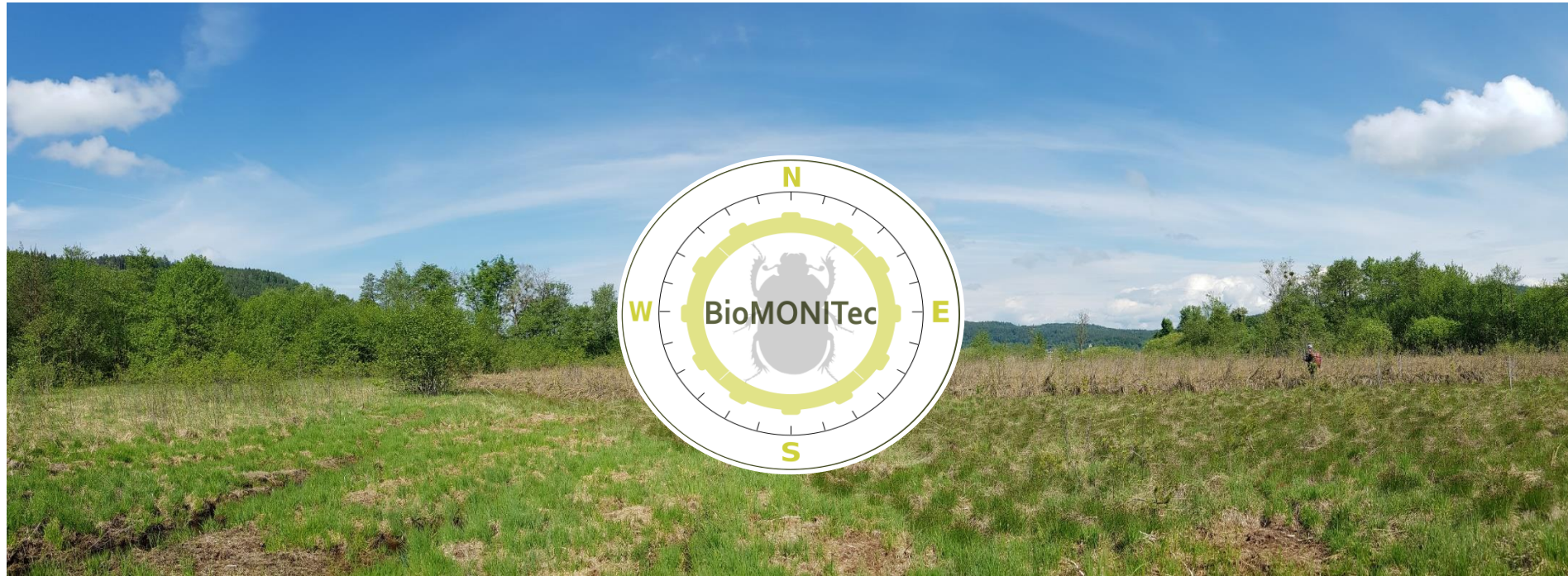
AI Validation

### Deployment

AI model use in  
real-word

Maintanance  
and  
Monitoring

# Biodiversity Monitoring Technologies – Test, Development and Transfer of disruptive engineering technologies into conservation practice



Thank you

# Let's stay in contact

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Vanessa Berger

