

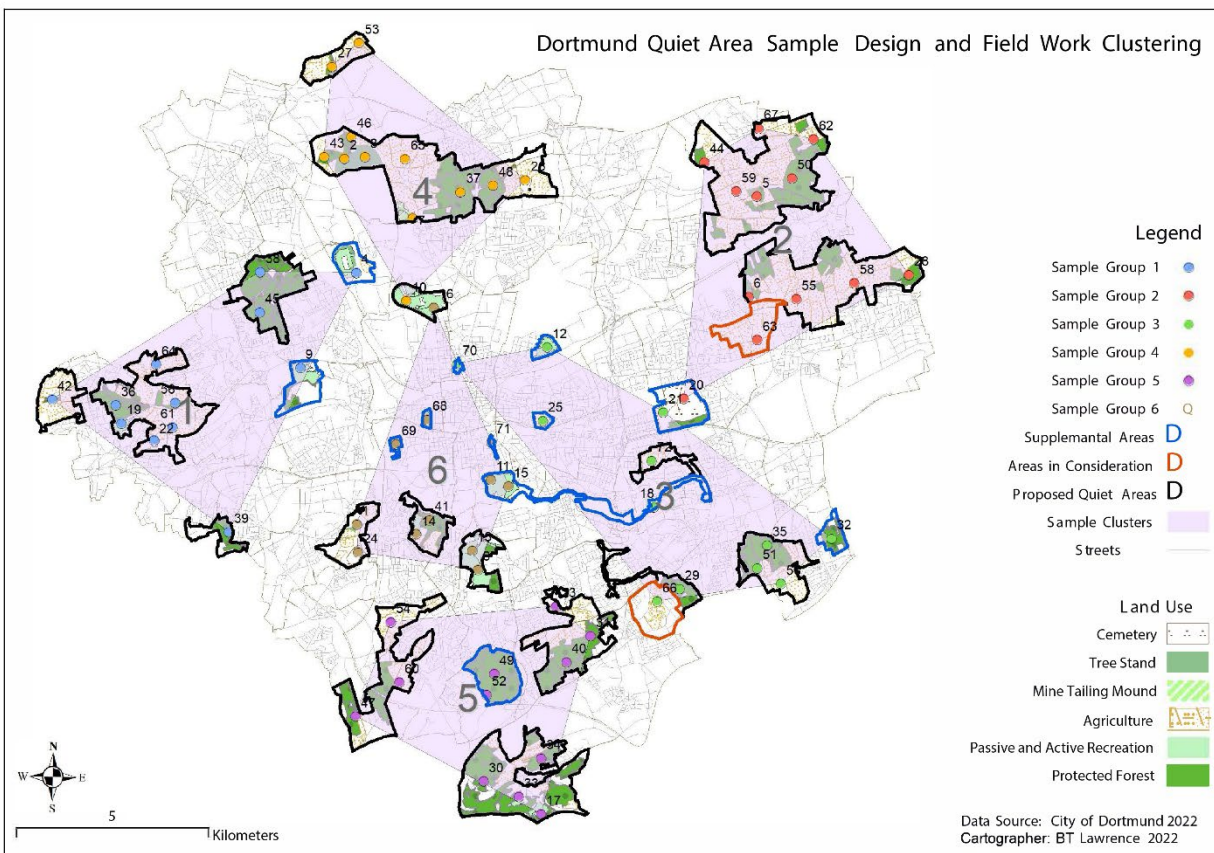
## Characterization of Potential Quiet Areas in Dortmund

The City of Dortmund and TU Dortmund University are working together on an innovative research project aimed at characterization of proposed quiet areas in Dortmund. The research project supports the formal 'Noise Action Plan' instrument required for all urban regions by EU law and codified in the German spatial planning system under the German Federal Immission Control Act (BImSchG §47).

Data collection and analysis methods follow the protocols developed in the successful SALVE pilot-project (Haselhoff et al., 2021; Lawrence et al., 2022), where temporally longitudinal sound data is collected at 72 locations over a 6-month period and then analyzed using an array of ecoacoustic indices (Sueur, 2018) and the SPL-measure LAeq. The upcoming Dortmund Noise Action Plan (expected to run through 2024) will be the first formal noise action plan in Germany to use robust sound data collection and analysis to designate quiet areas in a German noise action plan.

### Research Questions

- How high are biophonic indices in different (potentially) quiet areas in the Dortmund urban area?
- At which (ambient) noise levels are biophonic sounds dominant in different areas?
- How do the daily acoustic patterns differ between all sample sites?
- What is the spatial distribution of high-quality quiet areas in the city DO and who has the most access?
- What is the influence of green infrastructure on biophonic distribution in urban DO?



## Project Details

Project Duration: May 15<sup>th</sup>, 2022 through September 21, 2022

Principal Investigator: Prof. Dr. Dietwald Gruehn

Project Manager: Dr. Ing. Bryce T. Lawrence

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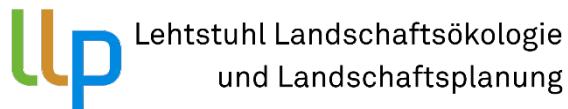
Sponsor: City of Dortmund, Germany

## Literature:

Haselhoff, T., Lawrence, B., Hornberg, J., Ahmed, S., Sutcliffe, R., Gruehn, D. & Moebus, S. (2021): The acoustic quality and health in urban environments (SALVE) project: Study design, rationale and methodology. In: Applied Acoustics 188 (2022) 108538; <https://doi.org/10.1016/j.apacoust.2021.108538>.

Lawrence, B., Sutcliffe, R., Hornberg, J., Haselhoff, T., Ahmed, S., Moebus, S. & Gruehn, D. (2022): A widened array of metrics (WAM) approach to characterize the urban acoustic environment; a case comparison of urban mixed-use and forest. In: Applied Acoustics 185 (2022) 108387; [doi.org/10.1016/j.apacoust.2021.108387](https://doi.org/10.1016/j.apacoust.2021.108387).

Sueur, J. (2018). *Sound analysis and synthesis with R* (p. 637). Cham: Springer.



Stadt Dortmund  
Umweltamt

