

# THILO WELLMANN

CURRICULUM VITAE – 03/2022



## Contact

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## Research Experience

- |                  |   |
|------------------|---|
| 2019<br>-present | <b>Clearing House H2020 Project</b><br>Researcher   |
| 2019<br>-present | <b>Helmholtz Centre for environmental Research Leipzig:</b><br>Guest scientist  |
| 2016<br>-2019    | <b>Biodiversa funded projects Enable &amp; Greensurge</b><br>Student assistant  |
| 2016             | <b>Planet Labs Germany GmbH, Berlin</b><br>Trainee: Evaluation of atmospheric correction tools for RapidEye satellite data  |
| 2015             | <b>Helmholtz Centre for environmental research (UFZ) - Department for computational landscape ecology</b><br>Trainee: Analysis of the spatio-temporal behaviour of different urban land-use classes based on remotely sensed RapidEye time series data. |

## Research Interests

I study the impact of green infrastructure on cities via satellite based remote sensing. Such infrastructure represents a key solution towards adapting and mitigating climate change and biodiversity loss in urban environments. However, for it to provide desired ecosystem services a deep understanding of the interconnected social-ecological-technological system a city is forming is needed. Therefore, my goal is, to develop indicators for detailed, integrated, and place-based approaches providing evidence to science, urban governance and stakeholders beyond formal organisational levels. For example, I analysed the effects of vegetation diversity on bird species distributions, the sustainability of urban form in relation to residential and green density, or the scientific progress of urban remote sensing, and founded the project 'RemoteSensingForCities.org'.

## Education

- 2019  
-present      **Humboldt Universität zu Berlin**  
Doctoral student  
Preliminary title: Pathways towards sustainable and resilient cities facilitated through satellite remote sensing - Following an integrated social-ecological-technological systems perspective for climate change adaptation  
Supervision: Dagmar Haase, Erik Andersson, Angela Lausch
- 2016  
-2019      **Humboldt Universität zu Berlin**  
M. Sc. Global Change Geography  
Thesis: Modelling the distribution of 44 urban bird species using Earth observation based plant trait indicators and machine learning
- 2012  
-2016      **Humboldt Universität zu Berlin**  
B. Sc. Geographie  
Thesis: Spatio-temporal Heterogeneity Pattern Analysis in Urban Environment – by Remote Sensing and Geostatistics

## Publications

- 2021      Scheuer, Sebastian; Jache, Jessica; **Wellmann, Thilo**; Wolff, Manuel; Haase, Dagmar: Outlining a semantics-based Sino- European UF-NBS typology. 2021.
- 2021      Chen, Shanshan; Haase, Dagmar; Xue, Bing; **Wellmann, Thilo**; Qureshi, Salman: Integrating Quantity and Quality to Assess Urban Green Space Improvement in the Compact City. In: Land, 2021.
- 2021      Andersson, Erik; Haase, Dagmar; Anderson, Pippin; Cortinovis, Chiara; Goodness, Julie; Kendal, Dave; Lausch, Angela; McPhearson, Timon; Sikorska, Daria; **Wellmann, Thilo**: What are the traits of a social-ecological system: towards a framework in support of urban sustainability. In: npj Urban Sustainability, 2021.
- 2021      Scheuer, Sebastian; Haase, Dagmar; Haase, Annegret; Wolff, Manuel; **Wellmann, Thilo**: A glimpse into the future of exposure and vulnerabilities in cities? Modelling of residential location choice of urban population with random forest. In: Natural Hazards and Earth System Sciences, vol. 21, no. 1, pp. 203-217, 2021.
- 2021      Lessel, Tilia; **Wellmann, Thilo**: Umweltgerechtigkeit aus bürgerschaftlicher Perspektive: Handlungsempfehlung am Beispiel Berlin-Schöneberg. In: Stadt+Grün, vol. 01, 2021.

- 2021 Scheuer, Sebastian; Jache, Jessica; Sumfleth, Luca; **Wellmann, Thilo**; Haase, Dagmar: Creating accessible evidence bases: Opportunities through the integration of interactive tools into literature review synthesis. In: *MethodsX*, vol. 8, pp. 101558, 2021.
- 2020 Lausch, Angela; Schaepman, Michael E.; Skidmore, Andrew K.; [...] **Wellmann, Thilo**; Werban, Ulrike; Zacharias, Steffen; Thiel, Christian: Linking the Remote Sensing of Geodiversity and Traits Relevant to Biodiversity?Part II: Geomorphology, Terrain and Surfaces. In: *Remote Sensing*, vol. 12, no. 22, pp. 3690, 2020.
- 2020 Andersson, Erik; Haase, Dagmar; Scheuer, Sebastian; **Wellmann, Thilo**: Neighbourhood character affects the spatial extent and magnitude of the functional footprint of urban green infrastructure. In: *Landscape Ecology*, vol. 35, no. 7, pp. 1605-1618, 2020.
- 2020 Castillo-Cabrera, Fernando; **Wellmann, Thilo**; Haase, Dagmar: Urban Green Fabric Analysis Promoting Sustainable Planning in Guatemala City. In: *Land*, 2020.
- 2020 **Wellmann, Thilo**; Schug, Franz; Haase, Dagmar; Pflugmacher, Dirk; van der Linden, Sebastian: Green growth? On the relation between population density, land use and vegetation cover fractions in a city using a 30-years Landsat time series. In: *Landscape and Urban Planning*, 2020, ISSN: 0169-2046.
- 2020 **Wellmann, Thilo**; Lausch, Angela; Andersson, Erik; Knapp, Sonja; Cortinovis, Chiara; Jache, Jessica; Scheuer, Sebastian; Kremer, Peleg; Mascarenhas, André; Kraemer, Roland; Schug, Franz; Haase, Annegret; Haase, Dagmar: Remote sensing in urban planning: Contributions towards ecologically sound policies?. In: *Landscape and Urban Planning*, vol. 204, pp. 103921, 2020.
- 2020 **Wellmann, Thilo**; Lausch, Angela; Scheuer, Sebastian; Haase, Dagmar: Earth observation based indication for avian species distribution models using the spectral trait concept and machine learning in an urban setting. In: *Ecological Indicators*, vol. 111, pp. 106029, 2020.
- 2019 Haase, Dagmar; Jänicke, Clemens; **Wellmann, Thilo**: Front and back yard green analysis with subpixel vegetation fractions from earth observation data in a city. In: *Landscape and Urban Planning*, vol. 182, pp. 44-54, 2019.
- 2018 **Wellmann, Thilo**; Haase, Dagmar; Knapp, Sonja; Salbach, Christoph; Selsam, Peter; Lausch, Angela: Urban land use intensity assessment: The potential of spatio-temporal spectral traits with remote sensing. In: *Ecological Indicators*, vol. 85, pp. 190-203, 2018.

## Conference Presentations

- Liege, Belgium 2021  
**Wellmann, T.**, Schug, F., Haase, D., Pflugmacher, D., van der Linden, S. Green growth? On the relation between population density, land use and vegetation cover fractions in a city using a 30-years Landsat time series. Online talk delivered at the EARSeL Liege 2020 (postponed to 2021)
- Poznan, Poland 2021  
**Wellmann, T.** Everything in its right place? On the Spatial Dimension of Biophilic and Biophobic developments in a City. Oral presentation delivered at the SURE 2021 in Poznan.
- Osnabrück, Germany 2021  
**Wellmann, T. und Mösch, S.** Stadtnatur und der Weg zur biophilen Stadt. Oral online presentation delivered at the DBU Colloquium.
- Osnabrück, Germany 2020  
**Wellmann, T. Fernerkundung in Stadtplanung und -ökologie.** Oral online presentation delivered at the DBU Colloquium.
- Milano, Italy 2019  
**Wellmann, T.**, Haase, D., Lausch, A., Andersson, E. Cultural Ecosystem Services Assessment with Earth Observation Based Spectral Traits. Oral presentation delivered at the 10th IALE WORLD CONGRESS, Milano.
- Berlin, Germany 2019  
**Wellmann, T.** Towards a holistic urban ecological indicator using Earth observation based plant trait indicators and machine learning. Hyperspektralbefliegungen in Leipzig und Berlin
- Vienna, Austria 2019  
**Wellmann, T.**, Scheuer, S., Lausch, A., Haase, D. Modelling the distribution of 44 urban bird species using Earth observation based plant traits and machine learning. Poster presentation at the EGU General Assembly 2019
- Berlin, Germany 2018  
**Wellmann, T.**, Haase, D., Knapp, S. and Lausch, A. Urban land use intensity assessment – the potential of remote sensing. Poster presentation delivered at the 2nd international TERENO conference.
- Jena, Germany 2018  
**Wellmann, T.**, Scheuer S., Lausch, A. and Haase, D. Modelling urban bird breeding ranges with remotely sensed heterogeneity in plant traits using a random forest. Oral presentation delivered at the 10th International Conference on Ecological Informatics (ICEI).
- Ghent, Belgium 2017  
**Wellmann, T.**, Haase, D., Knapp, S. and Lausch, A. Urban land use intensity assessment – the potential of remote sensing. Oral presentation delivered at the European congress of the International association of landscape ecology (IALE).
- Prora, Germany 2016  
**Wellmann, T.**, Haase, D. and Lausch, A. Spatio-temporal spectral traits of earth observation for quantifying and assessing urban land use intensity. Oral presentation delivered at the annual meeting of the German chapter of IALE.

## Teaching

Berlin, Germany 2022	<b>Studying accessibility to urban green spaces and their barriers – from concepts to planning solutions</b> Humboldt-Universität zu Berlin, Lecturer with Dagmar Haase and Manuel Wolff 10 ECTS Bachelor course
Stockholm, Sweden 2022	<b>Sustainable Cities in the Nordic-Baltic Region 2022</b> Stockholm Resilience Centre, Sweden. Tutor in a workshop 5 ECTS Masters Course
Berlin, Germany 2021	<b>Green Infrastructure - Grüne Infrastruktur</b> Humboldt-Universität zu Berlin, Lecturer with Dagmar Haase and Manuel Wolff 10 ECTS Bachelor Course
Riga, Latvia 2021	<b>Sustainable Cities in the Nordic-Baltic Region 2020</b> University of Riga, Latvia. Tutor in an online workshop 5 ECTS Masters Course

## Awards and Grants

2021	<b>BiodivRestore Joint Call 2020-2021 from WaterJPI and Biodiversa grant winner together with Dagmar Haase (BiNatUr project)</b>
2020	<b>Best master thesis award</b> BUND - Bund für Umwelt und Naturschutz Deutschland
2019 - present	<b>Doctoral student grant</b> DBU (Deutsche Bundesstiftung Umwelt, German Federal Environmental Agency)
2019	<b>Humboldt-Researchtrack scholarship grant</b> Excellence initiative of Humboldt-Universität zu Berlin

## Skills

### Computer languages

R, Python, HTML, Google Earth Engine (Javascript)

### Data science skills

Spatial statistics, Remote sensing data pre-processing and analysis, batch processing in python and R, advanced visualisation skills in R

### Languages

German (mother tongue), English (fluent), Spanish (conversation level)