

# Dr. Holger Sennhenn-Reulen

## Curriculum Vitae

May, 2024

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# 1 Personal Details

## Profession

Statistician

## Affiliations

↪ *Department of Forest Growth, Northwest German Forest Research Institute (NW-FVA).*

↪ Associated member @ RTG 2300: *Enrichment of European beech forests with conifers.*

## E-Mail

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## Telephone

+49 551 69401 206

## Private Website

<https://uncertaintree.github.io/>

## Address (professional)

Nordwestdeutsche Forstliche Versuchsanstalt

Grätzelstrasse 2

37079 Göttingen

Germany

## Birth

13/01/1986, Giengen an der Brenz, Germany

## Citizenship

Germany

## Family status

Married, two children

## 2 Working Experience

### 2.1 In Academia

#### 09/2017 – present

*Statistician, Department of Forest Growth, Northwest German Forest Research Institute (NW-FVA):* Consultation on study design and statistics/data analysis. Execution of statistical analysis for research projects, assistance in writing of reports and publications, methodological teaching, development of statistical methodology.

#### 10/2015 – 08/2017

*Statistician, Leibniz-ScienceCampus Primate Cognition:* Organization and holding of Biostatistics workshops and courses, development of a teaching concept *Biostatistics* for PhD students, statistical consulting, contribution to research projects of the Leibniz-ScienceCampus.

#### 01/2012 – 09/2015

*Teaching/research assistant, Chair of Statistics, Faculty of Economic Sciences, Georg-August-University Göttingen:* Assistance in the supervision of theses and holding classes at the Faculty of Economic Sciences.

#### 04/2011 – 12/2011

*Research/student assistant, Division of Epidemiology, Institute of Social Paediatrics and Adolescent Medicine, Ludwig-Maximilians-University Munich:* Statistical analysis of child growth data.

#### 10/2009 – 03/2011

*Student assistant, Statistical Consulting Unit (StaBLab), Department of Statistics, Ludwig-Maximilians-University Munich (LMU):* Statistical consultation and supervision of the statistical practical training for bachelor students in Statistics.

### 2.2 Outside Academia

#### 12/2008 – 09/2009

*Student employee, Group Market Management, Allianz SE:* Invoice control, database administration.

#### 09/2005 – 05/2006

*Civil service, Paul-Gerhardt-Stift Giengen an der Brenz:* Mobile social service.

## 3 Education

### 3.1 University

**01/2012 – 03/2015**

*Doctoral studies (Dr. rer. pol.) at Chair of Statistics, Faculty of Economic Sciences, Georg-August-University Göttingen.*

- ↪ Title of dissertation: *Modelling Combined Transition-type Effects in Multi-state Models* (Grade: magna cum laude). Supervisors: Prof. Dr. Thomas Kneib, Prof. Dr. Helmut Herwartz, Prof. Dr. Tatyana Krivobokova.
- ↪ *Associated member of RTG 1644: Scaling Problems in Statistics*, with completing the study program containing methodological and skill courses.

**10/2009 – 09/2011**

*Masters studies (M. Sc.) in Statistics, Department of Statistics, Ludwig-Maximilians-University Munich (LMU). Overall grade: 1.33.*

- ↪ Title of master thesis (English translation): *When do effects of risks emerge? Modelling longitudinal BMI measurements across childhood by flexible Quantile Regression* (Grade: 1.0). Supervisor: Prof. Dr. Torsten Hothorn.

**10/2006 – 09/2009**

*Bachelor studies (M. Sc.) in Statistics (Application field: Medical Biometry), Department of Statistics, Ludwig-Maximilians-University Munich (LMU). Overall grade: 1.77.*

- ↪ Title of bachelor thesis (English translation): *Spatial Smoothing using Kriging* (Grade: 1.3). Supervisor: Prof. Dr. Gerhard Tutz.

### 3.2 Primary and Secondary School

**08/1996 – 07/2005**

*Margarete-Steiff-Gymnasium, Giengen an der Brenz.*

**08/1992 – 07/1996**

*Grundschule Schwageschule, Giengen an der Brenz.*

## 4 Publications & Scientific Activities

### 4.1 Peer-Reviewed

#### Submitted

C. Hackmann, H. Sennhenn-Reulen, M. Mund, C. Ammer:

*Neighborhood identity matters under drought – assessing tree water deficit of European beech, Norway spruce and Douglas fir*, submitted to 'Global Change Biology'.

#### 2024

M. Audisio, H. Sennhenn-Reulen, I. Schott, S. Paligi, K. Mrak, D. Hertel, C. Leuschner, A. Polle: *Mycorrhization, root tip vitality and biomass of Fagus sylvatica, Picea abies and Pseudotsuga menziesii in monospecific and mixed combinations under water reduction and nitrogen addition*, 'Trees'.

DOI: <https://doi.org/10.1007/s00468-024-02509-6>

B. Wildermuth, A. Penanhoat (shared 1<sup>st</sup> authors), H. Sennhenn-Reulen, D. Matevski, J. Drescher, M. Aubry-Kientz, D. Seidel, A. Schuldt:

*Forest structural effects on arthropod communities within and beyond tree identity effects: a machine learning approach*, 'Ecological Indicators'.

DOI: <https://doi.org/10.1016/j.ecolind.2024.111901>

#### 2023

T. Zeppenfeld, C. Jung, D. Schindler, H. Sennhenn-Reulen, M.J. Ipsen, M. Schmidt:

*Winter storm risk assessment in forests with high resolution gust speed data*, European Journal of Forest Research.

DOI: <https://doi.org/10.1007/s10342-023-01575-8>

N. von Lüpke, H. Sennhenn-Reulen (shared 1<sup>st</sup> authors):

*Quantifying success share and plant density of direct seeding of Douglas fir using a hurdle negative binomial regression model*, New Forests.

DOI: <https://doi.org/10.1007/s11056-022-09927-9>

#### 2022

E. W. Heymann, S. Thiel, F. M. D. Paciência, M. N. Rimachi Taricuarima, R. Zárate Gómez, N. S. Tello, K. Heer, H. Sennhenn-Reulen, R. Mundry:

*Non-random host tree infestation by a Neotropical liana*, PeerJ.

DOI: <https://doi.org/10.7717/peerj.14535>

L. Zeller, C. Baumann, P. Gonin, L. Heidrich, C. Keye, F. Konrad, L. Larrieu, P. Meyer, H. Sennhenn-Reulen, J. Müller, P. Schall, C. Ammer:

*Index of biodiversity potential (IBP) versus direct species monitoring in temperate forests*, Ecological Indicators.

DOI: <https://doi.org/10.1016/j.ecolind.2022.108692>

#### 2021

D. Tamke, H. Sennhenn-Reulen, R. Petersen:

*Initiale Entwicklung von Eiche nach Bodenbearbeitung (im Nordwesten Deutschlands)*, AFJZ.

DOI: <https://doi.org/10.23765/afjz0002086>

## 2019

L. Demant, P. Meyer, H. Sennhenn-Reulen, H. Walentowski, E. Bergmeier:  
*Seeking consensus in German forest conservation: An analysis of contemporary concepts*, Nature Conservation.  
DOI: <https://doi.org/10.3897/natureconservation.35.35049>

A. Mölder, H. Sennhenn-Reulen, C. Fischer, H. Rumpf, E. Schönfelder, J. Stockmann, R.-V. Nagel:  
*Success factors for high-quality oak forest (Quercus robur, Q. petraea) regeneration*, Forest Ecosystems.  
DOI: <https://doi.org/10.1186/s40663-019-0206-y>

## 2018

A. Goffe, J. Fischer, H. Sennhenn-Reulen:  
*Bayesian inference and simulation approaches improve the assessment of Elo-ratings in the analysis of social behaviour*, Methods in Ecology and Evolution.  
DOI: <https://doi.org/10.1111/2041-210X.13072>

J. Hosemann, A. Herrmann, H. Sennhenn-Reulen, M. Schlesewsky, M. Steinbach:  
*Agreement or no agreement. ERP correlates of verb agreement violation in German Sign Language*, Language, Cognition and Neuroscience.  
DOI: <https://doi.org/10.1080/23273798.2018.1465986>

## 2017

L. Almeling, K. Hammerschmidt, H. Sennhenn-Reulen, A. Freund, J. Fischer:  
*Social interactions and activity patterns of old Barbary macaques: further insights into the foundations of social selectivity*, American Journal of Primatology.  
DOI: <https://doi.org/10.1002/ajp.22711>

H. Sennhenn-Reulen, L. Diedhiou, M. Klapproth, D. Zinner:  
*Estimation of baboon daily travel distances by means of point sampling – the magnitude of underestimation*, Primate Biology.  
DOI: <http://doi.org/10.5194/pb-4-143-2017>

J. Fischer, M.S. Farnworth, H. Sennhenn-Reulen, K. Hammerschmidt:  
*Quantifying Social Complexity*, Animal Behaviour.  
DOI: <http://doi.org/10.1016/j.anbehav.2017.06.003>

W. Hammerschmidt, H. Sennhenn-Reulen, A. Schacht:  
*Associated motivational salience impacts early sensory processing of human faces*, NeuroImage.  
DOI: <http://doi.org/10.1016/j.neuroimage.2017.04.032>

## 2016

H. Sennhenn-Reulen, T. Kneib:  
*Structured Fusion Lasso Penalised Multi-State Models*, Statistics In Medicine.  
DOI: <http://dx.doi.org/10.1002/sim.7017>

L. Almeling, K. Hammerschmidt, H. Sennhenn-Reulen, A.M. Freund, J. Fischer:  
*Motivational shifts in aging monkeys and the origins of social selectivity*, Current Biology.  
DOI: <http://dx.doi.org/10.1016/j.cub.2016.04.066>

A. Álvaro-Meca, M. Jiménez-Sousa, A. Boyer, J. Medrano, H. Reulen, T. Kneib, S. Resino:  
*Impact of chronic hepatitis C on mortality in cirrhotic patients admitted to intensive-care unit*,  
BMC Infectious Diseases.  
DOI: <http://dx.doi.org/10.1186/s12879-016-1448-8>.

## 2015

V. Schmitt, I. Federspiel, J. Eckert, S. Keupp, L. Tschernek, L. Faraut, R. Schuster, C. Michels,  
H. Sennhenn-Reulen, T. Bugnyar, T. Mussweiler, J. Fischer:  
*Do monkeys compare themselves to others?*, Animal Cognition.  
DOI: <http://dx.doi.org/10.1007/s10071-015-0943-4>.

H. Reulen, T. Kneib:  
*Boosting Multi-State Models*, Lifetime Data Analysis.  
DOI: <http://dx.doi.org/10.1007/s10985-015-9329-9>.

## 2013

I. Nehring, A. Chmitorz, H. Reulen, R. von Kries, R. Ensenaer:  
*Gestational Diabetes Predicts the Risk of Childhood Overweight and Abdominal Circumference  
Independent of Maternal Obesity*, Diabetic Medicine.  
DOI: <http://dx.doi.org/10.1111/dme.12286>.

I. Podolski, E. Belotti, L. Bufka, H. Reulen, M. Heurich:  
*Seasonal and Daily Activity Patterns of Free-Living Eurasian Lynx (Lynx Lynx) in Relation to  
Availability of Kills*, Wildlife Biology.  
DOI: <http://dx.doi.org/10.2981/12-049>.

## 2012

R. von Kries, H. Reulen, O. Bayer, C. Riedel, K. Diethelm, A. E. Buyken:  
*Increase in Prevalence of Adiposity Between the Ages of 7 and 11 Years Reflects Lower Remission  
Rates During this Period*, Pediatric Obesity.  
DOI: <http://dx.doi.org/10.1111/j.2047-6310.2012.00084.x>.

M. Heurich, L. Möst, G. Schauburger, H. Reulen, P. Sustr, T. Hothorn:  
*Survival and Causes of Death of European Roe Deer Before and After Eurasian Lynx Introduc-  
tion in the Bavarian Forest National Park*, European Journal of Wildlife Research.  
DOI: <http://dx.doi.org/10.1007/s10344-011-0606-y>.

## 2011

S. Schorn, K. Pfister, H. Reulen, M. Mahling, C. Silaghi:  
*Occurrence of Babesia spp., Rickettsia spp. and Bartonella spp. in Ixodes Ricinus in Bavarian  
Public Parks, Germany*, Parasites & Vectors.  
DOI: <http://dx.doi.org/10.1186/1756-3305-4-135>.

S. Schorn, K. Pfister, H. Reulen, M. Mahling, J. Manitz, C. Thiel, C. Silaghi:  
*Prevalence of Anaplasma Phagocytophilum in Ixodes Ricinus in Bavarian Public Parks, Ger-  
many*, Ticks and Tick-Borne Diseases.  
DOI: <http://dx.doi.org/10.1016/j.ttbdis.2011.09.009>.

## 4.2 Conference Papers & Talks

**2022** H. Sennhenn-Reulen: Too Applied? Applying Applied Statistics for Applied Forest Research  
@ Retreat of the Chair of Statistics, University of Göttingen.

**2021** N. von Lüpke, H. Sennhenn-Reulen: Bestimmung des Kulturerfolgs von Douglasien-Direktsaaten durch Hurdle-Negativ-Binomialverteilungs-Regression  
@ Jahrestagung Sektion Waldbau, Verband Deutscher Forstlicher Versuchs- & Forschungsanstalten.

D. Tamke, U. Talkner, H. Sennhenn-Reulen: Auswirkung von Bodenbearbeitungen auf den Nährstofffluss in Waldböden  
@ FowiTa (Forstwissenschaftliche Tagung, Online).

H. Sennhenn-Reulen, N. von Lüpke: Quantifying Success Share and Plant Density of Direct Seeding of Douglas Fir Using a Hurdle Negative Binomial Regression Model  
@ Research Seminar of the Chairs of Statistics & Econometrics, University of Göttingen (Online).

N. von Lüpke, H. Sennhenn-Reulen: Bestimmung des Kulturerfolgs von Douglasien-Direktsaaten durch Hurdle-Negativ-Binomialverteilungs-Regression  
@ Jahrestagung Sektion Ertragskunde, Verband Deutscher Forstlicher Versuchs- & Forschungsanstalten (Online).

**2020** H. Sennhenn-Reulen: Bayesianische Modellierung zur Schätzung und Gewichtung von Wachstumsfunktionen  
@ Workshop "Uncertainty of Measurement, sampling statistics, theory of probability, and metrology" of the Working Groups Ecology and Environment, Bayes Methods, Spatial Statistics (Internat. Biometric Society, German Region) and Biometry (German Assoc. of Forest Research Stations, DVFFA)  
(Cancelled due to Covid-19 pandemic)

**2019** H. Sennhenn-Reulen: Learning to fly, but we ain't got wings: Model-configuration-space shifts in applied statistical models using the probabilistic-programming-language Stan  
@ RTG 1644 'Scaling Problems in Statistics' Closing Workshop

**2018**

L. Demant, P. Meyer, H. Sennhenn-Reulen, H. Walentowski, E. Bergmeier: Is there a consensus in German forest conservation? Targeting forest conservation with compensatory payments  
@ European Conference on Computational Biology

J. Sauer, H. Sennhenn-Reulen, J. Nagel: Struktur und Dynamik von Mischbeständen mit Buche, Fichte und Douglasie  
@ Jahrestagung Sektion Ertragskunde, Verband Deutscher Forstlicher Versuchs- & Forschungsanstalten

A. Kistemaker, H. Sennhenn-Reulen, M. Albert, J. Nagel: Zum Phänomen des Umsetzens – ein altes Thema neu aufgegriffen  
@ Jahrestagung Sektion Ertragskunde, Verband Deutscher Forstlicher Versuchs- & Forschungsanstalten



## 2014

H. Reulen, T. Kneib: Sparse Multi-State Modelling  
@ Session “New Software Developments for Competing Risks and Multi-State Models”, 7. International Conference of “European Consortium for Informatics and Mathematics (ERCIM) Working Group on Computing and Statistics”

## 2013

H. Reulen, T. Kneib: Boosting Multi-State Models  
@ Session “Estimating and Modeling Functionals in Multistate Models”, International Conference of “European Consortium for Informatics and Mathematics (ERCIM) Working Group on Computing and Statistics”

H. Reulen, T. Kneib: Boosting Multi-State Models  
@ 28<sup>th</sup> “International Workshop on Statistical Modelling”

**2012** H. Reulen, T. Kneib: Modelling Interval Censored Multi-State Models Using Multi-Step Transition Probabilities  
@ 5. International Conference of “European Consortium for Informatics and Mathematics (ERCIM) Working Group on Computing and Statistics”

**2011** H. Reulen: Variable selection by boosting  
@ RTG 1644 ‘Scaling Problems in Statistics’ Seminar

## 4.3 Working papers & Pre-Prints

### 2018

H. Sennhenn-Reulen:  
*Bayesian Regression for a Dirichlet Distributed Response using Stan*, Arxiv.  
URL: <https://arxiv.org/abs/1808.06399>

## 4.4 Further Publications (Non-scientific Journals, Reports, . . . )

### 2023

D. Tamke, U. Talkner, H. Sennhenn-Reulen: *Nährstoffe dürfen nicht verloren gehen*, Deutscher Waldbesitzer.

### 2022

H. Fortmann, N. König, B. Ahrends, H. Meesenburg, B. Scheler, H. Sennhenn-Reulen: *Monitoring des Zustands von Waldböden in Hessen, Niedersachsen, Sachsen-Anhalt und Schleswig-Holstein von 1966 bis 2021 (Teil 1)*, Berichte der Sektion Waldökosystemforschung, Reihe B, Band 88.

URL: <https://doi.org/10.5281/zenodo.7327088>

H. Fortmann, N. König, B. Ahrends, H. Meesenburg, B. Scheler, H. Sennhenn-Reulen: *Monitoring des Zustands von Waldböden in Hessen, Niedersachsen, Sachsen-Anhalt und Schleswig-Holstein von 1966 bis 2021 (Teil 2)*, Berichte der Sektion Waldökosystemforschung, Reihe B, Band 88.

URL: <https://doi.org/10.5281/zenodo.7327270>

D. Tamke, U. Talkner, H. Sennhenn-Reulen: *Nährstoffe dürfen nicht verloren gehen*, Land & Forst.

D. Tamke, U. Talkner, H. Sennhenn-Reulen: *Bodenbearbeitung und Nährstoffnachhaltigkeit*, Forst & Technik.

D. Tamke, U. Talkner, H. Sennhenn-Reulen, J. Weidig: *Ergebnisse aus dem ABoNae-Projekt*, Im Dialog.

## **4.5 Reviewing Service**

### **2023**

R Journal

Statistical Modelling

Forest Ecology and Management

### **2022**

Revista de la Facultad de Agronomía de la Universidad del Zulia

### **2020**

Forest Ecology and Management

### **2017**

Computational and Mathematical Methods in Medicine

### **2014**

Journal of Statistical Software

The Annals of Applied Statistics

### **2013**

Statistics in Medicine

## 5 Teaching

### 2024

*Introduction to R* (English)

@ RTG 2300: Enrichment of European beech forests with conifers

### 2023

Introduction to Quantile Regression (1 hour, German)

@ Northwest German Forest Research Institute

Introduction to Bayesian Statistics (3 hours, German)

@ Northwest German Forest Research Institute

### 2021/22

Tutorials for *Statistical Modelling and Advanced Regression Analyses*

@ RTG 2300: Enrichment of European beech forests with conifers

### 2021

*Introduction to R* (Block-course, 12 hours, English)

@ RTG 2300: Enrichment of European beech forests with conifers

*Introduction to Study Design* (2 hours, English)

@ RTG 2300: Enrichment of European beech forests with conifers

### 2018

*Statistical Modelling and Advanced Regression Analyses* (English, 15 hours, with T. Kneib and N. Klein)

@ RTG 2300: Enrichment of European beech forests with conifers

### 2017/18

*Einführung in R* (German, 12 hours)

@ Northwest German Forest Research Institute

### 2017

*Basic Regression Modeling* (Block-course, 20 hours, English)

@ ScienceCampus 'Primate Cognition'

*Introduction to R* (Block-course, 12 hours, English)

@ ScienceCampus 'Primate Cognition'

*Basic Mathematics and Statistics* (Block-course, 12 hours, English)

@ ScienceCampus 'Primate Cognition'

### 2016

*Introduction to Bayesian Statistics* (Block-course, 18 hours, English)

@ ScienceCampus 'Primate Cognition'

*R for Advanced Users* (Block-course, 18 hours, English)

@ ScienceCampus 'Primate Cognition'

*Introduction to Mixed Models* (Block-course, 12 hours, English, with T. Kneib and P. Pütz)

@ ScienceCampus 'Primate Cognition'

*Basic Regression Modeling* (Block-course, 18 hours, English)  
@ ScienceCampus 'Primate Cognition'

*Basic Mathematics and Statistics* (Block-course, 12 hours, English)  
@ ScienceCampus 'Primate Cognition'

## 2015

*Lineare Modelle* (Tutorials, German)  
@ Georg-August-University Göttingen

## 2014/15

*Introduction to R* (Lectures & tutorials, English)  
@ Georg-August-University Göttingen

*Practical Statistical Training* (Practical, English/German, with T. Kneib)  
@ Georg-August-University Göttingen

## 2014

*Lineare Modelle* (Tutorials, German)  
@ Georg-August-University Göttingen

## 2013/14

*Introduction to R* (Lectures & tutorials, English)  
@ Georg-August-University Göttingen

*Introduction to Mixed Models and Spatial Statistics* (Tutorials, English)  
@ Georg-August-University Göttingen

*Preparation Course for Econometrics I* (Block-course, English, with B. Säfken)  
@ Georg-August-University Göttingen

## 2013

*Lineare Modelle* (Tutorials, German)  
@ Georg-August-University Göttingen

*Introduction to R* (Lectures & tutorials, English, with E. Waldmann)  
@ Georg-August-University Göttingen

*Preparation Course for Econometrics I* (Block-course, English, with B. Säfken)  
@ Georg-August-University Göttingen

*Applied Statistical Modeling* (Tutorials, English)  
@ Georg-August-University Göttingen

*Graduate Seminar in Applied Statistics* (Seminar, English, with T. Kneib)  
@ Georg-August-University Göttingen

*Introduction to  $\text{\LaTeX}$*  (Block-course, English)  
@ Georg-August-University Göttingen

## 2012

*Lineare Modelle* (Tutorials, German)  
@ Georg-August-University Göttingen

*R und L<sup>A</sup>T<sub>E</sub>X: Werkzeuge für Abschlussarbeiten mit empirischem/quantitativem Hintergrund*  
(Block-course, German, with J. Furche, E. Waldmann and T. Kneib)  
@ Georg-August-University Göttingen

## 2010/11

*Statistisches Anfängerpraktikum* (Practical, German, with H. Wagner)  
@ Ludwig-Maximilians-University Munich

## 2009/10

*Statistisches Anfängerpraktikum* (Practical, German, with H. Küchenhoff)  
@ Ludwig-Maximilians-University Munich