

## Rosa C Goodman, Ph.D.

Associate Senior Lecturer

Department of Forest Ecology and Management, SLU

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### Education

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- 2009–2013 **Ph.D. – Geography (Physical)**, University of Leeds, Leeds, UK  
*Dissertation:* Tropical tree and palm allometry and implications for forest carbon dynamics in southwestern Amazonia (Timothy Baker & Oliver Phillips, advisors)
- 2006–2009 **M.Sc. – Forest Science**, Purdue University, West Lafayette, Indiana, USA  
*Thesis:* Nitrogen fertilization of intensively managed black walnut plantations in west-central Spain (Douglass Jacobs, advisor; GPA 4.0/4.0)
- 2002–2006 **B.Sc. – Forestry and Natural Resources**, Purdue University, West Lafayette, USA  
Highest Distinction, Honors Program in Agriculture; GPA 4.0/4.0

### Employment

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- 2017–Present **Associate Senior Lecturer:** Swedish University of Agricultural Sciences (SLU), Department of Forest Ecology and Management, Umeå, Sweden
- 2019–Present **SLU Global Coordinator for the Faculty of Forest Sciences (20%)**
- 2017 **Postdoctoral Researcher:** Swedish University of Agricultural Sciences (SLU), Department of Forest Ecology and Management, Umeå, Sweden – Balancing production and ecosystem services from degraded tropical rain forests to aid the transition to a more sustainable bio-based economy
- 2016–2017 **Consultant:** Wageningen University & Guyana Forestry Commission – Developing allometric equations for aboveground biomass using terrestrial LiDAR
- 2014–2016 **Postdoctoral Associate & Project Coordinator:** Yale School of Forestry and Environmental Studies, New Haven, CT & The Nature Conservancy, Washington, DC – Science for Nature and People (SNAP) Working Group: Forest sharing or sparing for conservation and communities in tropical timber landscapes?
- 2014 **Consultant:** World Wildlife Fund – Case study to quantify reductions in greenhouse gas emissions in Madre de Dios in areas practicing reduced impact logging techniques
- 2013–2014 **Consultant:** Center for International Forest Research (CIFOR) – Global Comparative Study on REDD+: Modules (2) REDD+ projects sites and (3) Monitoring and reference levels
- 2012 **Consultant:** World Wildlife Fund – REDD Readiness in Madre de Dios, Peru
- 2011 **Visiting Researcher:** Dr. Sassan Saatchi, Jet Propulsion Laboratory, NASA. Pasadena, CA, USA – LiDAR and remote sensing
- 2009 **Research Associate:** Purdue University, Department of Forestry and Natural Resources, West Lafayette, IN USA
- 2003–2006 **Research Assistant:** Dr. Douglass Jacobs's forest regeneration laboratory, Purdue University, West Lafayette, IN USA

### Graduate student supervision

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- 2019–Present **Co-supervisor:** Jenny Dahl (PhD), Dept. Forest Ecology and Management, SLU  
Thesis: Forest management and carbon balance of unmanaged & managed forests
- 2018–2019 **Co-supervisor:** Joel Jensen (MS), Dept. Forest Ecology and Management, SLU  
Thesis: Above- and belowground carbon stocks and tree diversity in restored and unrestored secondary tropical lowland dipterocarp rainforest in Sabah, Borneo

- 2016–2018 **Thesis technical advisor:** Alvaro Ivan Lau Sarmiento (PhD), Wageningen University & Research (WUR), Wageningen, The Netherlands  
Thesis: Assessing biomass and architecture of tropical trees with terrestrial laser scanning
- 2014–2015 **Thesis mentor:** Matias Harman Aramburu (Forest engineering), Universidad Nacional Agraria La Molina, Lima, Peru  
Thesis: Cuantificación de la reducción de emisiones de gases de efecto invernadero al implementar prácticas de aprovechamiento de impacto reducido versus prácticas de aprovechamiento convencional en la provincia de Tahuamanu

### Teaching and facilitation

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- 2019 **Course co-leader and lecturer:** SG0219: Sustainable Forest Management and Land Use in the Tropics. Jan–Mar 2019
- 2018 **Guest Lecturer:** Department of Forest Ecology and Management, SLU  
Forest Ecology: “Tropical forests: Tree architecture, forest structure, and carbon cycling”. 30 Jan. 2018  
Forest Vegetation Ecology: Tropical forests and climate change” 8 Feb. 2018
- 2016 **Facilitator,** International Society of Tropical Foresters annual meeting, Yale University, 28–30 Jan 2016
- 2015 **Guest Lecturer:** School of Forestry and Environmental Studies, Yale University  
F&ES 752: Ecology & Conservation of Tropical Forests: “Forest Management as a Conservation Tool”
- 2009–2012 **Teaching Assistant:** School of Geography, University of Leeds  
GEOG1220: Geography, Environment and Society  
GEOG1300: Geography Tutorials  
GEOG2230: Social Data Analysis  
GEOG2250: Environmental Systems Analysis  
GEOG3030: Tropical Rain Forests: Past, Present and Future  
GEOG3600: Dissertation Design
- 2011 **Guest Professor:** Continuing education course “Gestión Ambiental REDD y Monitoreo, Reporte y Verificación (MRV)” given by Universidad Nacional Amazonia Madre de Dios (UNAMAD) and World Wildlife Fund (WWF). Puerto Maldonado, Madre de Dios, Peru
- 2004–2008 **Teaching Assistant:** Department of Forestry and Natural Resources, Purdue University  
FNR 225: Dendrology and Wildland Plants  
FNR 353: Natural Resources Measurements

### Professional service

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- 2019–Present **Training of Trainers:** “Silviculture and management of natural forests” module within Ethiopia Forest Sector Development Program
- 2019–Present **Faculty of Forest Sciences International Committee:** Representative from Dept. Forest Ecology and Management, SLU, Umeå
- 2018–2019 **Project Group:** Development of a new Master’s program in Forest Ecology and Sustainable Management, Dept. Forest Ecology and Management
- 2013 **MRV Expert on Forest Inventories:** “REDD+ Measuring, Reporting and Verification – Science solutions to policy challenges”, World Wildlife Fund, Zeist, The Netherlands

## Peer-reviewed publications

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- (Citations 1531, h-index 12, i10-index 13; Google Scholar 7-Dec-2019)
- [20] de Souza FC‡, et al. Evolutionary diversity is associated with wood productivity in Amazonian forests. *Nature Ecology and Evolution*, 1-8 ‡**Student author**
- [19] Lau A‡, Calders K, Bartholomeus H, Martius C, Raunonen P, Herold M, Vicari M, Sukhdeo H, Singh J, Goodman RC. 2019. Tree Biomass Equations from Terrestrial LiDAR: A Case Study in Guyana. *Forests* 10 (6), 527
- [18] Jackson T‡, Shenkin A, Moore J, Bunce A, Van Emmerik T, Kane B, Burcham D, James K, Selker J, Calders K, Origo N, Disney M, Burt A, Wilkes P, Raunonen P, Gonzalez de Tanago Menaca J, Lau A, Herold M, **Goodman RC**, Fourcaud T, Malhi Y. 2019. An architectural understanding of natural sway frequencies in trees. *J. Royal Society Interface* 16 (155).
- [17] **Goodman RC**, Harman Aramburu M, Gopalakrishna T, Putz FE, Gutiérrez N, Mena Alvarez JL, Aguilar-Amuchastegui N, Ellis PW. 2019. Carbon emissions and potential emissions reductions from low-intensity selective logging in southwestern Amazonia. *Forest Ecology and Management* 439: 18-27.
- [16] Ellis PW, Gopalakrishna T, **Goodman RC**, Roopsind A, Griscom BW, Umunay PM, Zalman J, Ellis E, Mo K, Gregoire TG, Putz FE. 2019. Climate-effective reduced-impact logging (RIL-C) can halve selective logging emissions from tropical forests. *Forest Ecology and Management* 438: 255-266,
- [15] Fauset S, Gloor M, Fyllas N, Phillips OL, Asner GP, Baker TR, Bentley L, Brienen R, Christoffersen B, del Aguilar-Pasquel J, Doughty C, Feldpausch TR, Galbraith D, **Goodman RC**, et al. 2019. Individual-based modelling of Amazon forests suggests that climate controls productivity while traits control demography. *Frontiers in Earth Science* 7: 83
- [14] Griscom BW\*, **Goodman RC\***, Burivalova Z\*, Putz FE. 2018. Carbon and biodiversity impacts of intensive versus extensive tropical forestry. *Conservation Letters*. 11(1): e12362. \***Equal contributions**
- [13] Gonzalez de Tanago J‡, Lau A‡, Bartholomeus H, Herold M, Avitabile V, Raunonen P, Martius C, **Goodman RC**, Disney M, Manuri S, Burt A, Calders K. 2018. Estimation of above-ground biomass of large tropical trees with Terrestrial LiDAR. *Methods in Ecology and Evolution* 9(2): 223-234.
- [12] Ploton P‡, Barbier B, Momo S, Chuyong G, Dauby G, Droissart V, Fayolle A, **Goodman RC**, et al. 2016. Closing a gap in tropical forest biomass estimation: Accounting for crown mass variation in pantropical allometries. *Biogeosciences* 13, 1571-1585.
- [11] Griscom BW, **Goodman RC**. 2015. Reframing the sharing vs sparing debate for tropical forestry landscapes. *J. Tropical Forest Science* 27(2): 145-147.
- [10] Chave J, Réjou-Méchain M, Búrquez M, Chidumayo E, Colgan MS, Delitti WBC, Duque A, Eid T, Fearnside PM, **Goodman RC**, et al. 2014. Improved allometric models to estimate the aboveground biomass of tropical trees. *Global Change Biology* 20: 3177-3190.
- [9] **Goodman RC**, Phillips OL, Baker TR. 2014. The importance of crown dimensions to improve tropical tree biomass estimates. *Ecological Applications* 24(4): 680–698.
- [8] **Goodman RC**, Oliet JA, Sloan JL, Jacobs DF. 2014. Nitrogen fertilization of intensively managed black walnut (*Juglans nigra* L.) during plantation establishment: Physiology of production. *European J. Forest Research* 133: 153-164.
- [7] **Goodman RC**, Phillips OL, Baker TR. 2013. Amazon palm biomass and allometry. *Forest Ecology and Management* 310: 994-1004.
- [6] **Goodman RC**, Oliet JA, Pardillo G, Jacobs DF. 2013. Nitrogen fertilization of black walnut (*Juglans nigra* L.) during plantation establishment: Morphology and production efficiency. *Forest Science* 59(4): 453-463.

- [5] **Goodman RC**, Phillips OL, Baker TR. 2012. Tropical forests: Tightening up on tree carbon estimates. *Nature* 491(7425): 527-527.
- [4] Jacobs DF, **Goodman RC**, Gardiner ES, Salifu KF, Overton RP, Hernandez G. 2012. Nursery stock quality as an indicator of bottomland hardwood forest restoration success in the Lower Mississippi River Alluvial Valley. *Scandinavian J. Forest Research* 27(3): 255-269.
- [3] **Goodman RC**, Jacobs DF, Apostol KG, Wilson BC, Gardiner ES. 2009. Winter variation in physiological status of cold stored and freshly lifted semi-evergreen *Quercus nigra* seedlings. *Annals of Forest Science* 66: 103-110.
- [2] Jacobs DF, Davis AS, Wilson BC, Dumroese RK, **Goodman RC**, Salifu KF. 2008. Short-day treatment alters Douglas-fir seedling dehardening and transplant root proliferation at varying rhizosphere temperatures. *Canadian J. Forest Research* 38: 1526-1535.
- [1] **Goodman RC**, Jacobs DF, Karrfalt RP. 2005. Evaluating desiccation sensitivity of *Quercus rubra* acorns using X-ray image analysis. *Canadian J. Forest Research* 35: 2823–2831.

### Book chapter and commissioned working paper

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- [2] Tittler R, Messier C, **Goodman RC**. 2016. Triad forest management: Local fix or global solution? In Larocque GR (ed.) *Ecological Forest Management Handbook*. Taylor & Francis Group/CRC Press, Boca Raton.
- [1] **Goodman RC**, Herold M. 2014. Why Maintaining Tropical Forests is Essential and Urgent for a Stable Climate. CGD Working Paper 385. Washington, DC: Center for Global Development 56 p.

### Mixed-media outreach

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- [3] **Goodman RC**. Webinar: WWF Forests and Climate webinar. 30 Oct 2019  
<[https://www.youtube.com/watch?v=P3DOG\\_A3olM&feature=youtu.be](https://www.youtube.com/watch?v=P3DOG_A3olM&feature=youtu.be)>
- [2] **Goodman RC**. Webinar: Developing Allometric Equations for REDD+ MRV. WWF Forest and Climate Programme's online REDD+ Learning Sessions. 28 May 2014.  
<http://reddcommunity.org/content/developing-allometric-equations-redd-mrv>
- [1] Jacobs DF, **Goodman RC**, Weeks SS. 2009. Stewart's Woods Dendrology Tree Trail Podcast. FNR Extension Publication. FNR-407<<https://mdc.itap.purdue.edu/item.asp?itemID=19516>>

### Open-source database

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- [1] **Goodman RC**, Phillips OL, Baker T R. 2013. Data from: The importance of crown dimensions to improve tropical tree biomass estimates. Dryad Digital Repository.  
<http://dx.doi.org/10.5061/dryad.p281g>

### Consultancy and internal reports

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- [8] **Goodman RC**, Ellis PW. 2015. Science for Nature and People (SNAP) Working Group: Forest sharing or sparing for conservation and communities in tropical timber landscapes – Yucatan Peninsula Case Study. Project Development Document. 31 p.
- [7] **Goodman RC**. 2015. SNAP Working Group: Forest sharing or sparing for conservation and communities in tropical timber landscapes. Project Development Document. 43 p.
- [6] **Goodman RC**. 2014. Global Comparative Study on REDD+: Module 2 and 3 – Madre de Dios field campaign. Results: Tree volume and impact of selective logging in Brazil nut concessions of Madre de Dios, Peru. Report prepared for CIFOR. 22 p.
- [5] Harman M, **Goodman RC**. 2014. Cuantificación de la reducción de emisiones de gases de efecto invernadero al implementar prácticas de aprovechamiento de impacto reducido versus prácticas tradicionales de aprovechamiento en la provincia de Tahuamanu, Región Madre De Dios. Report prepared for World Wildlife Fund. 30 p.

- [4] **Goodman RC**, Baker TR, Phillips OL. 2012. Consultancy to establish the technical guidelines to complete a carbon baseline and design a measurement and monitoring system for carbon stocks in the region of Madre de Dios, Peru. Reports prepared for WWF. 97 p.
- [3] **Goodman RC**, Burney OT, Jacobs DF. 2009 Annual Monitoring Report Seedling Plantings For the Habitat Conservation Plan For the Six Points Road Interchange and Associated Development. Report prepared for Indianapolis Airport Authority. 88 p.
- [2] **Goodman RC**, Jacobs DF. 2007. An Analysis of Growth and Yield in Black Walnut Plantations Managed by ArborAmerica, Inc. Report prepared for ArborAmerica, Inc. 22 p.
- [1] **Goodman RC**. Physiographic, socio-economic, and forestry issues in Tanzania and the Kigoma Region. 2006. Report prepared for Maximum Yield Associates.

### **Workshops organized**

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Stakeholder workshop, field trip, and internal working group meeting for SNAP working group: Forest sharing or sparing for conservation and communities in tropical timber landscapes – Yucatan Peninsula case study, Bacalar, Quintana Roo, Mexico. 25-30 Oct. 2015.

SNAP working group meeting: Forest sharing or sparing for conservation and communities in tropical timber landscapes. National Center for Ecological Analysis and Synthesis (NCEAS), Santa Barbara, CA 19-23 Feb. 2015.

### **Research grants (Total > 7 million SEK)**

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Vetenskapsrådet Utvecklingsforskning (PI), 4,498,723 SEK, 2020–2023

Science for Nature and People (co-applicant), US\$250,000, 2014–2016

World Wildlife Fund–Peru (applicant): US\$10,000, 2011

Royal Geographical Society, Geographical Fieldwork Grant (applicant): GB£500, 2011

Anglo-Peruvian Society (applicant), GB£500, 2011

The Tambopata Reserve Society (applicant), GB£300, 2011

National Science Foundation, International Research Experience (applicant): US\$15,000, 2006–2008

### **Professional certifications and postdoctoral training**

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Courses in Pedagogy, EPU, SLU

- Doctoral supervision (3 weeks), 2019
- Teaching in Higher Education, basic course (3 weeks), 2018
- Grading and Assessment (3 days), 2019

Greenhouse Gas Verifier training, NSF International, Ann Arbor, MI, USA, 20–22 Aug. 2018

Bayesian statistics and Markov chain Monte Carlo methods, Swedish University of Agricultural Sciences (SLU), 3-17 May 2017

Project Design, Evaluation, and Monitoring, Project Management for Development, 2016

Facilitation, Yale School of Forestry and Environmental Studies & The Forest Dialogue, 2016

Methods of Capacity Building, Yale School of Forestry and Environmental Studies, 2015

Science Communications with Joe Palca (NPR science correspondent), Yale University, 2015

Learn to Code: Zero to Sixty Data Analysis (Python), Yale University, 5 Oct–9 Nov 2015

Spatio-temporal analysis and big data processing using free and open source software, Spatial Ecology, 2015

Visiting researcher, National Center for Ecological Analysis and Synthesis (NCEAS), 2015

Network of Conservation Educators and Practitioners (NCEP) Teaching and Learning Studio, American Museum of Natural History, 2015

Introduction to Marxan, Intermediate Marxan, & Marxan for Managers: PacMARA, 2015

Women in Science at Yale (WISAY) mentor and mentee, 2014-2016

## Languages, software, and applicable skills

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**Languages:** **English** (native language), **Spanish** (professional proficiency – written and spoken), **Swedish** (basic, in progress)

Statistical analysis software: R statistical platform, Statistical Analysis Software® (SAS)

Standard software: Microsoft Office® Word, Excel, and Powerpoint, EndNote®

## Honors and awards

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First place in MS research, Spring Research Symposium, 2008

Semester Honors and Dean's List, 2002–2006

Boilermaker 400 Club, 2002–2006

Natural Resources Sophomore, Junior, and Senior Academic Merit Awards, 2004–2006

Forestry and Natural Resources Outstanding Senior, 2006

College of Agriculture Outstanding Senior nominee, 2006

Diversity Ambassador, Society of American Foresters National Convention, 2005

First place in undergraduate research, Spring Research Symposium, 2004

Undergraduate Research Award, 2004

## Scholarships

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Fully-funded International Research Scholarship: University of Leeds, Leeds, UK, 2009–2013

Fred M. van Eck Scholarship (Graduate assistantship): Purdue University, 2006–2009

Undergraduate awards (2002–2006): Charles H. Michler Scholarship, Walter Pugsley Scholarship

Fund, Alva R. Bryant Alumni Scholarship, Dora Kyger Bryant Alumni Scholarship, Gruel

Memorial Scholarship, Robert Dean Lamb Memorial Scholarship, Claude M. Gladden

Memorial Fund, Martell Scholarship, Martin Agriculture Research Fund, Twenty-first

Century Scholarship, Floyd and Nellie Elliot Scholarship, Rex Hall Memorial Scholarship,

Purdue Opportunity Grant, School of Agriculture Merit Scholarship

## External activities

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Ashtanga yoga instructor, IKSU, Umeå, Sweden, 2019–Present

Umeå Climbing and Mountaineering Club, Sweden, 2017–Present

Bike tour Umeå-Abisko-Lofoten-Umeå (Sweden and Norway), 2017

Zen Buddhist Temple resident, Ann Arbor, Michigan, 2016

Vipassana meditation: 10-day course, Kathmandu, Nepal, 2016

New Haven Bike Club, New Haven, Connecticut, 2015–2016

Seed to Salad Garden volunteer, Yale Sustainable Food Program, New Haven, CT, 2015–2016

Chapelseed Community Garden & New Haven Land Trust, New Haven, CT, 2014–2016

Leeds Running Posse, Leeds, UK, 2012–2014

Lakeland Trails Ultimate Trails 110km Challenge, UK, 2013

Leeds University Union Mountaineering Club, Leeds, UK, 2009–2012

Yorkshire Dance, Leeds, UK, 2009–2012

Friends of Big Pine Creek, Indiana, USA, 2008–2009

Aikido Club of Lafayette, Lafayette, Indiana, USA, 2008–2009

City Foods Cooperative, Lafayette, Indiana, USA, 2008–2009

Warren Piece Land Trust, Indiana, USA, 2003–2009

Performática: Foro Internacional de Danza Contemporánea, Puebla, Mexico, 2008

International Student Organization, Copenhagen, Denmark, 2007

Purdue Reparatory Dance Company, West Lafayette, Indiana, USA, 2003–2006