

BINA THAPA

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PROFILE

- Motivated researcher with demonstrated expertise on leveraging data from different sources in ecologically meaningful way
- Aspiring researcher to advance professional skills and collective knowledge in forestry, disturbance ecology, and remote sensing
- Technical skills in R, Python, SAS, ERDAS, ArcMap, LANDIS II

EDUCATION

Iowa State University

2014-2021

Ph.D., Department of Natural Resource and Ecology Management

Major: Forestry

Minor: Statistics

Dissertation: Spatio-temporal characterization of insect defoliation through Landsat images

Major Advisor: Dr. Peter T. Wolter, Statistics Minor Advisor: Dr. Kris De Brabanter

Florida International University

2011-2014

M.S., Department of Earth and Environment

Major: Environmental Science

Thesis: Spatial and temporal analysis of chilling events on mangrove forests by using Landsat TM images

Advisor: Dr. Mike Ross

Tribhuvan University

2004-2008

B.Sc., Institute of Forestry

Major: Forestry

Thesis: An assessment of forest cover change by using GIS and remote sensing: A case study from Phewa Lake watershed area

Advisor: Dr. Keshab D. Awasthi

RESEARCH INTERESTS

Remote Sensing, Geographic Information System (GIS), Forestry, Disturbance Ecology, Landscape Ecology, Ecological Modelling

PUBLICATIONS

Thapa, B., Wolter, P.T., Sturtevant, B.R., Townsend, P.A. (2021 in prep). Linking Remote Sensing and Insect Defoliation Biology – A cross-system comparison. Remote Sensing of Environment.

Thapa, B., Wolter, P.T., Sturtevant, B.R., Townsend, P.A., Foster, J. (2021 in prep) Estimating Seasonal Defoliation Impacts from Frass Deposition and Insect Phenology. Methods in Ecology and Evolution.

- Thapa, B.** (2021). **Insects from Outer Space.** Field Notes. Natural Resource Ecology and Management (NREM), 12, 31-35.
- Thapa, B.,** Wolter, P.T., Sturtevant, B.R., Townsend, P.A. (2020). **Reconstructing Past Forest Composition and Abundance by Using Archived Landsat and National Forest Inventory Data.** International Journal of Remote Sensing, 41(10), 4022-4056.
- Subedi, P., Subedi, K., **Thapa, B.,** Subedi, P. (2019). **Sinkhole susceptibility mapping in Marion County, Florida: Evaluation and comparison between analytical hierarchy process and logistic regression based approaches.** Scientific Reports 9: 7140.
- Zhang, K., **Thapa, B.,** Ross, M., Gann, D. (2016). **Remote sensing of seasonal changes and disturbances in mangrove forest: a case study from South Florida.** Ecosphere, 7(6), 01366. 10.1002/ecs2.1366.
- Subedi, P., Subedi, K., **Thapa, B.** (2013). **Application of a Hybrid Cellular Automaton – Markov (CA-Markov) Model in Land-Use Change Prediction: A Case Study of Saddle Creek Drainage Basin, Florida.** Applied Ecology and Environmental Sciences. 1(6): 126-132.
- Thapa, B.** (2009). **An Assessment of Effectiveness of Solar Fencing: A case study from Ayodhyapuri, Madi Valley, Chitwan** Project Evaluation Report, World Wi Fund, Nepal.

PROFESSIONAL EXPERIENCE

Iowa State University

August 2017- Ongoing

Graduate Research Assistant with Dr. P.T. Wolter

NREM, Ames, IA

- Reconstructed past forest composition and abundance maps from archived Landsat Images and National forest inventory data
- Assessed spatio-temporal distribution and modeled spruce budworm outbreak in Border Lakes Ecoregion
- Developed a novel optimization method to estimate seasonal defoliation impacts from frass deposition and insect phenology

Northern Research Station, USFS

Summer 2016, Summer 2017

Research Assistant with Dr. Brian R. Strutevant

Rhineland, WI

- Contributed to model calibration at LANDIS- II Simulation Modeling of Spruce Budworm Disturbances at the Institute of Applied Ecosystem Studies, Northern Research Station, USDA Forest Service

Iowa State University

August 2014 - May 2017

Graduate Teaching assistant

Ames, IA

- Integrating GPS and GIS for natural resource management (NREM 446/546) course- Provided assistance to students in the lab work, held dedicated office hours, provided class and lab lectures, coordinated field work, graded reports and exams.

Florida International University

August 2011 - August 2014

Graduate Assistant

Miami, FL

- Collected, maintained, and analyzed ecological data for mangrove forests in south Florida
- Analysed LiDAR data for canopy estimation in mangrove forests
- Conducted spatial and temporal analysis of chilling events on coastal mangrove forests by using archived Landsat TM images
- Conducted ecological analysis of plant communities in permanent vegetation monitoring plots in south Florida coasts- some of the methods used included Multi Response Permutation Process and Non-metric Multidimensional Scaling.

- Instructed EVR 1001L course for undergraduate students

Florida International University

Adjunct Instructor

Summer 2012, Summer 2013

Miami, FL

- Taught *Introduction to Environmental Science Lab (EVR 1001L)* course to undergraduate students at the Department of Earth and Environmental Science, FIU.
- Designed course lectures, quizzes, and exams

World Wildlife Fund Nepal

Research Intern

2009

Kathmandu, Nepal

- Desktop review of technical progress reports, database management, information circulation among broad stakeholders.
- Conducted field visits to evaluate project execution
- Monitored and evaluated field projects and prepared project summaries and lessons learned reports

Institute of Forestry

Field assistant/research assistant- Freelance

2008-2009

Pokhara, Nepal

- Conducted social survey, inventoried forests and plants, soil survey and data collection, assisted with spatial data processing in ArcMap in many research studies, including the following:
- Trainor, Meredith (2009) The effect of community forest management on species diversity and regeneration in the Middle Hills region of Nepal; M.Sc. Thesis, School of Forestry Environmental Science, Yale University.
- Thapa Neeru (2009) Assessment of Invasive Alien Plant Species of Bufferzone of Chitwan National Park; M.Sc. Thesis submitted to Institute of Forestry, 2009; advised by Prof. Shree Prasad Dhaudel, Institute of Forestry Ram Chandra Nepal, National Trust for Nature Conservation.
- K.C. Birendra (2008) Carbon Sequestration in *Pinus roxburghii* forest; A case study of Parbat District of Nepal; B.Sc. Thesis submitted to Institute of Forestry, 2008; advised by Asst. Prof. K.D. Awasthi, Institute of Forestry.
- Subedi Praveen (2008) Landslide Hazard Zonation of Upper Harpan Khola Sub-watershed area using Spatial Decision Support System; B.Sc. Thesis submitted to Institute of Forestry, 2008, advised by Asst. Prof. Biswombher M. Pradhan, Institute of Forestry.
- Research assistant for the study by Khanal Bir Bahadur (2005) entitled- Income distribution disparity and inequality measures: a case study of community forestry (CF) in Kaski District, Nepal.

Laharepibal Rural Development Club

Forest Ranger

2004- 2005

Baglung, Nepal

- Prepared forest management plan for a sub-tropical broadleaf natural forest, conducted forest inventories and stakeholder meetings, evaluated forest management practices.

SEMINAR PRESENTATIONS

Thapa, B., Wolter, P.T., Sturtevant, B., Miranda, B. Cook, B. Poster. Chasing Spruce Budworm in Space and Time. NREM Graduate Student Poster Symposium. Iowa State University, Ames, IA, April 23, 2021.

Sturtevant, B.R., B. Thapa, P.T. Wolter, and P.A. Townsend. Remote Sensing of Continuous Defoliation Impacts – A cross-system Comparison. IALE- North America, Annual Virtual Meeting, April 12-16, 2021.

Thapa, B., Wolter, P., Sturtevant, B. Townsend, P. Reconstructing Historical Forest Composition and Abundance by Using Archived Landsat Data and National Forest Inventory Data. Heart of the Continent Partnership, Science Symposium, Duluth, MN, April 8-9, 2019.

Sturtevant, B.R., B.J. Cooke, L.-E. Robert, B.R. Miranda, B. Thapa, and P.T. Wolter. Modelling insect-forest interactions across landscapes: Heart of the Continent advances the state of the art. Heart of the Continent Partnership, Science Symposium, Duluth, MN, April 8-9, 2019.

Thapa, B. Spatio-temporal Distribution and Modeling of Spruce Budworm Outbreak in Border Lakes Ecoregion Using Long-term Remote Sensing Data. NREM Seminar. Iowa State University, Ames, IA, January 25, 2019.

Thapa, B., Wolter, P., Sturtevant, B. Townsend, P. Poster. Reconstructing Historical Forest Composition by Using Archived Landsat and National Forest Inventory (FIA) Data. NREM Graduate Student Poster Symposium. Iowa State University, Ames, IA, December 7, 2018.

Thapa, B., Wolter, P., Sturtevant, B. Townsend, P. Reconstructing Historical Boreal Forest Structure by Using Archived Landsat Data and National Forest Inventory Data. US-IALE, annual meeting, Chicago, IL, April 8-12, 2018.

Thapa, B. Spatio-temporal Effects of Chilling Events in Mangrove Forest. Poster. Graduate Research Symposium, Department of Earth and Environment, Florida International University (FIU), Miami, FL, February, 2014.

WORKSHOPS ATTENDED

National Workshop on Red Panda Conservation Initiatives in SHL on the 20th Feb 2010 at Kathmandu, Nepal. Participated and prepared proceedings for the workshop.

First International Workshop on Community Forestry, Pokhara, Nepal. 15th-18th Sept 2009.

Active Forest Management Program: A Practical Approach- held on Nov/Dec, 2007 in Pokhara, Nepal. Workshop conducted by joint venture of DED/Nepal, IoF, Pokhara and Biodiversity Conservation and Research Forum (BICORF), Kaski.

Bamboo Seminar and Plantation Program for Soil conservation- held from 6 to 8 August, 2005, conducted by SHEAC, IoF, Pokhara and DED/Nepal.

Second Plantation Program- held in Huwas, Parbat, Nepal from 24 to 25 March, 2000, conducted by AIUEO Circle Association, Japan and Huwas VDC, in commemoration of the centennial jubilee of the relation between Japan and Nepal.

TEACHING EXPERIENCE

Natural Resource Photogrammetry and Geographic Information Systems (NREM 345)
2014-2017

under-graduate course

Iowa State University, Ames, IA

- Teaching Assistant- Duties included providing assistance to students in the lab work, holding dedicated office hours, providing class and lab lectures, coordinating field work, grading reports and exams.

Integrating GPS and GIS for Natural Resource Management (NREM446/546) 2014-2017

an upper-division under-graduate course

Iowa State University, Ames, IA

- Teaching Assistant- Duties included providing assistance to students in the lab work, holding dedicated office hours, providing class and lab lectures, coordinating field work, grading reports and exams.

Introduction to Environmental Science Lab (EVR 1001L)

Fall 2011-Summer 2014

an undergraduate course

Florida International University, Miami, FL

- Adjunct instructor and/or teaching assistant- Designed and delivered lecture and quizzes for environmental science laboratory, graded quizzes and exams, held dedicated office hours, and assisted students with laboratory report writing.

TECHNICAL STRENGTHS

- Experiment design of field trials
- R, Python, SAS
- Statistical modeling of biological data
- Analytical hierarchy process and logistic regression
- Ecological data analysis
- ArcMap, ENVI, IDRISI, ERDAS
- FIA data
- Remote sensing of satellite data, LANDIS II

AWARDS, HONORS, AND GRANTS

- Graduate Teaching and Research Assistantship and Tuition waiver (Fall 2014- present)- Department of Natural Resources Ecology and Management (NREM), Iowa State University, Ames, IA.
- Best Poster Award, Graduate Research Symposium (2014)- Department of Earth and Environment, Florida International University (FIU), Miami, FL.
- Teaching Assistantship (TA) and Tuition waiver (Fall 2011- Summer 2014)- Department of Earth and Environmental Science, Florida International University (FIU), Miami, FL.
- Selected Student (top 10 percent) - Student exchange program between IoF, Pokhara and HAWK University of Applied Sciences and Arts, Gottingen, Germany 2008. Assistantship provided by the German Development Service (DED)/ Nepal.
- WWF Research Grant to evaluate effectiveness of solar fence in controlling human wildlife conflict in Bardia National Park (awarded 2010, but declined for graduate study)
- Merit Scholarship at the Institute of Forestry, Nepal (2004-2008)
- B.Sc.Thesis Research Grant (2007)
- WWF Prince Bernhard Scholarship- 2007
- Winrock International Scholarship- 2000

SERVICE AND OUTREACH

Peer reviewer for *Sustainability*

Treasurer (2015-2016) for the Nepal Student Association at the Iowa State University, Ames, IA.

Represented Nepal Student Association at ISU, Ames and raised charity that supported Earthquake relief efforts in Nepal during 2015 Earthquake.

Executive committee member (2004-2008), Self-help Environment Awareness Camp, Institute of Forestry, Nepal.

Executive committee member (2004-2008), Bat Conservation, Institute of Forestry, Nepal.

Executive committee member (2004-2008), Bird Conservation Nepal (BCN), Institute of Forestry, Nepal.

PROFESSIONAL AFFILIATIONS

- US Regional Association of the International Association for Landscape Ecology
- Nepal Forester's Association
- Nepal Student Association at Iowa State University

REFERENCES

Dr. Peter T. Wolter

Associate Professor
Natural Resource Ecology and Management (NREM)
Iowa State University
Ames, IA
email: ptwolter@iastate.edu
phone:(515)–294-7312

Dr. Phil A. Townsend

Professor
Forest and Wildlife Ecology
University of Wisconsin
Madison, WI
email: ptownsend@wisc.edu
Google voice: 608.622.7445

Dr. Brian R. Sturtevant

Research Ecologist
Institute of Applied Ecosystem Studies
Northern Research Station, US Forest Service
Rhinelander, WI
email: brian.r.sturtevant@usda.gov
phone:(715)-362-1105