



TABLE OF CONTENTS

Welcome	2
Acknowledgements	3
General Conference Information.....	4
Social Event Highlights.....	6
Schedule Overview	7
Plenary Sessions	11
Workshops.....	13
Field Trips.....	17
Awards.....	20
Sponsors & Exhibitors	24
Technical Sessions & Symposia..... (by Day, Time and Track)	26
Poster Sessions	78
Author Index	91

HOSTED BY



1



Portland State
UNIVERSITY

Welcome to Portland!

The **International Association for Landscape Ecology (IALE)** and the **US Chapter of IALE** welcomes you to 2015 World Congress!

An IALE World Congress occurs every four years and brings together a large international community to address topics in landscape ecology that range from local to global in scale. During the World Congress, landscape ecologists from public, private, and non-profit sectors will address a broad spectrum of environmental challenges and their potential solutions. The World Congress theme is, **“Crossing Scales, Crossing Borders: Global Approaches to Complex Challenges”** and will highlight challenges and opportunities for understanding complex natural and social processes and the potential for effective stewardship in a rapidly changing world. The meeting will highlight research that addresses globally relevant topics and that works across scales (what landscape ecologists have always done) and crosses borders (whether disciplinary, political, patch or other).

We designed our program to connect attendees representing over 50 countries and to cross-pollinate among the numerous disciplines touched by landscape ecology. Attendees will find numerous plenaries, symposium, contributed oral sessions, and poster sessions that embrace the future of landscape ecology while respecting the deep roots that serve as the foundation for an integrative approach capable of attracting over 900 people from around the world. We also made available over \$30,000 for Foreign Scholar Travel and travel support for young scientists, continuing our long tradition of mentoring and building the future of landscape ecology. The busy schedule should provide many different venues for learning and engaging with colleagues, including some novel additions such as the Storyteller event sponsored by Springer.

Portland, Oregon is widely recognized for its commitment to sustainability and progressive land use planning, which will allow for quick access to outdoor recreation and opportunities to engage with the rich cultural and historical dimensions of the Pacific Northwest landscape. Portland has ready access to some of the most diverse and scenic landscapes in the Pacific Northwest and there will be many informative field trips. Some examples: a rafting tour of the Columbia River Gorge; assessment of urban growth boundaries, successes and challenges; landscapes of the Oregon coast; and a tour of disturbance recovery at Mt. St. Helens, among others. Shorter excursions include visits to local greenways, downtown walking tours, old-growth forest hikes, and others.

We hope that you will enjoy the comraderies and science and management advances in landscape ecology that will be presented at the World Congress.

Portland, July 2015

Robert Scheller, Associate Professor, Portland State University: Program Chair

Vivek Shandas, Associate Professor, Portland State University: Local Host

Anita Morzillo, Assistant Professor, University of Connecticut: Local Host

Felix Kienast, President, IALE-International 2011-2015

Acknowledgements

We would like to thank the many people who generously contributed time and effort to make the meeting a success. Current **IALE-INTERNATIONAL** and **US-IALE OFFICERS** were involved in many ways: Felix Kienast, Janet Franklin, Brian Buma, Xiuzhen Li, Tom Edwards, Ralf-Uwe Syrbe, Kathy Vigness-Raposa, Todd Lookingbill, Todd Hawbaker, Karl Jarvis, and many others.

We thank our featured speakers for **PLENARY SESSIONS** and **BANQUET** for their valuable contributions: Xiuzhen Li, Tom Spies, John Wiens, and Christina von Haaren. And we thank the many **SYMPOSIUM ORGANIZERS** of the 56 symposia being offered.

We appreciate the extra efforts made by **WORKSHOP LEAD ORGANIZERS**: Thomas Edwards, Jr., U.S. Geological Survey, Utah State University; Henry Bulley, Department of Social Sciences, BMCC, City University of New York; Jeffrey W. Hollister, U.S. Environmental Protection Agency; Peter Stubkjær Andersen, University of Copenhagen, Denmark; Greg Brown, University of Queensland, Australia; Whalen Dillon, North Carolina State University; Karl Jarvis, Northern Arizona University; Falk Huettmann, EWHALE lab- Biology and Wildlife Department, Institute of Arctic Biology; Robert Gilmore Pontius, Jr., Professor, Clark University; Jianguo (Jack) Liu, Center for Systems Integration and Sustainability, Michigan State University; Patrick Bourgeron, University of Colorado-Boulder; and Nathan H. Schumaker, U.S. Environmental Protection Agency.

Thank you to the **FIELD TRIP LEADERS** for helping to organize the scientific excursions and providing an opportunity for attendees to experience some of the most diverse and scenic landscapes in the Pacific Northwest: Mike Houck, Urban Greenspace, The Intertwine Alliance; Dr. Virginia Dale, Oak Ridge National Laboratory; Theresa Burcsu, Portland State University; Anandi van Diepen-Hedayat, IGERT; Emilie Henderson, Institute for Natural Resources; Catherine de Rivera, Portland State University; and Bruce Roll, Clean Water Services.

We are very grateful for assistance from our colleagues at **PORTLAND STATE UNIVERSITY**: Jennifer Allen, Scott Shales, Brooke Cassell. Additionally, Hong He of the University of Missouri provided many reviews and assisted with technical session scheduling.

Thank you to the many **VOLUNTEERS** for providing onsite assistance in a number of significant ways including audio-visual technical support, registration desk, and field trip coordination. Thank you to: Terry Anthony, Portland State University; Evan Bredeweg, Oregon State University; Brooke Cassell, Portland State University; Yuri Forte, University of Sao Paulo-Brazil; Kate Halstead, Klamath Bird Observatory; Kristina Kline, Oregon State University; Hari Luintel, Portland State University; Bruce Marron, Portland State University; Meenakshi Rao, Portland State University; Juan Carlos Rueda, Portland State University; Tina Schroyer, Portland State University; and Garry Sotnik, Portland State University.

Further, we wish to acknowledge our **FUNDERS**, whose generous contributions are essential to successful meeting. Finally, we are especially grateful for truly extraordinary efforts from the entire crew at **Delaney Meeting & Event Management**, who managed crucial portions of the meeting organization, and were essential partners in this effort.

General Conference Information

CONFERENCE VENUE:

The IALE World Congress will be held at the **Hilton Portland Hotel & Executive Tower**. The complex consists of two towers, the “**Main Building**” and the “**Executive Tower**,” which is located across the street from the main hotel. These two buildings are in the heart of downtown Portland, surrounded by restaurants, tax-free shopping and one block from the MAX Light Rail system.

REGISTRATION & INFORMATION DESK:

The Conference Registration Desk will be located in the Plaza Level Foyer on Saturday & Sunday, and in the Grand Ballroom Level Foyer on Monday - Thursday. Stop by here to pick up conference materials, check out the Message/Job Board, and get information or assistance with conference functions. Hours of operation are:

Saturday, July 4	8:00 a.m. <i>(for workshop attendees only)</i>	PLAZA LEVEL FOYER
Sunday, July 5	8:00 a.m. - 6:30 p.m.	PLAZA LEVEL FOYER
Monday, July 6	7:00 a.m. - 5:00 p.m.	GRAND BALLROOM LEVEL FOYER
Tuesday, July 7	7:00 a.m. - 5:00 p.m.	GRAND BALLROOM LEVEL FOYER
Wednesday, July 8	7:00 a.m. - 5:00 p.m.	GRAND BALLROOM LEVEL FOYER
Thursday, July 9	7:00 a.m. - 5:00 p.m.	GRAND BALLROOM LEVEL FOYER

US-IALE MEMBER AMBASSADORS:

IALE meetings, open to IALE members and those interested in landscape ecology, are among the most respected meetings of ecologists in the science community. As the local hosts for the 9th World Congress, we are honored to welcome the nearly 900 attendees representing 50 countries, and we're committed to providing a safe, productive and welcoming environment for all meeting participants. Please look for attendees wearing “**AMBASSADOR**” Ribbons attached to their nametag. These individuals represent US-IALE Chapter Members who are here to help provide any assistance or information as needed, especially for our international visitors.

MESSAGE / JOB BOARD:

A bulletin board will be available near the Conference Registration Desk for posted messages, schedule changes and job postings.

STUDENT RIBBON:

Students will receive an orange-colored “**STUDENT**” ribbon to attach to their name tag. All meeting registrants are encouraged to engage students in conversations and professional activities in order to facilitate the networking process.

INTERNET SERVICE:

IALE World Congress conference attendees are entitled to complimentary Wi-Fi high-speed Internet access throughout the hotel.

BUSINESS CENTER: Plaza Level

The hotel operates a full-service UPS Store to take care of your administrative needs during the conference, including shipping, copying and printing - prices vary. Additionally, there are four computers in the Connectivity Center in the Main Lobby. These are complimentary to use, but there is a fee for printing.

General Conference Information

REFRESHMENTS & MEALS:



The Full Conference Registration and Student Registration fee includes the following meals and social events: Welcome Social on Sunday (not dinner), Awards Luncheon on Monday, Student/Mentor/Attendee Lunch on Wednesday, Daily Continental Breakfast & Coffee Breaks, Poster Socials on Monday & Tuesday, and Banquet on Wednesday night.

All other meals are on your own. *Looking for places to eat?* The Hilton Hotel restaurants include: **HopCity Tavern**, open 6:30 a.m. – 11:30 p.m.; and **The Market**, offering grab and go items, open 6:30 a.m. – 6:00 p.m. M-F, and 6:30 a.m. – 1:00 p.m. Saturday and Sunday; across the street in the Executive Tower building is **Porto Terra**, open from 6:30 a.m. – 11:30 p.m.



While you're here, be sure to venture outside the hotel and visit Portland's acclaimed dining scene, famous for its world-class street eats, collection of 600-plus food carts, and more craft breweries than anywhere else on earth. Area information and walking maps are available at the conference registration desk.

AUCTION:

Come check out the Silent Auction in the Ballroom Level Foyer Monday through Thursday and bid on a wide variety of publications and software provided by Clark Labs, Springer, Island Press, Sinauer Associates, and John Hopkins University Press among other sources. Proceeds help support the Foreign Scholar Travel Award Program – providing travel funds to landscape ecologists from foreign countries to present their research at the annual meeting.

➔ **Bidding will close on Thursday, July 9 promptly at 9:30 AM. Winning bids will be posted at the Conference Registration Desk. Please plan to pick up and pay for your item(s) by 3:30 PM on Thursday! Thank you!**

POSTER SESSIONS:

Posters will be located in the Plaza Foyer and will be featured during two special sessions that will promote discussion between authors and attendees. Authors will be available to answer your questions and discuss their work during the scheduled Poster Socials:

Poster Social # 1: Monday, July 6 at 6:00 p.m.

Poster Social # 2: Tuesday, July 7 at 7:00 p.m.

ATTENTION STUDENTS:

S There are a handful of events taking place during the IALE World Congress geared specifically for you! All student-only functions are indicated on the Schedule-at-a-Glance with this "S" symbol as shown.

STUDENT PRESENTATION AWARD PROGRAM:

S Student presenters have an opportunity to compete for the "Best Student Presentation Award," or opt to receive informal feedback on their oral or poster presentation. For the Best Student Presentation Award competition, volunteer judges have been selected from among the professionals in attendance. For informal feedback on their presentation, students will identify willing evaluators from the meeting attendees. Look for "**review me**" signs on posters of students who are looking for feedback.

CELL PHONE ETIQUETTE:

Please be considerate of presenters and turn your phones to vibrate or "do not disturb" mode while in sessions. Thank you!



TECHNICAL SCHEDULE:

The full schedule of Technical Sessions and Symposia follows on **pages 26 - 84**. The sessions are organized by Day and by Time. The presenting author is the first name listed, unless otherwise indicated with an asterisk. * Full abstracts are only available on the conference website. This printed program represents the schedule of presentations as of June 23, 2015. **Please be sure and check the conference registration desk onsite for last minute cancellations and changes to the technical schedule.**

Social Event Highlights

SUNDAY, JULY 5

WELCOME SOCIAL / Pavilion East & West 6:30 PM – 8:30 PM

Join your colleagues to celebrate the start of the 9th IALE World Congress. Enjoy light hors d'oeuvres and a cash bar.

MONDAY, JULY 6

AWARDS LUNCHEON / Grand Ballroom 12:00 PM – 1:00 PM

Presentation of NASA/MSU Awards, US-IALE Student Travel Awards, US-IALE Best Student Presentation Award, and Certificates of Appreciation for Outgoing Officers

Master of Ceremonies: Janet Franklin, School of Geographical Sciences and Urban Planning, Arizona State University; President, US-IALE

POSTER SOCIAL #1 / Plaza Foyer 6:00 PM – 7:30 PM

Visit with poster authors. Light snacks and cash bar.

STUDENT SOCIAL / Offsite 9:00 PM – 11:30 PM

Lola's Room at McMenamins Crystal Ballroom; 5736 NE 33rd Avenue, Portland
Lola's Room is located at the corner of 14th & Burnside and is on the second floor, directly below the Crystal Ballroom.

The student social is designed to encourage informal interactions among students attending the conference. All ages welcome! A drink ticket will be distributed to each student upon arrival at the social. (Proper I.D. required for alcoholic beverages; tickets can also be used for nonalcoholic beverages.)

TUESDAY, JULY 7

POSTER SOCIAL #2 / Plaza Foyer 7:00 PM – 8:30 PM

Visit with poster authors. Light snacks and cash bar.

WEDNESDAY, JULY 8

STUDENT-MENTOR & ATTENDEE LUNCH / Grand Ballroom 12:00 PM – 1:30 PM

(The Student Mentor Lunch has a sign-up sheet for students at the Conference Registration Desk; otherwise a regular buffet lunch is available to all attendees not participating in the student-mentor lunch)

The student-mentor lunch brings students and landscape ecology professionals together to discuss professional development in a small group setting. Students are matched with professionals in their field of interest — academia, state and federal government, nonprofit organizations or business. Dining tables will be labeled based on the areas of interest.

"WE'LL PICK UP THE TAB" SOCIAL / Ballroom Foyer 6:00 PM – 7:00 PM


To foster interaction between students and professional landscape ecologists, we're asking non-students to "pick up the tab" for student drinks at the pre-banquet evening social. Participating professionals will purchase tickets for random distribution to attending students.



Students will receive a ticket with a sponsor's name on the back. To redeem their ticket, students must find this sponsor at the social and introduce themselves. Students are encouraged to ask others at the social for help in finding their sponsor. Happy networking!





BANQUET, AWARDS & KEYNOTE PRESENTATION / Grand Ballroom 7:00 PM – 9:00 PM




Featuring Presentation of IALE Distinguished Awards; Remarks from Incoming IALE President; and Keynote Presentation by John Wiens




Schedule at a Glance

Attention Students: there are a handful of events taking place during the IALE World Congress geared specifically for you! All student-only functions are indicated on the Schedule-at-a-Glance with this symbol: 

SATURDAY, JULY 4, 2015		
9:00 am – 5:00 pm	Two-Day Pre-conference Workshops <i>(continued on Sunday)</i>	<i>See page 13 for details</i>
SUNDAY, JULY 5, 2015		
8:00 am – 6:30 pm	Conference Registration Desk Open	PLAZA FOYER
9:00 am – 5:00 pm	Two-Day Pre-conference Workshops <i>(continued from Saturday)</i>	
9:00 am – 5:00 pm	Full Day Workshops <i>{pre-registration and additional fee required}</i>	<i>See pages 13-15 for details</i>
12:00 pm – 6:00 pm	Exhibitor Set-up	BALLROOM FOYER
1:30 pm – 4:00 pm	 FOR STUDENTS: WALK THE WATERFRONT Join US-IALE Student Representatives Whalen Dillon and Karl Jarvis for an informal afternoon exploring Portland's Waterfront Park. We will see the Salmon Street Springs, Japanese Historical Plaza, numerous sculpture and art installations, as well as some of the Portland culture as we walk along the Willamette River. <i>RSVP to Whalen Dillon wwdillon@ncsu.edu or Karl Jarvis karljarvis@nau.edu if you're interested in joining in the walk.</i>	MEET IN THE HOTEL LOBBY AT 1:15 PM
2:00 pm – 4:00 pm	IALE-International Committee Meeting	SKYLINE II (23rd floor)
4:00 pm – 6:00 pm	US-IALE Executive Committee Meeting	SKYLINE II (23rd floor)
6:30 pm – 8:30 pm	☆ WELCOME SOCIAL Join your colleagues to celebrate the start of the 9th IALE World Congress. Enjoy light hors d'oeuvres and a cash bar.	PAVILION & PLAZA LEVEL FOYER
MONDAY, JULY 6, 2015		
7:00 am – 5:00 pm	Conference Registration Desk Open	GRAND BALLROOM FOYER
7:00 am – 8:30 am	 Continental Breakfast	GRAND BALLROOM
8:00 am – 9:30 am	OPENING PLENARY SESSION: Welcome to Portland <i>Rob Scheller, Local Host & Program Chair</i> Welcome & Overview of IALE <i>Felix Kienast, President, IALE International 2011 - 2015</i> Foreign Scholar Travel Awards Presentation <i>Kathy Vigness-Raposa</i> Plenary Session #1: Coastal Wetlands Loss And Consequences <i>Xiuzhen Li, Professor of Ecology, Deputy Director for International Affairs, State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai, China</i>	GRAND BALLROOM

9:30 am – 10:00 am	 Coffee Break	GRAND BALLROOM FOYER
10:00 am - 12:00 pm	Concurrent Technical Sessions and Symposia	
12:00 pm – 1:00 pm	☆ Awards Luncheon Presentation of NASA/MSU Awards, US-IALE Student Travel Awards, US-IALE Best Student Presentation Award, and Certificates of Appreciation for Outgoing Officers <i>Master of Ceremonies: Janet Franklin, School of Geographical Sciences and Urban Planning, Arizona State University; President, US – IALE</i>	GRAND BALLROOM
1:20 pm – 5:00 pm	Concurrent Technical Sessions and Symposia	
3:00 pm – 3:20 pm	 Coffee Break	GRAND BALLROOM FOYER
5:30 pm - 6:30 pm	Funding Opportunities for Landscape Ecology at the U.S. National Science Foundation An interactive panel discussion with Matt Betts, Angela Strecker, and Jack Liu Moderated by: George P. Malanson, Department of Geographical & Division of Environmental Biology Sustainability Sciences and National Science Foundation <i>Opportunities for funding research in landscape ecology at the National Science Foundation will be reviewed. Information on core programs in Population & Community Ecology, Ecosystem Science (both in BIO directorate), Geographical & Spatial Sciences (Social/Behavioral Sciences directorate), and Dynamics of Coupled Natural & Human Systems (cross-directorate) will be discussed. Upcoming opportunities in programs such as Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) and NEON and will be presented. Basic advice on responding to solicitations, including international collaborations, will be the overarching theme.</i>	SKYLINE II (23rd floor)
6:00 pm – 7:30 pm	☆ Poster Session #1 Social	PLAZA LEVEL FOYER
7:00 pm – 8:00 pm	IALE-International Members Meeting (General Assembly)	Room change to: PAVILION EAST
7:00 pm – 9:00 pm	☆ NASA/MSU Dinner {New NASA/MSU Awardees Only – Invitation only}	SKYLINE I (23rd floor)
9:00 pm – 11:30 pm	 Student Social - Lola's Room at McMenamins Crystal Ballroom 5736 NE 33 rd Avenue, Portland, at the corner of 14th & Burnside.	OFFSITE
TUESDAY, JULY 7, 2015		
7:00 am - 5:00 pm	Conference Registration Desk Open	GRAND BALLROOM FOYER
7:00 am - 8:00 am	Landscape Ecology Editorial Board Meeting	FORUM SUITE (3RD LEVEL)
7:00 am - 8:30 am	 Continental Breakfast	GRAND BALLROOM
8:40 am – 12:00 pm	Concurrent Technical Sessions and Symposia	
12:00 pm	Lunch on own	
1:00 pm – 5:00 pm	Half-day Concurrent Workshops {pre-registration and additional fee required}	See pages 15-16 for details

1:00 pm – 5:00 pm	Half-day Field Trips {pre-registration and additional fee required}	See pages for details 17-18
7:00 pm – 8:00 pm	IALE Council Meeting	FORUM SUITE
7:00 pm – 8:30 pm	☆ Poster Session #2	PLAZA LEVEL FOYER
8:00 pm – 10:00 pm	Springer Storytellers and The Story Collider: Stories about Science <i>After the close of the day's presentations and poster sessions, join Springer and our partners at The Story Collider for a fun evening of cocktails, refreshments and ecology-themed stories, told by scientists themselves. Inspirational, funny, surprising or just plain entertaining, you will have an opportunity to hear about, and connect with the experiences of researchers on the front lines of discovery. Hear incredible stories from the field, and learn about the inspiration that drives these scientists to understand our place and our effect on the Earth.</i> Doors open at 7:30 p.m. for a pre-event reception before the show. Tickets are limited to 150 on a first come first serve basis at Beforetheabstract.com	SKYLINE II (23rd floor)
WEDNESDAY, JULY 8, 2015		
7:00 am - 5:00 pm	Conference Registration Desk Open	GRAND BALLROOM FOYER
7:00 am - 8:30 am	 Continental Breakfast	GRAND BALLROOM
7:00 am - 8:00am	2016 Distributed Graduate Seminar Landscape Genetics Planning Meeting	PLAZA SUITE
8:00 am - 9:00 am	Plenary Session #2: The Babel Fish: Translating Environmental Science for Implementation <i>Christina von Haaren, Institut fuer Umweltplanung (Institute of Environmental Planning, Leibniz University Hanover Germany)</i>	GRAND BALLROOM
9:00 am - 9:30 am	 Coffee Break	GRAND BALLROOM FOYER
9:20 am – 12:00 pm	Concurrent Technical Sessions and Symposia	
12:00 pm – 1:30 pm	Student/Mentor Lunch & Attendee Lunch	GRAND BALLROOM
1:40 pm – 5:00 pm	Concurrent Technical Sessions and Symposia	
3:00 pm – 3:20 pm	 Coffee Break	GRAND BALLROOM FOYER
6:00 pm – 7:00 pm	☆ "We'll Pick Up the Tab" Cocktail Reception	GRAND BALLROOM FOYER
7:00 pm – 9:00 pm	☆ Banquet, Awards & Keynote Presentation Presentation of IALE Distinguished Awards <i>Felix Kienast, IALE International 2011 - 2015</i> Remarks from Incoming IALE President <i>Christine Fürst, IALE International 2015 - 2019</i> Keynote: A Bucket List For Landscape Ecology <i>John Wiens, Winthrop Research Professor, University of Western Australia Courtesy Faculty, Department of Forest Ecosystems and Society, Oregon State University Emeritus Distinguished Professor, Colorado State University</i>	GRAND BALLROOM

THURSDAY, JULY 9, 2015		
7:00 am - 5:00 pm	Conference Registration Desk Open	GRAND BALLROOM FOYER
7:00 am - 8:30 am	 Continental Breakfast	GRAND BALLROOM
8:00 am - 9:00 am	Introductory Remarks: 2016 US-IALE Sneak Peek, <i>William Hargrove, Eastern Forest Environmental Threat Assessment Center USDA Forest Service Southern Research Station Asheville, NC</i> Plenary Session #3: Taming and Rewilding of the Forest Landscapes of the Pacific Northwest <i>Tom Spies, Senior Scientist, USDA Forest Service, PNW Research Station, Corvallis, Oregon, USA</i>	GRAND BALLROOM
9:00 am - 9:20 am	 Coffee Break	GRAND BALLROOM FOYER
9:20 am – 12:00 pm	Concurrent Technical Sessions and Symposia	
12:00 pm	Lunch on own	
1:40 pm - 5:20 pm	Concurrent Technical Sessions and Symposia	
3:00 pm – 3:20 pm	 Coffee Break	GRAND BALLROOM FOYER
5:20 pm – 6:00 pm	IALE-International Executive Committee Meeting	SKYLINE I (23 rd floor)
FRIDAY, JULY 10, 2015		
All day	Full-day Field Trips	See pages 18-19 for details



Plenary Sessions

Full abstracts for plenary sessions are available on the conference website at: www.ialeworldcongress.org

Plenary I ♦ Monday, July 6 ♦ 8:00 a.m. – 9:30 a.m.

COASTAL WETLANDS LOSS AND CONSEQUENCES

Xiuzhen Li, Professor of Ecology, Deputy Director for International Affairs, State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai, China



Xiuzhen Li, Professor of Ecology in the State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai, China. She worked as a professor of Landscape Ecology in the Institute of Applied Ecology, Chinese Academy of Sciences between 2001 and 2006. She obtained her Ph.D and M.Sc from Wageningen University and Research Centre, the Netherlands. Her research interests include evolution and functioning of natural wetlands, landscape metrics, and relationship between pattern and processes for different landscapes. She has conducted more than 20 national level research projects, and published more than 200 papers and several monographs in English and Chinese. She serves as associate editor for Ocean and Coastal Management, and as editorial board member for Ecological Engineering, Wetlands Ecology and Management, and several other journals. She was elected as the IALE Council Chair in 2011, and Secretary General of IALE-China Chapter. She is also an active member of Society of Wetland Scientists (SWS), and Ecological Society of China. She obtained the Distinguished Young Scientist Award from the Ecological Society of China in 2009, and Outstanding Scientist Award from the China Society of Natural Resources in 2013.

Plenary II ♦ Wednesday, July 8 ♦ 8:00 a.m. – 9:00 a.m.

THE BABEL FISH: TRANSLATING ENVIRONMENTAL SCIENCE FOR IMPLEMENTATION

Christina von Haaren, Institut fuer Umweltplanung (Institute of Environmental Planning, Leibniz University Hanover Germany)



Prof. Dr. Christina von Haaren has been a full-time professor for landscape planning and nature conservation at the Institute of Environmental Planning, Leibniz University Hanover Germany since 1998. She holds a degree in landscape planning and worked in consultant companies for environmental planning after graduation. In 2002, 2007 and 2013 C.v.Haaren spent her sabbaticals as a visiting scholar at the University of the West of England, Bristol and at Cornell University USA Department of Agricultural Economics and at Portland State University USA respectively. Her research interests lie in the fields of methodologies and applications of landscape planning. She has worked on projects about supporting planning using IT (The Interactive Landscape Plan) and on ways how to engage land users in environmentally sound practices (farm assessment software MANUELA) as well as rural development (Coordinator of the EU 7th framework project RUFUS). The sustainable production and spatial allocation of renewable energy as well as biodiversity modelling on landscape scale and dealing with uncertainties is a subject of several recent research projects.

Plenary III ♦ Thursday, July 9 ♦ 8:00 a.m. – 9:00 a.m.

TAMING AND REWILDING OF THE FOREST LANDSCAPES OF THE PACIFIC NORTHWEST

Tom Spies, Senior Scientist, USDA Forest Service, PNW Research Station, Corvallis, Oregon, USA



Thomas Spies is a Senior Scientist at the USDA Forest Service, Pacific Northwest Research Station in Corvallis, Oregon. He is also a courtesy professor in the College of Forestry at Oregon State University. He holds a Ph.D. in forest ecology from the School of Natural Resources and Environment at the University of Michigan. He has been a research fellow at the Universities of Hohenheim and Göttingen in Germany, Harvard University, and Australian National University. His research interests include, old-growth forest ecology and conservation, remote sensing, landscape ecology, fire ecology, and coupled human and natural systems. He has authored or co-authored over 180 scientific publications. He is editor of the 2009 book "Old-growth in a New World: A Pacific Northwest Icon Reexamined", which explores the social, ecology and policy dimensions of old-growth forests.

Featured Banquet Speaker

Wednesday, July 8 ■ 7:00 p.m.

A BUCKET LIST FOR LANDSCAPE ECOLOGY

John Wiens, Winthrop Research Professor, University of Western Australia Courtesy Faculty, Department of Forest Ecosystems and Society, Oregon State University Emeritus Distinguished Professor, Colorado State University

John Wiens grew up in Oklahoma as an avid birdwatcher. Following degrees from the University of Oklahoma and the University of Wisconsin-Madison (M.S., Ph.D.), he joined the faculty of Oregon State University and, subsequently, the University of New Mexico and Colorado State University, where he was a Professor of Ecology and University Distinguished Professor. His work has emphasized landscape ecology, conservation, and the ecology of birds, leading to over 260 scientific papers and 9 books.



John left academia in 2002 to join The Nature Conservancy as Lead Scientist, with the challenge of putting years of classroom teaching and research into conservation practice in the real world. In 2008, he joined PRBO Conservation Science as Chief Scientist, retiring from that position in 2014. He now splits his time between his home in Corvallis, Oregon and the University of Western Australia (where he is a Winthrop Research Professor).



WORKSHOPS: TWO-DAY

SATURDAY, JULY 4 & SUNDAY, JULY 5 ♦ 9:00 AM – 5:00 PM

{Pre-registration and additional fee required; lunch will be on your own; coffee and snacks provided}

SPECIES DISTRIBUTION MODELS USING R

Forum Suite (3rd Level)

Thomas C. Edwards, Jr., U.S. Geological Survey, Utah State University, USA; Niklaus E. Zimmermann, Swiss Federal Research Institute WSL, and Zurich ETH, Switzerland

Overview: This is a 2-day condensation of an existing 5-day course on species distribution models (SDM). Both instructors have extensive experience in publishing and instruction in the broadly defined field of SDM. Workshop topics include: (i) design issues underlying SDMs; (ii) common statistical tools used in building SDMs; and (iii) use of an ensemble approach for combining and projecting SDMs given global change, especially climate. The design section centers on SDM issues related to: (i) presence only vs. true presence-absence data; and (ii) sample frames leading to unbalanced training data (i.e., prevalence); and (iii) effects of sample frames on model output. The workshop reviews all major parametric, semi- and non-parametric models currently used in SDM, ranging from GLMs to GAMs to Random Forests / Boosted Regression Trees. The 2-day format precludes extensive coding instruction for all SDM statistical models; instead, analytical examples will focus on the two most common SDM models, random forests and boosted regression trees. Output from workshop analyses will be used to construct an ensemble model. Exercise datasets range from plants to animals, rare to common species, and small to large extents.

JAMES W. MERCHANT, JR. MEMORIAL WORKSHOP: MODELING LANDSCAPE CHANGE AND ECOSYSTEM SERVICES ACROSS MULTIPLE SPATIAL AND TEMPORAL SCALES

Council Suite (3rd Level)

Henry Bulley, Department of Social Sciences, BMCC, City University of New York; Shuaib Lwasa, Department of Geography, Geoinformatics and Climatic Sciences, Makerere University, Uganda; Niina Käyhkö, Department of Geography and Geology, University of Turku, Finland; Bryan Pijanowski, Department of Forestry and Natural Resources, Purdue University

Overview: Ecosystem services are the benefits people obtain from ecosystems. However, there is increasing concern about how human activities and climate change may impact the resilience and capacity of ecosystems to provide essential services such as food and water; flood and disease control; nutrient cycling, and recreation. Effective methods to characterize and quantify landscape change dynamics is critical to understanding and modeling human impact on the such ecosystems, and to support policies and planning programs that could guarantee sustainable livelihoods. Landscape ecology principles such as spatial and temporal scales are vital to effective analyses and modelling of ecosystem dynamics, and how these affect their provisioning of essential services to sustain human livelihood. This workshop will be organized in two parts. Part one, will address issues of landscape scale and heterogeneity, as well as landscape ecology applications to natural resource management, ecosystem services, and climate change adaptations. The second part of the workshop will focus on geospatial and modelling tools for landscape based analyses, such as IDRISI® landscape change modeler, Spatial Multi-Criteria Analysis and Participatory GIS techniques.

WORKSHOPS: FULL-DAY

SUNDAY, JULY 5 ♦ 9:00 AM – 5:00 PM

{pre-registration and additional fee required; Coffee, Refreshments & Snacks provided}

1. AN OPEN SCIENCE AND REPRODUCIBLE RESEARCH PRIMER FOR LANDSCAPE ECOLOGISTS

Galleria III

Jeffrey W. Hollister, Research Ecologist, U.S. Environmental Protection Agency; Bryan Milstead, U.S. Environmental Protection Agency; Betty Kreakie, U.S. Environmental Protection Agency; Scott Chamberlain, rOpenSci

Overview: In recent years many funding agencies, some publishers, and even the United States government have enacted policies that encourage open science and strive for reproducibility; however, the knowledge and skills to implement open science and enable reproducible research are not yet widely taught. The objectives of this workshop are to provide an introduction to the basic tenets of open science and reproducibility, provide hands on-experience with R and RStudio, and provide examples relevant to landscape ecologists. We will combine an introduction to relevant topics with hands-on exercises. The topics to be covered are: Basic tenets of open science and reproducible research; basics of R and R scripting; using spatial data in R; R Markdown; version control with Git and RStudio; and discovering and using data on the web.

2. PLANNING FOR MULTIPLE LANDSCAPE FUNCTIONS BASED ON LANDSCAPE ECOLOGY PRINCIPLES

Broadway I

Peter Stubbjær Andersen, Assistant Professor; Henrik Vejre, Professor - University of Copenhagen, Denmark

Overview: The objective of the workshop is to discuss the practical management implications of the policy goal of achieving multifunctional landscapes. Most landscapes are considered to be multifunctional because functions/services such as land-based food production, habitat protection, recreational activities, water resource protection, energy production, and residence, exist in the landscape and the functions interact in complex patterns and at different scales. The goals of the workshop pertain to: gaining insight into how multifunctionality policies are operationalized; discussing examples of strategies for implementing policies from different countries and regions; discussing spatial implications of the interactions between Ecosystem Services in a multifunctionality approach; suggesting new ideas and approaches to the practical management of multiple functions/services at different scales and in different ownership structures. It is expected that the workshop will result in a broad list of examples and recommendations that will be included in a forthcoming peer-reviewed paper. Workshop participants are invited to contribute. The workshop includes both plenary and group sessions. Topics covered include: Structural and functional approach to multifunctionality, spatiality of Ecosystem Services, functional integration & segregation, functional interaction across scales, ownership structures and functionality.

3. PUBLIC PARTICIPATION MAPPING METHODS (PPGIS, PGIS, VGI) FOR LANDSCAPE ANALYSIS, PLANNING, AND MANAGEMENT

Broadway II

Greg Brown, University of Queensland, Australia

Overview: In this workshop, participants will learn about the tools, techniques, and approaches being implemented globally to map and understand human/landscape relationships using geospatial technologies. Concepts such as crowdsourcing, public participation GIS (PPGIS), participatory GIS (PGIS), volunteered geographic information (VGI), Web 2.0, participatory 3D mapping, and other related concepts have captured the imagination of academics, NGOs, and government agencies. This workshop will examine the past, the present, and the future of participatory mapping methods for landscape analysis and planning, including biological conservation, ecosystem services, and social ecological systems. Topics to be addressed in the workshop include: 1) principles of effective public participation, 2) selection of spatial attributes for use in PPGIS, 3) methods and tradeoffs for spatial data collection systems, 4) comparison of VGI vs. PPGIS systems, 5) landscape and spatial planning decision-support systems based on PPGIS, 6) landscape analysis methods for PPGIS data, 7) relationships between landscape values and physical landscapes, and 8) social and institutional barriers to the use and adoption of participatory mapping methods. Greg is a professor of Environmental Planning at the University of Queensland and founder of the Landscape Values and PPGIS Institute (<http://www.landscapevalues.org>). He has over a decade of experience in participatory mapping applications and has worked with different public agencies such as the U.S. Forest Service, Park Victoria, and the New Zealand Department of Conservation to develop participatory mapping applications for conservation, resource management, and urban park planning.

4. MACHINE LEARNING AND ENSEMBLE MODELS WITH OPENGIS IN LANDSCAPE ECOLOGY

Broadway III

Falk Huettmann, Ph.D., Associate Professor -EWHALE lab- Biology and Wildlife Department, Institute of Arctic Biology, Fairbanks, Alaska, USA

Overview: Machine Learning methods became mainstream already a decade ago, e.g. in data mining, bioinformatics, banking, pharmaceutical and industrial online applications. However, many natural resource disciplines still use traditional, linear, parsimonious, suboptimal and partly outdated quantitative methods when analyzing and predicting their complex GIS data. This workshop will show the generic benefits of machine learning algorithms following primarily work from Leo Breiman and colleagues. It presents links with commercial, R and QGIS software. Complex methods like trees (Cart), boosting (TreeNet), bagging (RandomForest), Multiple Adaptive Regression Splines (MARS), Maxent and ensemble models will be covered. Further, it will be shown how to link those methods and tools all in an effective workflow to automatize GIS analysis such as data mining and predictions for solid inferences with ISO metadata for a science-based conservation management. Macroecology, Climate Change models, Impact Assessments and socio-economic applications are emphasized.

5. LAND CHANGE MODELING

Galleria I

Robert Gilmore Pontius, Jr., Professor, Clark University, USA

Overview: This workshop includes lectures and hands-on training concerning GIS-based measurement and simulation of land change. Concepts include: quantity difference, allocation difference, calibration, extrapolation, validation, total operating characteristic and Intensity Analysis (<https://sites.google.com/site/intensityanalysis/>). Participants who complete the workshop are entitled to a 50% discount on a general, academic, or student license of Idrisi. The lecture and materials are in English, and available for free from www.clarku.edu/~rpontius. Professor Robert Gilmore Pontius Jr is the presenter, who has developed this workshop by presenting it dozens of times in 16 countries (<https://www.youtube.com/watch?v=h-wcuY9zmF4&feature=youtu.be>).

6. TELECOUPLING FRAMEWORK FOR STUDYING CROSS-BORDER AND CROSS-SCALE INTERACTIONS

Broadway IV

Jianguo (Jack) Liu and Vanessa Hull, Center for Systems Integration and Sustainability, Michigan State University, USA

Overview: Landscapes across the world are increasingly interconnected, both ecologically and socioeconomically. To understand and manage such complex interconnections, a new integrated framework of telecoupling is proposed (www.csis.msu.edu/telecoupling). Telecouplings are socioeconomic and ecological interactions between multiple coupled human and natural systems (e.g., landscapes) over distances. They occur during trade, water transfer, payment for ecosystem services, foreign investment, migration, and tourism. They also emerge when information flows, organisms disperse, species invade, and diseases spread. The award-winning framework of telecoupling emphasizes reciprocal cross-scale and cross-border interactions (e.g., feedbacks). Telecouplings have profound implications for landscape sustainability as they can transform landscape structure, function, pattern, process, and dynamics. They pose new global challenges and offer exciting new opportunities for the landscape ecology community. In this workshop, we will introduce the telecoupling framework, present applications of the framework, conduct hands-on exercises, and help workshop participants apply the framework to their issues of interest.

WORKSHOPS: HALF-DAY

TUESDAY, JULY 7 ♦ 1:00 PM – 5:00 PM {pre-registration and additional fee required}

1. THE EMERGENCE OF WICKED PROBLEMS IN COUPLED HUMAN AND NATURAL SYSTEMS

Galleria II

Patrick Bourgeron, University of Colorado-Boulder, USA

Overview: Sustainability of coupled human and natural systems (CHANS) requires policy and management strategies that consider both changes in different domains (e.g., ecological, socio-economic, cultural) at different spatio-temporal scales, and their internal and external impacts. Environmental issues in CHANS can be characterized as wicked problems when there is no single definition of the issues, no definitive and optimal solution exists, and proposed solutions create unintended secondary problems at different scales and domains. Because wicked problems always occur in a social context, they have been largely overlooked by natural scientists. The goals of this workshop are to (1) present a general CHANS framework that includes the interactions between environmental and socio-economic dynamics and forecasts the effects of these interactions on CHANS dynamics, ecosystem services, and sustainability; (2) highlight wicked problems across different systems; (3) formulate a process to identify when an environmental issue becomes a wicked problem; and (4) outline the implications for ecosystem management. The workshop will consist of three parts. First, there will be short presentations. Second, the attendees will be divided into a number of breakout groups that will further develop the framework with specific examples from different regions in the world. Breakout groups will further develop examples of regions where global, societal, and land use changes may have induced the shift to wicked problems. Third, the individual group results will be synthesized into a “general model”. Current knowledge of CHANS dynamics and the implications for ecosystem stewardship, including ecological restoration and novel ecosystems, will be examined. The outcomes of the session will be group-developed templates to characterize and address wicked problems in CHANS, the outline of a manuscript, and the creation of an international working group for the study of wicked problems.

2. STRATEGIC CONSERVATION PLANNING: A HANDS-ON SESSION

Directors Suite

Falk Huettmann, Ph.D., Associate Professor -EWHALE lab- Biology and Wildlife Department, Institute of Arctic Biology, University of Alaska Fairbanks AK, USA

Overview: In the current regime of sustainable management, Strategic Conservation Planning might well present ‘the best’ real-world approach to conservation worldwide. However, several software packages and algorithm implementations get used, and an exact methodological guidance how to run Strategic Conservation Planning is difficult to find. Many options exist to implement Strategic Conservation Planning in a complex socio-economic system allowing for mis-use and low achievement rates. For most people, notions like GIS and simulated annealing are simply hard to fathom still. However, in the Marine Protected Area (MPA) realm, such sophisticated efforts became mainstream already a decade ago. Unfortunately, many policies and managers of terrestrial and coastal resources either ignore the issue all together, still use ‘scoring’, or lack sophisticated GIS data. This half-day workshop will try to fill a major gap in Strategic Conservation Planning: technical hands-on OpenGIS step-by-step guidance with a discussion how to actually run and set up such an analysis to achieve, e.g. using MARXAN (QMARXAN will also be mentioned). Specifically, project set-up, point-and-click methods, required input data, program settings, and output will be covered and explained so that the user new to Strategic Conservation Planning can walk away with meaningful output and results. The relevance of predictive modeling (Maxent and RandomForest, ensemble models) to overcome data gaps in Strategic Conservation Planning will briefly be covered, too. Lastly, an effective workflow with automatized OpenGIS analysis and ISO metadata is also included to achieve a science-based conservation management.

3. AN INTRODUCTION TO HEXSIM

Forum Suite

H. Schumaker, U.S. Environmental Protection Agency, USA

Overview: This workshop will introduce new users to the HexSim simulation model (www.hexsim.net). HexSim allows users to construct PVA and other models without having to write computer code. These models can range from simple or hypothetical to complex and ecologically realistic. HexSim is spatially-explicit, individual-based, multi-population, multi-stressor, and is ideal for exploring the impacts of interacting disturbance regimes on wildlife and plants. This model is the result of many years of intensive development, and it is still fairly new to the research community. HexSim will be useful for many wildlife conservation and management studies, for research into stressor interactions, disease ecology, landscape genetics, and many other topics. HexSim runs on Windows, is distributed free of charge, has a complete graphical user interface, and comes with documentation and worked examples. This workshop will be led by the model developer. The workshop will begin with an overview of HexSim applications and strategies. We will then use a combination of lecture materials and hands-on examples to introduce model design, the running of simulations, and the analysis of model results. All training materials will be provided.

4. STUDENT WORKSHOP: USING R TO MODEL, MANIPULATE, AND MANAGE SPATIAL DATA

Pavilion West

Thomas Edwards, United States Geological Survey & Utah State University; Karl Jarvis, Northern Arizona University; Whalen Dillon, North Carolina State University; Jill Deines, Michigan State University; Francesco Tonini, North Carolina State University

Overview: Coding and programming skills for analyzing and managing spatial data are becoming ever more relevant for the next generation of landscape ecologists. Yet, these skills are seldom taught in classes relevant to students of landscape ecology, and even more rarely using free and open source software. R is becoming an increasingly common alternative to commercial statistical software. Less well-known is the capability to use it as a geographic information system (GIS) software. The objectives of this workshop are to provide an introduction to the basics of programming in R (loops, conditionals, functions, etc.), the functionality of R as a GIS, and the graphical user interface program RStudio for interacting with R. We will use hands-on exercises for introducing the handling and analyzing of spatial data within the R environment, and provide insights and additional resources from users at all levels. The workshop will be presented by the US-IALE Executive Committee Student Representatives, Whalen Dillon (North Carolina State University) and Karl Jarvis (Northern Arizona University). We expect that this will be a highly interactive workshop with ample opportunity for addressing all level of questions.



Field Trip Options: Half-Day Tuesday

Additional Fee and Pre-Registration Required. If you have not signed up in advance and would like to purchase a ticket, please stop by the Conference Registration Desk for space availability.

TUESDAY, JULY 7 ♦ HALF-DAY TOURS {Please take note of departure and return times}

1. UNDERGROUND PORTLAND WALKING TOUR

Price per person: \$25.00 *(includes local guide)*
Departure Time: 1:00 PM from Hotel Lobby
Return Time: 3:00 PM

Expose the sins of Portland's past on this tour through Old Town and Chinatown! We walk through the remains of the physical underground as well as exploring the underground subcultures, political underground and immoral underground of the city's sordid history, and expose the myths behind the legends of the so-called "Shanghai Tunnels." This tour takes less than 2 hours and covers approximately one mile of physical distance.



2. BEERQUEST WALKING TOUR

Price per person: \$65.00 *(includes local guide)*
Tour Time: 3:00 p.m. - 6:00 p.m.

Tour starts at 3:00 p.m. at **Rock Bottom Brewery, 206 SW Morrison St.** *(about a 6-minute walk from the hotel)*



Experience Portland's vibrant beer culture and visit award-winning local breweries on this walking tour. Guests will taste their way through Portland's beer scene and sample a wide range of beer styles. Your expert tour guide is a knowledgeable and passionate beer guru, who will teach you everything you need to know about beer. You'll go behind-the-scenes to see how beer is made and even sample some of the ingredients used in the brewing process. Between beer stops, you'll stroll through the historic Old Town District and learn about famous landmarks. Walking is done at an easy pace and covers less than a mile. **You must be 21+ to participate.**

3. FOREST PARK OLD GROWTH TOUR

Price per person: \$ 35.00 *(includes transportation and guide.)*
Departure Time: 1:00 PM from Hotel Lobby *{look for ecoShuttle vehicle}*
Return Time: 5:00 PM *{approximate}*

We will visit Portland's urban wilderness, Forest Park, starting at the Portland Audubon Society's sanctuary, where we will find a small remnant stand of old growth forest, as well as the younger Alder and Bigleaf Maple forests that are most of the park's second growth. If time allows, we will continue our drive up to Skyline Boulevard, which follows the crest of the ridge that forms the (formerly towering) Tualatin Mountains to a high point at Council Crest Park.



4. EXPLORING THE INTERTWINE TOUR

Price per person: \$ 35.00 *(includes transportation and guide.)*
Departure Time: 1:00 PM from Hotel Lobby *{look for ecoShuttle vehicle}*
Return Time: 5:00 PM *{approximate}*

Mike Houck, Director of the Urban Greenspaces Institute and co-founder of The Intertwine Alliance, and local ecologists, urban planners, and watershed specialists will lead a close-in, half-day tour of sites that illustrate city and regional efforts to integrate natural resources with the build environment. Specific topics will include innovative use of green infrastructure in urban storm water management; regional and local land use, park, natural area and trail park planning; and the "collective impact" model The Intertwine Alliance brings to protecting urban biodiversity across the 3,000 square mile Intertwine landscape of the Portland-Vancouver metropolitan region. The trip will combine driving and moderate walking. Come prepared with the appropriate footwear and clothes.



5. CUTTING EDGE GREEN WALKING TOUR

Price per person: \$35.00 *(includes local guide)*

Departure Time: 2:00 PM from Hotel Lobby

Return Time: 4:30 PM



On this tour we hit the streets and look at Portland's effort to transform itself from a nineteenth-century shipping port into a twenty-first-century sustainable city. We'll tour some of the city's most notable "green buildings," including the LEEDs Gold Certified Jean Vullum Natural Capital Center, as well as the recently renovated Platinum Certified Gerding Theater. We'll tour a real live eco-roof and drop by the City's Bureau of Development and Sustainability along the way as we explore these linked themes of sustainability, conservation, alternative transportation and livability. The tour takes approximately 2.5 hours and will cover a little over one mile of physical distance.

Field Trip Options: Full-Day Friday

Additional Fee and Pre-Registration Required. If you have not signed up in advance and would like to purchase a ticket, please stop by the Conference Registration Desk for space availability.

FRIDAY, JULY 10TH ♦ FULL DAY 7:30 AM – 6:00 PM

1. MOUNT ST. HELENS

Price per person: \$ 120.00 *(includes transportation and guide. Lunch will be provided)*

Departure Time: 7:30AM from Hotel Lobby

Return Time: 6:00 PM *(approximate)*



Learn about the "blast zone," mudflows, pyroclastic flows, biological regeneration and the largest avalanche recorded by man. The immense effects from the eruption of Mount Saint Helens on the surrounding region must be seen to be appreciated. We'll be doing some hiking throughout the day (up to five miles total), so please make sure to wear appropriate clothing and footwear.



2. MOUNT HOOD NATIONAL FOREST TOUR

Price per person: \$120.00 *(includes transportation and guide. Lunch will be provided)*

Departure Time: 8:00 AM from Hotel Lobby

Return to Hotel: 6:00 PM *(approximate)*



We will visit Mt. Hood National Forest, choosing stops with a plan to discuss the role of climate and wildfire across several different forest types. Trip will include a moderate hike (less than 3 miles, some elevation gain/loss). Be prepared for some spectacular views! Sturdy shoes are required, and a warm/waterproof layer may be needed if the weather is not clear.

3. NORTHERN OREGON COAST TRIP

Price per person: \$120.00 *(includes transportation and guide. Lunch will be provided)*

Departure Time: 8:00 AM from Hotel Lobby

Return to Hotel: 6:00 PM *(approximate)*

Enjoy a day trip along Oregon's coast, exploring and discussing a variety of landscapes including forests, saltmarshes, and tide pools. Make sure to wear sturdy shoes – we'll be doing some light hiking at certain points throughout the day.



4. COLLABORATIVE COMMUNITY-BASED RESTORATION IN TUALATIN WATERSHED

Price per person: \$100.00 *(includes transportation and guide. Lunch will be provided)*

Departure Time: 9:00 AM from Hotel Lobby

Return to Hotel: 3:30 PM



The Tualatin Watershed is home to one of the largest community-based watershed restoration programs in the United States. Over the past decade more than 400 restoration projects have restored 60 plus river miles on over 15,000 acres in agricultural and urban settings. This program is now planting more than one million native plants annually through a collective impact model that leverages existing resources from multiple partners. This tour will provide an overview of the evolution of this program and visit a number of urban and agricultural projects in the Tualatin Watershed.

5. WHITE SALMON RIVER RAFTING TRIP

Price per person: \$140.00 *(includes transportation and guide. Lunch will be provided)*

Departure Time: 10:00 AM from Hotel Lobby

Return to Hotel: 7:00 PM *(approximate)*

Feeling adventurous? Take a rafting trip on the White Salmon River! A Class III / IV river depending on seasonal flows, this will be an experience you'll never forget. Experienced guides will lead your white-water experience, pointing out areas of ecological interest along the way.

All equipment will be provided for you; just bring along a swimsuit and change of clothes. Lunch is included, but make sure to bring some cash; at the end of the day your group will enjoy celebratory drinks and dinner at a local restaurant—a post-rafting tradition!



6. WINERIES AND CLIMATE CHANGE TRIP

Price per person: \$140.00 *(includes transportation and knowledgeable guide. Lunch will be provided)*

Departure Time: 11:00 AM from Hotel Lobby

Return to Hotel: 6:00 PM



This field trip will provide participants with an introduction to the Willamette Valley ecology, natural history, and wines. We will explore topics such as climate change, endangered species and habitats, habitat restoration, and sustainable practices in the Willamette Valley wine industry. We will stop at several wineries, where you will be able to taste the local wines.

Adventuring out on your own? Here are a few options:

Washington Park

An easy metro-ride away, Washington Park is home to the International Rose Test Garden, the Portland Japanese Garden, the Oregon Zoo, the Hoyt Arboretum, and more. Information on getting there and hours of operation can be found at www.washingtonparkpdx.org.

Portland Art Museum

Founded in late 1892, the Portland Art Museum is the seventh oldest museum in the United States and the oldest in the Pacific Northwest. The Museum's collection of more than 42,000 objects, displayed in 112,000 square feet of galleries, reflects the history of art from ancient times to today. Find out what special exhibitions are being featured at www.portlandartmuseum.org.

Shopping, Dining, and More!

Portland is full of great shopping and dining options, from farmer's markets to high end stores. Whether you want to explore the shops in Union Way Shopping Arcade, sample a sweet treat from the famous VooDoo Doughnut (open 24 hours!), or take in the culture at Pioneer Courthouse Square, there's something for everyone in this vibrant city. Visit www.travelportland.org to find more information and to plan your trip!

AWARDS

FOREIGN SCHOLAR TRAVEL AWARD PROGRAM

Through the Foreign Scholar Travel Award Program, US-IALE annually provides travel funds to two landscape ecologists from foreign countries to present their research at the annual meeting. For this joint World Congress, IALE International has provided additional financial support, enabling the presentation of 20 travel awards to early career foreign scholars!

Thank you to these companies who provided publications or software for the Foreign Scholar Travel Award silent auction. The proceeds from the silent auction conducted at each annual meeting support these travel grants.

- ❖ Clark Labs, Clark University
- ❖ John Hopkins University Press
- ❖ Springer
- ❖ Island Press
- ❖ Sinauer Associates

Foreign Scholar Travel Award Recipients

- * **Olumuyiwa Bayode Adegun, Nigeria; Presentation:** Informal Settlement Intervention: How Does It Impact Urban Ecosystem Services and Disservices? / **Tuesday, Urban Ecology IV, 10:20 AM**
- * **Andrzej Affek, Poland; Presentation:** Cultural heritage recorded in the relief of the landscape abandoned by people - old shapes, new functions / **Monday, Land Use Change II, 4:00 PM; Presentation:** Usage patterns of provisioning and cultural ecosystem services / **Wednesday, Poster: Land Use and Ecosystem Services, 6:00 PM**
- * **Luis Antonio Arias Medellín, Mexico; Presentation:** Demographic analysis of *Agave angustifolia* (Agavaceae) with an emphasis on ecological restoration / **Thursday, Forest Ecology IV, 9:50 AM**
- * **Yazidhi Bamutaze, Uganda; Presentation:** Dynamics of soil erosion under varied landuse/cover in Rwizi catchment, Lake Victoria Basin: Implications on landscape and livelihood resilience / **Monday, Agrarian Landscapes IV, 11:30 AM; Presentation:** Magnitude and spatial structure of hillslope soil erosion on Mt. Elgon in Uganda / **Wednesday, Methods: Geospatial II, 10:25 AM**
- * **Cheng Li, China; Presentation:** The impact of landscape heterogeneity on heavy metal contamination in agricultural top soils at multiple scales in the Pearl River Delta, China / **Monday, Poster: Urban Ecology, 6:00 PM**
- * **Justus Precious Deikumah, Ghana; Presentation:** Matrix intensification affects body and physiological condition of tropical forest-dependent passerines / **Wednesday, Landscape Planning III, 2:25 PM**
- * **Yuri Arten Forte, Brazil; Presentation:** Balancing supply and demand for ecosystem services provisioning of tropical forest patches in agricultural landscape / **Monday, Poster: Land Use and Ecosystem Services, 6:00 PM**
- * **Constantina Alina Hossu, Romania; Presentation:** Landscapes historical persistence and stakeholders' perspective over traditional land-uses. The case of Romania's Carpathians / **Monday, Land Use Change I, 11:40 AM**
- * **Navneet Kumar, India; Presentation:** Land-use Change Analysis and its Impact on Water Resources of Upper Kharun Catchment, India / **Thursday, Aquatic Ecology II, 10:35 AM**
- * **Yupeng Liu, China; Presentation:** Characterizing spatial patterns of air pollution on multiple time scales in China / **Thursday, Urban Ecology VII, 4:50 PM**

- * **Zhifeng Liu, China; Presentation:** Relationships between habitat loss and habitat fragmentation during urbanization: A long-term analysis for 16 world cities / **Tuesday, Urban Ecology VIII, 9:25 AM**
- * **Karla Estela Locher Krause, Chile; Presentation:** Spatial and temporal interaction of ecosystem services in the south of Chile / **Tuesday, Coupled Human Natural Systems II, 10:20 AM**
- * **Andreea Niță, Romania; Presentation:** Applied conservation planning within a Romanian Natura 2000 wetland - lessons from a LIFE Nature project / **Tuesday, Poster: Hydrology, 7:00 PM; Presentation:** Lifestyle Causes of Suburban Growth and Consequences on Landscape Function/ **Wednesday, Land Use Change VI, 11:40 AM**
- * **Agnieszka Nowak, Poland; Presentation:** Relationship between environmental properties, land use and the resilience to landscape degradation in Malopolska Region (Poland) / **Monday, Agrarian Landscapes II, 3:40 PM**
- * **Katarzyna Anna Ostapowicz, Poland; Presentation:** Implication of future land cover change on the brown bear habitat suitability in the northern part of the Carpathians / **Wednesday, Land Use Change VII, 9:50 AM; Presentation:** Modelling future forest cover change in the Swiss Alps and the Polish Carpathians: drivers and implications / **Wednesday, Land Use Change V, 11:00 AM**
- * **Xi Pang, Sweden; Presentation:** Trade-offs and synergies among ecosystem services and biodiversity under different forest management scenarios - case study of a forest landscape in southern Sweden / **Thursday, Forest Ecology IV, 11:35 AM**
- * **Paula Ribeiro Prist, Brazil; Presentation:** Landscape, environmental and social predictors of Hantavirus risk in the State of Sao Paulo, Brazil / **Monday, Poster: Urban Ecology, 6:00 PM**
- * **Aurora Torres, Spain; Presentation:** Wildlife in a human-dominated world: no places left unaffected from infrastructural development? / **Monday, Poster: Disturbance Ecology, 6:00 PM; Presentation:** Prevalent multi-scale mismatch between urban sprawl and landscape fragmentation patterns creates windows of opportunity for conservation / **Wednesday, Land Use Change VI, 10:20 AM**
- * **Mohammad Belal Uddin, Bangladesh; Presentation:** An Ecological Effectiveness of Different Forest Management Regimes in an Anthropogenic Landscape in Bangladesh-Implications for Conservation / **Wednesday, Landscape Management, 10:35 AM**

US-IALE STUDENT TRAVEL AWARDS

Up to ten travel awards were made available to students to attend this year's US-IALE meeting with funding generously provided by **US-IALE**. Ten students were selected by the US-IALE Awards Committee to receive these awards, which include up to \$500 for travel to the conference.

2015 Student Travel Awardees:

Michelle DiLeo, University of Toronto

Whalen Dillon, North Carolina State University

Brenna Forester, Duke University

Qiongyu Huang, University of Maryland, College Park

Karl Jarvis, Northern Arizona University

Jesse Miller, University of Wisconsin-Madison

Naparat Suttidate, University of Wisconsin-Madison

Sophie Taddeo, University of California, Berkeley

Kathy Zeller, University of Massachusetts Amherst

Emily Zimmerman, Iowa State University



IALE DISTINGUISHED AWARDS

Every four years IALE honors 3 individuals for Outstanding Scientific Achievements in the field of Landscape Ecology; and 3 individuals for Distinguished Services to the Society.

In 2015 the following individuals have been selected:

IALE Award for Outstanding Scientific Achievements

Felix Müller, *University of Kiel (Germany), Institute for Natural Resource Conservation, Department of Ecosystem Management*

Marie-Josée Fortin, *University of Toronto (Canada), Ecology & Evolutionary Biology*

Jean Paul Metzger, *Universidade de São Paulo (Brazil), Departamento de Ecologia, Instituto de Biociências*

IALE Award for Distinguished Service

Xiuzhen Li, *East China Normal University (China), Institute of Estuarine and Coastal Research Wetlands Ecology, Landscape Ecology*

Sandra Luque, *IRSTEA National Research Institute of Science and Technology for Environment and Agriculture (France)*

Louis Iverson, *Landscape Change Research Group, Northern Research Station, USDA Forest Service, Delaware (USA)*



AWARDS

NASA-MSU Professional Enhancement Awards Program



The NASA-MSU Professional Enhancement Awards are made possible by support from the National Aeronautics and Space Administration (NASA) and Michigan State University (MSU). The program has supported more than 360 students from approximately 140 institutions worldwide since 1998 to present their research and interact with leading scientists and other attendees at meetings of US-IALE and IALE.



This is the 18th consecutive year of the program. The 17 awardees will have opportunities to meet at a special dinner gathering, learn the latest developments in landscape ecology, present their research, build professional networks with other conference attendees, and collaborate on telecoupling (<http://csis.msu.edu/telecoupling>).

NASA-MSU Awardees (Class of 2015)

Name	Affiliation
Oludunsin T Arodudu	Leibniz Centre for Agricultural Landscape Research (ZALF)
Robbi C Bishop-Taylor	University of New South Wales, Australia
Jodi S Brandt	Dartmouth College
Min Gon Chung	Michigan State University
Arjan de Bruijn	Purdue University
Jillian M Deines	Michigan State University
Joseph Drake	Texas Tech University
Florian Gollnow	Humboldt-Universität zu Berlin
Amy B Mui	University of Toronto
Beatriz Otero Jimenez	University of Michigan
Jiangxiao Qiu	University of Wisconsin-Madison
Yessica Rico Mancebo del Castillo	Royal Ontario Museum
Jesse S Sayles	Arizona State University
Benjamin K Sullender	University of Wisconsin-Madison
Francesco Tonini	North Carolina State University
Alexander Watts	University of Toronto
Gabriel Zegers	Pontifical Catholic University of Chile

The 2015 NASA-MSU Awards Committee consists of Jianguo (Jack) Liu (Chair), Garik Gutman (NASA), Jennifer Carducci (MSU), and Shuxin Li (MSU).

SPONSORS & EXHIBITORS

★ Please plan to stop by and visit the displays in the Ballroom Foyer starting on Sunday afternoon through Wednesday afternoon.

Bureau of Environmental Services, City of Portland

Dawn Uchiyama
1120 SW 5th Ave, Room 1000
Portland, OR 97204
P: 503-823-0050
E: dawn.uchiyama@portlandoregon.gov
www.portlandoregon.gov/bes
The Bureau of Environmental Services serves the Portland community by protecting public health, water quality and the environment.

City of Portland Bureau of Planning and Sustainability

JoEllen Carothers
1900 SW 4th Ave, Suite 7100
Portland, OR 97201
P: 503-823-7700
E: joellen.carothers@portlandoregon.gov
www.portlandoregon.gov/bps
The Portland Bureau of Planning and Sustainability (BPS) develops creative and practical solutions to enhance Portland's livability, preserve distinctive places and plan for a resilient future.

Clark Labs

Ron Eastman
950 Main Street
Worcester, MA 01610
P: 508-849-2311
E: clarklabs@clarku.edu
www.clarklabs.org
Clark Labs produces environmental modeling and monitoring software and provides consulting services, training sessions and customized software. Specialties include GIS and image processing, land change modeling, REDD, species impact, ecosystem services, and tools to explore earth trends and climate adaptation. Learn more at www.clarklabs.org.

Conservation Science Partners

Brett Dickson
11050 Pioneer Trail, Suite 202
Truckee, CA 96161
P: 530-214-8905
E: brett@csp-inc.org
www.csp-inc.org

Conservation Science Partners is a nonprofit scientific collective established to meet the analytical and research needs of diverse stakeholders in conservation projects. We connect the best minds in conservation science to solve environmental problems in a comprehensive, flexible, and service-oriented manner.

★ **Davey Resource Group**

Dana Karcher
6005 Capistrano Avenue Unit A
Atascadero, CA 93422
P: 661-964-7158
E: dana.karcher@davey.com
www.davey.com

Davey Resource Group is the consulting division of the Davey Tree Expert Company. DRG works with entities to provide scientific based arboriculture solutions that include vegetation management and field inventories. Since 1880, we have been "providing proven solutions for a growing world."

★ **Leibniz Institute of Ecological Urban and Regional Development**

Christian Stein
Weberplatz 1
Dresden, Germany 01217
P: +493514679270
E: c.stein@ioer.de
www.ioer.de

The Leibniz Institute of Ecological Urban and Regional Development is an establishment of the Leibniz Association for research in the spatial sciences. Our concern is the scientific basis for the sustainable development of cities and regions in the national and international context. Our research addresses ecological issues of sustainable development.

Portland Parks and Recreation

Jenn Cairo
10910 N Denver Ave
Portland, OR 97217
P: 503.823.4405
E: jenn.cairo@portlandoregon.gov
www.portlandoregon.gov/parks
Responsible for creation and maintenance of parks, natural areas, community gardens, trails, and community centers, and management and regulation of the urban forest in the city of Portland Oregon.

Portland State University- Institute for Sustainable Solutions

Tania Hoode
1600 SW 4th Ave, Suite 110
911 NE 11th Ave
Portland, OR 97201
P: 503-725-9940
E: thoode@pdx.edu
www.pdx.edu/sustainability
The Institute for Sustainable Solutions (ISS) advances sustainability research, education, and outreach at Portland State, leading the University to be a powerful catalyst and model for a more equitable, ecologically balanced, and economically vibrant future.
(<http://www.pdx.edu/sustainability>)

★ Springer

Acasia Dalmau
233 Spring Street
New York, NY 10013
P: 212-460-1600
E: exhibits-ny@springer.com
www.springer.com
Our mission is to support your research. Get hands-on experience with Springer's multi-format publishing model: print – eBook – MyCopy. Take a closer look at electronic sample copies of our journals. Our Publishing Editors will be on site to answer any questions you might have about publishing with Springer.

U.S. Fish & Wildlife Service

Shirley Donnelly
Regional Office - Region One
911 N.E. 11th Avenue
Portland, Oregon 97232
P: 503-231-2069
E: shirley_donnelly@fws.gov
www.fws.gov
The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish and wildlife and their habitat for the continuing benefit of the American people.

★ US Forest Service

Deborah Hayes
201 14th St, SW
Washington, DC 20250
P: 703-489-9114
E: deborahhayes@fs.fed.us
www.fs.fed.us
The US Forest Service is a natural resource agency within USDA. The agency works with both public and private land managers and conducts research and development on forest and grassland natural resource issues including global issues such as climate change, landscape fragmentation and bioenergy issues.

Schedule of Sessions

See separate "Schedule of Sessions" and "Addendum" pdf files on the website for the most up to date version.