

TABLE OF CONTENTS

Welcome	2
Acknowledgments	3
General Conference Information	4
Schedule Overview	5
Social & Networking Event Highlights	8
Plenary Sessions	10
Workshops	12
Field Trips	14
Sponsors & Exhibitors	16
Technical Sessions & Symposia	19
(Monday: pp 19–28; Tuesday: pp 29–32; Wednesday: pp 33–46)	
Poster Session & Social	47

Organized by: *The Eastern Forest Environmental Threat Assessment Center
of the U.S. Forest Service Southern Research Station*

WELCOME

On behalf of the U.S. Forest Service Southern Research Station, I welcome you to Asheville, North Carolina, and the U.S. Regional Association of the International Association for Landscape Ecology's (US-IALE) 2016 Annual Meeting!



Asheville—the “Land of the Sky”—is located in the Blue Ridge Mountains of the Southern Appalachians and is surrounded by public lands, including the Pisgah and Nantahala National Forests, Great Smoky Mountains National Park, Mount Mitchell State Park, multiple wilderness areas and state forests, and the Blue Ridge Parkway. These special places are home to a rich variety of Appalachian ecosystems that support some of the greatest biodiversity in North America and provide critical services and benefits that sustain the region’s steadily increasing population. Across the Asheville landscape, exurban development, movement of invasive species, altered fire regimes, and climate variability combine to stress the region’s ecosystems in novel ways.

The U.S. Forest Service’s local organizing committee of the US-IALE 2016 Annual Meeting has worked with partners and US-IALE members to create an exceptional program for exploring the broad theme of “**Landscape Change**,” the underlying focus of much landscape-scale research and management. This theme fits well the U.S. Forest Service commitment to an all-lands approach to resource management wherein we strive to recognize, emphasize, and embrace a landscape perspective for each of the management challenges we face. It is altogether appropriate that the setting for this particular meeting be here in Asheville, a landscape shaped by visionaries such as Frederick Law Olmsted, Gifford Pinchot, and Carl Schenck, whose influence established our region as the “Cradle of Forestry” in the United States.

As a fellow scientist, I trust you will embrace the opportunity to share, critique, and strengthen ideas with fellow and aspiring landscape ecologists at this meeting, and help build the science and understanding needed to advance problem solving at the landscape level. I hope you will also take time to explore the Asheville area’s incredible beauty, culture, history, and flavors. I think you’ll see why the “Land of the Sky” has been and continues to be a beacon for those seeking the best of life in a small city nestled in the comfort of nature.

Robert L. Doudrick

Rob Doudrick, Ph.D.
Director, U.S. Forest Service
Southern Research Station



ACKNOWLEDGMENTS

We would like to thank the many people who generously contributed time and effort to make the meeting a success. Many current **US-IALE OFFICERS** were involved in many ways: Janet Franklin, Whalen Dillon, Rose Graves, Jeffrey Hepinstall-Cymerman, Todd Hawbaker, Ross Meentemeyer, Helene Wagner, Yolanda Wiersma, Jennifer Fraterrigo, Anita Morzillo, Brian Buma, Todd Lookingbill, Kathy Vigness-Raposa and Sara Gagné. Sincere thanks are due to Matt Viehdorfer, **US-IALE WEBMASTER**, for managing the meeting online presence. We also acknowledge **PAST US-IALE MEETING ORGANIZERS** who crafted templates of dates and tasks.

We thank our **PLENARY and BANQUET SPEAKERS** for their outstanding presentations: Daniel Simberloff, Nick Haddad, Susan Loeb, Nick Gould, and Jim Westervelt.

Thanks are also due to **FIELD TRIP ORGANIZERS** for coordinating scientific excursions and helping attendees experience the unique urban and rural landscapes of the Southern Appalachians: Steve Norman, Jim Fox, Stephanie Worley Firley, Matt Hutchins, Mark Endries, Lars Pomara, Kevin Potter Danny Lee, Brenna Forester, JJ Apodaca, and Bjorn Brooks.

We appreciate the extra efforts made by **SYMPOSIUM ORGANIZERS** to develop thematic sessions spanning a broad range of landscape science topics, by **WORKSHOP INSTRUCTORS** to provide stimulating educational opportunities, and by **MODERATORS** to lead and manage the presentation sessions. The many individuals involved are named elsewhere in this Program. We also appreciate the **VOLUNTEERS** who assisted in the daily management of the meeting: Bill Christie, Sarah Workman, Alison Thieme, Katie Haase, Laura Bliss, Jeanne Coffin, Justine Cefalu, Thomas Rivers, Isabel Rojas-viada, Austin Harner, Jordan Willett and Scott Beck.

Special recognition is due our **COLLEAGUES** at University of North Carolina Asheville's National Environmental Modeling and Analysis Center for assistance with program development and logistics: Jim Fox, Karin Rogers, Matt Hutchins, Greg Dobson, and Caroline Dougherty. Our **COLLEAGUES** at the Southern Research Station provided institutional support and communications management for which we are very grateful: Kier Klepzig, Monica Schwalbach, Sandy Baker, Patty Matteson and Zoe Hoyle. We would also like to acknowledge the support from **SPONSORS** and **DONORS** for contributing to the success of the meeting.

We appreciate the expert service provided by Lois Davis and staff of the Renaissance Asheville Hotel and Julie Murphy at Four Points by Sheraton Hotel. Finally, we are especially grateful for truly extraordinary and essential efforts from the staff at Delaney Meeting & Event Management, who managed the overall organization and logistics of the meeting.

Thank you all for making the US-IALE 2016 Annual Meeting a memorable event!

The 2016 **PROGRAM COMMITTEE** includes staff from the Eastern Forest Environmental Threat Assessment Center: Kurt Riitters, Bill Hargrove, Steve Norman, Stephanie Worley Firley, Danny Lee.

GENERAL CONFERENCE INFORMATION

REGISTRATION DESK:

The conference registration desk is located in the Renaissance Hotel Grand Ballroom Pre-Function Corridor, on the main level. Stop here to pick up conference materials, check out the Message/Job Board, and get information or assistance with conference functions. Hours of operation:

Sunday, April 3	12:00 p.m. – 6:30 p.m.
Monday, April 4	7:00 a.m. – 5:00 p.m.
Tuesday, April 5	7:00 a.m. – 5:00 p.m.
Wednesday, April 6	7:00 a.m. – 5:00 p.m.

MEETING ROOM LOCATIONS:

Meetings and events will take place in the Renaissance Hotel as well as the Sheraton Four Points Hotel, which is located across the street from the Renaissance. *When crossing the street, please use the crosswalk at the intersection of Woodfin Street and Market Street.* Refer to the Conference Agenda and Technical Session Grid to see where your meetings are being held, and plan your time accordingly. For a reference of where specific meeting rooms are located within the hotels, please see the hotel layout on the inside cover of this program.

INTERNET SERVICE:

Complimentary Wi-Fi access is available throughout the Renaissance and Sheraton Four Points hotels.

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.

SPEAKER CHECK-IN ONSITE:

All presenters must load their presentation onto the laptop in the specific session room of their presentation. Please arrive at least 15 minutes prior to your SESSION (not your presentation). Label your presentation file with name, session name, day and

presentation time (For ex. JSmith_Phenology_Wed_140PM) This will help your session chair identify and open your talk, and assure smooth transitions between presentations. Please seek out your session chair before your session to introduce yourself. If you're looking for a quiet space to practice/review your presentation, the **Eagle Room** (Renaissance 2nd floor) has been reserved as a **Speaker Ready Room** and will be available throughout the meeting.

POSTER AUTHORS: Poster Boards will be provided, and set in the Windsor Ballroom (Renaissance 1st floor). Poster boards will be numbered sequentially. Please put up your poster on the board having your assigned poster number. If you don't know your number, check the list of authors and poster numbers in the Final Program (pages 47 – 50), or ask at the Registration Desk. Posters may be hung up beginning on Monday morning, and must be removed by Tuesday noon. This space will be used for Technical Sessions on Wednesday.

STUDENT PRESENTATION COMPETITION:

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.

TECHNICAL SCHEDULE:

The full schedule of Technical Sessions and Symposia is listed on **pages 19 - 46**. The Poster presentations are listed on pages 47-50. 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 March 23, 2016. ***Please be sure and check the conference registration desk onsite for last minute cancellations and changes to the technical schedule.***



SCHEDULE OVERVIEW

For an at-a-glance view of the Concurrent Technical Sessions & Symposia, refer to grid on separate handout.


☆ = Social Event **S** = For Students Only ☕ = Coffee Break





SUNDAY, APRIL 3, 2016		
9:00 a.m. – 5:00 pm	Pre-Conference Full-Day Workshops <i>{pre-registration and additional fee required}</i>	<i>See page 12 for details</i>
12:00 p.m. – 6:30 p.m.	Conference Registration Desk Open & Exhibitor Set-up	<i>Ballroom Foyer</i>
2:00 p.m. – 4:00 p.m.	S Student Walking Tour of Asheville Join US-IALE Student Representatives Rose Graves and Whalen Dillon for an informal afternoon exploring Asheville.	<i>Meet at Hotel Main Lobby at 1:45 p.m.</i>
4:00 p.m. – 6:00 p.m.	US-IALE Executive Committee Meeting	<i>Top of the Plaza</i>
6:30 p.m. – 8:30 p.m.	☆ WELCOME SOCIAL & LIVE MUSIC <i>Join your colleagues to celebrate the start of the US-IALE 2016 Annual Meeting, featuring live music from The Bull Moose Party, Swannanoa, North Carolina's premier Bluegrass Band!</i>	<i>Ballroom Foyer and Patio</i>
MONDAY, APRIL 4, 2016		
7:00 a.m. – 5:00 p.m.	Conference Registration Desk Open	<i>Ballroom Foyer</i>
7:00 a.m. – 8:30 a.m.	☕ Continental Breakfast	<i>Grand Ballroom</i>
8:00 a.m. – 9:30 a.m.	WELCOME REMARKS & PLENARY SESSION I: Corridors and Connectivity: Benefits & Disadvantages <i>Daniel Simberloff, University of Tennessee; Nick Haddad, North Carolina State University</i>	<i>Grand Ballroom</i>
8:00 a.m. – 6:00 p.m.	Poster Set-up	<i>Windsor Ballroom</i>
9:30 a.m. – 10:00 a.m.	☕ Coffee Break	<i>Ballroom Foyer</i>
10:00 a.m. – 12:00 p.m.	Concurrent Technical Sessions and Symposia	<i>See grid and program for details</i>
12:00 p.m. – 1:30 p.m.	Attendee Lunch & Student/Mentor Lunch	<i>Grand Ballroom</i>
1:40 p.m. – 5:20 p.m.	Concurrent Technical Sessions and Symposia	<i>See grid and program for details</i>
3:00 p.m. – 3:20 p.m.	☕ Coffee Break	<i>Ballroom Foyer</i>
6:00 p.m. – 8:00 p.m.	☆ POSTER SESSION & SOCIAL and Special Screening of America's First Forest <i>{see details on page 8}</i>	<i>Windsor Ballroom & Grand Ballroom</i>
7:00 p.m. – 9:00 p.m.	NASA/MSU Dinner <i>{New NASA/MSU Awardees Only – Invitation only}</i>	<i>Top of the Plaza</i>

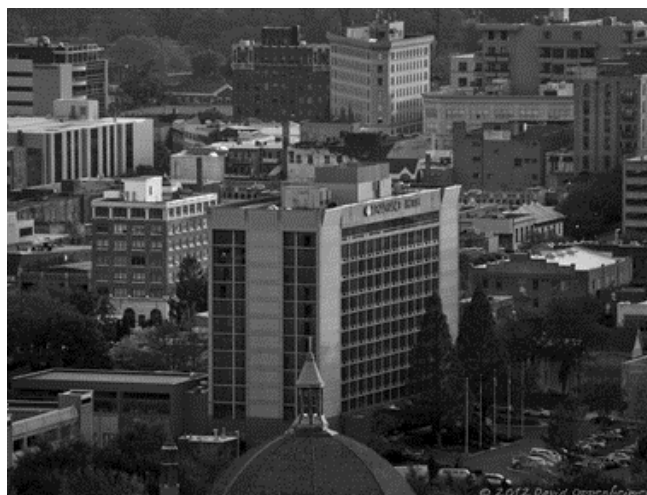
TUESDAY, APRIL 5, 2016

7:00 a.m. – 5:00 p.m.	Conference Registration Desk Open	<i>Ballroom Foyer</i>
7:00 a.m. – 8:00 a.m.	<i>Landscape Ecology</i> Editorial Board Meeting	<i>Cherokee</i>
7:00 a.m. – 8:30 a.m.	 Continental Breakfast	<i>Grand Ballroom</i>
8:00 a.m. – 9:20 a.m.	PLENARY SESSION II: Landscape-scale Bat Inventory and Monitoring <i>Susan Loeb, U.S. Forest Service Southern Research Station</i>	<i>Grand Ballroom</i>
9:20 a.m. – 9:40 a.m.	 Coffee Break	<i>Grand Ballroom</i>
9:40 a.m. – 12:00 p.m.	Concurrent Technical Sessions and Symposia	<i>See grid and program for details</i>
12:00 p.m. – 1:00 p.m.	Lunch on own <i>(For a list of suggestions see the Conference Registration Desk.)</i>	
1:00 p.m. – 5:00 p.m.	Half-Day Concurrent Workshops <i>{pre-registration and additional fee required}</i>	<i>See page 13 for details</i>
1:00 p.m. – 5:00 p.m.	Half-Day Field Trips <i>{pre-registration and additional fee required}</i>	<i>See page 14 for details</i>
6:00 p.m. – 7:00 p.m.	★ NETWORKING RECEPTION <i>“We’ll Pick up the Tab” Social: Professionals can purchase drink tickets for random distribution to students at the social. To redeem their ticket, students must find who purchased the ticket and introduce themselves. Cash bar also available.</i>	<i>Ballroom Foyer</i>
7:00 p.m. – 9:00 p.m.	★ AWARDS BANQUET & KEYNOTE PRESENTATION Asheville Urban Bear Project – <i>Nick Gould, Ecologist, North Carolina Urban/Suburban Black Bear Study</i>	<i>Grand Ballroom</i>

WEDNESDAY, APRIL 6, 2016

7:00 a.m. – 8:00 a.m.	US-IALE Executive Committee Meeting	<i>Top of the Plaza</i>
7:00 a.m. – 5:00 p.m.	Conference Registration Desk Open	<i>Ballroom Foyer</i>
7:00 a.m. – 8:30 a.m.	 Continental Breakfast	<i>Grand Ballroom</i>
8:00 a.m. – 9:20 a.m.	PLENARY SESSION III & Announcements of Upcoming US-IALE Annual Meetings: ★ 2017: Baltimore, Maryland. <i>Matt Baker, University of Maryland, Baltimore County</i> ★ 2018: Chicago, Illinois. <i>Emily Minor, Ph.D., University of Illinois at Chicago</i> Quantitative Landscape Ecology and Modeling within Military Installations <i>Jim Westervelt, Engineer Research and Development Center</i>	<i>Grand Ballroom</i>

9:20 a.m. – 9:40 a.m.	 Coffee Break	<i>Ballroom Foyer</i>
9:40 a.m. – 12:00 p.m.	Concurrent Technical Sessions and Symposia	<i>See grid and program for details</i>
10:00 a.m.	Bidding Closes for Foreign Scholar Travel Award Silent Book Auction {see details on page 16}	<i>Ballroom Foyer</i>
12:00 p.m. – 1:20 p.m.	Attendee Lunch Buffet	<i>Grand Ballroom</i>
1:20 p.m. – 5:20 p.m.	Concurrent Technical Sessions and Symposia	<i>See grid and program for details</i>
3:00 p.m. – 3:20 p.m.	 Coffee Break	<i>Ballroom Foyer</i>
Evening	Dinner on your own in Asheville. (For a list of suggestions see the Conference Registration Desk.)	
8:00 p.m. – 10:00 p.m.	 Student Social: Offsite at Pack's Tavern (20 S Spruce Street, about four blocks south of the Renaissance)	<i>Pack's Tavern</i>
THURSDAY, APRIL 7, 2016		
7:00 a.m. – 8:00 a.m.	 Coffee	<i>Ballroom Foyer</i>
All day (times vary)	Full-Day Field Trips	<i>See page 15 for details</i>



Did you know?

Asheville was the first city to be named **Bee City USA**, a title it earned in 2012. And in June 2015, The Renaissance Asheville Hotel started urban beekeeping by installing two beehives on its rooftop – to raise awareness about the ongoing plight of honeybees, create a friendlier environment for pollinators, and help promote the Center for Honeybee Research.

SOCIAL & NETWORKING EVENT HIGHLIGHTS

REFRESHMENTS & MEALS



The Full Conference and Student registration fee includes access to meals and social events as noted on the Schedule at-a-Glance, including: Welcome Reception on Sunday night; Poster Social on Monday night; the Awards Banquet on Tuesday night; continental breakfast Monday, Tuesday and Wednesday; lunch on Monday and Wednesday; and daily coffee breaks.

WELCOME SOCIAL ~ Sunday, April 3 ~ 6:30 p.m. – 8:30 p.m.

Join your colleagues to celebrate the start of the 2016 US-IALE Annual Meeting. Relax and mingle with old friends and make new connections. Enjoy light hors d'oeuvres, a cash bar and live music from local musicians: **The Bull Moose Party** – Swannanoa, North Carolina's premier Bluegrass band!



STUDENT/MENTOR LUNCH ~ Monday, April 4 ~ 12:00 p.m. – 1:30 p.m.

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. **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.**

POSTER SESSION & SOCIAL ~ Monday, April 4 ~ 6:00 p.m. – 8:00 p.m.

Check out over 50 posters in the Windsor Ballroom during the **Poster Session & Social**. Authors will be available to answer your questions and discuss their work. See pages 47–51 for a listing of posters and authors. *Hors d'oeuvres and cash bar.*

Also during Poster Session & Social will be a special screening of **America's First Forest** in **Grand Ballroom A**. *This abbreviated version of the full feature documentary is 25 minutes and will run on a continuous loop.*

America's First Forest: Carl Schenck and the Asheville Experiment tells the story of how Carl Schenck, a German forester, came to America in 1895 to manage the forests at the Biltmore Estate in Asheville, North Carolina. He not only helped restore the land there, he established the country's first forestry school and helped launch the American conservation movement.



OFFSITE STUDENT SOCIAL ~ Wednesday, April 6 ~ 8:00 p.m. - 10:00 p.m.

OFFSITE: Pack's Tavern – South Bar (20 S Spruce Street; about 4 blocks south of the Renaissance Hotel).



The Offsite Student Social has moved to Wednesday night! Please plan to join US-IALE student attendees for a night of socializing and unwinding with friends you've made throughout the week. All ages welcome! Head on down early for dinner at Pack's. Pack's Tavern offers a large eclectic menu: everything from signature salads to specialty burgers, from appetizers to wood-fired pizza and grinders. A drink ticket will be distributed to each student upon arrival at the social.

➔ Look for US-IALE Student Representatives Whalen Dillon and Rose Graves when you arrive. (*Proper I.D. required for alcoholic beverages; tickets can also be used for nonalcoholic beverages.*)

**AWARDS BANQUET & RECEPTION ~ Tuesday, April 5 ~
6:00 p.m. - 9:00 p.m. / Grand Ballroom**

Networking Reception & “We’ll Pick up the Tab” Social / 6:00 p.m. - 7:00 p.m.

To foster interaction between students and professional landscape ecologists, we’re asking professional attendees to “pick up the tab” for student drinks at the pre-banquet evening social. Participating professionals purchase tickets (at conference registration desk) for random distribution to attending students (\$20 for 3 drink tickets). 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!

Awards Presentation / 7:15 p.m. - 8:00 p.m.

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

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

Keynote Presentation / 8:00 p.m. - 9:00 p.m.

Asheville Urban Bear Project

Nick Gould, Ecologist, North Carolina Urban/Suburban Black Bear Study

This presentation will describe experiences and early results from the North Carolina Urban/Suburban Black Bear Study, designed to map strategies for managing bear populations that use developed areas. Ultimately this will lead to better coexistence of black bears and humans.

ABOUT THE SPEAKER:

Nick Gould is an ecologist with emphases in animal space use, behavioral ecology, and human-wildlife interactions.



He leads the North Carolina Urban/Suburban Black Bear Study, a collaborative project between North Carolina State University and the North Carolina Wildlife Resources Commission and the first study of its kind in the southeastern United States. Gould and his research team are collecting data on survival rates, causes of mortalities, and movements and activity patterns of bears in urban/suburban areas in Asheville, North Carolina, where human and bear habitats increasingly overlap. Using collars equipped with GPS devices, the researchers are studying and modeling the bears’ travel corridors and determining locations and characteristics of den sites. Results from their five-year study will assist the North Carolina Wildlife Resources Commission in developing science-based management strategies for bear populations. Gould has held positions with Hayden-Wing Associates, LLC, Colorado State University in partnership with the U.S. Navy, Colorado Parks and Wildlife, and the University of Wyoming. He is currently pursuing his Ph.D. in

Wildlife Biology at North Carolina State University.



PLENARY SESSION I: MONDAY, APRIL 4

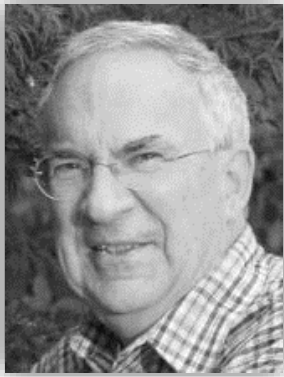
Monday, April 4: 8:00 a.m. to 9:30 a.m.

Corridors and Connectivity: Benefits & Disadvantages

Daniel Simberloff, University of Tennessee; Nick Haddad, North Carolina State University

The Opening Plenary will be on the topic of “Corridors and Connectivity,” and will be equally divided into two presentations, one describing the benefits and one describing the disadvantages.

ABOUT THE SPEAKERS:



Daniel Simberloff is a biologist and ecologist, Nancy Gore Hunger Professor of Environmental Studies at the University of Tennessee, and Editor-in-Chief of the journal *Biological Invasions*. Simberloff studied under scientist and author E.O. Wilson, with whom he collaborated on experimental studies to assess the theory of island biogeography, and coauthored the papers that earned them the Ecological Society of America’s George Mercer Award in 1971. Though the island biogeography theory led to the idea of constructing wildlife corridors to increase species movement and conservation, Simberloff has criticized the notion and called for conservation strategies to be based on relative costs and benefits.

Simberloff is a member of the U.S. National Academy of Sciences and has served on the Board of Governors of The Nature Conservancy, the federal Invasive Species Advisory Committee and the editorial boards of *Biodiversity and Conservation*, *Oecologia*, *Biological Invasions*, *BioScience* and *Ecology*. He received his Ph.D. from Harvard University in 1969.



Nick Haddad is a research scientist and the William Neal Reynolds Distinguished Professor within the Department of Biology at North Carolina State University. For 22 years, he has studied how plants and animals use corridors. Much of his research has focused on large, controlled experiments that have enabled him to determine how corridors work to increase plant and animal dispersal and maintain populations and biodiversity. Increasingly, his research has turned to natural corridors within landscapes in need of conservation, and he has focused on the consequences of corridors for conservation of rare and endangered species across large landscapes. Haddad serves as a site moderator of Conservation Corridor, which provides tools, resources, and digests to connect science and conservation. He received his Ph.D. from the University of Georgia in 1997.

PLENARY SESSION II: TUESDAY, APRIL 5

Tuesday, April 5: 8:00 a.m. to 9:20 a.m.

Landscape-scale Bat Inventory and Monitoring

Susan Loeb, U.S. Forest Service Southern Research Station

This plenary session will cover the development of new, effective inventory and monitoring techniques for bats as well as the current status, extent, and effects of White Nose Syndrome on bat populations across the eastern U.S.

ABOUT THE SPEAKER:



Susan Loeb is a research ecologist with the U.S. Forest Service Southern Research Station whose current research includes the ecology of threatened and sensitive species such as the Indiana bat and Rafinesque's big-eared bat and the effects of forest management practices on habitat use and community structure. Loeb develops and tests methods to monitor bat populations across the landscape and was instrumental in developing the North American Bat Monitoring Program (NABat). In February 2014, Loeb received the Lifetime Achievement Award from the Southeastern Bat Diversity Network, honoring her decades of research on bat ecology and conservation. In 2010 and in 2008, Loeb received the U.S. Forest Service Wings Across the Americas Bat Conservation Award. She received her Ph.D. from the University of California, Davis in 1987.

PLENARY SESSION III: WEDNESDAY, APRIL 6

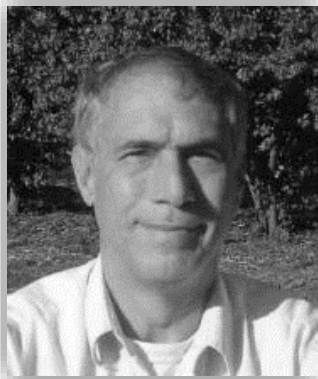
Wednesday, April 6: 8:00 a.m. to 9:20 a.m.

Quantitative Landscape Ecology and Modeling within Military Installations

Jim Westervelt, Engineer Research and Development Center

This plenary session will reflect on working at the interface between quantitative landscape ecology and modeling and practical problems associated with large-scale ecology over broad areas associated with military installations that face unique ecological responsibilities, challenges, and opportunities.

ABOUT THE SPEAKER:



Jim Westervelt has worked in landscape research since 1979 with the Construction Engineering Research Laboratory, which is part of the U.S. Army Corps of Engineers' Engineer Research and Development Center and co-located with the University of Illinois at Urbana-Champaign. Some of Westervelt's research areas have involved the design, development, and application of the GRASS GIS; urban growth modeling; alternative regional development futures; species-specific individual-based simulation modeling; and most recently, forecasting climate change impacts on military installation mission capacities. He has held adjunct and visiting researcher positions at the University, and has published widely across the various research endeavors. He received his Ph.D. in regional planning from the University of Illinois.

FULL-DAY WORKSHOPS: SUNDAY, APRIL 3

The following FULL-DAY workshops are being offered in conjunction with the US-IALE 2016 Annual Meeting and will take place on Sunday, April 3, from 9:00 AM - 5:00 PM. Pre-registration and additional fee of \$60 required to attend. Lunch is on your own.

W3. Data Preparation for Species Distribution Models (SDMs), Strategic Conservation Planning (MARXAN/ZONATION), Scenario-Testing and Related Analysis Using OpenGIS (QGIS and R)

– **RENAISSANCE ALEXANDER ROOM**

Organizer: Falk Huettmann, University of Alaska, Fairbanks

Overview: Participants will learn how to obtain and to prepare GIS layers for SDMs (MAXENT, boosting, bagging and ensemble models), MARXAN, ZONATION and similar applications. While this workshop will primarily deal with front-end modeling applications, and how to streamline and to batch (automatize) them for predictions and repeated runs, it will also deal with (repeated) posterior analysis of already obtained predictions and optimizations. The goal of this workshop is to enable participants worldwide for SDM and Strategic Conservation Planning models with OpenGIS tools so that they can deliver accurate and repeatable results quickly and to convince in their own subsequent SDM and MARXAN/ZONATION runs.

Intended Audience: Anyone interested in Species Distribution Models and Strategic Conservation Planning

W4. Telecoupling Framework for the Landscape Ecology Community

– **RENAISSANCE SWANNANOA ROOM**

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

Overview: Telecouplings are socioeconomic and ecological interactions between multiple coupled human and natural systems (e.g., landscapes) over distances. 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. 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.

Intended Audience: Attendees at any career stage (e.g., student, postdoctoral scholar, professor, resource manager) and with a variety of interests, such as landscape change, climate change, natural resource policy and governance, biodiversity, ecology, and landscape patterns and processes.

W5. Spatio-temporal Modeling with Open Source GIS

– **RENAISSANCE BERKELEY ROOM**

Organizers: Anna Petrasova, Vaclav Petras, Derek Van Berkel, Brian Pickard, Ross Meentemeyer, Helena Mitsova, Center for Geospatial Analytics, North Carolina State University

Overview: Spatial pattern of land use change due to urbanization and its impact on the landscape is the subject of ongoing research. Urban growth scenario simulation is a powerful tool for exploring these impacts and empowering planners to make informed decisions. In this workshop, we will first introduce GRASS GIS, a free and open source scientific platform for geoprocessing, then we will introduce FUTURES (FUTURE Urban-Regional Environment Simulation), a patch-based, stochastic, multi-level land change modeling framework implemented in GRASS GIS 7. This workshop is a great introduction to GRASS GIS including the unique tools available in GRASS GIS Addons repository. It will also for the first time introduce FUTURES as a GIS-based framework for urban growth simulation.

Intended Audience: No prior experience with GRASS GIS, Python or R required

W6. GuidosToolbox: Landscape Pattern, Connectivity, and Fragmentation Analysis

- RENAISSANCE VICTORIA ROOM

Organizer: Peter Vogt, European Commission, Joint Research Centre

Overview: GuidosToolbox provides a variety of techniques for the description and analysis of digital image objects such as pattern, connectivity, fragmentation, naturalness, influence zones, distance, and post-classification change detection. It can also be used to generate input files for enhanced connectivity analysis in graph-theory applications. In addition, GuidosToolbox provides a variety of generic image analysis and processing tools, dedicated pre- and post-processing utilities, batch-processing routines for automated data processing, and map publishing in GoogleEarth. It is being used by a variety of organizations, for example the European Commission, the U.S. Environmental Protection Agency, and the U.S. Forest Service. This workshop will introduce new ways of image analysis; explain Morphological Spatial Pattern Analysis; demonstrate program features of GuidosToolbox; and include hands-on training using sample data sets.

Intended Audience: Students/professionals, digital data analysts

HALF-DAY WORKSHOPS: TUESDAY, APRIL 5

The following HALF-DAY workshops are being offered on Tuesday, April 5, from 1:00 PM - 5:00 PM. Pre-registration required and additional fee (where applicable).

W8. Spatial and Temporal Data Visualization / No Charge {CAPACITY FULL}

- RENAISSANCE SWANNANOA ROOM

Organizers: Rose Graves and Whalen Dillon, US-IALE Student Representatives

Overview: The student workshop will focus on exploring how to use web tools and technologies in combination with best practices in science communication to help targeted audiences understand and use climate information. Participants will learn about visualization techniques, observational records of climate, and The National Oceanic and Atmospheric Administration's extensive climate resources. Participants will practice accessing and analyzing selected climate data and understanding climate projections. The workshop will be led by Ned Gardiner, a climate communication and data visualization expert for NOAA.

Intended Audience: Students ONLY

W9. Quantitative Methods in Soundscape Ecology / FEE: \$30

- RENAISSANCE BERKELEY ROOM

Organizers: Stuart H. Gage, Michigan State University; Almo Farina, University of Urbino, Italy; Anne Axel, Marshall University

Overview: This workshop will illustrate the use of analytical tools to analyze soundscape observations available in R statistical system, including a new software for the research of acoustic events. We will analyze three sets of acoustic recordings from: North America, Europe and Madagascar to demonstrate variety of soundscape by location. Two R packages (Seewave and Soundecology) specific to soundscape ecology will be used to analyze the recording sets. A new digital low-cost recorder with on-board processing of wav files using the Acoustic Complexity Index will be described in detail along with the post-processing software (Soundscape Meter 2.0®). After computing these indices, the workshop participants will be shown options for visualization of the index data for the three data sets to enable comparison between locations and each index. Workshop participants will understand how to utilize R to compute and visualize sound data and will be provided the scripts, sample data sets, as well as a copy of the software, Soundscape Meter.

Intended Audience: Students/professionals interested in ecoacoustics

HALF-DAY FIELD TRIPS: TUESDAY, APRIL 5

The following HALF-DAY field trips are being offered on Tuesday, April 5, from 1:00 PM - 5:00 PM. Pre-registration and additional fee required to attend. Prepare for rain; wear appropriate footwear.

1. Fragmentation and Management Challenges Along the Blue Ridge Parkway / FEE: \$35

(Trip leaders: Steve Norman, U.S. Forest Service; Jim Fox, University of North Carolina, Asheville)

1:00 PM Departure; 5:00 PM Return to Hotel

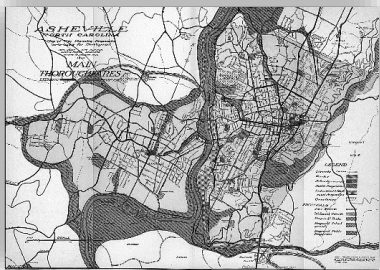


The forests of the Southern Appalachians include extensive areas of National Forest, National Park and State jurisdiction, yet in recent years residential development has expanded toward their edges and has resulted in considerable forest loss and fragmentation. Through selected stops, this half-day expedition will explore the forest and cultural history of this interface and address the various threats to wildlands that managers increasingly face. These include conversion of forest land, reduction of core areas, invasive plants, plant poaching and restrictions on prescribed fire management.

2. Asheville's Urban Ecosystem: Balancing Development with Green Space and Quality of Life / FEE: \$30

(Trip leaders: Stephanie Worley Firley, U.S. Forest Service; Matt Hutchins, University of North Carolina, Asheville)

1:00 PM Departure; 5:00 PM Return to Hotel



On this half-day field trip, we will explore aspects of Asheville's urban ecosystem to understand current challenges and opportunities in the aftermath of devastating floods from 2004's Hurricanes Frances and Ivan and in the face of rapid growth from an influx of new residents and visitors. We will learn how partners around the city are working to realize a vision for environmental and community sustainability, including the city's evolving greenway network from the eyes of city planners and grassroots advocates, The Botanical Gardens at Asheville with its emphasis on plants native to the Southern Appalachians, and promoters of urban community sustainability.

3. Asheville's Local Brewing Landscape / FEE: \$35

(Trip leaders: Mark Endries, U.S. Fish and Wildlife Service; Bjorn Brooks, U.S. Forest Service)

1:00 PM Departure; 5:30 PM Return to Hotel



Asheville has become the craft-brewing center of the Southeast. Boasting more breweries per capita than any other U.S. city, the Asheville area is home to 21 craft breweries including major beer production facilities for Oskar Blues, Sierra Nevada, and New Belgium. To support this burgeoning industry, the surrounding landscape is developing the capacity to locally grow and supply supportive ingredients including barley, hops, and yeast. On this tour we will explore this local component to the craft-brewing scene. We will see how barley and hops are grown by local farmers, a malt house to see floor-malting techniques to convert barley into malt, and a brewery to learn how breweries use these local ingredients to make local beer sustainably.

Participants must be 21 years of age or older.

FULL-DAY FIELD TRIPS: THURSDAY, APRIL 7

The following FULL-DAY field trips are being offered on Thursday, April 7. Pre-registration and additional fee required to attend. Lunch is included and will be provided. Prepare for rain; wear appropriate footwear.

1. Wildlife Along the Blue Ridge / FEE: \$60

(Trip leaders: Lars Pomara, U.S. Forest Service; Brenna Forester, PhD student, Duke University; JJ Apodaca, Warren Wilson College)

7:30 AM Departure; 5:00 PM Return to Hotel

Wildlife viewing will be the focus of this trip along the Blue Ridge in the Pisgah National Forest. The southern Appalachians are host to incredible salamander diversity, and a formidable array of breeding and passage migrant birds return to the region during spring migration. We will visit the Pink Beds loop trail to wander among old-growth Eastern White Pine groves and natural forest openings created by the beaver colony occupying the valley, and listen for drumming Ruffed Grouse. We will attempt the spruce-fir zone by bus if weather permits, or alternatively visit a pristine stream in the Shining Rock Wilderness. The variety of habitats generated by dramatic topography, natural disturbances, and active management supports diverse wildlife and affords beautiful vistas.



2. Forest Biodiversity, Disturbance and Culture in the Great Smoky Mountains National Park / FEE: \$60

(Trip leaders: Kevin Potter, North Carolina State University; Steve Norman, U.S. Forest Service)

7:30 AM Departure; 5:30 PM Return to Hotel

The Southern Appalachians host remarkable biodiversity and breathtaking scenic beauty; at the heart of the region is Great Smoky Mountains National Park, the largest national park in the eastern U.S. and the most-visited in the country. Participants in this field trip will learn how geology and climate have converged to create this biodiversity hot spot, and how finer-scale environmental conditions determine the distribution of forest communities in the area. With an emphasis on native conifer species, participants also will see how anthropogenic disturbances – including introductions of nonnative insects and disease – have altered forest ecosystems of the region. Finally, we will learn about the human history and distinctive culture of the park area.



3. Vanderbilt's Estate, Olmsted's Grounds and Birth of American Forestry / FEE: \$130

(Trip leaders: Danny Lee, U.S. Forest Service; Bill Hargrove, U.S. Forest Service; Bill Alexander and Parker Andes, The Biltmore Company)

8:00 AM Departure; 5:00 PM Return to Hotel

We will explore the sustainability vision and legacy of George Vanderbilt through a full-day tour of the Biltmore Estate, just south of Asheville. By nurturing early forestry training and education through the Biltmore Forest School, Vanderbilt was instrumental in the early development of forestry as a profession in America. After his death, much of his estate eventually became part of sections of the Pisgah National Forest and Blue Ridge Parkway. Estate historians will provide a guided tour of this aspect of Vanderbilt's influence. In the afternoon, we will take a self-guided tour of his mansion and grounds. The Chateausque-style mansion is the largest privately owned house in the U.S., and the grounds were designed by Frederick Law Olmsted.



DISPLAYS, SPONSORS, and EXHIBITORS

Check out these exhibits and displays in the Ballroom Foyer.

Displays

FOREIGN SCHOLAR TRAVEL AWARD SILENT AUCTION:

Come check out the Silent Auction in the Ballroom Foyer Monday through Wednesday 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 Wednesday, April 6 promptly at 10:00 AM. Winning bids will be posted at the Conference Registration Desk. Please plan to pick up and pay for your item(s) by 5:00 PM on Wednesday! Thank you!**

VISIT ASHEVILLE

Looking for things to do, places to eat & drink? Asheville is a vibrant mountain community with many opportunities for exploring, and there are many local restaurants and social establishments within walking distance of the Renaissance Hotel. Please check out the “Visit Asheville” display for area maps and information.



Continental Level Sponsor

U.S. FOREST SERVICE

Deborah Hayes
201 14th St, SW Mailstop 1115
Washington, DC 20250
Ph: 703-522-7454 E: deborahhayes@fs.fed.us
www.fs.fed.us



The U.S. Forest Service Research and Development (R&D) deputy area works at the forefront of science to improve the health and use of our Nation's forests and grasslands. Research has been part of the Forest Service mission since the agency's inception in 1905. Today, more than 500 Forest Service researchers work in a range of biological, physical, and social science fields to promote sustainable management of the Nation's diverse forests and rangelands. Forest Service R&D covers a wide range of topics and disciplines to provide the highest quality and most accurate science information possible with a steady focus on informing policy and land management decisions.

Sub Continental Level Sponsor

DUKE UNIVERSITY, NICHOLAS SCHOOL OF THE ENVIRONMENT

Karen Kirchof
Box 90328
Durham, NC 27704
Ph: 919-613-8082 E: kgki@duke.edu
www.nicholas.duke.edu



The Nicholas School of the Environment at Duke University offers professional Master of Environmental Management degrees on-campus, as well as an online option for mid-career environmental professionals. We also offer environmental executive education customized short courses for professional development, and opportunities for placement of interns in your organization.

UNIVERSITY OF NORTH CAROLINA ASHEVILLE'S NATIONAL ENVIRONMENTAL MODELING AND ANALYSIS CENTER (NEMAC)

Karin Rogers
CPO #2345
UNC Asheville
Asheville, NC 28804
Ph: 828-250-3892 E: krogers@unca.edu
www.nemac.unca.edu

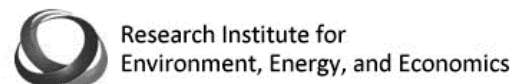


UNC Asheville's NEMAC, established in November 2003, specializes in science communication and the development of decision support tools for local, regional, and national decision makers, planners, and the public. We help people understand the relevance and importance of complex issues such as climate and weather, forest health, natural hazards, land use planning, and the efficient use of our energy and water resources. Our tools—developed with the assistance of UNC Asheville undergraduate research students—include web applications, interactive geographic information system (GIS) applications, multimedia delivery technologies, and print media. NEMAC and its many partnerships bring students, scientific professionals, and local decision makers together to help solve problems facing our society. NEMAC supports its applied research through mechanisms such as grants, contracts, and agreements with our various partners, including federal agencies; city, county, and state governments; and local entrepreneurs.

Ecosystem Level

APPALACHIAN STATE UNIVERSITY'S RESEARCH INSTITUTE FOR ENVIRONMENT, ENERGY, AND ECONOMICS

Grace Plummer
401 Academy Street
Boone, NC 28608
Ph: 828-262-7514 E: plummergj@appstate.edu
www.rieee.appstate.edu



Appalachian's Research Institute for Environment, Energy, and Economics (RIEEE) was established in November 2008 to enhance opportunities for faculty and students whose research interests involve the environment, energy and economics and especially intersections thereof. We do this by supporting interdisciplinary research, fostering beneficial collaborations and associations, funding student research grants and offering post-award grants management for funded projects.

Exhibitors

SALFORD SYSTEMS

Jessica Juarez

9685 Via Excelencia, Suite 208

San Diego, CA 92126

Ph: 619-543-8880 **E:** jj Suarez@salford-systems.com

www.salford-systems.com

Salford Systems specializes in providing Data Science and Machine Learning software. The software drastically improves prediction accuracy in regression and classification models via effortless handling of missing values, interactions, AND nonlinearities in large datasets. It is especially helpful for those without a data science, programming, or even a statistical background. Environmental applications include landscape ecology, decision making for environmental management, population dynamics, habitat suitability, forecasting global change, epidemiology, risk management, biomedical research, GIS and remote sensing, conservation, etc. In addition to environmental-related research, Salford Systems customers include some of the largest automobile manufacturers, banks, insurance, credit card, pharmaceutical and telecommunications companies in the world. Salford Systems software is installed at more than 3,500 sites worldwide, including 300 major universities.

SPRINGER

Janet Slobodien

233 Spring Street

New York, NY 10013

Ph: 212-460-1525 **E:** janet.slobodien@springer.com

www.springer.com

Springer is a major publisher of books and journals in landscape ecology, including the journal Landscape Ecology and the new edition of Landscape Ecology in Theory and Practice. Please stop by our table for a discount and a closer look. An editor will be on hand to answer any questions you might have about publishing with Springer.



Blue Ridge Parkway has been named “America’s Favorite Drive,” and is one of the most visited sections of the National Park System. The Parkway stretches 469 miles connecting the Great Smoky Mountains National Park in North Carolina to the Shenandoah National Park in Virginia and features one of the world’s most diverse displays of flora and fauna.

TECHNICAL SESSIONS: MONDAY 10AM-12PM

NOTE: The presenting author is the first one listed unless otherwise indicated with an asterisk (*).

AVIAN I

Ren. 2nd floor: Victoria

Moderator: Nancy McIntyre, Texas Tech University

10: 00 AM **Cross-scale interaction effects of regional climate and local proportion of land cover in agriculture on avian persistence.** Anand Chaudary, Joon J Song, Kevin J Gutzwiller – (Baylor University).

10: 20 AM **Decoding songbird vocalizations reveals the hidden impact of logging.** Rajeev Pillay, Robert J Fletcher – (University of Florida).

10: 40 AM **Examining the effects of historic hydroclimate on current songbird abundance.** Heather N Abernathy, Jeffery Hepinstall-Cymerman, John Maerz – (The University of Georgia).

11: 00 AM **Habitat overlap with barred owls influences multi-season site occupancy by northern spotted owls.** Peter H Singleton, John F Lehmkuhl, Martin G Raphael – (U.S. Forest Service).

11: 20 AM **Impacts of a human disturbance on greater prairie chickens: Insights from a spatial IBM.** Nathan H Schumaker (US EPA); Andrew J Gregory (Bowling Green State University); Breanna F Powers (University of Auckland); Brenda Groskinsky (US EPA).

CONSERVATION BIOLOGY I

Ren. 2nd floor: Swannanoa

Moderator: John Quinn, Furman University

10: 00 AM **“Bat-friendly” tequila and mezcal as a new agent for bat conservation in a telecoupled system.** Kristen M Lear (University of Georgia); Jose J Flores Maldonado (Especies, Sociedad y Habitat, A.C.); Laura German (University of Georgia); Elizabeth G King (University of Georgia); Jeffrey Hepinstall-Cymerman (University of Georgia).

10: 20 AM **A tale of two tortoises and tiny local t-values.** Richard D Inman, Taylor Edwards, Stewart Fotheringham, Janet Franklin – (Arizona State University); Todd Esque (US Geological Survey).

10: 40 AM **Albertine Rift endemic bird's habitat suitability and protection status.** Bernadette Arakwiye, Florencia Sangermano – (Clark University).

11: 00 AM **Application of scenario planning to improve biodiversity conservation in a rapidly urbanizing ecoregion.** John E Quinn, Dainee M Gibson – (Furman University).

11: 20 AM **Ecological characteristics of natural habitat within the complex of protected areas Oti-Keran-Mandouri in Togo.** Aniko Polo-Akpisso (Université Félix Houphoet Boigny, Abidjan, IC); Kpérkouma Wala (Université de Lomé, Lomé, TG); Soulemane Ouattara (Université Félix Houphoet Boigny, Abidjan, IC); Mamadou Coulibaly (University of Wisconsin, Oshkosh); Yao Tano (Université Félix Houphoet Boigny, Abidjan, IC).

FOREST PESTS

Ren. 2nd floor: Alexander

Moderator: Devon Gaydos, North Carolina State University

10: 00 AM **Influence of climate variability on pathogen spillover in a multi-host forest disease.** Whalen W Dillon, Ross K Meentemeyer (North Carolina State University).

10: 20 AM **Long-distance dispersal of spruce budworm in the northeastern boreal forest: Model validation and application.** Presenter: Eric J Gustafson, U.S. Forest Service; Authors: Brian R Sturtevant (U.S. Forest Service); Barry J Cooke (Natural Resources Canada, Northern Forestry Centre); Jacques Régnière (Natural Resources Canada, Laurentian Forestry Centre); Gary L Achtemeier (U.S. Forest Service); Joseph J Charney (U.S. Forest Service); R Saint-Amant (Natural Resources Canada).

10: 40 AM **Modelling the development of spatial genetic structure during range expansion: The case of the mountain pine beetle (*Dendroctonus ponderosae*).** Paul Mayrand (Université de Montréal); Élise Filotas (Télé-Université du Québec); Patrick James (Université de Montréal).

11: 00 AM **Multi-scale environmental and spatial processes drive the metacommunity structure of spruce budworm's (*Choristoneura fumiferana*) associated parasitoids.** Ronan Marrec, Olivier Pontbriand-Paré, Simon Legault, Patrick James – (Université de Montréal).

11: 20 AM **Resilience of the diversity-disease risk hypothesis following wildfire disturbance.** Devon A Gaydos, Ross K Meentemeyer, Krishna Pacifici – (North Carolina State University).

Symposium 17: LANDSCAPE CHANGE AND SUSTAINABLE DEVELOPMENT: THE CASE OF MADAGASCAR

Ren. 2nd floor: Berkeley

Moderator: Hardify Rakoto Ratsimba, University of Antananarivo

10: 00 AM **OPEN**

10:20 AM **Madagascar, a country of change: Understanding forest landscape dynamics.** Harifidy Rakoto Ratsimba, Felana Ramalason, Herijaniaina Rakotoarisoa, Ihoby Henintsoa Randriamalala, Pierrot Ramanamandimby, Ando Jocelyn Radonarison, Percy Yvon Rakoto, Fetra Mihajamanana Rabenilalana, Arimino Aina Navale Ratovoson – (University of Antananarivo); Jan Bogaert (University of Liège).

10:40 AM **Landscape change in the north western mangrove of Madagascar: The role of sustainable fisheries for local communities' livelihoods.** Arimino Aina Navale Ratovoson (Département des Eaux et Forêts, ESSA); Harifidy Rakoto Ratsimba (Département des Eaux et Forêts, ESSA); Ramiandrisoa (Ministère des Ressources Halieutiques et de la Pêche); Samuel Razanaka (Centre National de Recherche sur l'Environnement); Jan Bogaert (Unité Biodiversité et Paysage, Gembloux Agro-Bio Tech).

11: 00 AM **Landscape change and biodiversity conservation: How do we make a better change?** Andriamandranto Ravaoahangy (Asity Madagascar).

11: 20 AM **Discussion.**

Symposium 1: MAPPING SPATIOTEMPORAL PATTERN & PROCESS: RE-IMAGINING ARID GRASSLAND MAPPING FROM LOCAL TO GLOBAL SCALES

Ren. 2nd floor: Cherokee

Moderator: Ginger Allington, University of Michigan

10: 00 AM **Mapping dynamic processes in arid rangelands: A new paradigm for land cover classification.** Ginger Allington, Daniel Brown – (University of Michigan).

10: 20 AM **Using multiple remote sensing perspectives to identify and attribute land surface dynamics in the changing grasslands of the Western Hemisphere.** Kirsten de Beurs (University of Oklahoma); Braden C Owsley (University of Oklahoma); Geoffrey M Henebry (South Dakota State University).

10: 40 AM **Smallholder African land-cover and land-use change: Detection, constraints and impacts.** Gillian L Galford (University of Vermont); Hope Michelson (University of Illinois, Urbana-Champaign); Greg Fiske (Woods Hole Research Center).

11: 00 AM **An interdisciplinary analysis of semi-arid landscape change in Laikipia, Kenya.** Ryan R Unks (University of Georgia); Elizabeth G King (University of Georgia); Jeffrey Hepinstall-Cymermann (University of Georgia); Forest Isbell (University of Minnesota).

11: 20 AM **U.S. forest disturbance history from 1986 to 2010 observed from Landsat.** Feng A Zhao, Chengquan Cheng, Samuel N Goward – (University of Maryland).

11: 40 AM **Discussion.**

Symposium 8: PHENOLOGY AND SEASONALITY AS INTEGRATIVE INDICATORS OF ECOSYSTEM HEALTH: RECENT DEVELOPMENTS AND PROSPECTS

Ren. 12th: Top of the Plaza

Moderator: Jitendra Kumar, Oak Ridge National Laboratory

- 10: 00 AM **Real-time monitoring of land surface phenology from polar-orbiting and geostationary satellites.** Xiaoyang Zhang (South Dakota State University); Yunyue Yu (NOAA/NESDIS/); Lingling Liu (South Dakota State University); Dong Yan Yan (South Dakota State University).
- 10: 20 AM **Exploring climate and phenology relationships in the western U.S.** Jesslyn F Brown (US Geological Survey); Lie Ji (Arctic Slope Regional Corp. InuTek); Alisa L Gallant (US Geological Survey).
- 10: 40 AM **Land surface phenologies in Central Asian mountain pastures: modeling challenges and opportunities.** Geoffrey M Henebry, Cole P Krehbiel, Kamilya Kelgenbaeva – (South Dakota State University).
- 11: 00 AM **Use of MODIS NDVI phenology data in monitoring regional vegetation disturbances from abiotic weather events.** Joseph P Spruce (Self represented); William W Hargrove*, Steven P Norman, William M Christie – (U.S. Forest Service).
- 11: 20 AM **Quantifying uncertainties in satellite derived land surface phenology.** Jadu Dash (University of Southampton); Matthew Jones (Oregon State University).
- 11: 40 AM **The legacy effects of drought on ecosystem phenology.** Lianhong Gu (Oak Ridge National Laboratory); Stephen G Pallardy (University of Missouri).

URBAN I

Sheraton: Wolfe

Moderator: Han Li, University of North Carolina Greensboro

- 10: 00 AM **Stormwise: Promoting storm resistant trees and resilient power by integrating research, management, and outreach.** Anita T Morzillo, Jason R Parent, Thomas E Worthley, Danielle P Kloster, Amanda M Bunce, John C Volin – (University of Connecticut); Sean D Redding (Eversource Energy).

- 10: 20 AM **Human well-being, social cohesion and environmental benefits of community food forests in the U.S.** Catherine J Bukowski (Virginia Tech); John F Munsell (Virginia Tech).
- 10: 40 AM **Landscape scale analysis of urbanization effects on bat distribution in North Carolina.** Han Li (University of North Carolina, Greensboro); Katherine Caldwell (North Carolina Wildlife Resources Commission); Matina Kalcounis-Rueppell (University of North Carolina Greensboro).
- 11: 00 AM **Detecting patterns of distribution of low concentration airborne mercury deposition in the landscape of the Shenandoah Valley VA.** Dean Cocking (James Madison University).

Symposium 22: MODELING WITH STAKEHOLDERS

Sheraton: Vance

Moderator: Jelena Vukomanovic, University of Colorado Boulder

- 10: 00 AM **Citizen Science: Managing residential landscapes based on scientific discoveries that build social capital.** Caren B Cooper (North Carolina Museum of Natural Sciences).
- 10: 20 AM **Making it spatial, makes it personal: engaging stakeholders with geospatial participatory modeling (GPM).** Jelena Vukomanovic (Colorado University Boulder); Derek B Van Berkel (North Carolina State University); Ross K Meentemeyer (North Carolina State University).
- 10:40 AM **Using immersive virtual environments to quantify stakeholder perceptions of, and behavioral responses to, landscape change.** Jordan W Smith (Utah State University).
- 11: 00 AM **Collaborative solutions to invasive species management using Tangible Landscape.** Francesco Tonini, Douglas Shoemaker, Anna Petrasova, Brendan Harmon, Ross K Meentemeyer – (Center for Geospatial Analytics).
- 11: 20 AM **Working with stakeholders from forest collaborative projects to model fire and forest restoration at landscape scales.** Thomas A Spies, Eric M White – (U.S. Forest Service); Emily Jane Davis, Andrew G Merschel – (Oregon State University)
- 11:40 AM **Discussion.**

MONDAY SESSIONS: 1:40 - 3PM & 3:20 - 5:20PM

NOTE: Sessions that extend for the entire 1:40 p.m. – 5:00 p.m. timeframe will be listed first. Sessions that begin at 3:20 p.m. will appear after (Urban II; Assessment I; Forests, Weather & Climate; and S21 Monitoring).

Symposium 16: LANDSCAPE-SCALE CONSERVATION: MODELING NEW FRONTIERS

Ren. 2nd floor: Victoria

Moderators: Lars Pomara, U.S. Forest Service; and Paul Leonard, Clemson University

- 1: 40 PM **Prerequisites of conservation design: understanding the past drivers of spatial distribution of conservation lands.** Robert F Baldwin, Paul B Leonard – (Clemson University).
- 2: 00 PM **Landscape-scale conservation planning: A retrospective.** Stephen C Trombulak (Middlebury College).
- 2: 20 PM **From conservation planning to conservation design: The central and southern Appalachians.** Paul B Leonard, Robert F Baldwin – (Clemson University).
- 2: 40 PM **From planning to action: How people are using the South Atlantic Conservation Blueprint at multiple spatial scales.** Rua S Mordecai, Hilary Morris, Louise Vaughn, Amy Keister, Brad Pickens – (South Atlantic LCC).
- 3: 00 PM **BREAK**
- 3: 20 PM **Landscape conservation design in the Northeastern U.S.** Bradley W Compton, Kevin McGarigal, Ethan Plunkett, William V DeLuca, Joanna Grand – (University of Massachusetts).
- 3: 40 PM **Incorporating landscape change into conservation design.** Ethan B Plunkett, Kevin McGarigal, Bradley W Compton – (University of Massachusetts, Amherst); William V DeLuca (Northeast Climate Science Center, University of Mass., Amherst); Joanna Grand.
- 4: 00 PM **Landscape conservation at regional and continental scales: the Wildlands Network perspective.** Ron W Sutherland, Maggie M Ernest – (Wildlands Network).
- 4: 20 PM **Addressing timing of conservations actions to maintain climate refugia for threatened species.** Ilona R Naujokaitis-Lewis (Environment and Climate Change Canada); Lars Y Pomara (U.S. Forest Service); Benjamin R Zuckerberg (University of Wisconsin, Madison).
- 4: 40 PM **Roles for integrative landscape resilience measures in conservation planning.** Lars Y Pomara, Danny C Lee – (U.S. Forest Service).
- 5: 00 PM **Discussion.**

CONSERVATION BIOLOGY II

Ren. 2nd floor: Swannanoa

Moderator: Richard Inman, Arizona State University

- 1: 40 PM **Inter-observer error in vegetation surveys: A case study with *Lesquerella filiformis*.** Lloyd W Morrison (Missouri State University); Craig C Young (National Park Service).
- 2: 00 PM **Landscape occurrence and diversity of large mammals in Omo-Shasha-Oluwa Forest Reserves, southwest, Nigeria.** Michelle I Fasona, Queen O Omoregie, Rosemary I Egonmwan – (University of Lagos).
- 2: 20 PM **Long-term population ecology and large-scale movement patterns of gopher tortoises (*Gopherus polyphemus*) in southwestern Georgia.** Alexander D Wright (University of Georgia and Joseph W Jones Ecological Research Center); Jeffrey Hepinstall-Cymerman (University of Georgia); Lora L Smith (Joseph W. Jones Ecological Research Center); Clinton T Moore (University of Georgia).
- 2: 40 PM **Predicting spatial structure in gopher tortoise (*Gopherus polyphemus*) populations in Georgia, USA.** Bryan L Nuse (University of Georgia); Clinton T Moore (US Geological Survey and University of Georgia); Jeffrey Hepinstall-Cymerman (University of Georgia); Matt J Elliott (Georgia Department of Natural Resources).
- 3:00 PM **BREAK**
- 3: 20 PM **Shifting habitats in response to changing climate in the Southeastern U.S.** Bistra N Dilkina, Jenny L McGuire, Renee Bach – (Georgia Institute of Technology).
- 3: 40 PM **The honey bee (*Apis mellifera*) colony carrying capacity of Nova Scotia, Canada.** Caitlin L Cunningham, Peter H Tyedmers – (Dalhousie University).
- 4: 00 PM **The role of matrix composition maintaining the taxonomic, functional, and phylogenetic diversity of birds in agricultural landscapes.** Andrea L Boesing (University of São Paulo and University of Florida); Elizabeth Nichols (Swarthmore College); Jean P Metzger (University of São Paulo).

4: 20 PM **Using landscape design and human dimensions to inform strategic playa wetland conservation.** Anne M Bartuszevige, Alex Daniels, Kyle Taylor, Michael Carter – (Playa Lakes Joint Venture).

4: 40 PM **Using Maxent and Geographic Information Systems to assist with aquatic and terrestrial conservation efforts in the Southeast United States.** Mark J Endries (U.S. Fish and Wildlife Service).

Symposium 5: UNDERSTANDING MACROSCALE INVASION PATTERNS AND PROCESSES

Ren. 2nd floor: Alexander

Moderator: Basil Iannone, Purdue University

1: 40 PM **Forecasting the forest and the trees: consequences of drought in competitive forests.** James Clark, Aaron A Berdanner, Bijan B Seyednasrollah, Bradley B Tomasek – (Duke University).

2: 00 PM **Southern invasive plant inventory data, tools, and discoveries.** Christopher M Oswalt (U.S. Forest Service); Songlin Fei (Purdue University); Theodore R Ridley (U.S. Forest Service); Sonja N Oswalt (U.S. Forest Service); Basil V Iannone III (Purdue University); Kevin M Potter (North Carolina State University); Qinfeng Guo (U.S. Forest Service); Brian Pijanowski (Purdue University).

2: 20 PM **Evolutionary divergence conveys biotic resistance to invasion across multiple spatial scales.** Basil V Iannone III (Purdue University); Kevin M Potter (North Carolina State University); Christopher M Oswalt (U.S. Forest Service); Qinfeng Guo (U.S. Forest Service); Songlin Fei (Purdue University).

2: 40 PM **Abundance structure across invasive species' ranges: From center to margin.** Qinfeng Guo (U.S. Forest Service).

3:00 PM **BREAK**

3: 20 PM **How – and where – do nonnative trees alter the biodiversity of eastern U.S. forests?** Kevin M Potter (North Carolina State University); Christopher M Oswalt (U.S. Forest Service); Songlin Fei (Purdue University); Basil V Iannone (Purdue University); Qinfeng Guo (U.S. Forest Service).

3: 40 PM **Understanding the influence of beta diversity on native-exotic diversity patterns.** Gabriela C Nunez-Mir, Songlin Fei – (Purdue University).

4: 00 PM **Invasions in Great Smoky Mountains National Park, North Carolina and Tennessee: Impacts, long-term questions, and data needs.** Julie P Tuttle, Peter S White – (University of North Carolina, Chapel Hill).

4: 20 PM **Anthropogenic mechanisms of spread for an invasive species varies across space in national risk models.** Gericke L Cook (USDA APHIS).

4: 40 PM **Biotic resistance of invasive species.** Songlin S Fei (Purdue University); Basil Iannone (Purdue University); Qinfeng Guo (U.S. Forest Service); Christopher Oswalt (U.S. Forest Service); Kevin Potter (North Carolina State University).

5: 00 PM **Discussion.**

Symposium 9: MACHINE LEARNING and Data Mining Applications in Land- and Seascap Ecology: What it is, Why it matters, and Where the Progress Still Sits

Ren. 2nd floor: Berkeley

Moderator: Falk Huettmann, University of Alaska Fairbanks

1: 40 PM **Introduction of machine learning and data mining: A review of spatial applications, model selection and a technical overview.** Falk Huettmann (University of Alaska, Fairbanks).

2: 00 PM **Prediction of ten seabird species of the Patagonian Shelf: Digital baseline with open access machine learning for a more effective seascape management.** Andrea N Raya Rey (CADIC-CONICET); Falk Huettmann (University of Alaska Fairbanks).

2: 20 PM **An ecological niche model for Alaskan marten (*Martes americana*): Using interactions among prey, landscapes, and climate to inform machine-learning predictions.** Andrew P Baltensperger (Gates of the Arctic National Park); Grant RW Humphries (Stony Brook University); Falk Huettmann (University of Alaska Fairbanks).

2: 40 PM **Using random forest machine learning to improve prediction of temperature across topographically complex landscapes.** Samuel A Cushman (U.S. Forest Service); Andrew J Shirk (University of Washington); Zack H Holden (U.S. Forest Service); Gretchen E Moisen (U.S. Forest Service).

3:00 PM	BREAK	3: 20 PM	A telecoupling analysis for the Patagonian Shelf seascape: A suggested template on how to study the wider seabirds-fisheries interactions worldwide for sustainability. Andrea N Raya Rey (CADIC-CONICET); Falk Huettmann (University of Alaska Fairbanks).
3: 20 PM	Ensemble of ensembles: Combining the predictions from multiple machine learning methods. David J Lieske (Mount Allison University).	3: 40 PM	OPEN
3: 40 PM	Improving regional land cover modeling for ecological applications. Terry L Sohl (US Geological Survey).	4: 00 PM	Telecoupled interactions among tourism, ecosystem services, and human well-being. Min Gon Chung (Michigan State University); Tao Pan (Chinese Academy of Sciences); Yingying Yao (Peking University); Jianguo Liu (Michigan State University).
4: 00 PM	Modeling and mapping forest diversity within the boreal forest of interior Alaska. Brian D Young (Landmark College); John Yarie, David Verbyla, Falk Huettmann, F. Stuart Chapin – (University of Alaska Fairbanks).	4: 20 PM	Telecouplings of limited resources: The case of sand. Aurora Torres (Museo Nacional de Ciencias Naturales - Spanish Research Council); Jodi Brandt (Boise State University); Kristen Lear* (University of Georgia); Gabriel Zegers (Pontificia Universidad Católica de Chile).
4: 20 PM	A Synthesis of machine learning software, and an outlook for scientific workflows: Beyond 'just' splines, entropy, CARTs, boosting, bagging, ensembles and batteries. Falk Huettmann (University of Alaska, Fairbanks).	4: 40 PM	Telecoupled food trade drives farmer risk perception. Anna J Herzberger (Michigan State University); Jing Sun (Michigan State University); Yuxin Tong (Heilongjiang Academy of Agriculture Sciences); Jack Jianguo Liu (Michigan State University).
4:40 PM	Discussion.	5: 00 PM	Applying the telecoupling framework through the lens of landscape ecology. Dorothy Y Maguire (USDA-ARS); Danica Schaffer-Smith* (Duke University); Stephanie A Tomscha (University of British Columbia); Michael L Treglia (University of Tulsa); Jianguo Liu (Michigan State University).

Symposium 12: LANDSCAPE NETWORKS AS TELECOUPLED HUMAN AND NATURAL SYSTEMS

Ren. 2nd floor: Cherokee

Moderator: Vanessa Hull, Michigan State University

1: 40 PM	Landscape networks as telecoupled human and natural systems: An introduction. Jianguo Liu, Vanessa Hull – (Michigan State University).
2: 00 PM	A telecoupling model to account for spatial subsidies of ecosystem services provided by transboundary migratory species in North America. Laura L Lopez-Hoffman (University of Arizona); Rusцена P Wiederholt* (University of Arizona); John Loomis (Colorado State University).
2: 20 PM	Feedback effects of telecoupling: The case of a payment for ecosystem services program. Hongbo Yang, Frank Lupi, Jianguo Liu – (Michigan State University).
2: 40 PM	Spillover network of multiple telecouplings. Zhiqiang Zhao, Jianguo Liu – (Michigan State University).
3:00 PM	BREAK

Symposium 8: PHENOLOGY AND SEASONALITY as Integrative Indicators of Ecosystem Health: Recent Developments and Prospects

Ren. 12th: Top of the Plaza

Moderator: Forrest Hoffman, Oak Ridge National Laboratory

1: 40 PM	OPEN
2: 00 PM	Scalable machine-learning approaches for analysis of large phenological datasets. Richard T Mills (Intel Corporation); Forrest M Hoffman (Oak Ridge National Laboratory); Jitendra Kumar (Oak Ridge National Laboratory).

- 2: 20 PM **Urban land surface phenology: An evaluation of Oklahoma City using the Oklahoma Mesonet and optical and thermal Landsat data.** Kirsten M de Beurs, Emily Windahl, Braden C Owsley, Pradeep Adhikari – (University of Oklahoma); Geoffrey M Henebry (South Dakota State University).
- 2: 40 PM **The emerging role of citizen science in capturing the geography of avian phenology.** Benjamin Zuckerberg (University of Wisconsin); Eric J. Ross (US Geological Survey); William B Hills (University of Wisconsin).
- 3:00 PM **BREAK**
- 3: 20 PM **Influence of climate on irruption of North American boreal seed eating birds.** Courtenay Strong (University of Utah); Zuckerberg Benjamin (University of Wisconsin); Julio L Betancourt (US Geological Survey); Walter D Koenig (Cornell).
- 3: 40 PM **Temporal analysis of phenology to objectively determine normal seasonality of vegetation across the United States.** William W Hargrove, Danny C Lee, Steven P Norman – (U.S. Forest Service); Forrest M Hoffman, Jitendra Z Kumar – (Oak Ridge National Laboratory).
- 4: 00 PM **OPEN**
- 4: 20 PM **Tropical dry forest phenology: Linkages to plant traits and sensitivity to climate.** David M Medvigy (Princeton University); Xiangtao Xu (Princeton University); Jennifer Powers (University of Minnesota); Justin Becknell (Brown University); Kaiyu Guan (University of Illinois).
- 4: 40 PM **Synthesis of satellite NDVI products and vegetation dynamics in Earth system models using a data mining approach.** Shijie Shu (University of Illinois, Urbana-Champaign); Forrest M Hoffman (Oak Ridge National Laboratory); William W Hargrove (U.S. Forest Service); Jitendra Kumar (Oak Ridge National Laboratory); Atul Jain (University of Illinois at Urbana Champaign).
- 5: 00 PM **Discussion.**

COASTAL AND MARINE

Sheraton: Wolfe

Moderator: Nathaniel Herold, NOAA Office for Coastal Management

- 1: 40 PM **Mapping animals reactions to human activity: It “sounds” more complex because it is.** Kathleen Vigness-Raposa, Jennifer Giard*, Adam Frankel, William Ellison – (Marine Acoustics, Inc.); Brandon Southall (Southall Environmental Associates, Inc.).
- 2: 00 PM **A whale of a tale: Using empirical and anecdotal location data to predict baleen whale distribution around the Falkland Islands.** Veronica Frans, Amélie Augé – (South Atlantic Environmental Research Institute, Falkland Islands); Jan Engler (Zoological Researchmuseum Alexander Koenig, Germany).
- 2: 20 PM **Assessing coral bleaching risk using sea bottom temperature.** Lucas G McEachron, Katie Wirt, Renee Duffey – (Florida Fish and Wildlife Research Institute); David Palandro (ExxonMobil Upstream).
- 2: 40 PM **Shoreline verification for marine oil spill preparedness.** Theraesa A Coyle, Steve MacDonald, Herb Herunter – (Fisheries and Oceans Canada).
- 3:00 PM **BREAK**
- 3: 20 PM **Seascape changes due to sea level rise may affect salt marsh dependent fisheries.** Rachel Guy, Nathan Nibbelink – (University of Georgia).
- 3: 40 PM **Assessing tidal marsh resilience to sea-level rise at broad geographic scales with multi-metric indices.** Kenneth Raposa (Narragansett Bay NERR); Kerstin Wasson (Elkhorn Slough NERR); Scott Lerberg (Chesapeake Bay Virginia NERR); Erik Smith (North Inlet-Winyah Bay NERR).
- 4: 00 PM **Impacts of saltwater intrusion on tidal freshwater forested wetlands in the Apalachicola Bay, Florida.** Seval Celik, Christopher Anderson, Latif Kalin – (Auburn University).
- 4: 20 PM **Is the geographic range of mangrove forests in the conterminous United States really expanding?** Chandra Giri (US Geological Survey).
- 4: 40 PM **Coastal change analysis: Past, present, and future.** Nathaniel D Herold, John McCombs – (NOAA Office for Coastal Management).
- 5: 00 PM **Multi-scale trends analysis of landscape stressors in an urbanizing coastal watershed.** Anne Kuhn (US EPA); Michael A Charpentier (CSRA).

PLANNING

Sheraton: Vance

Moderator: Kirsten Hazler, Virginia Natural Heritage Program

- 1: 40 PM **Developing future land use scenarios for the Delaware River Basin.** Claire A Jantz, Scott A Drzyzga, Alfonso Yanez, Antonia F Price, Joshua Barth – (Shippensburg University).
- 2: 00 PM **Can afforestation and forest conservation save the Chesapeake Bay?** Peter R Claggett (US Geological Survey); Sally W Claggett (U.S. Forest Service); Fred M Irani (US Geological Survey); Quentin Stubbs (US Geological Survey); Renee L Thompson (US Geological Survey).
- 2: 20 PM **Potential future landscapes within the Blue Ridge Region of northern Virginia.** Iara L Lacher, William McShea, Tom Akre, Jonathan Thompson – (Smithsonian Conservation Biology Institute).
- 2: 40 PM **The Virginia Development Vulnerability Model: Exploring the driving forces of development.** Kirsten R Hazler (Virginia Natural Heritage Program); Tracy Tien (University of Richmond); Roy Gilb (Virginia Natural Heritage Program).
- 3:00 PM **BREAK**
- 3: 20 PM **Managing at Landscape Scales: How does landscape science inform resource management and planning?** E. Jamie Trammell (University of Alaska, Anchorage); Jason Taylor (Bureau of Land Management, Alaska State Office).
- 3: 40 PM **Selecting optimal watersheds for restoration efforts in the Colorado Plateau of western North America given economies of energy development.** Thomas C Edwards (US Geological Survey and Utah State University); Jacob R Gibson (Utah State University); Edd Hammill.
- 4: 00 PM **Landscape scale assessment of ecosystem goods and services and the extent, location, and magnitude of urban-suburban expansion.** Marc J Russell (US EPA); Aarin Teague (San Antonio River Authority); James Harvey, Darrin Dantin, Katherine Murphy – (US EPA).
- 4: 20 PM **Ecological planning in parks and open space along the Gulf Coast.** Jennifer A Dowdell (Biohabitats Inc.).
- 4: 40 PM **Integrating ecology into landscape planning and design solutions.** David P Tuch (Equinox); Owen Carson (Equinox).

WATERSHEDS AND HYDROLOGY

Sheraton: Vanderbilt

Moderator: Henry Bulley, City University of New York

- 1: 40 PM **Coupling Water-Carbon and Water Supply-Demand using the WaSSI Watershed Ecosystem Model.** Ge Sun, Peter Caldwell, Steve McNulty – (U.S. Forest Service).
- 2: 00 PM **The sensitivity of catchment models to the spatial distribution of forests of different physiologic types.** Andrea Stewart, Lawrence Band – (University of North Carolina at Chapel Hill).
- 2: 20 PM **Linking flood inundation modeling, ecosystem studies, and ecosystem services assessments for improved research and management of floodplain landscapes.** Molly VanAppledorn, Nathan De Jager – (US Geological Survey).
- 2: 40 PM **Using multi-scenario CMIP5 data coupled with a physically-based watershed model to estimate potential hydrologic changes in an urbanizing Midwestern watershed.** Michael G Sunde, Hong S He, Jason A Hubbard – (University of Missouri); Craig Scroggins (Missouri Department of Conservation).
- 3:00 PM **BREAK**
- 3: 20 PM **A landscape based assessment of the spatial relationship between land use change and water quality in the Catskill/Delaware watersheds.** Henry Bulley (City University of New York).
- 3: 40 PM **A novel approach for examining future US domestic water demand.** Brian R Pickard (US EPA); Maliha Nash (US EPA); Jeremy Baynes (Precision Hawk); Megan Mehaffey (US EPA).
- 4: 00 PM **An approach to monitoring cyanobacteria blooms at surface drinking water intakes using satellite imagery.** John Clark, Blake Schaeffer, John Darling, Erin Urquhart – (US EPA).
- 4: 20 PM **Characterizing fragmented stream networks and prioritizing restoration in the Southeastern US.** Thomas J Prebyl (University of Georgia); Evan R Collins; Duncan C Elkins; Nathan P Nibbelink.
- 4: 40 PM **Landscape patterns and variation of spatial soil moisture from plot to catchment scales at the Coweeta Hydrologic Laboratory.** Charles I Scaife, Charlotte M Hopson, Lawrence E Band – (University of North Carolina, Chapel Hill).
- 5: 00 PM **Modeling study of catchment water yield under different forest management practices.** Laurence Lin, Lawrence E Band (University of North Carolina at Chapel Hill).

TECHNICAL SESSIONS: MONDAY 3:20 PM - 5:20PM

URBAN II

Ren. 1st floor: Grand Ballroom A

Moderator: Derek Van Berkel, North Carolina State University

- 3: 20 PM **Street design and outdoor thermal comfort.** Elmira O Jamei, Priyadarsini Rajagopalan – (Deakin University).
- 3: 40 PM **The building of a sustainable brewery: The story of New Belgium Brewing's east coast brewery.** David P Tuch (Equinox).
- 4: 00 PM **The multi-scale effects of socioeconomic and climatic factors on air pollution: A case study in the Beijing-Tianjin-Hebei region and the Agro-pastoral transition zone, China.** Yupeng Liu (Beijing Normal University); Jianguo Jingle Wu (Arizona State University and Beijing Normal University).
- 4: 20 PM **The relative impacts of habitat amount, habitat configuration, and urbanization on forest breeding birds.** Alexandra V Shoffner (University of North Carolina, Charlotte); Andrew M Wilson (Gettysburg College); Sara A Gagné (University of North Carolina at Charlotte); Wenwu V Tang (University of North Carolina at Charlotte).
- 4: 40 PM **The role of residential areas in socio-ecological dynamics of urban ecosystems: A conceptual framework.** Julie Ripplinger (Arizona State University); Emily S Minor (University of Illinois at Chicago); Anita T Morzillo (University of Connecticut).
- 5: 00 PM **Scaling future urban change: Simulation of urbanization scenarios across the southern Atlantic States, U.S.** Derek B Van Berkel, Ashwin Shashidharan, Raju Vatsavai, Anna Petrasova, Vaclav Petras, Helena Mitsova, Ross K Meentemeyer – (North Carolina State University).

ASSESSMENT I

Ren. 1st floor: Grand Ballroom B

Moderator: Helene Wagner, University of Toronto

- 3: 20 PM **Ecological resilience of fragmented forests: linking functional response diversity with landscape connectivity.** Elise Filotas (Université du Québec); Dylan Craven (German Centre for Integrative Biodiversity Research); Virginie A Angers (Université du Québec à Montreal); Christian Messier (Université du Québec à Montreal).
- 3: 40 PM **Forest vegetation disturbances and landscape changes in complex forest ownership areas on LANDSAT Images: a case study in the northern Romanian Carpathians.** Cosmin V Cosofret, Ionut Barnoaiea, Liviu Nichiforel, Ovidiu Iacobescu – (Stefan cel Mare University).
- 4: 00 PM **A graph theory-based framework for evaluating spatial resilience: Linking disturbance, landscape and adaptive management in case of the ecological risks caused by coal mining.** Xiaoqian Liu (Chinese Academy of Sciences); Yanglin Wang (Peking University); Tao Pei (Chinese Academy of Sciences).
- 4: 20 PM **Improvements in modeling land use and land cover using the FORE-SCE model.** Kristi L Sayler (US Geological Survey); Terry L Sohl (US Geological Survey); Jordan M Dornbierer (SGT, Inc.); Steve P Wika (SGT, Inc.).
- 4: 40 PM **Moran spectral randomization of irregularly spaced ecological data.** Helene H Wagner (University of Toronto); Stephane Dray (Université de Lyon).
- 5: 00 PM **Mapping the Appalachian Trail Corridor: Turning continuous vegetation into a map.** Andrew C Strassman (US Geological Survey).

FORESTS, WEATHER AND CLIMATE

Ren. 1st floor: Grand Ballroom C1

Moderator: Daehyun Kim, University of Kentucky

- 3: 20 PM **Microclimate drivers of decline and forest compositional shifts in yellow-cedar forests of southeast Alaska.** Sarah M Bisbing (California Polytechnic State University); Brian J Buma (University of Alaska, Southeast); John P Krapek (University of Alaska, Fairbanks).
- 3: 40 PM **Scale-dependent tree mortality in semiarid woodlands: Incorporating fine-scale stand structure improves predictions of mortality and canopy dieback.** Samuel W Flake, Peter J Weisberg – (University of Nevada, Reno).
- 4: 00 PM **The 23 years relationship between the climate data and the aboveground biomass in subtropical forest at Lanjenchi, southern Taiwan.** Chen-Chia Ku (Department of Forestry and Natural Resources, National Chiayi University); Guo-Zhang Michael Song (Department of Soil and Water Conservation, National Chung Hsing University); Jhh-Min Chiang (Department of Life Science, Tunghai University); Jianwu Tang (The Ecosystems Center, Marine Biological Laboratory in Woods Hole, Massachusetts & California University, Berkeley); Wei-Chun Chao* (Department of Forest and Nature Resources, National Chiayi University).
- 4: 20 PM **Trees under wind stress: Spatial pattern explains susceptibility to hurricane damage.** Daehyun Kim (University of Kentucky); Andrew C Millington (Flinders University); Charles W Lafon (Texas A&M University).
- 4: 40 PM **Drivers of drought-induced tree mortality across Texas.** Amanda M Schwantes, Jennifer J Swenson, Mariano González-Roglich – (Duke University); Daniel M Johnson (University of Idaho); Jean-Christophe Domec (Duke University and Bordeaux Sciences Agro); Robert B Jackson (Stanford University).
- 5: 00 PM **Investigating differences between modeled historical and station calculated drought.** Nadine A Orejola (US EPA, ORISE); Maliha S Nash, Megan H Mehaffey, Anne Neale – (U.S. Environmental Protection Agency).

Symposium 21: MONITORING AND ASSESSMENT OF LANDSCAPE CHANGE

Ren. 1st floor: Grand Ballroom C2

Moderator: Peter Vogt, European Commission

- 3: 20 PM **Toward a general measure of landscape connectivity for climate change.** Jennifer K Costanza (North Carolina State University); Curtis Belyea (North Carolina State University); James I Watling (John Carroll University); Ron Sutherland (Wildlands Network); Nick M Haddad (North Carolina State University).
- 3: 40 PM **Modeling North America tree cover disturbance at multiple scales.** Kurt H Riitters (U.S. Forest Service); Jennifer K Costanza (North Carolina State University); Brian J Buma (University of Alaska).
- 4: 00 PM **Spatial and temporal patterns of impervious cover relative to watershed stream location.** James D Wickham (US EPA).
- 4: 20 PM **Assessing spatio-temporal patterns of extensive forest disturbances in northern Ontario, Canada.** Ajith H Perera (Ontario Forest Research Institute); Tarmo K Remmel (York University); Marc R Ouellette (Ontario Forest Research Institute).
- 4: 40 PM **Classifying boreal wildfires by clustering ShrinkShape2 spectra of internal unburned vegetation patches.** Tarmo K Remmel (York University).
- 5: 00 PM **Generic cost analysis via geodesic time.** Peter Vogt, Pierre Soille –(European Commission, Joint Research Centre).

TECHNICAL SESSIONS: TUESDAY 9:40 AM -12:00 PM

ASSESSMENT II

Ren. 2nd floor: Victoria

Moderator: Megan Mehaffey, U.S.

Environmental Protection Agency

- 9: 40 AM **Applications of the WaSSI ecosystem model for assessing global change impacts on water supply and carbon sequestration from the watershed to the continent.** Peter Caldwell, Ge Sun, Steven McNulty – (U.S. Forest Service).
- 10: 00 AM **A spatially explicit tool combining climate change scenarios and ecosystem services.** Megan H Mehaffey (US EPA); Anne Neale (US EPA); Brian Pickard (ORISE); Jeremy Baynes (Precisionhawk).
- 10: 20 AM **An event ecology approach to studying deforestation.** Margit M Bertalan (University of North Carolina, Chapel Hill).
- 10: 40 AM **Anthropogenic landscape pattern changes of the Canadian boreal forest from 1985 to 2010.** Paul D Pickell, Nicholas C Coops, Sarah E Gergel, David W Andison, Peter L Marshall – (University of British Columbia).
- 11: 00 AM **Building a potential wetland restoration indicator for the U.S. EPA's EnviroAtlas.** Elena K Horvath (US EPA, ORISE); Jay Christensen (US EPA); Megan Mehaffey (US EPA); Neale Anne (US EPA).
- 11: 20 AM **Coupling coordination assessment between urbanization and environmental systems.** Yangfan Y Li, Wenxun Lu – (Xiamen University).
- 11: 40 AM **Defining a composite index of vegetation quality.** Danijela Puric-Mladenovic (OMNRF, Natural Heritage Information Centre).

Symposium 23: URBANIZATION AND LANDSCAPE CHANGE: SOCIOECONOMIC DRIVERS AND ECOLOGICAL CONSEQUENCES

Ren. 2nd floor: Swannanoa

Moderator: Weiqi Zhou, Chinese Academy of Sciences

- 9: 40 AM **The Continuum of Urbanity: A new approach for integrating social-ecological processes in and among complex urban regions.** Steward Pickett (Cary Institute of Ecosystem Studies); Christopher G Boone (Arizona State University); Karen Seto (Yale University); Weiqi Zhou (Chinese Academy of Sciences); Daniel L Childers (Arizona State University).
- 10: 00 AM **The role of green landscape in thermo-environmental amelioration: A case study in Beijing.** Lidong Chen, Zhifeng Wu,* Ranhao Sun – (Chinese Academy of Sciences).
- 10: 20 AM **Democratization of ecosystem services - A radically revised framework for assessing nature's benefits to communities.** Melissa McHale (North Carolina State University); Scott Beck (North Carolina State University); Dan Childers (Arizona State University); Steward Pickett (The Cary Institute for Ecosystem Studies); Wayne Twine (University of the Witwatersrand); Mary Cadenasso (University of California, Davis); Liesel Ebersohn (University of Pretoria); Louie Rivers III (North Carolina State University); David Bunn (University of the Witwatersrand); Louise Swemmer (South African National Parks); Ross Meentemeyer (North Carolina State University).
- 10: 40 AM **An archaeology of the metacity.** Brian P McGrath (Parsons School of Design); Steward Pickett (Cary Institute of Ecosystem Studies).
- 11: 00 AM **Mapping the "invisible" urban greenspace and change with high-resolution imagery: a comparative study of 9 Chinese cities.** Weiqi Zhou, Jing Wang, Yuguo Qian – (Chinese Academy of Sciences).
- 11: 20 AM **Urban sustainability measures as evidenced in climate change action plans.** Barbara J Anderson (Iowa Environmental Council).
- 11: 40 AM **Scenario planning for land use change in the rapidly urbanizing southeast US: Conservation goals and tradeoffs.** Dainee M Gibson, John Quinn – (Furman University).

WILDLIFE I

Ren. 2nd floor: Alexander

Moderator: Laura Bliss, Texas State University

- 9: 40 AM **Animal activity characteristics is related to ecological landscape properties: A pioneering GPS collar study on giant pandas.** Jindong Zhang, Vanessa Hull – (Michigan State University); Jinyan Huang (China Conservation and Research Center for the Giant Panda); Zhiyun Ouyang (Chinese Academy of Sciences); Jianguo Liu (Michigan State University).
- 10: 00 AM **Habitat availability assessment for the Gulf Coast kangaroo rat (*Dipodomys compactus*) in south-central Texas.** Laura M Bliss, Joseph A Veech – (Texas State University).
- 10: 20 AM **Drawing lines in the landscape: Illustrating the challenges of assessing broad-scale habitat associations with radio telemetry data using a federally threatened snake species.** Javan M Bauder (University of Massachusetts); David R Breininger (Kennedy Space Center); M Rebecca Bolt (Kennedy Space Center); Michael L Legare (Merritt Island National Wildlife Refuge); Christopher L Jenkins (The Orianne Society); Betsie B Rothermel (Archbold Biological Station); Kevin McGarigal (University of Massachusetts).
- 10: 40 AM **Effects of grain size on the identification of Jaguar (*Panthera onca*) priority conservation areas in Cerrado, Brazil.** Marina P Portugal (Programa de Pós Graduação ECMVS UFMG Brazil); Ronaldo Morato (ICMBIO- MMA- Brazil); Katia MPM Ferraz (Departamento de Ciências Florestais- ESALQ/USP, Brazil); Flávio Henrique G Rodrigues (Departamento de Biologia Geral- UFMG- Brazil); Claudia Jacobi (Departamento de Biologia Geral- UFMG- Brazil).
- 11: 00 AM **Modelling den habitat for eurasian brown bears In Croatia amid renewable energy development.** Ari B Whiteman (Imperial College London).
- 11: 20 AM **Multi-level, multi-scale habitat selection by the federally threatened Eastern Indigo Snake (*Drymarchon couperi*) in peninsular Florida.** Javan M Bauder (University of Massachusetts); David R Breininger (Kennedy Space Center); M Rebecca Bolt (Kennedy Space Center); Michael L Legare (Merritt Island National Wildlife Refuge); Christopher L Jenkins (The Orianne Society); Betsie B Rothermel (Archbold Biological Station); Kevin McGarigal (University of Massachusetts).
- 11: 40 AM **Connectivity conservation for tigers in a human dominated landscape.** Indraniil Mondal, Bilal Habib, Parag Nigam, Gautam H Talukdar – (Wildlife Institute of India).

LANDSCAPE DYNAMICS I

Ren. 2nd floor: Berkeley

Moderator: Brian Buma, University of Alaska

- 9: 40 AM **30 years of forest conversion in the Northeast: historical patterns and future projections.** Alison B Adams (University of Vermont); Jennifer A Pontius (University of Vermont and U.S. Forest Service); Gillian L Galford (University of Vermont).
- 10: 00 AM **Incorporating interactive climatic influences on tree growth rates in the mid-Atlantic U.S.** James M Dyer (Ohio University); Elizabeth R Matthews (NPS Inventory and Monitoring, National Capital Region Network); John P Schmit (NPS Inventory and Monitoring, National Capital Region Network); Aaron S Weed (NPS Inventory and Monitoring, Mid-Atlantic Network); James A Comiskey (NPS Inventory and Monitoring, Mid-Atlantic Network); Norman A Bourg (Conservation Ecology Center, Smithsonian Conservation Biology Institute); William J McShea (Conservation Ecology Center, Smithsonian Conservation Biology Institute); JP Campbell (NPS Inventory and Monitoring, National Capital Region Network).
- 10: 20 AM **Climate change and land use changes: Impacts on the forest landscapes in the western Ghats Mountain.** Shadananan K Nair (Nansen Environmental Research Centre, India).
- 10: 40 AM **Comparison of vegetation composition in response to disturbance versus local and regional physiography.** Cynthia D Huebner (U.S. Forest Service); David W McGill (West Virginia University); Gary W Miller (U.S. Forest Service).
- 11: 00 AM **How big is a complete (disturbance) landscape? The role of study extent on disturbance/area relationships across the North American continent.** Brian J Buma (University of Alaska); Kurt Riitters (U.S. Forest Service); Jen Costanza (North Carolina State University).

CONNECTIVITY*Ren. 2nd floor: Cherokee*

Moderator: Steven Seagle, Appalachian State University

- 9: 40 AM **Sensitivity of resistance surfaces and corridors to landscape definiton.** Katherine A Zeller (University of Massachusetts); Kevin McGarigal (University of Massachusetts); Samuel Cushman (U.S. Forest Service); Paul Beier (Northern Arizona University); Winston Vickers (UC Davis Wildlife Health Center).
- 10: 00 AM **The shape of dispersal-scapes.** Jeffrey D Holland (Purdue University); Insu Koh (University of Vermont).
- 10: 20 AM **Functional connectivity of an early successional specialist.** Adrienne I Kovach (University of New Hampshire); Michael Palace (University of New Hampshire); Katrina E Amaral (U.S. Fish and Wildlife Service); Lindsey E Fenderson (University of Adelaide); Kathleen M O'Brien (U.S. Fish and Wildlife Service).
- 10: 40 AM **Impacts of temporary and permanent isolated water resources in the Sonoran Desert on connectivity, isolation, and wildlife management strategies: An example of transient connectivity.** Nancy E McIntyre, Joseph C Drake*, Kerry L Griffis-Kyle – (Texas Tech University).
- 11: 00 AM **Monitoring and predicting emergence pathways of lyme disease in northwest North Carolina.** Steven W Seagle, Austin J Harner – (Appalachian State University).
- 11: 20 AM **Ticks like it hot: Potential for climate change-induced shifts in vector-borne disease risk.** Erin C Welsh, Brian F Allan – (University of Illinois, Urbana-Champaign).
- 11: 40 AM **Beetle functional diversity responds at different spatial foci.** Ashley L Kissick, Jeffrey D Holland – (Purdue University).

Symposium 8: PHENOLOGY AND SEASONALITY as Integrative Indicators of Ecosystem Health: Recent Developments and Prospects*Ren. 12th: Top of the Plaza*

Moderator: Jitendra Kumar, Oak Ridge National Laboratory

- 9: 40 AM **Detecting and tracking shifts in national vegetation composition.** Forrest M Hoffman (Oak Ridge National Laboratory); Jitendra Kumar (Oak Ridge National Laboratory); William W Hargrove (U.S. Forest Service); Steven P Norman (U.S. Forest Service).
- 10: 00 AM **Natural and human impacts on global vegetation growth tendency.** Jiafu Mao (Oak Ridge National Laboratory).
- 10: 20 AM **Implementation of a dynamic rooting depth and phenology into a land surface model: Evaluation of carbon, water, and energy fluxes in high latitude ecosystems.** Atul K Jain, Bassil El-Masri, Shijie Shu – (University of Illinois, Urbana-Champaign).
- 10: 40 AM **Mapping vegetation distributions in Arctic ecosystems for parameterizing models using satellite-derived phenology.** Zachary L Langford, Jitendra Kumar – (Oak Ridge National Laboratory and University of Tennessee); Forrest M Hoffman, Stan D Wullschlegler, Colleen M Iversen, Richard J Norby – (Oak Ridge National Laboratory).
- 11: 00 AM **Variability in the start, end, and length of frost-free periods across the conterminous United States during the past century.** Gregory J McCabe (US Geological Survey); Julio L Betancourt (U.S. Geological Survey); Song Feng (University of Arkansas).
- 11: 20 AM **Phenological dynamics under global-change-type drought.** Bjorn-Gustaf J Brooks (U.S. Forest Service); Danny C Lee (U.S. Forest Service).
- 11: 40 AM **A kalman filter approach to multitemporal, multisensor image fusion.** Josh M Gray, Mark A Friedl, Eli K Melaas, Damien Sulla-Menashe – (Boston University).

Symposium 4: LANDSCAPE DESIGNS THAT INCORPORATE SUSTAINABLE WOOD-BASED BIOENERGY: A FOCUS ON THE SOUTHEASTERN UNITED STATES

Sheraton: Wolfe

Moderator: Virginia Dale, Oak Ridge National Laboratory

- 9: 40 AM **Land use futures in the Southeast: The interaction of urban and rural market forces.** David N Wear (U.S. Forest Service); Jennifer K Costanza* (North Carolina State University).
- 10: 00 AM **Natural disturbances shaping the structure and composition of southeastern forests.** Cathryn H Greenberg (U.S. Forest Service); Beverly S Collins (Western Carolina University).
- 10: 20 AM **DOE's moves toward forest landscape design.** Arthur E Wiselogel (Allegheny Science and Technology); Kristen Johnson (Department of Energy).
- 10: 40 AM **Variation in carbon balances of wood pellet production in Southeast US.** Floor van der Hilst, Anna Duden, Steef Hanssn, Martin Junginger – (Utrecht University).
- 11: 00 AM **Landscape considerations of perennial biofuel feedstock production in conservation buffers of the Georgia Coastal Plain, USA.** Alisa Coffin (USDA-ARS); Timothy Strickland (USDA-ARS); William Anderson (USDA-ARS); Marshall Lamb (USDA-ARS); Jason Schmidt (University of Georgia); Dawn Olson (USDA-ARS).
- 11: 20 AM **Spatio-temporal assessment of agro-bioenergy systems-a Human appropriation of net primary production (HANPP) approach.** Oludunsin Tunrayo Arodudu (Leibniz Centre for Agricultural Landscape Research); Katharina Helming (Leibniz Centre For Agricultural Landscape Research, ZALF); Hubert Wiggering (Leibniz Centre For Agricultural Landscape Research ZALF); Karlheinz Erb (Klagenfurt University); Alexey A Voinov (University of Twente, the Netherlands).
- 11: 40 AM **Discussion.**

ENGAGING PEOPLE

Sheraton: Vance

Moderator: James Wickham, U.S. Environmental Protection Agency

- 9: 40 AM **Analysis of the impacts of REDD+ pilot project on local community forest user groups in Charnawati watershed area in Nepal.** Bidur Khadka (Yokohama National University).
- 10: 00 AM **Comparing the utility of CLASLite forest monitoring for REDD+: Seima Protection Forest, Maya Biosphere Reserve, Takamanda Mone Landscape, Makira Natural Protected Area.** Bernadette Arakwiye, Heather Cormier, Molly Cox, Marissa Gallant, Mandy Gaudreau, Sean McCartney, Bridget Naphen, Sarah Stanley, and Alison Thieme* – (Clark University).
- 10: 20 AM **Participatory citizen science and historical logbooks: Co-creating tools for local management in a Newfoundland fishing community.** Matthew R McWilliams, Yolanda Wiersma, Max Liboiron – (Memorial University).
- 10: 40 AM **Traditional ecological knowledge of sea ice and walrus ice-patch preference near St. Lawrence Island.** Alexander E Sacco (University of Alaska, Fairbanks); Hajo Eicken (University of Alaska, Fairbanks).
- 11: 00 AM **The evolution of participatory land use planning (PLUP) into commune land use planning (CLUP) in Cambodia.** Khun Bunnath (Biodiversity Conservation Corridors Cambodia).

TECHNICAL SESSIONS: WEDNESDAY 9:40AM-12PM

Note: there is no scheduled coffee break during the morning section of sessions between 9:40 a.m. and 12:00 p.m.

WILDLAND FIRE I

Ren. 1st floor: Windsor A

Moderator: Sean Parks, U.S. Forest Service

- 9: 40 AM **How will climate change affect wildland fire severity in the western US?** Sean A Parks (U.S. Forest Service); Carol Miller (U.S. Forest Service); John Abatzoglou (University of Idaho); Lisa Holsinger (U.S. Forest Service); Marc Parisien (Canadian Forest Service); Solomon Dobrowski (University of Montana).
- 10: 00 AM **Wildfire in the Pacific Northwest under climate change.** Ana M Barros (Oregon State University); Alan Ager (U.S. Forest Service); Michelle Day (Oregon State University); Haiganoush Preisler (U.S. Forest Service); John Abatzoglou (University of Idaho).
- 10: 20 AM **Fire and drought across forest types in a northern Rocky Mountain landscape.** Catherine T Airey Lauvaux, Alan H Taylor – (Penn State University).
- 10: 40 AM **Topographic features and fire weather conditions supporting fire refugia in temperate forests of western North America.** Meg A Krawchuk (Simon Fraser University and Oregon State University); Sandra L Haire (Haire Laboratory for Landscape Ecology); Marc A Parisien (Canadian Forest Service, Natural Resources Canada); Carol L Miller* (U.S. Forest Service); Jonathan D Coop (Western State Colorado University); Ellen Whitman (University of Alberta); Geneva W Chong (US Geological Survey).
- 11: 00 AM **The effect of landscape context on historical fire regimes across mixed-conifer ecotones.** Andrew G Merschel (Oregon State University); Thomas A Spies (U.S. Forest Service); Lisa M Ganio (Oregon State University).
- 11: 20 AM **Early successional conditions in the eastern Washington Cascade Mountains: Contrasting the premanagement and modern-eras.** Paul F Hessburg, Nicholas A Povak, R Brion Salter – (U.S. Forest Service).

LANDSCAPE DYNAMICS II

Ren. 2nd floor: Windsor B

Moderator: Amy Davis, U.S. Environmental Protection Agency

- 9: 40 AM **National U.S. maps of forest disturbance processes.** Karen G Schleeweis, Gretchen Moisen, Chris Toney – (U.S. Forest Service); Todd Schroeder (US Geological Survey).
- 10: 00 AM **Environmental stresses recorded in tree rings: Development and evaluation of a continental-scale index of environmental limitations to plant growth.** Matthew P Dannenberg, Conghe Song, Erika K Wise – (University of North Carolina at Chapel Hill).
- 10: 20 AM **A framework of coupling forest ecosystem and landscape model to predict aboveground and belowground forest carbon dynamics.** Hong S He (University of Missouri); Chao Huang (Chinese Academy of Sciences); Yu Liang (Chinese Academy of Sciences); Todd J Hawbaker (US Geological Survey); Peng Gong (Tsinghua University); Zhiliang Zhu (US Geological Survey).
- 10: 40 AM **Climate drives fragmentation of montane meadow ecosystems via phenological mismatch.** Ian K Breckheimer (University of Washington); Elli J Theobald (University of Washington); Anna K Wilson (Cornell University); Janneke HilleRisLambers (University of Washington).
- 11: 00 AM **Effect of multi-temporal forest cover change trajectories on forest plant diversity.** Amy J Davis (US EPA); Jean-Claude Thill (University of North Carolina, Charlotte); Ross K Meentemeyer (North Carolina State University).
- 11: 20 AM **Pan-tropical deforestation trends from 2001-2013: Bigger chunks or smaller nibbles?** Kemen Austin, Mariano González-Roglich*, Danica Schaffer-Smith, Amanda M. Schwantes, Jennifer J. Swenson – (Duke University).
- 11: 40 AM **Texas Disasters II: Utilizing NASA Earth observations to assist the Texas Forest Service in mapping and analyzing fuel loads and phenology in Texas grasslands.** Michael Brooke, Meredith N Williams, Teresa E Fenn, Joseph P Spruce, Kenton Ross – (NASA DEVELOP National Program).

WILDLIFE II

Ren. 2nd floor: Victoria

Moderator: Sara Gagné, University of North Carolina at Charlotte

- 9: 40 AM **Naïve translocated northern caribou exhibit reduced antipredator behavior and survivorship.** Dennis E Jelinski (University of Victoria); Heather Leech (University of Victoria).
- 10: 00 AM **Quantifying landscape complementation and implications to habitat selection of a cold intolerant mammal.** Catherine G Haase (University of Florida); Robert J Fletcher, Jr. (University of Florida); Daniel H Slone (US Geological Survey); James P Reid (US Geological Survey); Susan Butler (US Geological Survey).
- 10: 20 AM **Role of historical land use in the distribution of Eastern Massasauga rattlesnake habitat in northeastern Ohio.** Eric M McCluskey, Thomas E Hetherington – (Ohio State University).
- 10: 40 AM **Shared resources, species interaction, and management options: An integrated conservation planning in a tele-coupled world.** Fang Wang (Michigan State University); Jianguo Jack Liu (Michigan State University); McShea J William (Smithsonian Institution); Dajun Wang (Peking University); Sheng Li (Peking University).
- 11: 00 AM **The effects of road and landscape characteristics on the likelihood of a Barred Owl (*Strix varia*)-vehicle collision.** Sara Gagné, Jennifer Bates, Richard Bierregaard – (University of North Carolina at Charlotte).
- 11: 20 AM **Why did it cross the road ? Landscape and road features influencing roadkill locations.** Judith Plante (Concordia University); Jochen AG Jaeger (Concordia University); Andre Desrochers (Laval University).
- 11: 40 AM **Diet and food availability for the lowland tapir (*Tapirus terrestris*) in the Middle Caquetá River Basin (Amazonas, Colombia).** Juliana Vélez (Universidad Nacional de Colombia); Orlando Rivera (Universidad Nacional de Colombia); Josep M Morral (Universidad Autónoma de Barcelona); Tania M González (Universidad Nacional de Colombia); Dolors Armenteras (Universidad Nacional de Colombia).

ECOSYSTEM SERVICES I

Ren. 2nd floor: Swannanoa

Moderator: Todd Lookingbill, University of Richmond

- 9: 40 AM **Spatial subsidies of ecosystem services provided by the migratory Mexican free-tailed bat.** Rusцена Wiederholt (University of Arizona); Laura López-Hoffman (The University of Arizona); John Loomis (Colorado State University).
- 10: 00 AM **Battlefield landscapes and the ecosystem services they provide.** Todd R Lookingbill (University of Richmond).
- 10: 20 AM **Formation mechanisms of ecosystem services: A preliminary review of a decade (2005-2015).** Luyi Liu (Henan University); Shengyan Ding (Henan University).
- 10: 40 AM **Influence of oil and gas development on big game hunting success in Wyoming, USA.** Monica A Dorning, Steven L Garman, Jay E Diffendorfer, Darius J Semmens, Todd J Hawbaker, Kenneth J Bagstad – (US Geological Survey).
- 11: 00 AM **Maximizing biodiversity and ecosystem services in Puerto Rican agricultural landscapes.** Aaron L Iverson (Cornell University and The Nature Conservancy); David J Gonthier (University of California, Berkeley); Damie Pak (Penn State University); Katherine K Ennis (University of California-Santa Cruz); John H Vandermeer (University of Michigan).
- 11: 20 AM **Managing for a delicious ecosystem service under a changing climate: can sugar maple (*Acer saccharum*) syrup provision be maintained in a warming climate?** Louis R Iverson (U.S. Forest Service); Stephen N Matthews (Ohio State University and U.S. Forest Service).

URBAN III

Ren. 2nd floor: Alexander

Moderator: Emily Minor, University of Illinois Chicago

- 9: 40 AM **Changing landscape pattern and functions of traditional ponds during Chinese rapid urbanization.** Zhifang Wang (Peking University).
- 10: 00 AM **Declining population but increasing housing pressure surrounding natural protected areas in Puerto Rico.** Jessica Castro-Prieto (University of Puerto Rico); Sebastian Martinuzzi (University of Wisconsin); Maya Quiñones (U.S. Forest Service); Volker C Radeloff (University of Wisconsin); William A Gould (U.S. Forest Service).
- 10: 20 AM **Responses of landscape change to urbanization and human activities in the Bohai rim Region, Northern China.** Wei Wei, Liding Chen, Dongchuan Wang – (RCEES,CAS).
- 10: 40 AM **Disentangling the landscape drivers behind urban stream degradation.** Joanna R Blaszcak, Joseph Delesantro, Dean L Urban, Emily S Bernhardt – (Duke University).
- 11: 00 AM **Diversity and functional characteristics of flowering plants in an urban residential landscape.** Emily Minor, David Lowenstein – (University of Illinois, Chicago).
- 11: 20 AM **Effects of landscape-based green infrastructure on stormwater runoff in suburban developments.** Kelly L Hondula (University of Maryland); Sean A Woznicki* (US EPA); S Taylor Jarnagin (US EPA).
- 11: 40 AM **Evaluating historic, local, social, and landscape drivers of species diversity in vacant lots in Chicago, IL, USA.** Elsa Anderson, Emily Minor – (University of Illinois, Chicago).

Symposium 20: CONNECTED AND PERMEABLE LANDSCAPES PROVIDE FOR CHANGE: Practical Examples and Challenges in the Application of Models to Real World Conservation

Ren. 2nd floor: Berkeley

Moderator: William Monahan, U.S. Forest Service

- 9: 40 AM **From corridors to transboundary landscape connectivity and permeability.** David M Theobald (Conservation Science Partners).
- 10: 00 AM **Planning for ecological connectivity in the Okanagan Valley, British Columbia.** Jeffrey A Cardille (McGill University); Lael Parrott (The University of British Columbia); Catherine Kyle (The University of British Columbia); David Pelletier (McGill University); Valerie Hayot-Sasson (McGill University).
- 10: 20 AM **A connectivity data atlas for the Great Northern Landscape Conservation Cooperative: Making sense of diverse data to inform strategic connectivity conservation.** Meredith L McClure (Center for Large Landscape Conservation); David M Theobald (Conservation Science Partners); Tabitha A Graves (US Geological Survey); John Pierce (Washington Department of Fish and Wildlife); Bray J Beltran (Heart of the Rockies Initiative); Carl Scheeler (Confederated Tribes of the Umatilla Indian Reservation); Ian Dyson (Alberty Environment and Sustainable Resource Development); Sean Finn (Great Northern LCC); Matt Heller (Great Northern LCC); Melly Reuling (Center for Large Landscape Conservation).
- 10: 40 AM **East-west linkages need on the ground action in human-dominated mountain regions.** Robert F Baldwin (Clemson University); Paul B Leonard (Clemson University).
- 11: 00 AM **Policy Patterns in River Networks: Riparian Management in the Oregon Coast Range.** Brett A Boisjolie (Oregon State University); Rebecca L Flitcroft (U.S. Forest Service); Mary V Santelmann (Oregon State University); Sally L Duncan (Oregon State University).
- 11: 20 AM **A national connected network of large protected areas: identification, challenges, and applications.** R. Travis Belote (The Wilderness Society); Matthew S Dietz (The Wilderness Society); Brad H McRae (The Nature Conservancy); G Hugh Irwin (The Wilderness Society); Peter S McKinley (The Wilderness Society); Meredith McClure (Center for Large Landscape Conservation).
- 11: 40 AM **Bureau of Land Management lands as opportunities to connect and protect the last vast places in the western U.S.** Brett Dickson, Christine Albano – (Conservation Science Partners); Brad McRae (The Nature Conservancy); David Theobald, Jesse Anderson, Luke Zachmann – (Conservation Science Partners).

Symposium 3: IMPLICATIONS AND APPLICATIONS OF THERMODYNAMICS IN LANDSCAPE ECOLOGY

Ren. 2nd floor: Cherokee

Moderator: Samuel Cushman, U.S. Forest Service

- 9: 40 AM **Thermodynamics in landscape ecology: An introduction and overview.** Samuel A Cushman (U.S. Forest Service).
- 10: 00 AM **Ecosystems as energy fields.** Donald McKenzie (U.S. Forest Service); Donald A Falk (University of Arizona); Donald McKenzie (U.S. Forest Service); Tyson L Swetnam (University of Arizona); Carol Miller (U.S. Forest Service).
- 10: 20 AM **Macroecology meets disturbance ecology: connecting species diversity patterns to disturbance ecology through information entropy statistics.** Erica Newman, John Harte – (University of California, Berkeley).
- 10: 40 AM **Towards a thermodynamically-sounded approach to ecological landscape dynamics.** B Larry Li (University of California, Riverside).
- 11: 00 AM **Thermodynamic entropy fluxes reflect ecosystem characteristics and succession.** Henry S Lin (Penn State University).
- 11: 20 AM **Power-laws, complexity, and entropy in wildfire systems.** Nicholas A Povak, Paul F Hessburg, Brion Salter – (U.S. Forest Service).
- 11: 40 AM **Calculating the configurational entropy of a landscape mosaic.** Samuel A Cushman (U.S. Forest Service).

ARID LANDSCAPES

Ren. 12th: Top of the Plaza

Moderator: Anne Axel, Marshall University

- 9: 40 AM **Bowalization: its impact on soil, biodiversity, and human livelihoods in West Africa.** Elie A Padonou (University of Abomey-Calavi, Cotonou); Anne M Lykke (Aarhus University, Silkeborg, Denmark); Yvonne Bachmann (JW Goethe University, Germany); Brice Sinsin (University of Abomey-Calavi, Cotonou, Benin).
- 10: 00 AM **Cheatgrass die-off in the Great Basin: Using the Landsat archive to infer mechanism from spatiotemporal pattern.** Peter J Weisberg, Thomas E. Diltz, Owen W. Baughman, Elizabeth A. Leger – (University of Nevada, Reno); Susan E. Meyer (U.S. Forest Service).

- 10: 20 AM **Detecting climate refugia in semi-arid landscapes with time-series remote sensing.** Margaret E Andrew (Murdoch University).
- 10: 40 AM **Linking landscape pattern and soil moisture in re-vegetation watersheds.** Lei Yang, Qindi Zhang, Liding Chen, Wei Wei – (Chinese Academy of Sciences).
- 11: 00 AM **Primary productivity trends of human-managed high-altitude cushion bogs (bofedales) in the Central Andean Puna, 2001-2013.** Paul Marr, Claire Jantz – (Shippensburg University).
- 11: 20 AM **Socioeconomic vulnerability assessment of rangelands and its relation with ecological sustainability (case study: Highlands of Natanz County, Isfahan Province, Iran).** Valiollah Raufirad (Sari University of Agricultural Sciences and Natural Resources, Sari, Iran); Hossein Azadi (Ghent University, Belgium); Qodratollah Heidari (Sari University of Agricultural Sciences and Natural Resources, Sari, Iran); Jamshid Ghorbani (Sari University of Agricultural Sciences and Natural Resources, Sari, Iran).
- 11: 40 AM **Spatio-temporal movements of livestock in tropical dry forests in southern Madagascar.** Anne C Axel (Marshall University).

Symposium 4: LANDSCAPE DESIGNS THAT INCORPORATE SUSTAINABLE WOOD-BASED BIOENERGY: A FOCUS ON THE SOUTHEASTERN UNITED STATES

Sheraton: Wolfe

Moderator: Virginia Dale, Oak Ridge National Laboratory

- 9: 40 AM **Remote tracking of forest dynamics using satellite imagery: Implications for sustainable forest management in the Southeast.** Danny C Lee (U.S. Forest Service).
- 10: 00 AM **Sustainable bioenergy intercropping in pine plantations - results from research to operational-scale trials.** Jami E Nettles, Peter Birks, Eric Sucre, Robert Bilby – (Weyerhaeuser Company).
- 10: 20 AM **Effects of wood-based pellet production on forest conditions in two fuelsheds in the southeastern United States.** Esther S Parish, Virginia H Dale, Keith L Kline – (Oak Ridge National Laboratory); Emma Tobin (University of Tennessee).

- 10: 40 AM **An experimental approach to assess the effects of woody biomass harvests on wildlife habitat.** Christopher E Moorman (North Carolina State University).
- 11: 00 AM **Modeling the effects of biomass production on landscapes and wildlife habitat.** Nathan M Tarr, Jennifer K Costanza, Matthew J Rubino, Robert C Abt – (North Carolina State University); Alexa J McKerrow (US Geological Survey); Jaime A Collazo (US Geological Survey and NC State University).
- 11: 20 AM **Opportunities and constraints for progress toward sustainable bioenergy in forests of the southeastern United States.** Virginia H Dale, Keith L Kline, Esther S Parish – (Oak Ridge National Laboratory).
- 11: 40 AM **Discussion.**

- 11: 00 AM **Multi-scale assessment of wildlife sustainability in switchgrass biofuel feedstock production.** Christopher M Lituma, Patrick D Keyser, Charles Kwit, Joseph D Clark, Elizabeth D Holcomb – (The University of Tennessee).
- 11: 20 AM **A resource recovering landscape for sustainable bioenergy.** M. Cristina Negri, Herbert Ssegane* – (Argonne National Laboratory); John B Graham, Joan I Nassauer – (University of Michigan).
- 11: 40 AM **Discussion.**

Symposium 10: RESHAPING LANDSCAPES: BIOENERGY AND BIODIVERSITY II

Sheraton: Vance

Moderator: Henriette Jager, Oak Ridge National Laboratory

- 9: 40 AM **Can future US bioenergy production coexist with avian biodiversity?** Henriette I Jager (Oak Ridge National Laboratory); Nathan Sutton (Oak Ridge Associated Universities); Jasmine Kreig (Oak Ridge Associated Universities); Latha Baskaran (Oak Ridge National Laboratory); Gangsheng Wang (Oak Ridge National Laboratory).
- 10: 00 AM **Vegetation biomass as a surrogate for birds' diversity.** Luciano M Verdade, Cristiane H Millan, Jefferson L Polizel, Hilton Thadeu Z Couto – (University of Sao Paulo).
- 10: 20 AM **Bird community responses to afforested eucalyptus plantations in Argentina.** Colin Phifer, Jessie Knowlton, Christopher Webster, David Flaspohler – (Michigan Technological University); Julian Licata (Instituto Nacional de Tecnología Agropecuaria).
- 10: 40 AM **Subfield profitability analysis reveals an economic case to increase biodiversity.** Elke Brandes (Iowa State University); Gabriel S McNunn (Iowa State University, AgSolver, Inc.); Lisa A Schulte (Iowa State University); Ian J Bonner (Monsanto); David J Muth (AgSolver, Inc.); Bruce A Babcock (Iowa State University); Bhavna Sharma (Iowa State University); Emily A Heaton (Iowa State University).



TECHNICAL SESSIONS: WEDNESDAY 1:20 – 3:00 PM

WILDLAND FIRE II

Ren. 1st floor: Windsor A

Moderator: Alexa McKerrrow, U.S. Geological Survey

- 1: 20 PM **Landscape patterns of fine-scale plant diversity: Linking overstory structure and site characteristics to the understory community.** E. Louise Loudermilk, Joseph O'Brien, Andrew Hudak – (U.S. Forest Service); Lee Dyer, Scott Pokswinski – (University of Nevada-Reno).
- 1: 40 PM **Post-wildfire biological legacies in northern Lower Michigan: Effects on stand structure and plant community diversity.** Madelyn M Tucker (Wayne State University); R Gregory Corace, III (U.S. Fish and Wildlife Service); Daniel M Kashian (Wayne State University).
- 2: 00 PM **Normalized Burn Ratio fire-severity indices link ecosystem process with patterns of avian occurrence.** Eli T Rose (NC Cooperative Fish and Wildlife Research Unit); Theodore R Simons (North Carolina State University); Rob Klein (Great Smoky Mountains National Park, National Park Service); Alexa J McKerrrow* (U.S. Geological Survey Core Science Analytics, Synthesis & Libraries).
- 2: 20 PM **Quantification of degradation by burning in riparian forests-savannah edges.** Dolores Armenteras (Universidad Nacional de Colombia); Xavier Corredor (Unal); Federico Sanchez (Unal).
- 2: 40 PM **Changing patterns of fire occurrence in NW Amazon: Effect of spatial and social heterogeneity?** Dolores Armenteras (Universidad Nacional de Colombia); Joan S Barreto (Unal); Javier Retana (CREAF).

Symposium 15: LiDAR TECHNIQUES FOR ADVANCING APPLICATIONS IN LANDSCAPE ECOLOGY

Ren. 1st floor: Windsor B

Moderator: Jessica Mitchell, Appalachian State University

- 1: 20 PM **Efficient processing of dense point clouds in GRASS GIS.** Vaclav Petras (North Carolina State University); Douglas J Newcomb (U.S. Fish and Wildlife Service); Helena Mitasova (North Carolina State University).

- 1: 40 PM **Characterization and classification of vegetation canopy structure and distribution within the Great Smoky Mountains National Park using LiDAR.** Jitendra Kumar (Oak Ridge National Laboratory); Jon Weiner (University of California, Berkeley); William W Hargrove (U.S. Forest Service); Forrest M Hoffman (Oak Ridge National Laboratory); Steven P Norman (U.S. Forest Service); Doug Newcomb (U.S. Fish and Wildlife Service).
- 2: 00 PM **Forest structural complexity of the Southern Appalachians revealed by above ground LiDAR classification.** Steven P Norman (U.S. Forest Service); Jitendra Kumar (Oak Ridge National Lab); William W Hargrove (U.S. Forest Service); Forrest Hoffman (Oak Ridge National Lab); Douglas Newcomb (U.S. Fish and Wildlife Service).
- 2: 20 PM **Landscape level analysis of QL2 LiDAR data by species for avian nesting habitat in eastern North Carolina.** Douglas J Newcomb (U.S. Fish and Wildlife Service).
- 2: 40 PM **Deriving ground-based and airborne LiDAR metrics for habitat restoration on the Lower Colorado River.** Lucas P Spaete (Boise State University); Bob Unnasch (Sound Science LLC); Sonja Kokos (US Bureau of Reclamation); Nancy F Glenn* (Boise State University).

LANDIS MODELING

Ren. 2nd floor: Victoria

Moderator: Eric Gustafson, U.S. Forest Service

- 1: 20 PM **Using first principles to increase the robustness of forest landscape models for projecting climate change impacts.** Eric Gustafson, Brian Miranda – (U.S. Forest Service); Arjan De Bruijn (Purdue University); Brian Sturtevant (U.S. Forest Service).
- 1: 40 PM **Simulating ungulate herbivory across forest landscapes: A browse disturbance extension for LANDIS-II.** Nathan R De Jager (US Geological Survey); Patrick J Drohan (Penn State University); Brian R Sturtevant, Brian R Miranda, Susan L Stout – (U.S. Forest Service).
- 2: 00 PM **Landscape simulation modeling of forest ecosystems: Effects of plot-level data representation on model performance.** Smriti S Bhotika, Christie M Stegall, E Louise Loudermilk – (U.S. Forest Service).

2: 20 PM **Forest biomass and species distributions under climate change in the Northeastern U.S: accounting for effects of succession and harvest.** Wen J Wang (University of Missouri); Hong S He (University of Missouri); Frank R Thompson III (U.S. Forest Service); Jacob S Fraser (University of Missouri); William D Dijak (U.S. Forest Service).

2: 40 PM **Tradeoffs between increased gross photosynthesis and increased respiration demand under climate change: Seasonal and spatial variability in New England.** Matthew J Duveneck, Jonathan Thompson, Arjan de Bruijn – (Harvard Forest).

GENETICS

Ren. 2nd floor: Swannanoa

Moderator: Hossam Abdel Moniem, Purdue University

NOTE: LATER START TIME

1: 40 PM **Incorporating geographic variation in dispersal in order to better predict species' distributions.** Elizabeth A LaRue (Purdue University); Mark R Christie (Purdue University); Jeff D Holland (Purdue University); Nancy C Emery (University of Colorado, Boulder).

2: 00 PM **Landscape community genomics and the mountain pine beetle outbreak system.** Patrick MA James (Université de Montréal); Cathy Cullingham (University of Alberta).

2: 20 PM **Landscape genetics of a pollinator longhorn beetle [*Typocerus v. velutinus (Olivier)*] on a continuous habitat surface.** Hossam M Abdel Moniem (Purdue University); Brandon J Schemerhorn (USDA-ARS and Purdue University); Andrew J DeWoody (Purdue University); Jeffrey D Holland (Purdue University).

2: 40 PM **Landscape genomics as a tool for conservation planning: The case of an endemic, montane salamander threatened by climate change.** Brenna R Forester, Dean L Urban, Thomas F Schultz, Jennifer J Wernegreen – (Duke University); Rob R Dunn (North Carolina State University).

Symposium 13: INTERSECTING FOREST MANAGEMENT, ADAPTATION, AND CLIMATE CHANGE: BIODIVERSITY IMPLICATIONS

Ren. 2nd floor: Alexander

Moderator: Louis Iverson, U.S. Forest Service

1: 20 PM **The potential masking of eastern US forest vulnerability during the Anthropocene due to 20th century climate.** Neil A Pederson (Harvard Forest).

1: 40 PM **Analyzing drought in eastern US forests from 1961–2009: Potential changes in resiliency.** Matthew P Peters (U.S. Forest Service); Louis R Iverson (U.S. Forest Service); Steve N Matthews (The Ohio State University); Anantha M Prasad (U.S. Forest Service).

2: 00 PM **Downslope subsidies in topographically-complex forests affect forest carbon and water cycling.** Chelcy F Miniati (U.S. Forest Service); Sandra N Hawthorne (U.S. Forest Service); Kimberly A Novick (University of Indiana); Andrew C Oishi (U.S. Forest Service).

2: 20 PM **Considering forest species vulnerability to climate change requires integration of current conditions and projection uncertainty.** Stephen N Matthews (Ohio State University); Matthew P Peters (U.S. Forest Service); Iverson R Iverson (U.S. Forest Service); Anantha M Prasad (U.S. Forest Service).

2: 40 PM **Forest adaptation examples.** Patricia R Butler (Michigan Technological University); Christopher Swanston (U.S. Forest Service); Leslie Brandt (U.S. Forest Service); Stephen Handler (U.S. Forest Service); Maria Janowiak (U.S. Forest Service); Danielle Shannon (Michigan Technological University).

Symposium 20: CONNECTED AND PERMEABLE LANDSCAPES PROVIDE FOR CHANGE: Practical Examples and Challenges in the Application of Models to Real World Conservation

Ren. 2nd floor: Berkeley

Moderator: David Theobald, Conservation Science Partners

- 1: 20 PM **Mapping landscape permeability to facilitate range shifts under climate change.** Mark G Anderson, Melissa C Clark, Arlene Olivero Sheldon – (The Nature Conservancy).
- 1: 40 PM **Does it pay off to envision conservation at scale? Y2Y a 20-year retrospective.** Jodi A Hilty (Yellowstone to Yukon Conservation Initiative).
- 2: 00 PM **Meeting managers where they are at—Lessons learned engaging users of connectivity products in Washington State.** Sonia A Hall (SAH Ecologia LLC); Meade Krosby (University of Washington); Brad H McRae (The Nature Conservancy); D John Pierce (Washington Department of Fish and Wildlife); Leslie A Robb (Independent Researcher); Michael A Schroeder (Washington Department of Fish and Wildlife); Peter Singleton (U.S. Forest Service).
- 2: 20 PM **Partnering to maximize landscape connectivity for climate change adaptation.** William B Monahan (U.S. Forest Service); Frank J Krist Jr. (U.S. Forest Service); David M Theobald (Conservation Science Partners).
- 2: 40 PM **Discussion.**

Symposium 19: AMPHIBIANS IN A CHANGING LANDSCAPE

Ren. 2nd floor: Cherokee

Moderator: Mark Spangler, University of Alaska Fairbanks

- 1: 20 PM **Environmental DNA sampling as a means to investigate wood frog (*Rana sylvatica*) range extent in northern Alaska.** Mark A Spangler, Juan A Lopez, Falk Huettmann – (University of Alaska, Fairbanks).
- 1: 40 PM **Determining landscape connectivity through patterns of amphibian community composition across a land-use gradient.** Cara L McElroy (University of Georgia); Jeffrey Hepinstall-Cymerman (University of Georgia); Lora L Smith (Joseph W Jones Ecological Research Center); Travis C Glenn (University of Georgia).

2: 00 PM **Using environmental DNA to monitor hellbenders and its potential for understanding the effect of landscape alteration on populations.** Stephen Spear (The Orianne Society); Lori Williams (North Carolina Wildlife Resources Commission); Chloe Moore (University of Georgia); Michael Freake (Lee University); John Groves (North Carolina Zoo).

2: 20 PM **Effects of the urban heat island on Anurans in remnant and stormwater control ponds in the Charlotte metropolitan region.** Adrienne F Boucher, Matthew D Eastin, Sara A Gagné – (University of North Carolina at Charlotte).

2: 40 PM **Integrating landscape resistance into spatial metapopulation models.** Paige E. Howell, Richard B Chandler – (University of Georgia); Blake R Hossack, Erin L Muths, Brent H Sigafus – (US Geological Survey).

Symposium 7: CLIMATE CHANGE AND LANDSCAPE SUSTAINABILITY OF GLOBAL DRYLANDS

Ren. 12th: Top of the Plaza

Moderator: Chunyang He, Beijing Normal University

- 1: 20 PM **Landscape sustainability science: Coupling ecosystem services with human wellbeing in changing landscapes.** Jianguo Wu (Arizona State University).
- 1: 40 PM **Resilience and resilience-based management derived from analysis of multiple long-term vegetation records in the western US.** David D Briske (Texas A&M University).
- 2: 00 PM **Landscape sustainability in changing Eurasian grasslands: Linking ecosystem services with grassland degradation and restoration.** Jianming Niu, Xuefeng Zhang – (Inner Mongolia University).
- 2: 20 PM **Satellite time-series analyses of dryland landscape change: A case of urbanizing Inner Mongolia in China.** Alexander B Buyantuev (University at Albany, SUNY); Jianming Niu (Inner Mongolia University, Hohhot, China); Shiguo Jiang (University at Albany, SUNY).
- 2: 40 PM **Landscape sustainability: Mitigating and adapting to climate change in drylands via ecosystem service optimization.** Deyong Yu, Ruifang Hao, Qian Cao – (Beijing Normal University).

Symposium 11: OPPORTUNITIES AND BARRIERS FOR SUSTAINABLE BIOENERGY

Sheraton: Wolfe

Moderator: Keith Kline, Oak Ridge National Laboratory

- 1: 20 PM **USDA and a sustainable bioeconomy.** Harry Baumes, Todd Campbell* – (US Department of Energy).
- 1: 40 PM **Bioenergy opportunities to increase resource management efficiency: Effects on land use within a landscape perspective.** Johannes Langeveld, Keith Kline*, Mirjam Breure – (Biomass Research); Petra Quist-Wessel (Agriquest).
- 2: 00 PM **Exploring integrated landscapes for Bioenergy Feedstock Pro.** Jason K Hansen (Idaho National Laboratory).
- 2: 20 PM **How emission accounting and reporting influence perceptions of bioenergy.** Annette L Cowie (NSW Department of Primary Industries).
- 2: 40 PM **Opportunities and barriers for waste resource utilization in bioenergy production.** Andre Coleman, Mark Wigmosta, Timothy Seiple, Richard Skaggs – (Pacific Northwest National Laboratory); Ashok Mishra (Clemson University); Rebecca Efroymson*, Susan Schoenung, Matt Langholtz – (Oak Ridge National Laboratory, Center for Bioenergy Sustainability).

Symposium 10: RESHAPING LANDSCAPES: BIOENERGY AND BIODIVERSITY II

Sheraton: Vance

Moderator: Henriette Jager, Oak Ridge National Laboratory

- 1: 20 PM **Mississippi Basin / Gulf Hypoxia Initiative: Seven LCCs meet largescale agricultural conservation challenges from grassland birds to Gulf coast shrimp.** Gwen M White (Eastern Tallgrass Prairie LCC); Greg Wathen (Gulf Coast Plains & Ozarks LCC); Bill Bartush (Gulf Coast Prairie LCC); Nicole Athearn (Great Plains LCC); Michael Schwartz* (The Conservation Fund).
- 1: 40 PM **Linking watershed processes to coastal fisheries: effects of nutrient enrichment and hypoxia on the Gulf of Mexico fishery ecosystem.** Kevin Craig, Kevin M Purcell – (NOAA Southeast Fisheries Science Center).
- 2: 00 PM **The role of economics in understanding biodiversity in bioenergy landscapes.** Samuel G Evans, Matthew Potts – (University of California, Berkeley).

- 2: 20 PM **Optimization of bioenergy crop selection and placement based on a stream health indicator.** A Pouyan Nejadhashemi, Matthew R Herman, Fariborz Daneshvar, Mohammad Abouali, Dennis M Ross, Sean A Woznicki – (Michigan State University).

- 2: 40 PM **Discussion.**

SESSIONS: WEDNESDAY 3:20 PM – 5:20 PM

DISTURBANCE

Ren. 1st floor: Windsor A

Moderator: Molly Van Appledorn, University of Maryland Baltimore County

- 3: 20 PM **The spatially varying influence of humans on fire activity in North America.** Marc Parisien (Canadian Forest Service); Sean A Parks, Evan DeLancey, Carol Miller, François-Nicolas Robinne, Mike Flannigan – (U.S. Forest Service)
- 3: 40 PM **Biogeography of contemporary wildfires in the Pacific Northwest: Cumulative effects on landscape structure, regional forest change, and biodiversity.** Matthew J Reilly (Oregon State University); Thomas A Spies (U.S. Forest Service).
- 4: 00 PM **Fire disturbance on the peat-swap landscape in Kalimantan, Indonesia: climate change, hydrological perturbation, and anthropogenic ignitions.** Megan E Cattau (Columbia University); Mark E Harrison (University of Leicester); Maria Uriarte (Columbia University); Ruth S DeFries (Columbia University).
- 4: 20 PM **Linking spatially-explicit hydroperiod quantification and forest functional composition in Maryland Piedmont floodplains.** Molly VanAppledorn, Matthew E Baker, Andrew J Miller – (University of Maryland Baltimore County).
- 4: 40 PM **Feature selection and transferability for Maxent and Envelope Score ecological niche models of four species of tamarisk beetles (*Diorhabda* spp.) introduced to North America.** James L Tracy, Robert N Coulson, Allen E Knutson – (Texas A&M University).
- 5: 00 PM **Acid deposition effects on yellow birch in the southern Appalachians.** William O Carson (Equinox).

Symposium 15: LiDAR TECHNIQUES FOR ADVANCING APPLICATIONS IN LANDSCAPE ECOLOGY

Ren. 1st floor: Windsor B

Moderator: Doug Newcomb, U.S. Fish and Wildlife Service

3: 20 PM **Longleaf pine forest overstory, understory, and surface vegetation structure as characterized from airborne LiDAR and field plot data.** Andrew T Hudak, Benjamin C Bright – (U.S. Forest Service); Scott M Pokswinski (University of Nevada); E L Loudermilk, Joseph J O'Brien – (U.S. Forest Service).

3: 40 PM **Predicting spatial patterns of guild diversity from LiDAR forest structure and topography in a tropical forest.** Geoffrey A Fricker (University of California, Los Angeles); Jeffrey A Wolf (Columbia University); Thomas W Gillespie (University of California, Los Angeles); Stephan S Schnitzer (Marquette University); Liza S Comita (Yale School of Forestry).

4: 00 PM **An overview of lidar for characterizing shrub structure in the western US.** Jessica Mitchell, Appalachian State University; Nancy Glenn, Nayani Ilangakoon – (Boise State University).

4: 20 PM **Using LiDAR to model vegetation structure and above-ground carbon storage in the critical zone.** Kristen M Brubaker, Quincey Johnson – (Hobart and William Smith Colleges).

4: 40 PM **Abandonment in shrinking cities: mapping the contemporary urban landscape using LiDAR.** Emily Thompson, Kirsten de Beurs – (University of Oklahoma).

5: 00 PM **Discussion.**

Symposium 18: LANDSCAPE CHANGE AND INFECTIOUS DISEASE ECOLOGY: APPLICATIONS TO PUBLIC HEALTH

Ren. 2nd floor: Victoria

Moderator: Johanna Salzer, National Centers for Disease Control and Prevention

3: 20 PM **Introduction: landscape change and infectious disease ecology: Applications to public health.** Johanna S Salzer (Centers for Disease Control & Prevention).

3: 40 PM **Ecological drivers of prevalence and strain diversity of the causative agent of lyme disease in the eastern United States.** Andrew W Park (University of Georgia).

4: 00 PM **Ecological restoration and qualitative community stability determine parasite establishment and persistence.** Tavis K Anderson (USDA-ARS).

4: 20 PM **Malaria population dynamics and land use change in frontier regions.** Andres A Baeza (Arizona State University); Mauricio Santos (University of Chicago); Andrew Dobson (Princeton University); Mercedes Pascual (University of Chicago).

4: 40 PM **Heterogeneities in vector and host composition in fragmented forest landscapes: Relationships to Chagas disease and cutaneous leishmaniasis transmission in Panama.** Nicole Gottdenker (University of Georgia); Jose Calzada (Instituto Conmemorativo Gorgas de Estudios de la Salud); Luis Chaves (Nagasaki University); Azael Saldaña (Instituto Conmemorativo Gorgas de Estudios de la Salud).

5: 00 PM **Discussion.**

URBAN IV

Ren. 2nd floor: Swannanoa

Moderator: Julie Ripplinger, Arizona State University

3: 20 PM **The spatial resilience of urban green landscape in Shenzhen City, a fast growing metropolis of China.** Yanxu Liu, Jian Peng – (Peking University).

3: 40 PM **Transcending the buffer: The search for an ecological foundation for environmental justice research.** Sima M Namin (Sima Namin).

4: 00 PM **Urban land cover and land use extraction from very high resolution remote sensing imagery.** Mengmeng Li, Alfred Stein, Wietske Bijker – (University of Twente, the Netherlands); Kirsten de Beurs (University of Oklahoma).

4: 20 PM **A Bayesian approach to inform urban growth models with choice experiment data on tradeoffs facing landowners in rapidly urbanizing regions.** Lindsey S Smart (North Carolina State University); Monica A Dorning (US Geological Survey); Jordan W Smith (Utah State University); Brian R Pickard (North Carolina State University); Lauren N Dupey (Utah State University).

4: 40 PM **Stream hydrologic response to increased urbanization in Mid-Atlantic watersheds.** Michael J Mangiante (US EPA ORISE); S Taylor Jarnagin (US EPA).

Symposium 13: INTERSECTING FOREST MANAGEMENT, ADAPTATION, AND CLIMATE CHANGE: BIODIVERSITY IMPLICATIONS

Ren. 2nd floor: Alexander

Moderator: Louis Iverson, U.S. Forest Service

- 3: 20 PM **Combining integrated ecological modelling with genetic analysis to manage eastern hemlock populations.** Anantha Prasad (U.S. Forest Service); Kevin Potter (North Carolina State University).
- 3: 40 PM **Managing sites to increase climate resilience.** Mark G Anderson (The Nature Conservancy).
- 4: 00 PM **Wildlife landscape capability models assess vulnerability to climate change and inform landscape conservation design.** Bill V DeLuca, Kevin McGarigal, Bradley Compton, Joanna Grand, Ethan Plunkett – (University of Massachusetts).
- 4: 20 PM **Linking climate, landscape, and population models to understand climate and management effects on forests and wildlife.** Frank R Thompson (U.S. Forest Service); Bonnot W Thomas (University of Missouri); Wang J Wen (University of Missouri); Dijak D William (U.S. Forest Service); Fraser S Jacob, Hong S He, Joshua J Millspaugh – (University of Missouri).
- 4: 40 PM **Alternative policy scenarios under a changing climate: tradeoffs among ecosystem services in the Oregon Coast Range.** Robert M Scheller, Megan K Creutzburg, Melissa S Lucash – (Portland State University); Stephen D LeDuc (US EPA); Mark G Johnson (US EPA).
- 5: 00 PM **Discussion.**

Symposium 14: DYNAMICS IN LANDSCAPES DOMINATED BY FAMILY FORESTS

Ren. 2nd floor: Berkeley

Moderator: Emily Huff, U.S. Forest Service

- 3: 20 PM **Bioenergy policies and production as prioritized by family forest owners in Upper Michigan.** Audrey L Mayer, Ashma Vaidya – (Michigan Technological University).
- 3: 40 PM **Changing behavior of family forest owners: A longitudinal analysis of the National Woodland Owner Survey.** Emily S Huff, Brett J Butler – (U.S. Forest Service); Marla Markowski-Lindsay, Sarah M Butler, Jaketon Hewes – (University of Massachusetts).

4: 00 PM **Simulating residential development policies to measure forest fragmentation.** Anna Haines, Dan L McFarlane – (University of Wisconsin, Stevens Point).

4: 20 PM **Engaging family forest owners in the prevention and control of invasive plants in privately-owned forest landscapes: Challenges and opportunities.** Zhao Ma (Purdue University); Mysha Clarke (Purdue University); Stephanie Snyder (U.S. Forest Service); Kristin Floress (U.S. Forest Service).

4: 40 PM **New England Landscape Futures: Stakeholder envisioned land-use scenarios and their impacts on the land.** Jonathan R Thompson, Kathy Fallon Lambert – (Harvard Forest); Katie Theoharides (Theoharides Consulting); Matthew Duveneck (Harvard Forest).

Symposium 2: THE LANDSCAPE ECOLOGY OF POLLINATION MUTUALISMS

Ren. 2nd floor: Cherokee

Moderator: Matthew Betts, Oregon State University

- 3: 20 PM **Pollination in a landscape context.** Matthew G Betts (Oregon State University); Adam S Hadley (University of Toronto).
- 3: 40 PM **Pollinator location data can predict landscape resistance to movement.** Adam Hadley (University of Toronto and Oregon State University); Matthew Betts (Oregon State University).
- 4: 00 PM **Combining common sense and a landscape model to determine where we need more habitat for wild bees.** Eric V Lonsdorf (Franklin and Marshall College); Taylor Ricketts, Insu Koh* – (University of Vermont); Claire Brittain, Neal Williams – (University of California, Davis).
- 4: 20 PM **Optimal Design of Agricultural Landscapes for Pollination Services.** Berry J Brosi (Emory University); Paul R Armsworth (University of Tennessee); Gretchen C Daily (Stanford University).
- 4: 40 PM **The landscape ecology of rare bee species.** Tina Harrison (Rutgers University); Rosy Tucker (Rutgers University); Rachael Winfree (Rutgers University).
- 5: 00 PM **Curbing biotic homogenization through restoration.** Lauren Ponisio, Claire Kremen – (University of California, Berkeley).

ECOSYSTEM SERVICES II

Ren. 1st floor: Grand Ballroom A

Moderator: Douglas Shoemaker, North Carolina State University

- 3: 20 PM **Linking ecology & economics: Spatially targeting for diverse ecosystem service outcomes in an agricultural matrix.** Emily K Zimmerman, Lisa A Schulte Moore, John C Tyndall – (Iowa State University).
- 3: 40 PM **Pattern-process-service-sustainability: the changing landscape ecology.** Wenwu Zhao (Beijing Normal University).
- 4:00 PM **Impacts of simulated climate and land-use on grassland bird distributions.** Chad B Wilsey, Gary M Langham – (National Audubon Society); Duane B Pool (Bird Conservancy of the Rockies).
- 4: 20 PM **Shifting patterns of agricultural diversity.** Sarah C Goslee (USDA-ARS).
- 4: 40 PM **Structural equation analysis of the role of urban pattern in generating ecosystem services.** Douglas A Shoemaker, Melissa McHale, Ross K Meentemeyer – (North Carolina State University).
- 5: 00 PM **The prevalence of insects that visit cashew (*Anacardium occidentale* L) plant during the flowering and fruiting seasons in northern Ghana.** Kuukyi S Florence (Ga South Municipal Assembly); Edward D Wiafe (Presbyterian University College-Ghana).

FRAGMENTATION

Ren. 1st floor: Grand Ballroom B

Moderator: Amy Frazier, Oklahoma State University

- 3: 20 PM **Patch-based vs. gradient paradigms: Bridging the gaps to measure local forest fragmentation dynamics.** Amy E Frazier (Oklahoma State University).
- 3: 40 PM **Effects of habitat fragmentation on richness of vascular plants in south-central of Chile.** Jin K Noh, Cristian M Echeverría, Aníbal Pauchard – (University of Concepción).
- 4: 00 PM **Examining independent effects of habitat amount and fragmentation on a Neotropical migrant songbird.** Bryce T Adams, Kaley J Donovan, Stephen N Matthews – (The Ohio State University).

4: 20 PM **Impacts of forests fragmentation due to high voltage transmission lines on liana communities.** Edward D Wiafe (Presbyterian University).

4: 40 PM **New approach to a fragmentation-based estimation of development impact on forest in South Korea.** Peter S Lee (Hanyang University, Department of Urban Design & Landscape Architecture); Sanghyuk Lee, Seung Yong Ji, Jaeyong Choi – (Chungnam National University).

5: 00 PM **Identifying potential migration routes under a changing climate.** Sean A. Parks (Aldo Leopold Wilderness Research Institute, Rocky Mountain Research Station); Solomon Z. Dobrowski (College of Forestry and Conservation, University of Montana).

AVIAN II

Ren. 1st floor: Grand Ballroom C1

Moderator: Jennifer Costanza, North Carolina State University

- 3: 20 PM **Landscape scale habitat associations of Sprague's Pipit (*Anthus Spragueii*) overwintering in the southern United States.** John Muller, Joseph Veech – (Texas State University).
- 3: 40 PM **Spatial patterns of Canada lynx habitat connectivity under a changing climate.** Tessia Robbins, Donald McKenzie – (University of Washington).
- 4: 00 PM **Red-crowned Parrot (*Amazona viridigenalis*) ecological niche model in the Lower Rio Grande Valley, Texas using aerial imagery for conservation planning in an urban landscape.** Elise Voltura, James Tracy, Robert Coulson, Donald Brightsmith – (Texas A&M University).
- 4: 20 PM **Shorebird response to flood dynamics in the Sacramento Valley during migration.** Danica J Schaffer-Smith (Duke University); Jennifer J Swenson (Duke University); Matthew E Reiter (Point Blue Conservation Science).
- 4: 40 PM **Songbird conservation on the landscape scale in southeast Ohio's public forestland using habitat suitability index models.** Kaley Donovan, Bryce Adams, Stephen Matthews – (The Ohio State University).

BIOGEOGRAPHY*Ren. 1st floor: Grand Ballroom C2*

Moderator: Jenny McGuire, Georgia Institute of Technology

- 3: 20 PM **Ultimate and proximate controls on lower treeline position in the Intermountain West.** Alexandra Urza, Peter Weisberg – (University of Nevada-Reno).
- 3: 40 PM **Evaluating future success of whitebark pine ecosystem restoration under climate change using simulation modeling.** Lisa M Holsinger, Robert E Keane, Mary Frances Mahalovich – (U.S. Forest Service); Diana F Tomback (University of Colorado Denver).
- 4: 00 PM **Islands of terrestrial biodiversity in a changing climate.** Jennifer M Cartwright (US Geological Survey).
- 4: 20 PM **Last Glacial Maximum mammal fossils show strong mismatch with ecological niche model hindcasts: Ways to improve transferability to novel climates.** Jenny L McGuire (Georgia Institute of Technology); Edward B Davis (University of Oregon); Michelle S Koo (University of California at Berkeley).
- 4: 40 PM **Modeling responses of Eastern U.S. forests to climate change using a forest ecosystem model.** Jacob S Fraser (University of Missouri); William D Dijak (U.S. Forest Service); Brice B Hanberry (University of Missouri); Frank R Thompson III (U.S. Forest Service); Hong S He (University of Missouri).

Symposium 7: CLIMATE CHANGE AND LANDSCAPE SUSTAINABILITY OF GLOBAL DRYLANDS*Ren. 12th: Top of the Plaza*

Moderator: Chunyang He, Beijing Normal University

- 3: 20 PM **Sustainable landscapes at the frontier: Hot arid regions as a model for the future.** G Darrel Jenerette (University of California, Riverside).
- 3: 40 PM **How many people in global drylands will be water-stressed under climate change and urbanization.** Chunyang He, Zhifeng Liu – (Beijing Normal University).
- 4: 00 PM **A near real-time global monitor and applications of historical and medium- to long-term forecasts of hydroclimate and indicators of water stress.** Matt Luck, Thomas Parris, Jonathan Boright, R. Matthew Landis – (ISciences, L.L.C.).

4: 20 PM **Climate change effect on the ecosystem productivity of the Central Asia dryland.** Chi Zhang, Shihua Zhu – (Chinese Academy of Sciences).

4: 40 PM **Quantifying spatiotemporal patterns of ecosystem services across landscapes: China's sandy lands.** Yuanyuan Zhao (Beijing Forestry University); Jianguo Wu (Arizona State University); Chunyang He (Beijing Normal University).

5: 00 PM **Discussion.**

Symposium 11: OPPORTUNITIES AND BARRIERS FOR SUSTAINABLE BIOENERGY*Sheraton: Wolfe*

Moderator: Annette Cowie, NSW Department of Primary Industries

3: 20 PM **Balancing bioenergy benefits on the landscape with sustainable productivity challenges on sites.** Andy Scott (U.S. Forest Service).

3: 40 PM **Historical review of potential landscape implications of US "Billion-Ton" supply assessments.** Matthew H Langholtz, Keith Kline, Laurence Eaton, Maggie Davis – (Oak Ridge National Laboratory).

4: 00 PM **Investigating sustainability issues in bioenergy resource assessments: The example of the US 2016 Billion-Ton Report.** Rebecca A Efrogmson (Oak Ridge National Laboratory); Matthew H Langholtz (Oak Ridge National Laboratory); Kristen Johnson (US Department of Energy); Bryce J Stokes (Allegheny Science & Technology); Zhangcai Qin (Argonne National Laboratory).

4: 20 PM **Creating trust and credibility in sustainability governance of bioenergy supply chains.** Inge Stupak (University of Copenhagen); C. Tat Smith (University of Toronto); Maha Mansoor (York University).

4:40 PM **The role of land and a bio-based economy as mediators of climate mitigation and adaptation.** Jeremy Woods, Lorenzo Di Lucia – (Imperial College London).

5: 00 PM **Strategies to integrate sustainable bioenergy in landscape designs and synthesis of priority actions to accelerate the transition to a bio-based economy.** Kristen E Johnson (US Department of Energy); Kevin Kline (Oak Ridge National Laboratory, Center for Bioenergy Sustainability)

ASSESSMENT III

Sheraton: Vance

Moderator: Almo Farina, Urbino University

- 3: 20 PM **The Ecoacoustic Event Identification (EEI): A new tool to explore soundscapes.** Almo D Farina (Urbino University); Paolo Salutari, Enrico Tognari, Alex Lombardi – (International Institute of Ecoacoustics).
- 3: 40 PM **Near-term operations forecasting for ecological decision support.** Leonard G Pearlstine (National Park Service); James M Beerens (U.S. Geological Survey); Gregg A Reynolds (National Park Service); Kevin J Suir (US Geological Survey); James M McKelvy (U.S. Geological Survey).
- 4: 00 PM **Temporal stability in spatial suitability: Examining the assumptions of empirically fitted spatially explicit models of LULC change.** Azad Henareh Khalyani (Colorado State University); William A Gould (International Institute of Tropical Forestry); Jaime A Collazo (North Carolina State University); Michael J Falkowski (Colorado State University).
- 4: 20 PM **The EnviroAtlas: Connecting ecosystems, people, and well-being.** Anne C Neale (U.S. Environmental Protection Agency).
- 4: 40 PM **Using remotely sensed imagery to document how land use drives turbidity of playa waters in Texas.** Scott M Starr, Lucas J Heintzman, Lucia S Barbato, Kevin R Mulligan, Nancy E McIntyre – (Texas Tech University).



As part of a national effort to stave the decline of monarch butterflies, and through a partnership of local organizations, four mountain counties in North Carolina have installed butterfly gardens, using a grant from the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program. The Service is working nation-wide to support local efforts to install butterfly gardens and help create habitat for the monarch butterfly by providing several types of native milkweed.

POSTER SESSION & SOCIAL

The Poster Session & Social will be held Monday, April 4, from 6:00 p.m. – 8:00 p.m. in the Windsor Ballroom.

P-1	Frogs found, an analysis of landscape change in locations of species rediscovery Matt S Grisnik (Marshall University); Anne Axel (Marshall University) TOPIC: Conservation biology
P-2	Protecting wetlands in agricultural landscapes: Buffer zones vs. broad-scale forest preservation Margaret E Sawatzky (Carleton University); Lenore Fahrig (Carleton University) TOPIC: Conservation biology
P-3	Determining the distribution of declining bats in north Georgia John F Grider, Steven B Castleberry, Jeffrey Hepinstall-Cymerman – (University of Georgia) TOPIC: Conservation biology
P-4	Contribution of riparian forest to structural corridors of Chile Isabel M Rojas, Sebastian Martinuzzi, Anna M Pidgeon, Volker C Radeloff – (University of Wisconsin-Madison) TOPIC: Conservation biology
P-5	Development of techniques for transplanting partial myco-heterotrophic Orchidaceae species Yosuke Watanabe, Sotaro Yonemura – (Shimizu Corporation); Naoki Shiomi, Kazuhide Nara, Tsuyoshi Seike, Kenji Fukuda, Tomochika Tokunaga, Takeshi Tange, Makoto Yokohari – (The University of Tokyo) TOPIC: Conservation biology
P-6	Forest cover loss and anthropogenic modification in Virunga National Park Jess M Conatser (Marshall University); Anne Axel (Marshall University) TOPIC: Conservation biology
P-7	Functional heterogeneity of Pan troglodytes in montane rainforests Maegan A Fitzgerald (Texas A&M University); Robert N Coulson (Texas A&M University) TOPIC: Conservation biology
P-9	Human-elephant conflict in Myanmar Christie L Sampson (Clemson University); David W Tonkyn (Clemson University); Melissa Songer (Smithsonian Conservation Biology Institute); Peter Leimgruber (Smithsonian Conservation Biology Institute) TOPIC: Wildlife Ecology
P-10	Landscape genetics of a dominant foundation species in the Gulf of Mexico Hayley R Tumas, Brian M Shamblin, Nathan P Nibbelink – (University of Georgia); Mark S Woodrey (Grand Bay National Estuarine Research Reserve); Richard B Chandler, Campbell J Nairn – (University of Georgia) TOPIC: Wildlife Ecology
P-12	Assessing the effects of landscape change on the provision of water supply and quality through spatially explicit modeling Rodrigo E Fuentes, Cristian M Echeverría, Andrés A Esparza – (Universidad de Concepción) TOPIC: Ecosystem Services
P-13	Landscape dynamics of floral resources: Implications for cultural ecosystem service supply in the Southern Appalachians Rose A Graves (University of Wisconsin, Madison); Scott M Pearson (Mars Hill University); Monica G Turner (University of Wisconsin-Madison) TOPIC: Ecosystem Services

P-14	The ecosystem service potential of urbanizing South Africa: An urban ecological approach Scott M Beck (North Carolina State University); David N Bunn (University of the Witwatersrand); Mary L Cadenasso (University of California - Davis); Dan Childers (Arizona State University); Coleen Cluett (The Organization of Tropical Studies); Liesel Ebersohn (University of Pretoria); Ross K Meentemeyer (North Carolina State University); Steward Pickett (Cary Institute for Ecosystem Studies); Louis Rivers III (North Carolina State University); Louis Swemmer (SANParks); Wayne Twine (University of the Witwatersrand); Melissa R McHale (North Carolina State University) TOPIC: Ecosystem Services
P-16	The Virginia Agricultural Model: A tool for conservation planning and prioritization Kirsten R Hazler (Virginia Natural Heritage Program); Tracy Tien (University of Richmond) TOPIC: Land Use Planning
P-17	Integrating global socio-economic influences into a regional land use change model for China Xia Xu, Yawei Cheng, Xia Li, Honglei Jiang – (Beijing Normal University, China) TOPIC: Land Use Planning
P-18	Applying spatial resilience concept to landscape pattern analysis of mega city: A case study on city of Shanghai Jing Fu (Shanghai Normal University); Jun Gao (Shanghai Normal University) TOPIC: Land Use Planning
P-19	Cover crops reduce agricultural nutrient export in a simplified model of land use change in the Upper Beaver Creek Catchment, Ohio Sarah E Eichler Inwood (University of Tennessee); Virginia H Dale (Oak Ridge National Laboratory) TOPIC: Sustainable Management
P-20	Landscape vulnerability to non-native plants in Interior Alaska Megumi Aisu, E. Jamie Trammell, Matthew Carlson, Frank Witmer – (University of Alaska Anchorage) TOPIC: Road Ecology
P-21	Eco-epidemiological risk and sylvatic vectors of Chagas disease in Panama Erin Updyke, Brian Allan – (University of Illinois, Urbana-Champaign) TOPIC: Ecological Risk Assessment
P-22	Climate, terrain and vegetation influence on wildfire skips Abby K Fullem (Haverford College); Ganapathy Narayanaraj (Swarthmore College) TOPIC: Fire
P-23	Evaluating forest structure and foliar reflectance for modeling forest community properties in the NC Piedmont Christopher R Hakkenberg (University of North Carolina, Chapel Hill) TOPIC: Forest Ecology
P-24	Fire and disease interactions in the Sudden Oak Death system in Big Sur, California Chris M Jones (University of North Carolina, Chapel Hill); Aaron Moody (University of North Carolina, Chapel Hill); Ross K Meentemeyer (North Carolina State); Francesco Tonini (North Carolina State) TOPIC: Forest Landscapes
P-25	Land use change and indigenous communities: A case study from protected forest areas in Southern India Divya R Swaminathan (University of Bonn, Germany) TOPIC: Forest Landscapes
P-26	Water for electricity: Impacts of habitat degradation and loss of connectivity on freshwater mussels Snehal Mhatre (Clemson University); Alan Johnson (Clemson University) TOPIC: Fragmentation

P-27	Listening to the landscape Bruce Marron (Portland State University) TOPIC: Landscape Assessment Tools
P-28	Salt marshes on the margins: Marsh landscape synthesis and change in the South Atlantic, USA Thomas R Allen (East Carolina University) TOPIC: Remote Sensing
P-29	Distinguishing ephemeral from seasonally-persistent forest disturbances using NDVI time series William Christie, Steven Norman, William Hargrove – (U.S. Forest Service); Joseph Spruce (Self represented) TOPIC: Remote Sensing
P-30	Fire patterns and land use in Central America: A study of the agriculture-conservations interface Malcolm Nichols, Jordan Hirro, Kayla Inks, Cerian Gibbes – (University of Colorado, Colorado Springs, Department of Geography and Environmental Studies) TOPIC: Remote Sensing
P-31	Using remote sensing and GIS to evaluate vectors of disease dispersal Melanie L Torres (Murray State University); Howard H Whiteman (Murray State University) TOPIC: Spatial Analysis
P-32	Spatial analysis of riparian features for nutrient retention: Implications for ecosystem management John Lovette, Jon Duncan, Lawrence Band – (University of North Carolina, Chapel Hill) TOPIC: Spatial Analysis
P-33	Change in avian habitat capacity is mediated by land cover changes in the Lake Saint-Pierre region, Québec Benoît Jobin, Diane Dauphin – (Canadian Wildlife Service, Environment Canada) TOPIC: Landscape Change
P-34	Vegetation dynamics and landscape change factors in a large coal power complex Xiao Fu (Chinese Academy of Sciences); Mingfang Tang (Chinese Academy of Sciences) TOPIC: Landscape Change
P-36	Distribution and health of the Cañon La Lagartera mangrove forest Cerian Gibbes (University of Colorado, Colorado Springs); Jesse Miller (University of Colorado, Colorado Springs) TOPIC: Landscape Change
P-37	FUTURES-ABM: An empirically-grounded agent based model to simulate the underlying processes of urban growth Georgina M Sanchez (North Carolina State University); Monica A Dorning (US Geological Survey); Jennifer Koch (The University of Oklahoma); Ashwin Shashidharan (North Carolina State University); Lindsey Smart (North Carolina State Univ); Jordan W Smith (Utah State University); Derek Van Berkel (North Carolina State University); Qiang Zhang (North Carolina State University); Ross Meentemeyer (North Carolina State University) TOPIC: Landscape Change
P-39	Forest loss and conversion to plantations in Malaysian tiger habitat Varada S Shevade (University of Maryland); Peter Potapov (University of Maryland); Nancy Harris (World Resources Institute); Dmitry Aksenov (Transparent World); Tatiana V Loboda (University of Maryland) TOPIC: Landscape Change
P-40	The SLEUTH Wizard: Python scripts to automate the SLEUTH urban growth model Alfonso Yanez, Claire A Jantz – (Shippensburg University); Tiernan Erickson (US Census Bureau) TOPIC: Modeling
P-41	Spatially explicit modeling of several landscape features for the health of managed bees Amanda Preslicka (Miami University); Eric Lonsdorf (Franklin and Marshall); David Musher (US Geological Survey); Emily Kirkpatrick (Miami University); Amelie Y Davis (Miami University) TOPIC: Modeling

P-42	Social vulnerability and ebola virus disease in rural Liberia John A Stanturf, Scott L Goodrick, Melvin L Warren, Susan Charnley, Christie M Stegall – (U.S. Forest Service) TOPIC: Social Science
P-43	Public perception of smog: A case study in Ningbo City, China Shuncheng Yang (Chinese Academy of Sciences) TOPIC: Social Science
P-44	Urban landscape study in 360 degrees Rencai Dong, Yonglin Zhang, Shanlin Li, Yuan Shen – (Chinese Academy of Sciences) TOPIC: Urban Landscapes
P-45	The effect of bird diversity on human psychological wellbeing on the neighborhoods of Charlotte Metropolitan Area Abel G Ayon (University of North Carolina, Charlotte); Sara Gagné (University of North Carolina, Charlotte) TOPIC: Urban Landscapes
P-47	Invertebrate diversity on urban green roofs in Charlotte, NC Danielle Merritt (University of North Carolina, Charlotte); Sara Gagné (University of North Carolina at Charlotte) TOPIC: Urban Landscapes
P-48	Movement ecology of American White Ibis (<i>Eudocimus albus</i>) in South Florida, USA Anjelika D Kidd, Jeffery Hepinstall-Cymerman, Sonia M Hernandez – (University of Georgia) TOPIC: Urban Landscapes
P-49	Mice in a maze of coffee: How agricultural management affects genetic structure of a forest rodent Kevin Li (University of Michigan); Beatriz Otero-Jimenez (University of Michigan) TOPIC: Biogeography
P-50	The Africanized honeybee in a telecoupling framework: a comparison between species distribution models for southern Utah and southern California Nathan S Gill (Clark University); Florencia Sangermano (Clark University) TOPIC: Biogeography
P-51	Patterns of surface water dynamics in salt playas of Texas over a 27-year span Lucas Heintzman, Scott Starr, Caroline Claassen, Lucia Barbato, Kevin Mulligan, Nancy McIntyre – (Texas Tech University) TOPIC: Arid Landscapes
P-52	Are the drylands in northern China sustainable ? A perspective from Ecological Footprint dynamics from 1990 to 2010 Jingwei Li, Zhifeng Liu, Chunyang He – (Beijing Normal University) TOPIC: Arid Landscapes
P-53	How did urban land expand in global drylands from 1992 to 2012 ? A multi-scale landscape analysis Huanbi Yue (Beijing Normal University) TOPIC: Arid Landscapes
P-54	Spatial-temporal-chemical variations effect on nitrogen uptake pattern by two typical communities in a temperate grassland Yuqiang Tian (Beijing Normal University)
P-55	Designing bioenergy landscapes to improve water quality through spatial allocation of conservation practices Jasmine AF Kreig (Oak Ridge Associated Universities); Henriette I Jager (Oak Ridge National Laboratory); Latha M Baskaran (Oak Ridge National Laboratory); Michael R Hilliard (Oak Ridge National Laboratory) TOPIC: Bioenergy

P-56	Spatial optimization of bioenergy feedstock introductions in the Arkansas White-Red River Basin: Trade-offs between nutrient loadings and agricultural economic benefits David E Gorelick (University of North Carolina, Chapel Hill); Henriette I Jager (Oak Ridge National Laboratory) TOPIC: Bioenergy
P-57	Tangible Landscape for ecologists Brendan A Harmon (North Carolina State University); Anna Petrasova (Center for Geospatial Analytics); Vaclav Petras (Center for Geospatial Analytics); Helena Mitsova (Center for Geospatial Analytics); Ross K Meentemeyer (Center for Geospatial Analytics) TOPIC: Geographic Information Systems (GIS)
P-58	Household decisions, landscape impacts: Flammability, exurban development and fire regime interactions. Jelena Vukomanovic, Patrick S Bourgeron – (Colorado University Boulder) TOPIC: Ecosystem Management
P-59	The role of weather, fuel, and topography in regulating the spread of wildland fire in the western U.S. Lisa M Holsinger, Sean A Parks, Carol Miller – (Aldo Leopold Wilderness Institute) TOPIC: Fire
P-60	How much deforestation do protected areas avoid in tropical Andean landscapes? Pablo R Cuenca (Universidad de Concepción, Concepción, Chile); Rodrigo Arriagada (Pontificia Universidad Católica de Chile, Santiago, Chile); Cristian Echeverría (Universidad of Concepción, Chile). TOPIC: Forest Landscapes



Asheville was first named Beer City USA in 2009, and is home to more breweries per capita than anywhere else in the U.S.

INDEX

Looking for a specific author or session? Search features are available on the US-IALE 2016 conference website! Visit <http://www.usiale.org/asheville2016/presentation-details> for a full listing of presentations, including abstracts. Or scan the QR code on your mobile device:





U.S. Forest Service
Caring for the land and serving people




The mission of the U.S. Forest Service is to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations.



Duke will prepare you to lead

Check Out our On-Campus and Online Degrees and Exec Ed Courses
nicholas.duke.edu/programs

Duke | NICHOLAS SCHOOL OF THE ENVIRONMENT
 forging a sustainable future



UNC ASHEVILLE
NEMAC
 NATIONAL ENVIRONMENTAL
 MODELING AND ANALYSIS CENTER

NEMAC specializes in science communication and the development of decision-support tools to bring together students, scientific professionals, local decision makers, and the public to help solve problems facing our society.

www.nemac.unca.edu

