EVENT PROGRAM

HUMAN NATURE

WFGRS SPRING 2018

WESTERN FORESTRY GRADUATE RESEARCH SYMPOSIUM

WELCOME TO THE 2018 WESTERN FORESTRY GRADUATE RESEARCH SYMPOSIUM

The annual Western Forestry Graduate Research Symposium (WFGRS), hosted by Oregon State University's College of Forestry, showcases current graduate student research. The purpose of this symposium is to foster educational opportunities, community building, and academic excellence by providing a space for students to present their work to their university community. This event offers graduate students a forum to receive feedback on their proposed and current research, fostering student engagement, enthusiasm, and interdisciplinary collaboration.

In addition to featuring the Nature Conservancy's fire management officer for Oregon and Washington, Amanda Stamper, as this year's keynote speaker, we are delighted to share oral and poster presentations by graduate student researchers on a variety of interesting subjects. Topics stretch across the realm of forest management, products, ecology and human dimensions. This year's participants communicate an array of research spanning all three departments of the College of Forestry: Forest Ecosystems and Society (FES), Forest Engineering, Resources and Management (FERM), and Wood Science and Engineering (WSE).

While WFGRS is a student-organized event, it would not be possible without generous support from the College of Forestry. The organizing committee would like to thank Dr. Thomas Maness (Dean of the College of Forestry), Dr. Anthony Davis (Acting Dean), Dr. Lisa Ganio (Graduate Program Director), the college's marketing and communications team and the department heads of FERM, FES and WSE. Additionally, this year's symposium was preceded by a workshop to help students hone their presentations, designed and led by Chris Nelson of the Graduate Writing Center and Francisco Guerrero. We would also like to thank this year's keynote speaker and the many students, staff, faculty and research associates who volunteered their time to make this event possible.

This year's event will also feature a series of videos highlighting our world-class graduate students' projects as well as ground-breaking research initiatives at Oregon State University's top-ranked College of Forestry. Created by the college's communications group, these videos highlight the breadth of the college's research across the subject areas of forestry; natural resources; wood science and tourism, recreation and adventure leadership. Please join us in the afternoon to see these 12 short videos, which focus on exciting topics including:

- The Oregon Marbled Murrelet Project
- Cross-laminated timber testing and monitoring
- Constraints to utilizing parks and natural spaces
- Restoring prairies and plant species
- Forest harvesting systems

We welcome you to enjoy the symposium and invite you to share in the success of the graduate students' research efforts, as well as this year's theme: coupled human and natural systems.

Western Forestry Graduate Research Symposium

SCHEDULE OF EVENTS

Friday, April 13th, 2018 | Richardson Hall | Oregon State University

	Richardson Hall 1st Floor Lobby	Richardson Hall Courtyard
8:30	Presenter registration | Coffee, tea & pastries	Poster presenter setup
	Richardson Hall (RH) 107	
9:00	Opening remarks & keynote speaker Amanda Stamper	
	RH 107	**RH 115**
10:30	1. Jose Guerrero | Cross-sector collaboration in the forest products industry: A review of the literature	2. Jacob Putney | Response of Douglas-fir Basal Area Increment to Nitrogen Fertilization in Western Oregon
10:45	Transition	Transition
10:50	3. Jennifer DeBoer | Environmental adversity and the US pulp and paper sector	4. Sean Marcum | Overstory growth and recruitment following uneven-aged conversion treatments in Douglas-fir plantations
11:05	Transition	Transition
11:10	5. Pipiet Larasatie | The price to be female leaders: An exploratory study in North American and Nordic forest sector companies	6. Austin Himes | The relationship of ecosystem services and biodiversity in plantation forests of the coastal pacific northwest
11:25	Transition	Transition
11:30	7. Barbara Rovere | Open innovation in manufacturing industries: A literature review	8. Allison Swartz | Aquatic ecosystem responses to a riparian forest canopy gap
11:45	Transition	Transition
11:50	9. Patricia Vega Gutierrez | Spalted wood patterns and their influence on the perceptions of American woodturners	10. Christina St John | Characterizing the germination requirements of Hispaniola pine (Pinus occidentalis)
12:05	Transition	Transition
12:10	11. Shahlinney Lipeh | Fourier transform-infrared spectroscopy study on Western juniper (Juniperus occidentalis) extractives and relation to its natural durability	12. Kaitlin Gerber | The interaction between fertilizer rate and rhizobium inoculation on black locust (Robinia pseudoacacia L.) seedling growth
12:25	Transition	Transition
	Richardson Hall Courtyard	
12:30	Poster session & **FREE LUNCH** (*Please note posters will be displayed from 9-5, but authors may not be present all day)*	
	RH 107	**RH 115**
1:30	13. Mardonio Palomino Agurto | Wood-rotting fungal pigments as colorant coatings on oil-based textile dyes	14. Anna Talucci | Beetle outbreak severity and wildfire influence serotinous lodgepole pine recruitment in central interior British Columbia
1:45	Transition	Transition
1:50	15. Robert Schriver | Generative adversarial networks for tree crown extraction and measurement	16. Julia Olszewski | LiDAR as a tool for assessing hazard fuel reduction projects
2:05	Transition	Transition
2:10	17. Scott Heffernan | Detecting canopy moisture using radar	18. Gabriel Kohler | Social acceptance of landscape-scale restoration: treatment of riparian areas in the lower Joseph Creek Watershed, Oregon
2:25	Transition	Transition
2:30	19. Max Boath | 3D distribution of soil physical components using CT scans	20. David Rossi | A Sequential Formulation of the Wildfire Economics Model
2:45	Transition	Transition
2:50	21. Bonifasius Yoseph Lody Maturbongs | Impact of image processing algorithms on area-based forest inventory	22. Amelia Yeager | Using large wood restoration to improve fish habitat: linking geomorphic change and restoration effectiveness
3:05	Transition	Transition
3:10	23. Cory G. Garms | A comparison of three platforms for obtaining point clouds to estimate forest inventory	24. Clay Mancuso | Behavior and assessment of mobile anchors in cable yarding systems
3:25	Transition	Transition
3:30	25. Chu Qi | Extraction of stem dimensions from consumer grade images	26. Aaron Rachels | Analyzing the effects of timber-harvesting practices on fine sediment inputs to an Oregon Coast Range headwater stream
3:45	Transition	Transition
3:50	27. Lila Leatherman | How does photosynthetic pathway control variation in grassland productivity?	28. Ryan Cole | Post-fire forest management and its impacts on hillslope erosion and vegetation recovery
4:05	Transition	Transition
4:10	29. Al Pancoast | Calculating total tree volume using taper equations	30. Josée Rousseau | Using continental-scale bird banding data to estimate demographic patterns during migration
4:25	Transition	Transition
	Richardson Hall 107	
4:30	Research video screening | Refreshments provided	
	McMenamins at 2001 NW Monroe Avenue	
6:00	Mixer & raffle *(Raffle winners will not be announced until after 6)*	

species richness, but the response of individual ecosystem services will vary resulting in trade-offs between ecosystem services with increased species richness and changes in species composition. We will estimate ecosystem services generated from monoculture and mixed species stands of Douglas-fir, red alder and western hemlock in production plantations by analyzing data from a network of 42 plots representing 6 replicates of all possible species combinations in approximately even mixture. From the field data we will estimate 8-24 ecosystem services or proxies and assesses trade-offs within and among ecosystem services in response to species richness and composition using a simplex model. While this study is region specific and focuses on plantation forest managed for timber production, the findings will broaden current understanding of the relationship between ecosystem function and biodiversity with implications for conservation of biodiversity and maintenance of ecosystem services globally. The results of the study may also be valuable for commercial forest managers interested in monetizing ecosystem services produced from improved management or balancing economic gains with environmental stewardship.

7. Open innovation in manufacturing industries: A literature review

Barbara Rovere[1], Michael Burnard[2], Andreja Kutnar[2], Eric Hansen[3]
[1] InnoRenew CoE
[2] University of Primorska, Andrej Marusic Institute
[3] Oregon State University, Wood Science and Engineering

Open innovation is an innovation management strategy that opens a firm's boundaries to in- and out-flows of knowledge with the purpose to accelerate internal innovation processes and to create additional revenue streams through external use of innovations. Since the emergence of the concept in 2003, it has become increasingly popular both as a subject of academic research as well as a business practice. Open innovation research is still small in terms of the total number of articles published and most studies are conceptual in nature rather than focused on the application of open innovation in industry. Manufacturing is the most investigated industry in the open innovation literature, but even in this case the empirical evidence is scarce and limited mostly to the high-tech sector. The objective of this study is to develop an overview of the current knowledge on the prevalence, activities and impact of open innovation in manufacturing industries as well as on factors influencing open innovation adoption and its outcomes. For this purpose, we executed a systematic qualitative review of literature. The focus of the literature search was on empirical refereed journal articles published between January 2003 and January 2018. The search timeframe reflects the date of publication of the original article which coined the term 'open innovation'. A total of 82 articles were retained for a detailed analysis. We found that open innovation practices are present across the manufacturing sector. Firms engage in a variety of open innovation activities with marked differences between the high-tech and medium and low-tech sectors. Existing research on open innovation outcomes in firms is inconclusive. Our research confirms that most open innovation literature investigates high tech industries. There is currently no open innovation literature with a focus on industries representing the forest value chain.

8. Aquatic ecosystem responses to a riparian forest canopy gap

Allison Swartz[1], Dana Warren[1]
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Due to the legacies of anthropogenic land use, mid-succession forests with uniform closed canopies dominate headwater ecosystems across much of temperate North America. These dense regenerating riparian forests create low-light stream environments that in-turn limit in-stream primary production and nutrient retention. In contrast, old-growth riparian forests contain complex multi-level canopies with canopy gaps that result in patches of elevated light reaching the streams and thus potential