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2015

Eighth International
Conference on Mycorrhiza
Flagstaff • Arizona • USA
August 3 – 7

Agenda & Program



nau.edu/merriam-powell/icom8



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8th International Conference on Mycorrhiza

August 3-7, 2015

High Country Conference Center, Northern Arizona University

Theme: Mycorrhizal Integration Across Continents & Scales

Agenda & Program

Conference sponsors:



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The map displays the University of Northern Iowa campus with various buildings and parking areas. Key locations include:

- Buildings:** Old Main, North Quad, South Beaver, Lumberjack Stadium, Health and Learning Center (Building 25), Central Quad, Gateway Center, and others.
- Parking Areas:** P13, P13A, P13B, P16, P19, P28, P28A, P28B, P28C, P28D, P96A, P96B, P29, P30, P31, P3B, P3C, P15A, P16A, P27B, P29B, P29C, P29D, P29E, P29F, P29G, P29H, P29I, P29J, P29K, P29L, P29M, P29N, P29O, P29P, P29Q, P29R, P29S, P29T, P29U, P29V, P29W, P29X, P29Y, P29Z.
- Landmarks:** Walgreens, Starbucks, and the Health and Learning Center.
- Services at Building 25:** Lumberjack Stadium, Health Services, Mathematics Center, and Recreation Center.

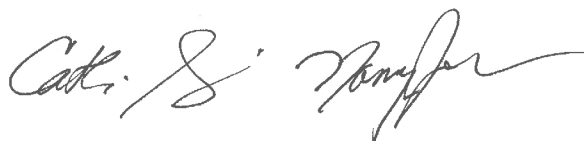
A north arrow is located in the bottom right corner of the map.

Welcome to the Eighth International Conference on Mycorrhiza – ICOM8

The International Conference on Mycorrhiza (ICOM) provides a global forum to exchange discoveries and ideas about mycorrhizal symbioses. It is our pleasure to welcome you to the Eighth ICOM. Our conference theme Integration Across Continents and Scales is designed to cut across traditional hierarchical divisions of science and provide a venue where mycorrhizal geneticists, taxonomists, physiologists, ecologists, inoculum producers, and land managers can share insights about one of the most widespread and fascinating symbioses on Earth.

Mycorrhizas integrate plant and fungal kingdoms with a milieu of soil-borne microorganisms to create a complex community that structures soils and defines ecosystem properties. Mycorrhizas have long been recognized for their key roles in plant health and production of food and fiber, but increasingly, they are recognized for moving matter and energy through ecosystems. These widespread plant-fungus partnerships function at the interface between living roots and mineral soil. In this regard they integrate the biotic and abiotic components of ecosystems.

ICOM8 is a truly global conference. Approximately 475 people from more than 50 countries will join together for a week of scientific and social exchanges. We can expect to learn about exciting new discoveries and also reflect on the wisdom of “past giants” in the field of mycorrhizal science. This emersion of knowledge will help catalyze new ways of thinking and advance our abilities to study and understand mycorrhizal symbioses across scales. We hope that ICOM8 will inspire you and provide many opportunities for future research collaborations.



ICOM8 Co-organizers: Catherine Gehring and Nancy Johnson

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Northern Arizona University, Flagstaff, Arizona, USA

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Schedule of Scientific Sessions

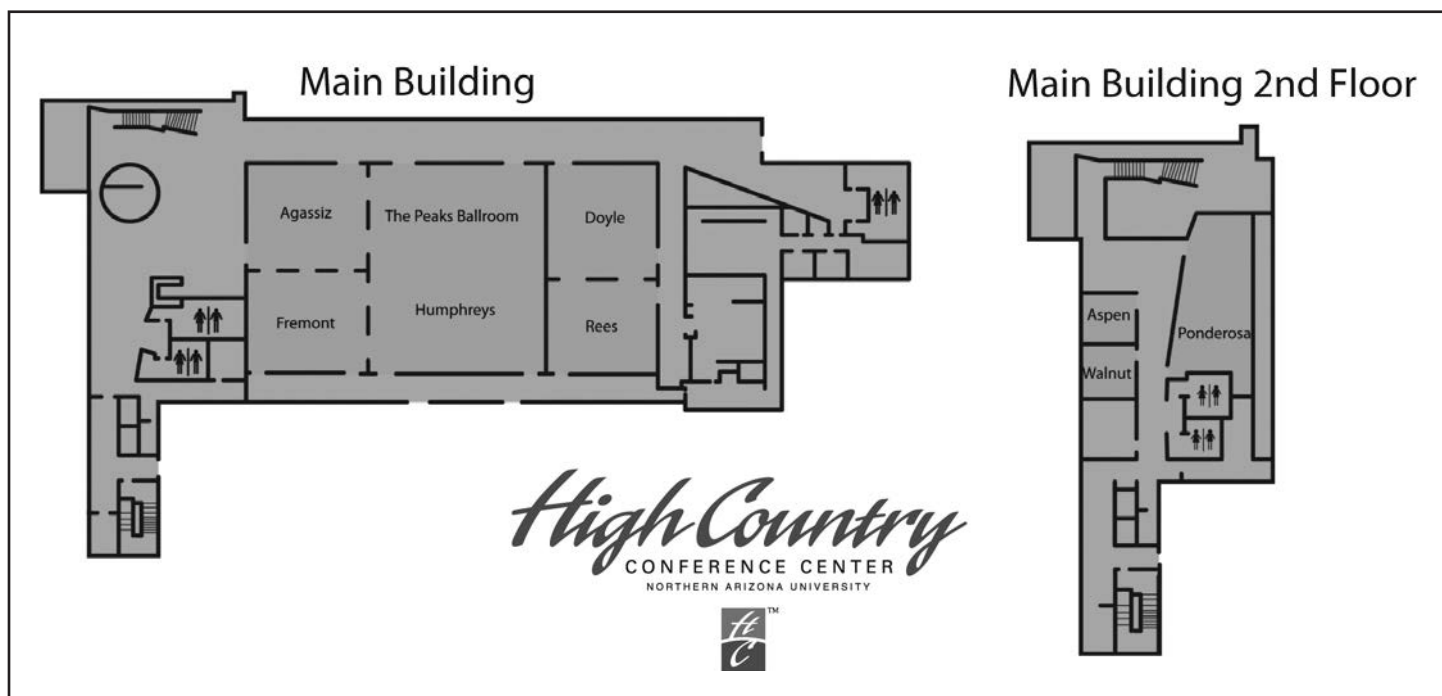
Plan to spend the entire day at the High Country Conference Center and Prochnow Auditorium (in the North Union) on Monday, Tuesday, Thursday, and Friday (August 3, 4, 6, and 7). The Conference Center will serve a continental breakfast 7:30 – 8:15 AM and lunch 12:00 – 1:00 PM. Refreshments will be served in the North Union Ballroom next to Prochnow Auditorium at 10:00 AM and 3:30 PM. No meals will be served at the Conference Center on Wednesday, August 5. However, if you are participating in a field trip on Wednesday, lunch is provided except for the Flagstaff Walking Tour and the Grand Canyon Railway field trip. Morning snacks will be provided outside the conference center from 6:00 – 9:00 AM on Wednesday, August 5.

- Each presentation at ICOM8 has been assigned a unique identifier to facilitate cross-reference of the program and the on-line abstracts which are available at <http://nau.edu/merriam-powell/icom8/scientific-program/>.
- Keynote lectures (KN) are 45 or 50 minutes in length and will be presented in Prochnow Auditorium during the first session each morning except Wednesday.
- Symposium presentations (SY) are 20 minutes in length and will be presented in Prochnow Auditorium each day except Wednesday.
- Poster sessions (PS) are in the Conference Center Atrium. Posters will be available for viewing from 8:30 AM until 5:30 PM each day and authors of the posters will be present 1:00 – 1:50 PM.
- Lightning Talks (LT) are in 5 minutes in length and will be presented in Prochnow Auditorium 2:00 – 3:30 PM each day except Wednesday.
- Concurrent Sessions (CS) are 14 minutes in length and will be presented in Prochnow Auditorium or the Conference Center (Rees/Doyle or Agassiz/Fremont rooms) 4:00 – 5:30 PM on Monday, Tuesday and Thursday.

Speaker Ready Room

The Speaker Ready Room will be in the High Country Conference Center's Aspen Room (2nd floor) and A/V personnel will be available to assist you. All speakers are required to check into the Speaker Ready Room at least 24 hours before their presentations. Those speakers presenting on Monday, August 3, are encouraged to send their presentations via email to ICOM8_slides@nau.edu before the conference.

Please bring a copy of your presentation on CD-ROM, DVD, or USB storage device to load to a conference computer. When reviewing your presentation, make sure all fonts appear as expected and all audio/video clips are working properly. You may edit your presentation at this time. When you are finished reviewing your presentation and verifying it is ready, A/V per-



sonnel will copy your presentation and ensure that it is transferred to the appropriate session moderator and room. When the presentation is to be given, the file will be loaded on the computer in the room in which you will be speaking. Also, the Walnut Room will be available for speakers who wish to practice their presentation.

Schedule of Social Activities

- **Sunday, August 2:** 4:00 – 7:00 PM - ICOM8 reception on the patio behind the North Union
- **Monday, August 3:** 6:00 – 7:30 PM - ICOM8 reception on the patio behind the North Union, followed by a public lecture (7:30 – 9:00 PM) in Prochnow Auditorium.
- **Tuesday, August 4:** 7:00 – 9:00 PM - ICOM8 Banquet and recognition ceremony in the Conference Center Ballroom.
- **Thursday, August 6:** 5:45 – 8:30 PM – “Wines of the World” chuck-wagon dinner and dance at The Museum Club on Historic Route 66. Buses will begin departing from the conference Center at 5:30 PM and run continuously to and from the conference center throughout the evening.

ICOM8 Schedule at a Glance

	Sunday Aug 2	Monday Aug 3	Tuesday Aug 4	Aug 5	Thursday Aug 6	Friday Aug 7
7:30 AM		Registration HCCC Lobby Set-up posters Continental Break-fast HCCC	Set-up posters Continental Break-fast HCCC	Excursions NO activities at HCCC	Set-up posters Continental Break-fast HCCC	Set-up posters Continental Break-fast HCCC
8:30 AM		Prochnow Opening Ceremony	Prochnow Symposium 2		Prochnow Symposium 3	Prochnow Symposium 4
10:00 AM		Break 10:00 – 10:15*	Break 10:00 – 10:30		Break 10:00 – 10:30	Break 10:00 – 10:30
10:15* or 10:30 AM		Prochnow Symposium 1 *10:15 – 12:00	Prochnow Symposium 2 cont.		Prochnow Symposium 3 cont.	Prochnow Symposium 4 cont.
12:00 PM		Lunch HCCC Ballroom	Lunch HCCC Ballroom		Lunch HCCC Ballroom	Lunch HCCC Ballroom
1:00 PM		Poster Session 1 HCCC Atrium	Poster Session 2 HCCC Atrium		Poster Session 3 HCCC Atrium	Poster Session 4 HCCC Atrium
2:00 PM		Prochnow Lightning talks 1	Prochnow Lightning talks 2		Prochnow Lightning talks 3	Prochnow Lightning talks 4
3:30 PM		Break 3:30 – 4:00	Break 3:30 – 4:00		Break 3:30 – 4:00	Break 3:30 – 4:00
4:00 PM	Registration HCCC Lobby 4:00 – 7:00	Prochnow Agassiz/Fremont Rees/Doyle Concurrent Sessions 1, 2, 3	Prochnow Agassiz/Fremont Rees/Doyle Concurrent Sessions 4, 5, 6		Prochnow Agassiz/Fremont Rees/Doyle Concurrent Sessions 7, 8, 9	Prochnow IMS Business meeting Student Awards and Closing Ceremony
Evening activities	Reception on Patio/Quad 4:00 – 7:00	6:00 PM – 7:30 PM Patio/Quad Reception 7:30 PM – 9:00 PM Prochnow PUBLIC Lecture	7:00 PM – 9:00 PM ICOM8 Banquet HCCC Ballroom		5:45 – 8:30 PM “Wines of the World” Chuck-wagon and dance at Museum Club 5:30 PM Buses will begin departing from HCCC	

* Monday morning break will only be 15 minutes. All other breaks will be 30 minutes.

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August 3-7, 2015

High Country Conference Center, Northern Arizona University

Theme: Mycorrhizal Integration Across Continents & Scales

Monday, August 3

8:30 AM

AM Opening Session - Prochnow Auditorium

Welcome: Professors Catherine Gehring and Nancy Johnson co-organizers of ICOM8; Professor Paul Umhoefer, Director of the NAU School of Earth Sciences and Environmental Sustainability; and Professor Michael Allen, President of the International Mycorrhizal Society

8:50 KN 1

TRAPPE, J. - *How we got where we are: tracking down the giants*

9:35 KN 2

WHITHAM, T.G. - *Integrating across scales from genes to ecosystems*

10:00 AM

Coffee break - North Union Ballroom next to Prochnow Auditorium

10:15 AM

Symposium 1, sponsored by *Fungal Ecology* - Prochnow Auditorium

Diversity and biogeography of mycorrhizal fungi

Organized by: M. Öpik, University of Tartu, Estonia and K. Peay, Stanford University, USA

10:15 SY 1-1

PEAY, K.G., J.M. Talbot, J.W. Taylor, R. Vilgalys and T.D. Bruns - *Patterns and drivers of ectomycorrhizal fungal diversity across scales*

10:35 SY 1-2

LEOPOLD, D.R. - *Nutrient availability influences the community composition of root-associated fungi from an ericoid host plant across a 4 million year chronosequence*

10:55 SY 1-3

ÖPIK, M. - *Biodiversity and diversity patterns of arbuscular mycorrhizal fungi*

11:15 SY 1-4

SELOSSE, M.A. - *Functional and taxonomic diversity of orchid mycorrhizal fungi*

11:35 SY 1-5

Mandyam, K. and **A. JUMPPONEN** - *Diversity and function of dark septate endophytes*

12:00 PM

Buffet lunch - High Country Conference Center

International Mycorrhiza Society, ICOM 9 Announcement

1:00 PM

Poster session 1 - High Country Conference Center Atrium

PS 1a: Diversity and biogeography of mycorrhizal fungi

PS 1-1

Franco-Ramírez, A., L.V. Hernández-Cuevas, **A. ALARCÓN**, J.J. Almaraz, J. Pérez-Moreno, R. Ferrera-Cerrato, F.J. Alvarez-Sanchez, A.T. Chávez-Bárcenas and S.L. Stürmer - *Communities of arbuscular mycorrhizal fungi in five ecosystems at the Tlaloc Volcano, Mexico*

PS 1-2

ALBORNOZ, F.E., F.P. Teste, H. Lambers, M. Bunce, D.C. Murray, N.E. White and E. Laliberté, - *Changes in ectomycorrhizal fungal community composition and diversity along a two-million year coastal dune chronosequence in a biodiversity hotspot*

PS 1-3

ALTWASSER, B.A., B.J. Pickles, M.M. Hart and J. Pither - *The origins of regional species pools among North American ectomycorrhizal fungi: mapping predictions based on alternative hypotheses*

- PS 1-4 **AMSES, K.R.**, T.F. Elliott, M.E. Smith and T.W. Henkel - *New Neotropical genera of ectomycorrhizal sequestrate Boletaceae*
- PS 1-5 **ÁVILA-VAL, T.C.**, M.E. Gavito, H. Arita, T.G. Cornejo-Tenorio and G. Ibarra-Manrique - *Patterns and drivers of spatial diversity of arbuscular mycorrhizal fungal communities from a temperate forest in the Nearctic-Neotropical transition*
- PS 1-6 **BONFIM, J.A.**, F. Oehl and E.J.B.N. Cardoso - *Root and rhizosphere soil diversity of arbuscular mycorrhizal fungi in a Brazilian Atlantic forest toposequence*
- PS 1-7 **BOUFFAUD, M.L.**, D. van Tuinen, D. Wipf and D. Redecker - *Drivers of arbuscular mycorrhizal fungi (Glomeromycota) communities along a European transect*
- PS 1-8 **CAVALOC, Y.**, S. Gensous and H. Amir - *Arbuscular mycorrhizal fungi from New Caledonia: first identification from roots of Phyllanthus and Psychotria in ultramafic and volcano-sedimentary soils*
- PS 1-9 **CHEN, T.S.**, J.L. Zhang, D.P. Li, Q. Wang, Y.Y. Long, Y.Y. Huang and S. Li - *Diversity of arbuscular mycorrhizal fungi in sugarcane fields of Southeastern China*
- PS 1-10 **CHEN, Y.L.**, H.L. Tang and X.L. He - *Biology of ectomycorrhizal Scleroderma fungi in Australasia*
- PS 1-11 **CHOI, J.W.**, C.D. Koo and A.H. Eom - *Changes in ectomycorrhizal fungal communities due to forest thinning in Korea*
- PS 1-12 **COMANDINI, O.**, L. Tedersoo, M. Leonardi and A.C. Rinaldi - *Peering into the Mediterranean black box: Lactifluus rugatus ectomycorrhizas on Cistus*
- PS 1-13 Chai, Y., W. Guo, J. Pan, S. Jiang, M. Qin, Y. Liu and **H. FENG** - *The community of arbuscular mycorrhizal fungi and its correlation with plant phylogeny from south-facing to north-facing slope*
- PS 1-14 **GUPTA, M.M.**, V.K. Singh, R. Dev, H. Verma, O. Moyal, P. Kumari, Ankit, A. Aggarwal, M. Dandodiya, V. Goyal, M. Kumar, A. Bisht and P. Jindal - *Do AM fungi show biogeographic patterns in India?*
- PS 1-15 **HARROWER, E.**, N.L. Bougher, T.W. Henkel, E. Horak and P.B. Matheny - *Long-distance dispersal and speciation of Australasian and American species of Cortinarius sect. Cortinarius*
- PS 1-16 **HAZARD, C.**, A.F.S. Taylor and D. Johnson - *Genotypic diversity matters: examining the diversity-ecosystem function relationship with ectomycorrhizal fungi*
- PS 1-17 **JOHNSON, L.**, Ma. del C.A. González-Chávez, R. Carrillo-González, A. Porras-Alfaro and G.M. Mueller - *Using high-throughput sequencing to study a hemi-epiphytic orchid, Vanilla planifolia, at four Mexican farms*
- PS 1-18 **KILPELÄINEN, J.**, M. Vestberg, T. Repo and T. Lehto - *Arbuscular and ectomycorrhizal root colonization in soil exposed to extreme freezing temperatures*
- PS 1-19 **KRÜGER, C.**, M. Janoušková, D. Püschel, J. Frouz and J. Rydlová - *Arbuscular mycorrhiza fungal community succession and seasonality on post-mining sites*
- PS 1-20 **LARA-CHÁVEZ, M.B.N.**, M. Vargas-Sandoval, M. Gutiérrez-Contreras, S. Aguirre-Paleo, T. del C. Avila-Val, J.M. Magdaleno-Torres and C.E. Figueroa-Araujo - *Diversity and richness of AMF in a wheat monoculture parasitized with Fusarium spp.*
- PS 1-21 **LEE, B.H.**, S.J. Kim and A.H. Eom - *Orchid mycorrhizal fungi isolated from eight species of native orchid in Korea*
- PS 1-22 **LIU, P.G.**, C. Juan, D. Xiao-Juan, Q. Peng and Z. Fenglan - *Chinese Truffle biodiversity and their conservation*
- PS 1-23 **MAČEK, I.**, Ž.S. Marjanović and F. Oehl - *Biodiversity of arbuscular mycorrhizal fungi in the Balkan Peninsula*

- PS 1-24 **MATSUDA, Y.**, T. Uesugi, C.F. Chen, M.K. Huh, T. Tanikawa, Y. Hashimoto, T. Yagame, M.A. Selosse, M. Murata and K. Nara - *Mycorrhizal specificity of the partially mycoheterotrophic Ericaceae Pyrola japonica (Ericaceae)*
- PS 1-25 **MICHAEL, H.E.**, R.L. Swaty and C.A. Gehring - *A map of the dominant mycorrhizal associations of the United States of America*
- PS 1-26 **MLECZKO, P.**, A. Ronikier and M. Ronikier - *Ectomycorrhizal symbionts of Dryas octopetala L., an arctic-alpine plant, along an altitudinal gradient - species diversity and host specificity*
- PS 1-27 Wilson, A.W., K. Hosaka and **G.M. MUELLER** - *Phylogeny and diversification of Laccaria*
- PS 1-28 **OBASE, K.**, G.W. Douhan, Y. Matsuda and M.E. Smith - *Phylogenetically distinct cryptic species within ectomycorrhizal fungus Cenococcum geophilum sensu lato*
- PS 1-29 **PACHIT, P.**, J. Piapukiew and N.R. Disyatat - *Temporal changes in ectomycorrhizal fungal community: case study in disturbed Dipterocarp forest, Thailand*
- PS 1-30 **PARK, H.**, J.Y. Lee, K.H. Ka and A.H. Eom - *Arbuscular mycorrhizal fungal diversity in coastal areas and islands of Western Korea*
- PS 1-31 **SHARMAH, D.** and D.K. Jha - *Diversity of arbuscular mycorrhizal fungi in undisturbed forest, slash-and-burn field, and monoculture forest of Indo-Burma megadiverse region*
- PS 1-32 **SILVA, M.C.S.**, I.R. Mendes, T.A. Paula, B.C. Moreira, D.M.S. Bazzolli and M.C.M. Kasuya - *Arbuscular mycorrhizal fungi community in Eucalyptus urograndis plantations*
- PS 1-33 **YAMAMOTO, K.**, Y. Degawa and A. Yamada - *Diverse lineages of Mucoromycotina and Glomeromycota that colonize in the subterranean axes of the Asian liverwort, Haplomitrium mnioides from Japan*
- PS 1-34 **ZHANG, J.**, J. Yan, L. Zhao and X. He - *Diversity of dark septate endophytes of clonal plants in Saibei desert*

PS 1b: Molecular methods for resolving the phylogenies of mycorrhizal fungi

- PS 1-35 **BILLS, R.B.** and J.B. Morton - *Morphology and a LSU phylogeny reveal Archaeospora trappei and Ar. schenckii are synonymous and mode of spore formation resolves only stable population-level variation*
- PS 1-36 **GONZÁLEZ, D.**, D.M. Morales-Londoño, R.D. Armas, S. Stoffel, C.R.F.S. Soares and S.L. Stürmer - *Analysis of PCR-DGGE technique to design molecular markers for arbuscular mycorrhizal fungi species detection*
- PS 1-37 **REDECKER, D.**, V. Monfort-Pimet, J. Michel and D. Wipf - *The International Bank for the Glomeromycota*
- PS 1-38 **UNRUH, S.**, L. Decker, L. Zettler, P. Shiu and J.C. Pires - *Orchid mycorrhizae: the next generation (sequencing)*
- PS 1-39 **VARGAS, N.**, C. Pardo, S. Gonçalves, S. Restrepo and A. Pringle - *Origin of Amanita muscaria introduced to Colombia and a range expansion to tropical Quercus humboldtii forests*

PS 1c: Roles of mycorrhizal networks for individuals, communities and ecosystems

- PS 1-40 **ARAI, H.**, K. Obase, Y. Tamai, T. Yajima and T. Miyamoto - *Mycorrhizal fungal communities in a coastal oak (Quercus dentata) forest*
- PS 1-41 Clausen, K.A., A.M. Cortese, K. Taylor and **R.A. BUNN** - *Mycorrhizae, dual host plants and mycorrhizal networks in the revegetation of the Elwha Basin, Washington, USA*

- PS 1-42 **CARRILLO-SAUCEDO, S.M.** and M.E. Gavito - *Functional traits of arbuscular mycorrhizal fungal communities along succession in a tropical dry forest ecosystem*
- PS 1-43 **CHIALVA, M.**, A. Salvioli, P. Bagnaresi, M. Novero, S. Ghignone, D. Spadaro and P. Bonfante - *Deep-sequencing transcriptome of tomato to two soils containing their natural microbiota*
- PS 1-44 **COPPICK, P.** and G.W.T. Wilson - *Encroachment by Juniperus virginiana alters biotic and abiotic soil characteristics of the tallgrass prairie*
- PS 1-45 Massenssini, A.M, M.R. Tótola and **M.D. COSTA** - *Mycorrhizal colonization of crops and weeds under competition*
- PS 1-46 **HE, X.**, G. Stewart and C. Critchley - *Two-way nitrogen transfer between Eucalyptus and Casuarina via a common ectomycorrhizal network linkage is evidenced by ^{15}N natural abundance ($\delta^{15}\text{N}$) signature*
- PS 1-47 **HESS, K.M.**, L. Mino, P. Coppick and G.W.T. Wilson - *Mycorrhizal fungal abundance and ecosystem-level dynamics following woody plant encroachment into grasslands*
- PS 1-48 **KARLIŃSKI, L.**, M. Rudawska and T. Leski - *Early effect of host genotype, soil moisture, and soil pollution on mycorrhizal colonization of poplar roots*
- PS 1-49 **LI, A.R.**, K.Y. Guan, X.L. Sui, X.Y. Huang, Y. Chen, R. Stonor, S.E. Smith and F.A. Smith - *AM fungi in roots of hemiparasitic Pedicularis: friends or foes?*
- PS 1-50 **LI, T.** and B.D. Chen - *Coexpression of the D-myo-inositol-3-phosphate synthase gene and the 14-3-3 gene in maize roots is favorable for crosstalk between host plants and arbuscular mycorrhizal fungi, and between the aboveground and belowground under drought stress*
- PS 1-51 Štraus, I., **T. MARTINOVIĆ**, T. Mrak, T. Grebenc, M. Kreft and H. Kraigher - *Distribution of surface-bound phosphatase (SPB) in different parts of mycorrhizal fungi*
- PS 1-52 **MINO, L.A.** and G.W.T. Wilson - *Ecosystem-level effects following woody species encroachment onto tallgrass prairie*
- PS 1-53 Armenta, A.D., E.F. Gomez, S.F. Moreno-Salazar and **A. OCHOA-MEZA** - *Soil aggregation, glomalin content, and organic carbon in arid soils of the Costa de Hermosillo, Sonora*
- PS 1-54 **ORDOÑEZ, M.**, L. Villard, F. Masclaux, I.R. Sanders and A. Rodriguez - *Changes in Rhizophagus sp. populations after inoculation of cassava with in vitro R. irregularis under field conditions*
- PS 1-55 **QUORESHI, A.M.** and M.K. Suleiman - *Desert plants and mycorrhizae: need for mycorrhizal research in a Kuwait desert ecosystem*
- PS 1-56 **REN, L.X.** and G.H. Xu - *Arbuscular mycorrhizal fungal colonization modulates phenolic acids secretion and enhances resistance of watermelon roots to Fusarium pathogen*
- PS 1-57 **RYDLOVÁ, J.**, M. Dostálová, D. Püschel and M. Janoušková - *Nutrient limitation drives the response of Calamagrostis epigejos to AMF across a chronosequence of post-mining sites*
- PS 1-58 **SLIFFE, P.**, J. Ward, A. Olivo, B.R. Twanabasu, C.M. Smith and K.J. Stevens - *Restoring Texas Blackland Prairies: an insight into the effects of management practices on mycorrhizal fungi*
- PS 1-59 Herrera-Martinez, A., I.M. Sanchez-Leyva, M.C. Gonzalez-Chavez, S. Romero-Hernandez, J. Lopez-Luna, J.A. Reyes-Lopez, S. Norzagaray-Plasencia and **F.A. SOLIS-DOMINGUEZ** - *Arbuscular mycorrhizal colonization of the dominant plant species at the arid Laguna Salada, Baja California, Mexico*
- PS 1-60 Bell, T.H., B. Cloutier-Hurteau, F. Al-Otaibi, M.C. Turmel, E. Yergeau, F. Courchesne and **M. ST-ARNAUD** - *Sphaerospora brunnea and Inocybe sp. naturally dominated microbiome composition and determined growth and Zn uptake of willows introduced to a former landfill*
- PS 1-61 **TANAKA, M.** and K. Nara - *Bacterial communities associated with ectomycorrhizal roots of pioneer dwarf willow in a primary successional volcanic desert*

- PS 1-62 **TAWARAYA, K.**, A. Sakata and W. Cheng - *Transfer of nitrogen among three plant species through common mycorrhizal networks*
- PS 1-63 **TURNAU, K.**, R. Piwowarczyk, R. Jędrzejczyk, N. Mikołajek and P. Rozpądek, - *Arbuscular mycorrhiza and Orobanchae interactions in metal rich tailings*
- PS 1-64 **VEGA-FRUTIS, R.**, F. Puebla-Olivares and G. Luna-Esquivel - *Land-use change effects on mycorrhizal symbioses in dioecious wild Carica papaya (Caricaceae)*
- PS 1-65 **VELMALA, S.M.**, T. Rajala and T. Pennanen - *Function by form - a tentative insight to the link between growth and the diversity of ectomycorrhizal fungi*
- PS 1-66 **VOSÁTKA, M.**, T. Lukešová, P. Kohout, J. Rydlová, M. Janoušková, P. Doubková, D. Püschel, C. Krüger and J. Frouz - *Interactions of arbuscular mycorrhizal and ectomycorrhizal fungi in primary succession on mining spoil banks*
- PS 1-67 Zhang, S., J. Zhou, G. Wang, **X. WANG** and H. Liao - *Role of mycorrhizal symbiosis in aluminum and phosphorus interactions in relation to aluminum tolerance in soybean*
- PS 1-68 **WU, Z.X.**, Z.P. Hao and B.D. Chen - *Effects of AM fungi inoculation on the growth and photosynthesis of Panax notoginseng seedlings*
- PS 1-69 **ZARUBINA, N.** - *Seasonal changes of ¹³⁷Cs specific activity levels in mycorrhizae-forming fungi*
- PS 1-70 **ZHANG, X.**, B.D. Chen, S.L. Wu, B.H. Ren and Y.Q. Sun - *Study of the tolerance mechanisms of arbuscular mycorrhizal symbionts under heavy metal contamination*

2:00 PM Lightning Talks 1 - Prochnow Auditorium

- LT 1-1 **BIZABANI, C.** and J.F. Dames - *The diversity of ericaceous root fungi in South Africa: a comparative approach*
- LT 1-2 **DUCHICELA J.**, J. Bever and P. Schultz - *Preliminary observations of diversification of mycorrhizal plant response - island versus continent populations*
- LT 1-3 **KNAPP, D.G.**, P.J. Berek-Nagy, P.W. Crous, J.Z. Groenewald, I. Imrefi, G. Herczeg and G.M. Kovács - *Diversity of pleosporalean dark septate endophytic (DSE) fungi of semiarid areas*
- LT 1-4 **ALVAREZ-MANJARREZ, J.** and R. Garibay-Orijel - *Diversity of ectomycorrhizal fungi from a Mexican tropical dry forest*
- LT 1-5 **LEKBERG, Y.** - *Should we expect a positive relationship between plant and AMF richness?*
- LT 1-6 Hawkins, B.J., J.M. Kranabetter, Tao Li and **M.D. JONES** - *Functional differences of Douglas-fir ectomycorrhizae along a natural nitrogen gradient*
- LT 1-7 **ROSENDAHL, S.**, K.B. Nielsen, R. Kjølner, H.H. Bruun and T.K. Schnoor - *Colonization of new land by arbuscular mycorrhizal fungi*
- LT 1-8 **SÁNCHEZ-GALLEN, I.**, A. Antoninka, L.V. Hernández-Cuevas and J. Álvarez-Sánchez - *Community of arbuscular mycorrhizal fungi and landscape fragmentation in a Mexican tropical rain forest*
- LT 1-9 **NGUYEN, N.H.**, Z. Song, S.T. Bates, S. Branco, L. Tedersoo, J. Menke, J. Schilling and P.G. Kennedy - *FUNGuild: an open annotation tool for parsing high-throughput fungal molecular data by ecological guild*
- LT 1-10 **EGAN, C.P.**, Y. Lekberg, A. Cornell, M. Settles, J.N. Klironomos and M.M. Hart - *Assessment of Illumina MiSeq dual end sequencing of arbuscular mycorrhizal fungal communities using mock communities of known DNA quantity*
- LT 1-11 **GREBENC, T.**, G.M.N. Benucci, M. Karadelev, M.P. Martin and H. Kraigher - *Diversity and distribution of native truffle species (Tuber spp.) in Europe*

- LT 1-12 **ALMEIDA, J.P.**, N. Rosenstock and H. Wallander - *The response of fungal communities to nitrogen and phosphorus fertilization in a spruce forest*
- LT 1-13 **KONVALINKOVÁ, T.**, H. Gryndlerová, D. Püschel, V. Procházková, M. Gryndler and J. Jansa - *Arbuscular mycorrhizas increase resource competition within a model plant community*
- LT 1-14 **DAUBOIS, L.**, D. Beaudet, M. Hijri and I. De La Providencia - *Independent mitochondrial and nuclear exchanges arising in Rhizophagus irregularis crossed isolates support the presence of a mitochondrial segregation mechanism*
- LT 1-15 **SUKARNO, N.**, S. Listiyowati and K. Nara - *New species of ectomycorrhiza Elaphomyces associated with dipterocarp tropical rainforest from Indonesia*
- 3:30 PM** **Coffee Break - North Union Ballroom**
- 4:00 PM** **Concurrent Session 1 - High Country Conference Center, Agassiz/Fremont**
Molecular methods for resolving the phylogenies of mycorrhizal fungi
 Organizers: D. Redecker, INRA, Dijon, France and B. Matheny, University of Tennessee, USA
- 4:00 CS 1-1 **STAJICH, J.E.**, M.C. Aime, M. Berbee, M. Binder, P. Crous, I.V. Grigoriev, D.S. Hibbett, T.Y. James, F. Martin, L.G. Nagy, J.W. Spatafora and the KFG Consortium - *Evolutionary genomics of early branches of the fungal tree*
- 4:15 CS 1-2 **GAZIS, R.** and D.S. Hibbett - *Fungi in the Open Tree of Life*
- 4:30 CS 1-3 **REDECKER, D.** - *Phylogeny of the Glomeromycota: advances and perspectives*
- 4:45 CS 1-4 **BOYCE, G.R.** and J.B. Morton - *Using proteomes of three Rhizophagus species in Glomeromycota to infer phylogenetic relationships*
- 5:00 CS 1-5 **SANCHEZ-RAMIREZ, S.** and J.M. Moncalvo - *Scaling macro- and micro-evolutionary dynamics of ectomycorrhizal fungi in space and time: the Caesar's mushrooms case*
- 5:15 CS 1-6 **ROSLING, A.**, G. House, W. Kaonongbua and J. Bever - *Speciation by hybridization in the Glomeromycota - Claroideoglomus candidum*
- 4:00 PM** **Concurrent Session 2 - Prochnow Auditorium**
Roles of mycorrhizal networks for individuals, communities and ecosystems
 Organizers: T. Horton, SUNY ESF, USA and David Johnson, University of Aberdeen, UK
- 4:00 CS 2-1 **BAHRAM, M.**, H. Harend and L. Tedersoo - *Insight into underlying mechanisms shaping local-scale distribution of ectomycorrhizal fungi by using network analysis*
- 4:15 CS 2-2 **WALDER, F.**, P.E. Courty, T. Boller, A. Wiemken and M. van der Heijden - *Mycorrhizal networks are shared by different plants under unequal terms of trade*
- 4:30 CS 2-3 **JOHNSON, D.**, Z. Babikova, J.A. Pickett, T. Bruce and L. Gilbert - *Mycorrhizal networks as conduits of inter-plant signals and drivers of multi-trophic interactions*
- 4:45 CS 2-4 **DESLIPPE, J.R.**, M. Hartmann, S.J. Grayston, W.W. Mohn and S.W. Simard - *Mycorrhizal networks of Cortinarius spp. and Betula nana facilitate warming-induced regime shift of Arctic tundra*
- 5:00 CS 2-5 **PEC, G.J.**, J. Karst, S.W. Simard and J.F. Cahill, Jr. - *Access to ectomycorrhizal fungal networks following a mountain pine beetle outbreak: effects on pine seedling growth and survival*

- 5:15 CS 2-6 **WEREMIJEWICZ, J.**, L. Sternberg and D.P. Janos - *Common mycorrhizal networks amplify competition through preferential ¹⁵N allocation to large host plants*
- 4:00 PM** **Concurrent Session 3 - High Country Conference Center, Rees/Doyle**
Bridging palaeomycology and genomics of mycorrhizal fungi
 Organizers: C. Strullu-Derrien, Natural History Museum, London UK and F. Martin, INRA, Nancy, France
- 4:00 CS 3-1 **KENRICK, P.**, C. Strullu-Derrien and R. Mitchell - *The early evolution of roots and soils*
- 4:15 CS 3-2 **STRULLU-DERRIEN, C.**, P. Kenrick, J.P. Riout and F. Martin - *Combining studies on fossils and genomics to understand mycorrhizal plant relationships*
- 4:30 CS 3-3 **TORRES-CORTÉS, G.**, S. Ghignone, P. Bonfante and A. Schüßler - *The genome of the wide-spread Mycoplasma-related endobacteria colonizing arbuscular mycorrhizal fungi reveals trans-kingdom horizontal gene transfer and extreme dependence on the fungal host*
- 4:45 CS 3-4 **LEAKE, J.R.**, J. Quirk, K.J. Field, J.G. Duckett, M.I. Bidartondo, R. Thorley, J.L. Morris, W.E. Stein, C.M. Berry and D.J. Beerling - *Evolution and functioning of mycorrhizas from liverworts to forests, pedogenesis to global impacts*
- 5:00 CS 3-5 **MURAT, C.**, A. Kohler, E. Morin, T. Payen, B. Henrissat, P. Wincker, A. Kuo, I.V. Grigoriev, D.S. Hibbett, Mycorrhizal Genome Initiative Consortium and F. Martin - *Comparative genomics of ectomycorrhizal basidiomycetes and ascomycetes provides new insights into the symbiosis evolution*
- 5:15 CS 3-6 **STÜRMER, S.L.** and J.B. Morton - *Phylogenetic perspective of biogeographic patterns in Glomeromycota*
- 6:00 PM** **Reception - North Union Patio**
- 7:30 PM** **Public Lecture by Professor Tom Bruns - Prochnow Auditorium**
Forest fire and fungi: losers, winners, and strategies in the post-fire environment

Tuesday, August 4

- 8:30 AM **Symposium 2**, sponsored by *New Phytologist* - **Prochnow Auditorium**
Linking mycorrhizal genomes, transcriptomes and proteomes to their function from individuals to ecosystems
Organizers: L. Lanfranco, University of Torino, Italy and A. Tunlid, Lund University, Sweden
- 8:30 KN 3 **FIRESTONE, M.K.** - *Integrating arbuscular mycorrhizas into the ecosystem ecology of soil micro organisms*
- 9:20 SY 2-1 **EZAWA, T.**, Y. Kikuchi, N. Hijikata, K. Yokoyama, R. Ohtomo, M. Kawaguchi, K. Saito and C. Masuta - *Towards a comprehensive understanding of the molecular mechanism of phosphate acquisition through the mycorrhizal pathway*
- 9:40 SY 2-2 **KOHLER A.**, C. Veneault-Fourrey, E. Morin, Y. Daguerre, S. Wittulsky, J. Ruytinx, C. Murat, J.M. Plett, E. Lindquist, K. Barry, A. Kuo, I.V. Grigoriev, F. Martin and the Mycorrhizal Genome Initiative Consortium - *The mycorrhizal genome initiative (MGI): exploring the transcriptomes of mycorrhizal fungi to understand the functioning of symbiosis*
- 10:00 **Coffee Break - North Union Ballroom**
- 10:30 SY 2-3 Belmondo, S. and **L. LANFRANCO** - *Pathogenic versus mycorrhizal fungi: functional genomics tools to investigate fungal responses to strigolactones*
- 10:50 SY 2-4 **RINEAU, F.**, F.H. Shah, P. Persson, J.V. Colpaert, J. Vangronsveld and A. Tunlid - *Linking genomes, transcriptomes, and spectroscopy provides insights into the litter decomposing mechanisms in ectomycorrhizal fungi*
- 11:10 SY 2-5 **SCHMITZ, A.M.** and Harrison, M.J. - *Plant-secreted LysM proteins may play a role in defense suppression for maintaining symbiosis in arbuscular mycorrhizas*
- 11:30 SY 2-6 Malbreil, M., N. Tang, F. Martin, J.M. Ane, P.M. Delaux and **C. ROUX** - *The biology of arbuscular mycorrhizal fungi in the light of genomics*
- 12:00 **Buffet lunch - High Country Conference Center**
New Phytologist Meet the Editor – High Country Conference Center, Agassiz/Fremont
- 1:00 PM **Poster session 2 - High Country Conference Center, Atrium**
PS 2a: Linking mycorrhizal genomes, transcriptomes and proteomes to their function from individuals to ecosystems
- PS 2-1 **BERNAOLA, L.** and M.J. Stout - *Can arbuscular mycorrhizal fungi contribute to herbivore resistance in rice?*
- PS 2-2 **CHAI, L.** and Y. Huang - *Excessive Cd induced protein adhered with cell wall of Laccaria bicolor*
- PS 2-3 **CHARRON, P.**, T. Marton and N. Corradi - *Evolution and diversity of sexually-related genes in a supposed asexual arbuscular mycorrhizal fungus*
- PS 2-4 **CONINX, L.**, J. Ruytinx, M.O. De Beeck, J. Vangronsveld and J. Colpaert - *Characterizing zinc tolerance genes in Suillus luteus, an ectomycorrhizal fungus with properties promising for use in phytostabilization applications*
- PS 2-5 **COPE, K.R.**, M. Venkateshwaran, J. Maeda, K. Garcia, M. Caiping, S.H. Strauss and J.M. Ané - *Poplar as a model for dissecting early mycorrhizal signaling in woody perennials*

- PS 2-6 Bent, E., M. Elfstrand, J. Söderberg, S. Norström, D. Bylund and **P. FRANSSON** - *Exudation of organic acids and transcriptome analyses of change in gene expression in Piloderma fallax in response to organic and inorganic nitrogen*
- PS 2-7 **JOURAND P.**, C. Majorel, H. Hannibal, M. Lebrun and M. Ducousso - *Ectomycorrhizal Pisolithus albus from ultramafic soils in New Caledonia: diversity, tolerance to nickel, and the role in plant host adaptation to harsh soil conditions*
- PS 2-8 **KRÜGER, M.**, M. Janouskova, K. Krak and H. Storchova - *Bioinformatic tools and differential gene expression of arbuscular mycorrhizal fungi within roots of Medicago*
- PS 2-9 **LOONEY, B.P.**, J. Labbé and P.B. Matheny - *Dense genome sampling of the ectomycorrhizal lineage Russulaceae (Russulales)*
- PS 2-10 **PEREIRA, M.F.**, T.C. Anastácio, M.D. Costa, F. Martin and A. Kohler - *The transcriptional landscape of the Pisolithus microcarpus basidiocarp*
- PS 2-11 Sugimura, Y., Y. Honma and **K. SAITO** - *Transcriptome changes in arbuscular mycorrhizal roots after phosphate application*
- PS 2-12 **SCHULTZ, C.J.**, Y. Wu, R.G. Creasey and U. Baumann - *Self-assembling proteins from arbuscular mycorrhizal fungi: are they unique to Rhizophagus irregularis?*
- PS 2-13 Varma, A. and **SRIVASTAVA, S.K.** - *Applications of Piriformospora indica in obviating saline soil conditions and promoting growth of some medicinal plants*
- PS 2-14 Bonito, G., K. Hameed, C. Schadt, J.L. Labbé, G. Tuskan, I. Grigoriev, F. Martin, H.L. Liao and **R. VILGALYS** - *The root microbiome: culturing, sequencing, and functional genomics of fungi from the Populus rhizosphere*
- PS 2-15 **WYSS, T.**, F.G. Masclaux, P. Rosikiewicz, M. Pagni and I.R. Sanders - *A population genomics approach reveals variable levels of heterokaryosis in the arbuscular mycorrhizal fungus Rhizophagus irregularis*

PS 2b: Strategies to preserve and restore mycorrhizas for sustainable forestry

- PS 2-16 **ÁLVAREZ-SÁNCHEZ, J.**, A. Serrano-Ysunza, I. Sánchez-Gallen and N. Chavarría - *Is the extraradical mycelium of arbuscular mycorrhizae related to biomass and osmotic potential changes in two species in a pasture derived from a tropical rain forest?*
- PS 2-17 **AUČINA, A.**, M. Rudawska, T. Leski, A. Skridaila, M. Pietras and D. Ryliškis - *Effect of forest litter amendment on survival and ECM community structure of Scots pine (Pinus sylvestris L.) seedlings outplanted on four different sites*
- PS 2-18 **BAUMAN, J.M.** and A. Santas - *The presence of chestnut blight (Cryphonectria parasitica) decreases ectomycorrhizal inoculum potential and seedling recruitment survival in restoration plantings*
- PS 2-19 **BIRHANE, E.**, K.M.G. Medhn, T. Tadesse and K.H. Gebriel - *Rehabilitation of degraded drylands through exclosures enhances the density and root colonization of arbuscular mycorrhizal fungi in the highlands of Tigray, Northern Ethiopia*
- PS 2-20 **CHAUBEY, O.P.**, Priyanka Bohre, Jamaluddin and G. Krishnamurthy - *Restore mycorrhiza for sustainable forestry*
- PS 2-21 **CRIPPS, C.L.** and E. Loneragan - *A strategy to preserve native ectomycorrhizal fungi specific for threatened whitebark pine*
- PS 2-22 **DAHLBERG, A.** and G.M. Mueller - *The Global Fungal Red List Initiative aims to get ECM fungi globally red-listed in 2015*

- PS 2-23 **FELDMAN, E.C.**, S. Berch, J.M. Kranabetter, V. Ward, D. Durall and M.D. Jones - *Distance effects of green-tree retention in conservation of ectomycorrhizal fungal diversity*
- PS 2-24 Dinis, D., N. Mesquita, J. Martins, J.M. Canhoto, M.T. Gonçalves and **S.C. GONÇALVES** - *Mycorrhizal fungal communities associated with Arbutus unedo and the potential for the formation of common mycelial networks with Pinus pinaster*
- PS 2-25 **HART, B.T.**, J.E. Smith and D.L. Luoma - *Fire in the future, lessons from the past: perspectives from forest fire reduction treatment impacts on ectomycorrhiza diversity*
- PS 2-26 **KJØLLER, R.**, C.C. Paredes, H. Wallander and K. Clemmensen - *Wood ash, liming, and pH effects on ectomycorrhizal fungal abundance, diversity, and community composition*
- PS 2-27 **LANTHIER, M.**, S. Peters and S. Harel - *Inoculation with mycorrhizal fungi on street planted trees: impact at time of planting and 10 years later*
- PS 2-28 **MAULANA, A.F.**, W. Cheng and K. Tawaraya - *Isolation of arbuscular mycorrhizal fungi from forest soils in Indonesia and its effect on the growth of Paraserianthes falcataria*
- PS 2-29 **OGAWA, W.**, N. Endo and A. Yamada - *Successful fruiting body formation of the edible ectomycorrhizal Cantharellus in pot culture with host trees*
- PS 2-30 **PENNANEN, T.**, S.M. Velmala and T. Rajala - *Atheliaceae fungi are potential keystone species building up the belowground growth of Norway spruce*
- PS 2-31 Sambandan, K. and **P. RAJA** - *Studies on the preparation of native AM biofertilizer for coastal bio-shield plantations in India*
- PS 2-32 **VIEIRA, C.A.**, T.G.R. Veloso, M.F. Bocayuva, D.M.S. Bazzolli and M.C.M. Kasuya - *Reintroduction of orchid: changing in the mycorrhizal fungi diversity*

PS 2c: Inter-kingdom relationships: mycorrhizal microbiome and food web interactions

- PS 2-33 **AGUILAR-AGUILAR, R.**, Y. Carreon Abud, E. del Val de Gortari and J. Larsen - *No response of maize mycorrhizas to herbivory by Spodoptera frugiperda*
- PS 2-34 **BENUCCI, G.M.N.**, C. Lefevre and G. Bonito - *Characterizing soils and fungal communities of Douglas-fir (Pseudotsuga menziesii) stands that naturally produce Oregon white truffles (Tuber oregonense and T. gibbosum)*
- PS 2-35 **BUKOVSKÁ, P.**, M. Gryndler, H. Gryndlerová, D. Püschel and J. Jansa - *Positive response of AM fungi to soil organic N correlates with abundance of ammonia oxidizers*
- PS 2-36 **COTTON, T.E.A.**, S.A. Rolfe, D.D. Cameron, G. Jander, M. Erb and J. Ton - *Interactions between arbuscular mycorrhizal fungi, benzoxazinoids, and rhizosphere bacteria*
- PS 2-37 **DAMES, J.F.** and A. Fulmaka - *Spekboom, AM fungi, and PGPR - is this a winning combination?*
- PS 2-38 **HUUSKO, K.**, A.L. Ruotsalainen, T. Andersson, H. Koivuniemi, K. Saravesi, M. Suokas, O. Suominen, P. Wäli and A. Markkola - *Host herbivory and fertilization impacts on soil and root fungal communities in a controlled field experiment*
- PS 2-39 Todeschini, V., N. Ait-Lahmidi, E. Mazzucco, F. Marsano, F. Gosetti, E. Robotti, E. Bona, N. Massa, L. Bonneau, **G. LINGUA**, E. Marengo, D. Wipf and G. Berta - *AMF and PGPR improve strawberry fruit quality and modulate element and volatile concentrations*
- PS 2-40 Adams, C., T. Cheeke, D. Haelewaters, S. Lee, **M. MALTZ**, K. Scharnagl, C. Smyth and J.K. Uehling - *The Mycological Society of America Student Section*
- PS 2-41 **MRAK, T.**, J. Gričar and H. Kraigher - *Identification of mycorrhizal partners in heterogeneous samples*
- PS 2-42 **ORRELL, P.**, A.E. Bennett, D. Evans and M. Nijnik - *Linking above and belowground interactions in agro-ecosystems: an ecological network approach*

- PS 2-43 **RASMUSSEN, P.U.**, T. Amin, A.E. Bennett, K.K. Green and A.J.M. Tack - *The influence of arbuscular mycorrhizal fungi and plant genetic variation on a natural plant-enemy interaction*
- PS 2-44 **RAVELO, A.V.**, S. Buback, G. Conant and J.C. Pires - *A metagenomics approach to characterizing the soil microbiome of two endangered orchids*
- PS 2-45 **STEVENS, B.M.**, S.L. Krznarich, A. Antoninka, M. Öpik and N.C. Johnson - *Environmental predictors of arbuscular mycorrhizal fungi and soil microbes associated with Serengeti grasses*
- PS 2-46 **TAKASHIMA, Y.**, K. Yamamoto, K. Seto, Y. Degawa and K. Narisawa - *Detection of Mollicutes-related endobacteria from putative saprotrophic Endogone spp. and Sphaeroceas pubescens*
- PS 2-47 **TIMONEN, S.** and J.M. Rinta-Kanto - *Abundance and community composition of archaea and bacteria in boreal forest pine mycorrhizospheres*
- PS 2-48 **ZITALPOPOCA, G.**, M.B. Nájera-Rincón, E. del Val de Gortari, A. Alarcón, T. Jackson and J. Larsen - *Multitrophic interactions between mycorrhizal and entomopathogenic fungi and root feeding insects in maize*

PS 2d: Novel mycorrhizas

- PS 2-49 **ENRIQUEZ, A.C.** and D.L. Taylor - *Montane orchids steal from their neighbors, but are they harmful?*
- PS 2-50 **GAVITO, M.E.** and S.M. Carrillo-Saucedo - *Arbuscular mycorrhizal fungi communities, functional diversity, and the resilience of ecosystem functions in a dynamic tropical dry forest ecosystem*
- PS 2-51 **JOHANSEN, R.B.**, P. Johnston, R. Vilgalys and B. Burns - *The biogeography of the arbuscular mycorrhizal fungi of the invasive dune grass, Ammophila arenaria*
- PS 2-52 **KÜHDORF, K.**, B. Münzenberger, D. Begerow, J. Gómez-Laurito and R.F. Hüttel - *Arbutoid mycorrhizas of the genus Cortinarius from Costa Rica*
- PS 2-53 **Kühndorf, K., B. MÜNZENBERGER**, D. Begerow, J. Gómez-Laurito and R.F. Hüttel - *Leotia cf. lubrica forms arbutoid mycorrhiza with Comarostaphylis arbutoides (Ericaceae)*
- PS 2-54 **OGURA-TSUJITA, Y.**, Y. Hirayama, A. Sakoda, A. Suzuki, A. Ebihara, N. Morita and R. Imaichi - *Observations of field-collected fern gametophyte mycorrhizae: arbuscular mycorrhizal colonization in terrestrial cordate gametophytes of pre-polypod leptosporangiate ferns, Cyatheaceae, Plagiogyriaceae, Gleicheniaceae, and Osmundaceae*
- PS 2-55 **SASHIDHAR, B.**, D.K. Joshi, K. Sunar, M. Ghroui and A. Adholeya - *Rhizophagus sp. nov. (accession CMCC/AM-1106) isolated from soils polluted with fly ash and heavy metals on the Deccan Plateau of the Indian subcontinent*
- PS 2-56 **SRIVASTAVA, S.**, D. Cahill and A. Adholeya - *Mycorrhiza as an elicitor for rosmarinic acid in a co-culture system with hairy roots of Ocimum basilicum*

2:00 PM Lightning Talks 2 - Prochnow Auditorium

- LT 2-1 **BECQUER, A.**, K. Garcia, L. Amenc, S. Ruset, Y. Baeza, S. Zimmermann and C. Plassard - *The Hebeloma cylindrosporum phosphate transporter HcPT2 was involved in phosphate efflux at the fungus-plant interface*
- LT 2-2 **TARKKA, M.T.**, F. Kurth, M. Bönn, F. Caravaca, L. Feldhahn, H. Maboreke, S. Mailänder, S. Herrmann, L. Ruess, S.D. Schrey and F. Buscot - *Protective effects of mycorrhiza helper bacterium against pathogens of pedunculate oak is mediated by induced defenses*
- LT 2-3 **LI, Z.**, S. Dearth, Q. Yao, J. Uehling, H. Castro-Gonzalez, S. Campagna, G. Hurst, J. Labbé and C. Pan - *Integrated proteomics/metabolomics reveals carbon source, nitrogen source, and potential pathogenicity of an endobacterium of an endophytic fungus associated with Populus*

- LT 2-4 **BOCAYUVA, M.F.**, C.A. Vieira, A.C.F Cruz, E.F. Freitas, T.G.R. Veloso and M.C.M. Kasuya - *Hadrolaelia jongheana*, *endangered orchid: symbiotic propagation study case*
- LT 2-5 **DÍAZ-ARIZA, L.A.**, A.L. García Prieto, W.H. Sandoval, J.C. Duque Yate and A.M. Pedroza-Rodríguez - *Plant growth promoting fungi-PGPF associate with the ectomycorrhizal fungi Rhizopogon luteolus and Pinus caribaea roots*
- LT 2-6 **KRANABETTER, J.M.** - *Diminished successional pathway or novel trajectory? Boreal ectomycorrhizal fungal communities 20 years after harvest-related disturbances of compaction and organic matter removal*
- LT 2-7 **OWEN, S.M.**, L.C. Cottingham, C.A. Gehring, C.H. Sieg and P.Z. Fulé - *Long-term effects of high-severity wildfires on ectomycorrhizal fungal communities*
- LT 2-8 **SMITH, M.E.**, Z.W. Ge, M. Reitman, R.H. Healy, T. Brenneman, G. Guevara and G.M. Bonito - *Elucidating biological complexity in pecan truffles (*Tuber lyonii*) and managed orchards of Pecan trees (*Carya illinoensis*) in the Southeastern USA*
- LT 2-9 Lentendu, G., J. Schmidt, E. Schulz, F. Buscot and **T. WUBET** - *Co-occurrence network patterns of Medicago sativa rhizosphere microbiomes under soil nutrient pressure: cooperation or competition among symbiotic fungi and bacteria?*
- LT 2-10 **CAMERON, D.D.**, R. Summers, E. Parker, H.B. Hughes, K.J. Field, S. Tille, M.M. Burrell, J. Ton, J.R. Leake and A.P. de Luque - *Mycorrhiza-induced pathogen resistance in wheat, more than the sum of its parts?*
- LT 2-11 **SUZUKI, M.**, H. Shimura, C. Masuta, K. Tawaraya and T. Ezawa - *Metagenomic analysis of viromes in intercontinental isolates of Rhizophagus clarus suggests a long history of coevolution between glomeromycotan fungi and double-stranded RNA viruses*
- LT 2-12 **SIKES, B.A.**, O.N. Lynch, B.L. Foster and K.A. Roccaforte - *Overlapping network structure between arbuscular mycorrhizal fungi, flowering plants, and their pollinators*
- LT 2-13 **WILLIAMS, S.E.** and B. Heidel - *Mycorrhizal characteristics of a rare endemic in a hyper-arid, cryic environment*
- LT 2-14 **RAY, P.**, Y. Guo, M. Chi and K.D. Craven - *A novel delivery system for the root symbiotic fungus, Sebacina vermifera, and consequent effects on growth of five different cultivars of wheat in two field locations*
- LT 2-15 **MANOHARACHARY, C.** - *Diversity and taxonomy of arbuscular mycorrhizal fungi and their role in forestry and crop production*

3:30 PM **Coffee Break - North Union Ballroom**

4:00 PM **Concurrent Session 4 - Prochnow Auditorium**

Strategies to preserve and restore mycorrhizas for sustainable forestry

Organizers: J. Álvarez-Sánchez, UNAM, Mexico and Håkan Wallander, Lund University, Sweden

- 4:00 CS 4-1 **ALARCÓN, A.**, R. Ferrera-Cerrato, A. Franco-Ramirez, A. Hernández-Ortega, M.E. Díaz-Martínez, L.V. Hernández-Cuevas, P.A. Quintanar-Isaias and F.T. Davies Jr. - *An overview about the study of arbuscular mycorrhizal fungi under petroleum hydrocarbon-contaminated systems in Mexico*
- 4:15 CS 4-2 **COWAN, A.D.**, J.E. Smith and S.A. Fitzgerald - *Recovering lost ground: soil burn intensity impacts on nutrients and ectomycorrhizal communities of ponderosa pine seedlings*
- 4:30 CS 4-3 **DAHLBERG, A.** - *Conservation of ectomycorrhizal fungi in boreal forests - the significance of retention forestry and the value of national red lists*
- 4:45 CS 4-4 **DUCOUSSO, M.**, C. Henry, A. Houlès, A. Razafimamonjy, P. Andrianaivomahefa, A. Leveau, L.

Hannibal, F. Carriconde, H. Ramanankierana, M. Lebrun, M.A. Selosse and P. Jourand - *Mycorrhizal plant facilitation: a promising key tool for nickel mine site ecological restoration in Madagascar and New Caledonia*

- 5:00 CS 4-5 **GROVE, S.**, N.P. Saarman, G.S. Gilbert, K.A. Haubensak and I.M. Parker - *Forest restoration following exotic plant invasion: the role of ectomycorrhizal fungi at forest edges*
- 5:15 CS 4-6 **SHOTA, N.**, G. Qi, A. Tadanori and S. Norihiro - *Toward production of salt-tolerant hybrid strains of the ectomycorrhizal fungus Rhizopogon roseolus (=R. rubescens)*

4:00 PM Concurrent Session 5 - High Country Conference Center, Agassiz/Fremont

Inter-kingdom relationships - mycorrhizal microbiome and foodweb interactions

Organizers: A. Bennett, The James Hutton Institute, Scotland and M. Hart, University of British Columbia, Canada

- 4:00 CS 5-1 **BENNETT, A.E.** - *Can we make general statements about the effects of AM fungi on plant-insect interactions?*
- 4:15 CS 5-2 **CLOUTIER, V.**, J.A. Fortin, J. Ponchart, J. Bérubé, A. Desrochers and Y. Piché - *Micromammal consumption of hypogeous fungi in eastern Canadian boreal forests*
- 4:30 CS 5-3 **DESIRÒ, A.**, P. Bonfante and G. Bonito - *The fungal microbiome: a peek at plant-associated fungi and their endobacteria*
- 4:45 CS 5-4 **DICKIE, I.A.**, J.R. Wood, H.V. Moeller, T. Fukami and D.A. Peltzer - *The co-invasion of ectomycorrhizal plants and fungi: complex interactions with fungi, animals, plants, and soil biota*
- 5:00 CS 5-5 **LAMIT, L.J.**, P.E. Busby, M.K. Lau, Z.G. Compson, T. Wojtowicz, A.R. Keith, M.S. Zinkgraf, J.A. Schweitzer, S.M. Shuster, T.G. Whitham and C.A. Gehring - *Tree genotype mediates covariance among disparate communities, from ectomycorrhizal fungi to lichens, arthropods and more*
- 5:15 CS 5-6 **VAN DER HEIJDEN, M.G.A.**, C. Wagg, K. Schlaeppi, K. Hartman, S. Pellkofer, F. Bender, R. Wittwer and E. Verbruggen - *Linking soil biodiversity, mycorrhizal fungal diversity, and ecosystem multi functionality*

4:00 PM Concurrent Session 6 - High Country Conference Center, Rees/Doyle

Novel mycorrhizas

Organizers: S. Bellgard, Landcare Research, New Zealand and S. Pressel, Natural History Museum, London UK; Moderator: S.E. Williams, University of Wyoming, USA

- 4:00 CS 6-1 **BRUNDRETT, M.** - *The global importance of mycorrhizas: scaling up from roots to continents*
- 4:15 CS 6-2 **TAYLOR, D.L.**, B. Sedillo, S.L. Fox and A. Enriquez - *Deconstructing mycoheterotrophic networks: narrowly specialized non-photosynthetic Corallorhiza orchids target abundant ectomycorrhizal fungi linked to diverse host trees*
- 4:30 CS 6-3 **FIELD, K.J.**, M.I. Bidartondo, W.R. Rimington, J.G. Duckett, D.D. Cameron, J.R. Leake and S. Pressel - *Comparative evolutionary physiology of Mucoromycotina and Glomeromycota symbionts in basal land plants*
- 4:45 CS 6-4 Padamseem, M., **R. JOHANSEN**, A. Stuckey, S.E. Williams, J.E. Hooker, B. Burns and S.E. Bellgard - *The arbuscular mycorrhizal fungi colonising root nodules of New Zealand kauri (Agathis australis)*
- 5:00 CS 6-5 **PRESSEL, S.** and J.G. Duckett - *The biology of fungal symbioses in lower land plants*

7:00 PM ICOM8 Banquet - High Country Conference Center Ballroom

Wednesday - Excursions ALL DAY

All field trips will meet outside of the front entrance of the High Country Conference Center at the times indicated below. A snack bag that contains a breakfast bar, fruit, nuts, and water will be provided.

Antelope Canyon & Grand Canyon Boat Trip - All Star Grand Canyon Tours

- **6:45 AM**

Meteor Crater & Hopi Second Mesa - All Star Grand Canyon Tours

- **7:45 AM**

Grand Canyon Below the Rim Hike - Discovery Treks

- **6:00 AM**

Mushroom Foray - Northern Arizona University

- **8:00 AM**

Grand Canyon Day Tour & Hike - All Star Grand Canyon Tours

- **8:30 AM**

Walnut Canyon, Sunset Crater & Museum of Northern Arizona - All Star Grand Canyon Tours

- **8:30 AM**

Grand Canyon Railway Trip

- **7:45 AM**

- 8:30 AM** **Symposium 3, Sponsored by New Phytologist - Prochnow Auditorium**
Mycorrhizal movement of matter and energy from crossing membranes to biogeochemical cycles
Organizers: R. M. Miller, Argonne National Laboratory, USA and F. A. Smith, University of Adelaide, Australia
- 8:30 KN 4 **P. BONFANTE** - *Arbuscular mycorrhizas: at the root of plant productivity*
- 9:20 SY 3-1 **KAISER, C.**, M.R. Kilburn, P.L. Clode, J.B. Cliff, Z.M. Solaiman, M. Koranda, L. Fuchslueger and D.V. Murphy - *Exploring the transfer of recent plant photosynthates to soil microbes via the mycorrhizal pathway*
- 9:40 SY 3-2 **CHAGNON, P.L.**, R.L. Bradley and J.N. Klironomos - *The structure of mycorrhizal interactions: the need for a mechanism-oriented approach to interpret community-level patterns*
- 10:00 AM** **Coffee Break - North Union Ballroom**
- 10:30 SY 3-3 **HASSELQUIST, N.J.**, D.B. Metcalfe, E. Inselsbacher, Z. Stangl, R. Oren, T. Näsholm and P. Högborg - *Greater carbon allocation to mycorrhizal fungi reduces tree nitrogen uptake in a boreal forest*
- 10:50 SY 3-4 **SMITH, J.M.**, M.D. Whiteside and M.D. Jones - *Unexpected effects of host nitrogen status on nitrogen distribution in a common mycorrhizal network*
- 11:10 SY 3-5 Zhang, L., F. Wang, F. Zhang and **G. FENG** - *AM fungal hyphae exudates can prime a bacterium mediated phytate mineralization in hyphosphere*
- 11:30 SY 3-6 **WATTS-WILLIAMS, S.J.**, I. Jakobsen, T.R. Cavagnaro and M. Grønlund - *Local and distal effects of arbuscular mycorrhizal colonisation on direct pathway Pi uptake and root growth in Medicago truncatula*
- 12:00 PM** **Buffet lunch - High Country Conference Center**
Mycorrhiza Journal Student Workshop - High Country Conference Center, Agassiz/Fremont
- 1:00 PM** **Poster Session 3 - High Country Conference Center Atrium**
- PS 3a: Mycorrhizal movement of matter and energy from crossing membranes to biogeochemical cycles***
- PS 3-1 **GARCIA, K.** and J.M. Ané - *Mycorrhizal-dependent potassium nutrition of Medicago truncatula*
- PS 3-2 Slavíková, R., M. Gryndler, D. Püschel, O. Beskid, M. Hujslová, H. Gryndlerová and **J. JANSÁ** - *Mycorrhizal costs and benefits in C3 and C4 grasses at different P availabilities*
- PS 3-3 **KAZANSKI, C.E.**, S.E. Hobbie and P.B. Reich - *Root and arbuscular mycorrhizal exudation under different global change scenarios*
- PS 3-4 **KUGA, Y.**, N. Sakamoto, K. Nagata, T.-D. Wu, H. Yurimoto and J.-L. Guerquin-Kern - *The plant cell wall, where sugar is transferred, filtrated, and absorbed by arbuscular mycorrhizal fungi*
- PS 3-5 **MADDISON, J.H.A.** and S. Simard - *Investigating defense-related information transfer between Douglas-fir trees via ectomycorrhizal networks*
- PS 3-6 **PAREDES, C.C.**, H. Wallander and R. Kjølner - *Wood ash effects on ectomycorrhizal fungal mycelial production and N retention capacity*
- PS 3-7 **PIERART, A.**, C. Dumat and N. Sejalón-Delmas - *How do mycorrhizal symbiosis and organic mat-*

ter influence metal(loid) (Cd, Pb, Sb) transfer from soil to edibles? Special focus on health threats of urban and periurban soils

- PS 3-8 **SATO, T.**, T. Ezawa, W. Cheng and K. Tawaraya - *Release of acid phosphatase from extraradical hyphae of the arbuscular mycorrhizal fungus Rhizophagus clarus under low P condition*
- PS 3-9 **THORLEY, R.M.S.**, D.J. Beerling, J.R. Leake and S.A. Banwart - *The role of forest trees and their mycorrhizal fungi in carbonate weathering and phosphorous biogeochemical cycling*
- PS 3-10 **WU, S.**, X. Zhang and B. Chen - *Uptake, translocation, and transformation of chromium by arbuscular mycorrhizal fungi*

PS 3b: Mycorrhizas and soil carbon sequestration

- PS 3-11 **BARNER, J.C.**, T.R. Horton and R.D. Yanai - *Belowground carbon allocation to ectomycorrhizal fungi associated with Fagus grandifolia in response to N, P, and Ca additions in northern hardwood forests*
- PS 3-12 **CORRALES, A.**, S.A. Mangan, B.L. Turner, K. Heineman and J.W. Dalling - *The Gadgil effect may explain monodominance in tropical montane forest*
- PS 3-13 **GEPPERT, U.**, B. Winkler and K. Pritsch - *Influence of drought and different nitrogen:phosphorus ratios on the distribution of recently assimilated carbohydrates from ¹³CO₂ to mycorrhizae of Populus maximowiczii x P. nigra*
- PS 3-14 **HU, J.**, J. Dai, A. Yang, X. Cui, J. Wang, A. Zhu and X. Lin - *The central role of arbuscular mycorrhizal fungi in enhancing soil aggregation and organic C sequestration under no-tillage and residue retention*
- PS 3-15 **HUPPERTS, S.**, J. Karst, K. Pritsch and S.M. Landhäusser - *Phenology-mediated enzyme secretion of aspen ectomycorrhizas in the boreal forest*
- PS 3-16 **KYIASHCHENKO, I.**, K.E. Clemmensen, E. Karlton and B.D. Lindahl - *The effect of soil fertility on fungal communities, enzyme activities, and soil carbon dynamics in unmanaged forests*
- PS 3-17 **OP DE BEECK, M.**, C.N. Cuevas, P. Persson and A. Tunlid - *Soil organic matter degradation by ectomycorrhizal fungi*
- PS 3-18 **SMITS, M.M.**, K. Clemmensen, B. Lindahl, D. Wardle, R. Carleer and J. Colpaert - *The role of mycorrhizal fungi in the buildup and breakdown of SOM*
- PS 3-19 **TANG, X.**, J. Liu, J. Zhang, L. Tong and S. Zhong - *Mycorrhizal resource and its potential contribution to soil carbon sequestration in subtropical forests, southern China*

P3c: Strategies to manage mycorrhizas for sustainable agriculture

- PS 3-20 **AGUILAR, D.T.**, L.L. Capistrán, J. Banuelos and D.S. Hernández - *Field response of Cucumis sativus to a combination of arbuscular mycorrhizal fungi, vermicompost, and different fertilization doses*
- PS 3-21 **APONTE-LÓPEZ, C.M.**, M.J. Cafaro and L. Wessel-Beaver - *Growth response of ají dulce (Capsicum chinense) to commercial Glomus intraradices*
- PS 3-22 **BAHER, N.** - *Protective effect of AM fungi on nitrogen fixation and proline molecule as a stress signaling in chickpea nodules under saline condition*
- PS 3-23 de Araujo Pereira, A.P., M.C. Santana, **J.A. BONFIM**, D.L.C. Mescolotti and E.J.B.N. Cardoso - *Digging deeper: occurrence of arbuscular mycorrhizal fungi at different soil depths in Eucalyptus grandis and Acacia mangium plantations*
- PS 3-24 **BOYER, L.R.**, N. Gulbis, K. Hajdu and X. Xu - *The use of AMF to improve soft fruit production in commercial substrate growing systems*

- PS 3-25 **CHAN, M.K.Y.** - *The effects of land use change in tropical peat on vesicular arbuscular mycorrhiza of sago palm (Metroxylon sagu Rottboll)*
- PS 3-26 **CHARTIER FITZGERALD, V.**, G. Hawley and J.F. Dames - *Evaluation of ectomycorrhizal associations of Pinus patula seedlings*
- PS 3-27 **CHAVE, M.** and V. Angeon, - *Innovative design to manage mycorrhizas in agroecological cropping systems*
- PS 3-28 **COBB, A.B.** and G.W.T. Wilson - *Mycorrhizas and alternative farm inputs: efficiency through soil ecology*
- PS 3-29 **DELGADILLO, C.A.**, I.C. Ceballos, A. Rodriguez and I.R. Sanders - *Intra-specific genetic variability in arbuscular mycorrhizal fungi had an effect on starch production in field but not on starch quality*
- PS 3-30 **DESALEGN, G.**, R. Turetschek, H.P. Kaul and S. Wienkoop - *Arbuscular mycorrhizal fungi inoculant types affect growth parameters of Pisum sativum*
- PS 3-31 Cuong, B.V. and **P. FRANKEN** - *Acclimatization of arbuscular mycorrhizal fungi to heavy metal stress*
- PS 3-32 Smith, M.M., E.G. Johnson, D.O. Chellemi and **J.H. GRAHAM** - *Effect of organic soil amendments and continuous tomato monoculture on arbuscular mycorrhizal fungal communities*
- PS 3-33 **GUERRA SIERRA, B.E.** - *Does arbuscular mycorrhizae improve aluminum tolerance in oil palm? An evaluation by confocal microscopy*
- PS 3-34 **JACH-SMITH, L.C.** and R.D. Jackson - *N fertilizer effects on arbuscular-mycorrhizae fungi abundance and function in a perennial grass cropping system*
- PS 3-35 **KASUYA, M.C.M.**, B.C. Moreira, P. Prates Júnior, T.C. Jordão, S.L. Sturmer and L.C.C. Salomão - *Mycorrhizal fungi improve resistance to Fusarium subglutinans f. sp. ananas in micropropagation-derived pineapple plantlets*
- PS 3-36 **KULKARNI, M.V.** and M.P. Dudhane - *Effect of Glomus fasciculatum on antioxidant enzyme responses in tomato plants infested with root-knot nematode*
- PS 3-37 **LANGENDORF, B.**, X. Xu, A. Hodge and P. Young - *Arbuscular mycorrhizal fungi pre-inoculation for improving the growth and health of strawberry (Fragaria x ananassa) planting materials*
- PS 3-38 **LOPEZ-CARMONA, D.A.**, E. Martínez-Romero, A. Alarcón, J.J. Peña-Cabriales and J. Larsen - *Importance of natural communities of arbuscular mycorrhizal fungi on maize growth in different mineral N and P fertilization scenarios*
- PS 3-39 Morales-Londoño, D.M., E. Meyer, D. González, A. González-Hernández, S. Stofel, R.D. Armas, C.R.F.S. Soares and **P.E. LOVATO** - *Colonization extent and mycorrhizal responsiveness in genetically modified (Bt) maize using near isogenic lines and a landrace line*
- PS 3-40 Liu, S., X. Guo, **B. MAIMAITILI**, X. He and G. Feng - *Indigenous arbuscular mycorrhizal fungi alleviate salt stress and promote growth of cotton and maize in saline fields*
- PS 3-41 **MAROZZI, G.**, B. Turchetti, D. Donnini, G.M.N. Benucci, G. Bonito and E. Albertini - *Why white truffles (Tuber magnatum) cannot be cultivated: isolation and characterization of micro-organisms that may play a role in truffle mycorrhization and fruitbody production*
- PS 3-42 **MARTÍN, F.F.** - *Nutritional, physiological and hormonal activity of Glomus iranicum tenuihypharum var nova a promising species of arbuscular mycorrhiza fungus for intensive agriculture*
- PS 3-43 **NASRABADI, S.E.**, C.N Guppy, O.G.G Knox, D Backhouse and R.E Haling, - *Comparison of mycorrhizal colonization of cotton (Gossypium hirsutum L.) in sodic and non-sodic soil*
- PS 3-44 **OLIVEIRA, R.S.**, I. Rocha, Y. Ma, A. Látr, M. Vosátka and H. Freitas - *Seed coating with inoculum of arbuscular mycorrhizal fungi as a sustainable approach for large-scale agriculture*
- PS 3-45 **PRATES JÚNIOR, P.**, B.C. Moreira, M.C.S. Silva, K. Kemmelmeier, R.B.A. Fernandes, S.L. Stümer,

M.C.M. Kasuya and E.S. Mendonça - *Community of arbuscular mycorrhizal fungi is affected by management system in coffee plantations*

- PS 3-46 **RAJ, H.** and S. Verma - *Conjoint application of arbuscular mycorrhizal fungi, Azotobacter chroococcum and Trichoderma viride, in solarised soil for the management of Fusarium wilt of carnation*
- PS 3-47 **SAHARAN, K.**, L. Schütz, A. Wiemken, T. Boller and M. Natarajan - *Intercropped pigeon pea and finger millet profit from each other via arbuscular mycorrhizal fungi (AMF) and plant growth promoting rhizobacteria (PGPR) under drought conditions by "bioirrigation"*
- PS 3-48 Suzuki, T., R. Tajima, S. Hara, T. Shimizu, T. Uno, T. Ito and **M. SAITO** - *Effect of arbuscular mycorrhizal fungal inoculation on the growth of Welsh onions in soil rich in available phosphate, and characterization of indigenous arbuscular mycorrhizal fungi isolated from the soil*
- PS 3-49 **SANCHEZ-LIZARRAGA, A.L.**, E.N. Marino-Marmolejo, D. Davila-Vazquez, L. Hernández-Cuevas and S.M. Contreras-Ramos - *Variation in the population of arbuscular mycorrhizal fungi in an agricultural soil irrigated with tequila vinasse*
- PS 3-50 **SINGH, R.**, S. Kumari, P. Dey, B. Sashidhar, S.K. Sundari and A. Adholeya - *Mycorrhizae and coupling beneficial organisms, complete package for sustainable agriculture*
- PS 3-51 **SITOLE, P.** and J.F. Dames - *Mycorrhizal fungi and associated bacterial interaction with Citrus*
- PS 3-52 **STÜRMER, S.L.** - *International Culture Collection of Glomeromycota (CICG): procedures and services*
- PS 3-53 **TAKTEK, S.**, H. Antoun, Y. Piché and J.A. Fortin - *PSB highly attached to Rhizophagus irregularis hyphae: in situ screening, in vitro function, and in vivo application*
- PS 3-54 **TILLE, S.**, D. Engelmoer, J. Ton, T. Kiers, G. Phoenix, J. Leake and D. Cameron - *The impact of mycorrhiza and plant growth promoting bacteria on phosphorus uptake of wheat (Triticum aestivum) from inorganic and organic phosphorus forms*
- PS 3-55 **TRÉPANIER, M.** and S. Gagné - *Large-scale use of commercial mycorrhizal inoculant in agriculture*
- PS 3-56 **WAHID, F.**, B. Jan, M. Sharif and F. Khan - *Inoculation effect of arbuscular mycorrhizal fungi and Azospirillum brasilense on yield and nutrient uptake of maize crop*
- PS 3-57 **KUMAR, S.** and R Sultana – *Examining the effect of an entomopathogenic fungus on the age of Acrididae species*

PS 3d: Mycorrhizas as mutualists - what do mycorrhizas teach us about cooperation and host specificity?

- PS 3-58 **ANTUNES, P.M.**, A.M. Koch, H. Maherali, J.N. Klironomos, O. Pietrangelo, J. Boudreau and L. Sanderson - *Inter- versus intraspecific variability in the arbuscular mycorrhizal (AM) symbiosis: can adaptation of AM fungi to their host contribute to reduce variability in plant growth response?*
- PS 3-59 **BOGAR, L.M.** and K.G. Peay - *What stabilizes the ectomycorrhizal mutualism? An experimental test of partner choice by Pinus muricata in association with Suillus brevipes*
- PS 3-60 **BÜCKING, H.**, J.A. Mensah, C.R. Fellbaum, E.T. Kiers and P.E. Pfeffer - *The composition of arbuscular mycorrhizal communities is determined by the nutrient demand of the host plant and the availability of nutrients for the fungal symbionts*
- PS 3-61 Salmeron-Santiago, I.A., J. Rivero-Bravo, M.J. Pozo-Jiménez and **A.T. CHÁVEZ-BÁRCENAS** - *Root mycorrhization and its influence on relative expression of sucrose metabolism genes in above-ground and belowground tissues*
- PS 3-62 **GALINDO-FLORES, G.L.**, J. Álvarez-Sánchez, J. Márquez Guzmán and A.L. Anaya Lang - *Ontogenetic and histochemical study of the ectomycorrhiza formed by Suillus brevipes with Pinus hartwegii*

- PS 3-63 **HARUMA, T.**, K. Yamaji and H. Masuya - *Root endophytes in Miscanthus sinensis promote the Al-tolerance mechanism via increasing Fe absorption and producing siderophores*
- PS 3-64 **HAYWARD, J.** and N.A. Hynson - *Phylogenetically driven partner choice in the ectomycorrhizal symbiosis*
- PS 3-65 **HOSHI, M.**, K. Yamaji and H. Masuya - *Effect of ^{137}Cs on the symbiosis between Clethra barvinervis and root endophytes*
- PS 3-66 **JANOŮŠKOVÁ, M.**, J. Jansa, D. Püschel, A. Voříšková, M. Krüger and M. Vosátka - *Composition of arbuscular mycorrhizal fungal communities as plant adaptation to environmental conditions?*
- PS 3-67 **JUÁREZ-BARRADAS, R.**, G.L. Galindo-Flores, A. Estrada-Torres, I. Sánchez-Gallen, C. Lara-Rodríguez, L. Hernández-Cuevas, A. Kong-Luz and R. Garibay-Origel - *Arbuscular and ectomycorrhiza colonization of Coccoloba uvifera L. in a coastal dune in the Ria Lagartos Biosphere Reserve, Yucatan, Mexico*
- PS 3-68 **LOFGREN, L.**, N.H. Nguyen and P.G. Kennedy, - *Breaking out of a specific host lineage: Suillus subaureus on angiosperm hosts in the Great Lakes region, USA*
- PS 3-69 **LONGWAY, L.**, J.E. Smith and D. Luoma - *Comparing ectomycorrhizal fungus communities of understory giant chinquapin (Chrysopsis chrysophylla) and overstory Pinaceae in a mixed conifer forest in central Oregon*
- PS 3-70 Ibáñez, I. and **S. MCCARTHY-NEUMANN** - *Effects of mycorrhizal fungi on tree seedling growth: quantifying the parasitism-mutualism transition along a light gradient*
- PS 3-71 **MEACHUM, M.K.** and J.D. Hoeksema - *Genetic and temporal variation in resource prices of a mycorrhizal market*
- PS 3-72 Morgan, B., **G.M. MUELLER** and L. Egerton-Warburton - *Host species drives arbuscular mycorrhizal fungal community structure in a Mexican tropical seasonally dry forest*
- PS 3-73 **RASMUSSEN, S.R.**, W.S.G. Füchtbauer, M.H. Asmussen, M. Novero, A. Genre, P. Bonfante, J. Stougaard and S. Radutoiu - *Studies on the role of the LysM receptor kinase family in plant root symbiosis with arbuscular mycorrhizal fungi*
- PS 3-74 **SHELDRAKE, M.**, - *The responses of mycoheterotrophic plants and their arbuscular mycorrhizal fungal symbionts to long-term fertilisation in a tropical forest*
- PS 3-75 **WILSON, G.W.T.**, R.M. Miller, Y. Wu and K. Haase - *Genotypic variation among switchgrass cultivars influence mycorrhizal responsiveness*

2:00 PM Lightning Talks 3- Prochnow Auditorium

- LT 3-1 **NGWENE, B.**, J. Mertens, T. Splettstößer, E. Gabriel and E. George - *Influence of mineral nitrogen sources (NO_3^- -N vs. NH_4^+ -N) on arbuscular mycorrhiza development and N transfer in a Rhizoglyphus irregularis symbiosis*
- LT 3-2 **PÜSCHEL, D.**, M. Janoušková, M. Hujšlová, R. Slavíková, H. Gryndlerová and J. Jansa - *Mycorrhizal benefits to Andropogon gerardii are greatly promoted by N fertilization*
- LT 3-3 **BALDRIAN, P.**, M. Charvátová, T. Poláček and M. Tomšovský - *Tree harvest induces dramatic changes in the functioning of forest soils and largely affects both ectomycorrhizal and saprotrophic fungi*
- LT 3-4 **THIRKELL, T.J.**, D.D. Cameron and A. Hodge - *Resolving the 'nitrogen paradox' of arbuscular mycorrhizas: fertilisation with organic matter brings benefits for plant nutrition and growth*
- LT 3-5 **CHEEKE, T.E.**, R.P. Phillips, A.L. Kuhn, A. Rosling, J.D. Bever and P. Fransson - *Mycelial production and standing fungal biomass are higher in temperate hardwood forests dominated by ectomycorrhizal trees than in forests dominated by arbuscular mycorrhizal trees*

- LT 3-6 Fan, J.W., Z.M. Solaiman, B.S. Mickan, Y.L. Du, F.M. Li and **L.K. ABBOTT** - *Response of arbuscular mycorrhizal fungi to defoliation of ryegrass (Lolium rigidum) as a function of soil depth*
- LT 3-7 **ALDRICH-WOLFE, L.**, R.J. Asheim, K.L. Black, E.D.L. Hartmann, P.G. Johnson, R.D. McGlynn, S.J. Redmond, L.C. Schmaltz and W.G. Shivega - *Effects of coffee farm management practices on arbuscular mycorrhizal fungal communities*
- LT 3-8 **CICCOLINI, V.**, M. Öpik, E. Bonari and E. Pellegrino - *Arbuscular mycorrhizal fungal diversity in Mediterranean drained peaty soils is affected by host plant and intensification of agricultural land-use*
- LT 3-9 **LI, M.** and A. Davis - *Impact of arbuscular mycorrhizal fungi on crop and weed growth: potential for conservation biocontrol of weeds*
- LT 3-10 **HIJRI, M.** - *Large-scale field application of mycorrhiza-based inoculants, a sustainable solution for global food security*
- LT 3-11 **REINHART, K.O.** - *Mycorrhiza effects on semiarid grassland community structure and species in the Northern Great Plains*
- LT 3-12 **CHAUDHARY, V.B.**, A. Antoninka, J. Bever, J. Cannon, A. Craig, J. Duchicella, A. Frame, C. Gehring, M. Ha, M. Hart, J. Hopkins, B. Ji, N.C. Johnson, W. Kaonongbua, J. Karst, R. Koide, J. Lamit, L. McCormack, J. Meadow, B. Milligan, J. Moore, T. Pendergast, B. Piculell, B. Ramsby, M. Rúa, S. Simard, S. Shrestha, J. Umbanhowar, W. Viechtbauer, L. Walters, G.W.T. Wilson, P. Zee and J. Hoeksema - *MycoDB: a global database for mycorrhizal meta-analyses*
- LT 3-13 **HOEKSEMA, J.D.**, J.D. Bever, S. Chakraborty, V.B. Chaudhary, E.A. Housworth, W. Kaonongbua, M.J. Lajeunesse, J.F. Meadow, B. Milligan, B.J. Piculell, M.A. Rúa, J. Umbanhowar, W. Viechtbauer and P.C. Zee - *A phylogenetic meta-analysis of biotic and abiotic factors affecting plant response to mycorrhizal fungi*
- LT 3-14 **RÚA, M.A.**, A. Antoninka, P.M. Antunes, V.B. Chaudhary, C. Gehring, L.J. Lamit, B.J. Piculell, J. Bever, C. Zabinski, J.F. Meadow, M.J. Lajeunesse, B.G. Milligan, M. Gardes, J. Karst and J.D. Hoeksema - *Home-field advantage. Does the geographic origin of plants, mycorrhizal fungi and soil determine plant responses to mycorrhizal symbioses?*
- LT 3-15 **WALLER, L.P.**, H. Maherali, Y. Lekberg, J.N. Klironomos, G.W.T. Wilson and J.L. Maron - *Getting to the root of species interactions: can we use plant functional traits to predict interactions with AM fungi?*

3:30 PM **Coffee Break - North Union Ballroom**

4:00 PM ***Concurrent Session 7 - High Country Conference Center, Agassiz/Fremont***
Mycorrhizas and soil carbon sequestration

Organizers: B. Lindahl, Swedish University of Agricultural Sciences, Uppsala, Sweden and M. Rillig, Freie Universität Berlin, Germany

- 4:00 CS 7-1 **FERNANDEZ, C.W.**, P.G. Kennedy and R.T. Koide - *Carbon quality and N concentration control the decomposition dynamics of ectomycorrhizal fungal necromass*
- 4:15 CS 7-2 **VERBRUGGEN, E.**, J. Jansa, E.C. Hammer and M.C. Rillig - *Arbuscular mycorrhizal fungi can stabilize root-litter carbon in soil*
- 4:30 CS 7-3 **FINZI, A.** - *Mycorrhizal fungi and coupled biogeochemical cycles at plot-to-global scales*
- 4:45 CS 7-4 **HAGENBO, A.**, A. Ekblad, J. Kyiashchenko, K. Clemmensen, B.D. Lindahl, R.D. Finlay and P. Fransson - *Production and turnover of extramatrical mycelium in a nemo-boreal Scots pine chronosequence*
- 5:00 CS 7-5 **HAMMER, E.C.**, M.C. Rillig and I. Jakobsen - *Mycorrhizas: pipeline or director of belowground C fluxes?*

5:15 CS 7-6 **LIU, Z.F.** and H. Wallander - *Mycorrhizal fungi as drivers for soil carbon and nitrogen accumulation on the volcanic island Surtsey, Iceland*

4:00 PM Concurrent Session 8 - Prochnow Auditorium

Strategies to manage mycorrhizas for sustainable agriculture

Organizers: H. Feng, Lanzhou University, China and C. Hamel, Agriculture and Agri-Food Canada, Canada

CS 8-1 **BENDER, S.F.** and M.G.A. van der Heijden - *Sustainable nutrient cycling through soil biota*

CS 8-2 **CAVAGNARO, T.R.**, S.J. Watts-Williams, T.M. Bowles and L.E. Jackson - *The role of arbuscular mycorrhizas in agriculture: insights from a mycorrhiza defective tomato mutant*

CS 8-3 **CHEN, B.D.**, D. Xiang, E. Verbruggen, Y.J. Hu, Y.L. Chen and M.C. Rillig - *Ecological drivers for the biodiversity of AM fungi in the farming-pastoral ecotone of northern China*

CS 8-4 **BAINARD, L.**, C. Hamel, B. Cade-Menun, P.L. Chagnon, K. LaForge and Y. Gan - *Dissecting the impact of land use on arbuscular mycorrhizal fungal communities in a semiarid prairie landscape*

CS 8-5 **ADHOLEYA, A.** - *Seed coating by AMF: understanding challenges and evaluating potential benefits in a few major crops*

CS 8-6 **PELLEGRINO, E.**, E. Bonari and L. Ercoli - *The key role of the inoculation by arbuscular mycorrhizal fungi on field crops in the Mediterranean basin*

4:00 PM Concurrent Session 9 - High Country Conference Center - Rees/Doyle

Mycorrhizas as mutualists - what do mycorrhizas teach us about cooperation and host specificity?

Organizers: J. Hoeksema, University of Mississippi USA, N. Nguyen and P. Kennedy, University of Minnesota, USA

4:00 CS 9-1 **Ji, B.** and J.D. Bever - *Plant preferential allocation and fungal reward decline with soil phosphorus: implications for evolution of the mycorrhizal mutualism*

4:15 CS 9-2 **FERNANDEZ, I.**, M.J. Pozo, S.C.M. van Wees, C.M.J. Pieterse and M.G.A. van der Heijden - *Arabidopsis-AM fungi, impossible relationship?*

4:30 CS 9-3 **LIAO, H.L.**, Y. Chen, T.D. Bruns, K.G. Peay, J.W. Taylor, S. Branco, J.M. Talbot, I. Grigoriev, K. Barry, D.W. Hoyt, C.D. Nicora, S.O. Purvine, K.H. Chen and R. Vilgalys - *Common and unique (host-specific) interactomes control ectomycorrhizal symbiosis between Pinus and Suillus*

4:45 CS 9-4 **ROY, M.**, H. Schimann, R. Braga-Neto, L. Fernandez, J. Hackel, S. Manzi, R.A.E. Da Silva, J. Duque, D. Frame, C. Decock and M.A. Neves - *Diversity, distribution, and specificity of ectomycorrhizal fungi in the Amazonian lowlands*

5:00 CS 9-5 **HYNISON, N.A.**, M.I. Bidartondo and D.J. Read - *Mycorrhizal specificity can lead to ecophysiological plasticity in plants living off fungi*

5:15 CS 9-6 **PLETT, J.M.**, A. Kohler, K.L. Plett, A. Livio, T. Tschaplinski, N. Engle, S. Piller, I.C. Anderson and F. Martin - *Picking partners: how transcriptomic, metabolomics, and proteomics work is shaping our understanding of ectomycorrhizal host specificity*

5:30 PM Wines of the World

Chuck-wagon dinner and dance at The Museum Club on Historic Route 66

Buses will leave from the High Country Conference Center beginning at 5:30 PM and travel to and from the conference center throughout the evening.

Friday, August 7

8:30 AM *Symposium 4 -Prochnow Auditorium*

Mycorrhizas and global change

Sponsored by BOTANY

Organizers: J. Karst, University of Alberta, Canada and C. Urcelay, Universidad Nacional de Córdoba, Argentina

8:30 KN 5 **TRESEDER, K.K.** - *Mycorrhizal fungi may mitigate ecosystem responses to global change*

9:20 SY 4-1 **ALLEN, E.B.** - *Impacts of nitrogen deposition and invasive species on arbuscular mycorrhizae and their functioning*

9:40 SY 4-2 **URCELAY, C.**, S. Longo, J. Geml, P. Tecco and E. Nouhra - *Does climate or suitable ectomycorrhizal symbionts constrain pine expansion along an altitudinal gradient?*

10:00 AM *Coffee Break - North Union Ballroom*

10:30 SY 4-3 **NUÑEZ, M.A.**, T.R. Horton, J. Hayward, R.D. Dimarco, M. Sorensen and D. Simberloff - *The role of ectomycorrhizal fungi in Pinaceae invasions: evidence from Isla Victoria, Argentina*

10:50 SY 4-4 **KARST, J.**, N. Erbilgin, G.J. Pec, P.W. Cigan, A. Narjar, S.W. Simard and J. Cahill, Jr. - *Ectomycorrhizal fungi mediate transgenerational cascades in beetle-killed pine forests*

11:10 SY 4-5 **KOOREM, K.**, O. Kostenko, B. Snoek, S. Geisen, K.S. Ramirez, R. Wilschut, M.M. Freixa and W.H. van der Putten - *Plants are expanding their range: does this affect their association with arbuscular mycorrhizal fungi?*

11:30 SY 4-6 Kim, Y.C., C. Gao, Y. Zheng and **L.D. GUO** - *Responses of AM fungal community to warming, nitrogen addition and increased precipitation in a semiarid steppe ecosystem*

12:00 PM *Buffet lunch - High Country Conference Center*

1:00 PM *Poster Session 4 - High County Conference Center Atrium*

PS 4a Mycorrhizas and global change

PS 4-1 **ADELEKE, R.A.** and C. Nwangburuka - *Impact of soil stockpiling on distribution and diversity of arbuscular mycorrhizal fungi*

PS 4-2 Hashem, A., **A.A. ALQARAWI**, E.F. Abd-Allah, D. Egamberdieva and M.S. Alwhibi - *Role of arbuscular mycorrhizal fungi in mitigating abiotic salt stress in white lupine (Lupinus termis Forsik) via the modulation of antioxidant defense systems*

PS 4-3 **ANDERSON, I.C.**, J.M. Plett, B. Drigo, K. Keniry, F. Martin and A. Kohler - *Impacts of climate change factors on eucalypt ectomycorrhizal fungi*

PS 4-4 **BELUS, M.T.**, B.A. Hungate, G.W. Koch and R.L. Mau - *A decade of increased temperature affects soil fungal communities*

PS 4-5 **BUNN, R.A.**, P.W. Ramsey and Y. Lekberg, - *Do native and invasive plants differ in their interactions with arbuscular mycorrhizal fungi? A meta-analysis*

PS 4-6 **CLEMMENSEN, K.E.**, R.D. Finlay and B.D. Lindahl - *How soil carbon stocks depend on shifting mycorrhizal fungal guilds across forest-to-heath ecotones*

PS 4-7 **DELAVAUX, C.** - *Nutrient enrichment effects on mycorrhizal fungi in southern Ecuador*

- PS 4-8 **DEVAN, M.R.** and D.L. Taylor - *Fire, fungi, and the changing boreal forest*
- PS 4-9 **ESTRADA-LUNA, A.A.**, V. Olalde-Portugal, H.C.M. Torres, J.M. Torres and E.R. Chávez - *Interaction between Washingtonia robusta and root endophytes modify overall plant physiology and metabolism to alleviate drought stress*
- PS 4-10 Zhang, Q. and **H. FENG** - *Influences of vegetation restoration on arbuscular mycorrhizal fungal in an alpine steppe*
- PS 4-11 **GLASSMAN, S.I.** and T.D. Bruns - *Ectomycorrhizal fungal spore bank recovery after a severe forest fire: some like it hot*
- PS 4-12 **HASSNA, F.M.**, D. Sidy, B.N.N. Yacine, D. Sally, M. Dominique, C.L. Lydie and P.D. Richard - *Native shrub management effects on soil arbuscular mycorrhizae: optimization and adaptation to simulated climate changes in Sahelian agroecosystems*
- PS 4-13 **HAYER, M.**, E. Schwartz, C. Gehring, L. Flores-Renteria, A. Krohn and P. Dijkstra - *Cheatgrass invasion alters the arbuscular mycorrhizal fungal community composition of sagebrush shrublands*
- PS 4-14 **HORTON, T.R.**, M.A. Nuñez, S. Ashiglar, T.E. Lewandowski, J. Hayward, D.P. Swaney and M.K.N. Sørensen - *Spore dispersal in ectomycorrhizal Basidiomycota with implications for the invasive success of suilloids fungi*
- PS 4-15 **KLABI, R.**, H.B. Terrence, C. Hamel, A. Iwaasa, M. Schellenberg, A. Raies and M. St-Arnaud - *Contribution of legumes to the production of sustainable forage and plant nitrogen and to increase soil AM fungal diversity in grassland communities*
- PS 4-16 **KROHN, A.L.** and C.A. Gehring, - *Host tree genetics influences rhizosphere total fungal and ectomycorrhizal fungal communities in pinyon pine*
- PS 4-17 **LIU, Y.**, N.C. Johnson, M. Lin, G. Shi, S. Jiang, X. Ma, G. Du, L. An and H. Feng - *Phylogenetic structure of arbuscular mycorrhizal community shift in response to increasing soil fertility*
- PS 4-18 **LUOMA, D.L.** and J.L. Eberhart - *Relationships between Swiss needle cast and ectomycorrhizal fungus diversity*
- PS 4-19 **MALTZ, M.R.** and K.K. Treseder - *Sources of inocula influence mycorrhizal colonization of plants in restoration projects: a meta-analysis*
- PS 4-20 **ODOH, N.**, K. Oluwasemire, A. Lopez-Montes, R. Abaidoo and R. Asiedu - *Bio-fortification with mycorrhizae: a treatment to extend yam cultivation to the low rainfall semi-arid zone of West Africa*
- PS 4-21 **PATTERSON, A.M.**, L. Flores-Renteria and C.A. Gehring, - *Plant genetic versus environmental determinants of ectomycorrhizal fungal community composition and growth in Colorado pinyon pine (Pinus edulis)*
- PS 4-22 **POWELL, J.R.**, Y. Zheng and I.C. Anderson - *Large compositional shifts in mycorrhizal fungal communities in a Eucalyptus saligna plantation due to fertilisation, irrigation, and stochastic community assembly*
- PS 4-23 Benhiba, L., A. Essahibi, F.M. Oussouf and **A. QADDOURY** - *Use of the arbuscular mycorrhizal symbiosis as biological tools to improve plant growth and tolerance to drought and poor soils: date palm as a model*
- PS 4-24 **REMKE, M.J.**, M. Bowker and N.C. Johnson - *The role of mycorrhizae and soil organism communities in restoring a native grass, Bouteloua gracilis, in the face of a dynamic climate and exotic species invasion*
- PS 4-25 **ROMERO-MUNAR, A.**, C. Cabot, E. Baraza, J. Cifre and J.C. Gulías - *Arbuscular mycorrhiza Rhizophagus irregularis and Funneliformis mosseae does not ameliorate Arundo donax plantlets response to short time salinization*
- PS 4-26 Adholeya, A., R. Singh, C. Manoharacharya and **T.P. SANKAR** - *Mycorrhiza Network at TERI New Delhi since 1988 to date: a journey of progress and achievements*

- PS 4-27 **SLAVÍKOVÁ, R.**, J. Jansa, D. Püschel, M.A. Ali, E. Frossard and H.A. Gamper - *Arbuscular mycorrhizal symbiotic functioning along an experimental soil gradient*
- PS 4-28 **SMITH, J.E.**, A.D. Cowan and A. Jumpponen - *Assessing temperature-related changes to soil fungal communities through next generation sequencing*
- PS 4-29 **TEDERSOO, L.** - *Does plant richness and host identity affect diversity of mycorrhizal fungi? Lessons from local- to global-scale studies*
- PS 4-30 **TIKVIĆ, I.**, D. Ugarković, Z. Zgrablić and N. Pernar - *The impact of waterlogged conditions on the development of pedunculate oak (Quercus robur L.) seedlings and ectomycorrhizae*
- PS 4-31 **TIRUVAIMOZHI, Y.V.**, V. Varma and M. Sankaran - *Does eutrophication affect the interactions of arbuscular mycorrhizae with tropical dry forest tree seedlings?*
- PS 4-32 **TOURTELLOT, S.G.**, P.E. Hulme and I.A. Dickie - *Can mycorrhizal interactions be linked to invasion success of introduced Eucalyptus species in New Zealand?*
- PS 4-33 **WAHL, A.-L.**, L. Tillet, G. Niedrist, G.J. Lair, U. Tappeiner and T. Spiegelberger - *Arbuscular mycorrhizal fungi in mountain grassland show altitude and host-plant dependent responses to future climate conditions*
- PS 4-34 **WALKER, J.K.M.**, I.C. Anderson and J.R. Powell - *Environmental drivers of ecto- and endomycorrhizal dynamics in Eucalyptus species*

PS 4b: Diversity and biogeography of mycorrhizal fungi

- PS 4-35 **BAE, Y.R.**, H.K. Han and A.H. Eom - *Identification of orchid mycorrhizal fungi in roots of the endangered orchid Cypripedium macranthum in Korea*
- PS 4-36 **GUO, Q.**, C. Hu, X. Wang and X. He - *Spatial distribution of AM fungi in the rhizospheres of Ammopiptanthus mongolicus associated plants in Inner Mongolia, northwest China*
- PS 4-37 Salinas-Escobar, L.A., A.M. González-Flores, A.M. Montiel-González, A. Estrada-Torres, J.A.R. Zapata, P. Guadarrama-Chavez, I. Sánchez-Gallen, F.J. Álvarez-Sánchez and **L.V. HERNÁNDEZ-CUEVAS** - *Habitat disturbance affects communities of arbuscular mycorrhizal fungi of coastal sand dunes and tropical dry forest at Ría Lagartos Biosphere Reserve, Mexico*
- PS 4-38 **ITOO, Z.A.**, M.A. Shah and Z.A. Reshi - *Diversity of arbuscular mycorrhizas associated with saffron in the Kashmir valley, India*
- PS 4-39 Korhonen, A., T. Repo and **T. LEHTO** - *Freezing tolerance of mycorrhizal and non-mycorrhizal Scots pine seedlings*
- PS 4-40 **MOLINIER, V.**, D. Wipf, C. Murat, R. Splivallo, S. Egli and M. Peter - *Treasures of the forest: towards understanding life history of Tuber aestivum*
- PS 4-41 **MUJICA, M.I.**, F. Pérez and M.A. Selosse - *What drives mycorrhizal community structure? Using orchids as a study model*
- PS 4-42 **PETERSON, K.A.** and D.M. Eissenstat - *Spatial distribution of arbuscular mycorrhizal fungi in apple root systems*
- PS 4-43 **PIETRAS, M.** - *Ectomycorrhizal fungus assemblages on Douglas fir and American white pine outside natural range*
- PS 4-44 **PURAHONG, W.**, F. Buscot and T. Wubet - *Hard to compete: mycorrhizal versus wood-decaying fungi in deadwood across highly diverse subtropical forest ecosystems*
- PS 4-45 Riccioni, C., **C. MURAT**, H. De La Varga, F. Todesco, A. Rubini, B. Belfiori, T. Payen, F. Le Tacon, C. Robin, F. Paolocci and F. Martin - *Comparative genomics and population genetics provide new insights on the life cycle of the black truffle of Périgord (Tuber melanosporum Vittad.)*

- PS 4-46 **SCHÖPS, R.**, T. Wubet, H. Bruelheide and F. Buscot - *Soil fungal diversity and community composition in the rhizosphere mycobiome of grassland ecosystems along land use gradients*
- PS 4-47 **SENE, S.**, A. Geoffroy, J. Lambourdière, M. Sauve, A.G. Diédhiou, S.N. Sylla, M.A. Selosse and A. Bâ - *Diversity and genetic structure of Scleroderma bermudense population associated with Coccothraux uvifera (L.) L. in these origin and introduction regions*
- PS 4-48 Colombo, R.P., **V.A. SILVANI**, M.V. Scorza, L.F. Bidondo, C.P. Rothen, M.E. Benavidez, A. Scotti, M. Périgola, S. Fracchia and A.M. Godeas - *Arbuscular mycorrhizal fungal diversity in high-altitude hypersaline Andean wetlands studied by 454 pyrosequencing metagenomic and morphological approaches*
- PS 4-49 **SUN, Q.**, X. He and L. Zhao - *Spatial distribution of dark septate endophytes in roots of Ammopiptanthus mongolicus and its associated plants*
- PS 4-50 **SUNAR, K.**, B. Sashidhar, M. Ghorui, P. Ahuja, A. Pandit, V. Ali, S. Saxena and A. Adholeya - *Multipronged approaches for characterization of arbuscular mycorrhizal fungal isolates from diverse ecological zones of India and their effect on growth and nutrient uptake in tomato plants*
- PS 4-51 **SUZ, L.M.**, S. Kallow, K. Reed, M.I. Bidartondo and N. Barsoum - *Mycorrhizal assemblages in pure versus mixed Scots pine plantations in England*
- PS 4-52 **TAUSCHKE, M.**, K. Pirhofer-Walzl, Z. Kayler, M. Glemnitz, M. Müller and A. Gessler - *Within-field variation and ecosystem function of arbuscular mycorrhiza in agricultural landscape laboratories (AgroScapeLabs)*
- PS 4-53 **Türkoğlu, A.**, M.A. Castellano, **J.M. TRAPPE** and M.Y. Güngör - *Turkey's diverse geography and climates foster a rich hypogeous mycota*
- PS 4-54 **WALLANDER, H.** and N. Rosenstock - *Succession of ectomycorrhizal fungi in mesh bags over a three year period in a fertilized and unfertilized Norway spruce forest*
- PS 4-55 **XIE, Z.**, Y. Li, F. Tian, X. Zhang and J. Zhang - *Genetic Populations Structure of the fungus Floccularia luteo-virens in Qinghai-Tibet Plateau region revealed by SSR markers*
- PS 4-56 **XU, W.**, J. Zhang, J. Yan, L. Zhao and X. He - *Species diversity and ecological distribution of arbuscular mycorrhizal fungi of Hedysarum leave in Saibei desert steppe*

PS 4c: Mycorrhizal management

- PS 4-57 **AHUJA, P.**, K. Sunar, B. Sashidhar, M. Ghorui and A. Adholeya - *Morphotaxonomic, fatty acid methyl esterase profiling and rDNA sequence based characterization of arbuscular mycorrhizal fungi obtained from arid and semi-arid regions of India*
- PS 4-58 **AKHTAR, O.**, H.K. Kehri and V. Khare - *Application of arbuscular mycorrhizal fungi for cultivation of aromatic plant Cymbopogon flexuosus in alkaline soils of Uttar Pradesh, India*
- PS 4-59 **AL-BARAKAH, F.N.** and M.A.U. Mridha – *Large-scale inoculum production of arbuscular mycorrhizal fungi with Sesbania bispinosa in calcareous soils in Saudi Arabia*
- PS 4-60 **ARRIAGADA, C.**, H. Herrera, R.Valadares and D. Contreras - *Mycoheterotrophy in Chilean endemic orchids. exploring their mycorrhizal status*
- PS 4-61 **BABALOLA, O.A.**, A.A. Olubode, M.O. Atayese, M.O. Dare and C.O. Adejuyigbe - *Assessment of community structure of arbuscular mycorrhizal fungi associated with rice varieties in five states of Nigeria*
- PS 4-62 **BAOHANTA, R.**, H. Randriambanona, M.D. Andrianandrasana, H.T. Andrianarimanana, E. Rajaonarimamy, A.T. Razakatiana, R. Duponnois and H. Ramanankierana - *Management of mycorrhizal fungal propagules by using pioneer plant species in disturbed sclerophyllous forest in Madagascar*

- PS 4-63 **BHANDARI, P.** and N. Garg - *Arbuscular mycorrhiza mediates silicon uptake and improves nutrient status, restores ionic balance as well as resultant yield in Cicer arietinum L. genotypes subjected to long term salinity*
- PS 4-64 **CARBALLAR-HERNÁNDEZ, S.,** L.V. Hernández-Cuevas, A. Alarcón, R. Ferrera-Cerrato, N.M. Montañño-Arias, J. Larsen and A.M. Montiel-González - *Community composition and structure of arbuscular mycorrhizal fungi in the rhizosphere of poblano pepper*
- PS 4-65 **CARVALHO, M.,** I. Brito, L. Alho and M.J. Goss - *Assessing the progress of colonisation by arbuscular mycorrhiza of four plant species under different temperature regimes*
- PS 4-66 **GHORUI, M.,** K. Sunar, B. Sashidhar and A. Adholeya - *A combined morphological, biochemical and molecular approach for diversity analysis of arbuscular mycorrhiza fungal obtained from sub Himalayan regions of Mukteshwar, India*
- PS 4-67 **GUO, J.,** X. Peng, G. Xin and W. Hu - *A potential strategy of mangrove associates to reduce the stress of tide flooding, mediated by arbuscular mycorrhizal fungus and dark septate endophytes*
- PS 4-68 **HUANG, H.,** S.C. Shao and J.Y. Gao - *A survey into the mycorrhizal fungal diversity of Dendrobium devonianum: an endangered Chinese endemic orchid in Xishuangbanna's tea plantations*
- PS 4-69 **HUMAIRA, S.,** B. Jan, M. Sharif, F. Wahid and F. Khan - *Wheat yield, phosphorus and nitrogen uptake as affected by inoculation of arbuscular mycorrhizal fungi and composts of different organic materials*
- PS 4-70 **KAUR, A.** - *Nitrogen acquisition by ectomycorrhiza*
- PS 4-71 **KELLER-PEARSON, M. and S.M. Schwab** - *Survey of ericoid mycorrhizae in the Pacific Northwest*
- PS 4-72 **LI, B.,** C. He, Y. Chen, B. Chen and X. He - *The colonization and species diversity of dark septate endophytes in roots of Ammopiptanthus mongolicus of desert ecosystem in Inner Mongolian China*
- PS 4-73 **NURBAITY, A.,** E.T. Sofyan and J.S. Hamdani - *Responses of potato (Solanum tuberosum) to Glomus sp. combined with Pseudomonas diminuta at different rates of NPK fertilizers*
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- PS 4-83 **WANG, F.,** M. Kertesz, R. Jiang, F. Zhang and G. Feng - *Compositions of bacterial community associated with extraradical mycelia of Funneliformis mosseae response to phosphorus forms in the leek hyphosphere*

PS 4-84 **ZHANG, J.** and X. Tang - *Stocks of glomalin-related soil protein and its potential influences on soil organic carbon sequestration in subtropical forests in China*

2:00 PM Lightning Talks 4 - Prochnow Auditorium

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LT 4-2 **DUELL, E.B.,** G.W.T. Wilson and K.R. Hickman - *Above- and belowground responses of native and invasive prairie grasses to elevated temperatures and drought*

LT 4-3 **GONÇALVES, S.C.,** N. Mesquita, L. Bittleston, N. Vargas, I.A. Dickie, J. Geml and A. Pringle - *Potential distribution and identity of introduced *Amanita muscaria* worldwide*

LT 4-4 **KOHOUT, P.,** K. Štajerová, M. Hejda, R. Sudová, Z. Sýkorová, L. Tedersoo and P. Pyšek - *I'll scratch your back and you scratch mine: plant introductions as drivers and passengers of global ecology and geography of mycorrhizal fungi*

LT 4-5 **CEBALLOS, I.C.,** A. Rodriguez and I.R. Sanders - *Mass-produced genetically modified *Rhizophagus irregularis* alter cassava production in field*

LT 4-6 **QIN, H.,** H.L. Wang and Q.F. Xu - *Long-term fertilizer application effects on the soil, root arbuscular mycorrhizal fungi, and community composition in rotation agriculture*

LT 4-7 **SHAO, S.C.,** H. Huang, J. Gao, L. Qiang and Y. Hu - *Using symbiotic seed germination to restore over-collected medicinal orchids: the practice of "restoration-friendly cultivation" in Southwest China*

LT 4-8 **ORTAS, I.,** I.A.M. Ahmed, F. Göl and G. Koskeroglu - *Effect of different mycorrhizae species with and without biochar application on plant growth*

LT 4-9 Nguyen, N.H., L. Williams, J.B. Vincent, J. Cavender-Bares, P.B. Reich and **P.G. KENNEDY** - *Guild-specific links between soil fungal diversity and plant phylogenetic diversity in a field-based tree experiment*

LT 4-10 **KRZNARICH, S.,** A. Antoninka, B.M. Stevens and N.C. Johnson - *Community patterns of arbuscular mycorrhizal fungal spores in the Serengeti*

LT 4-11 **HART, M.** - *Revisiting the Driver/Passenger Hypothesis along a successional gradient*

LT 4-12 **HENKEL, T.W.** and M.E. Smith - *Hosts, niches, and resources - drivers of ectomycorrhizal fungal diversity in tropical rainforests*

LT 4-13 **BITTERLICH, M.,** J. Gräfe and P. Franken - *Photosynthesis in mycorrhiza symbiosis: distinguishing between the impact of nutritional, hormonal, and stomatal responses on host photosynthesis*

LT 4-14 **SCHIEBOLD, J.M.I.,** M.I. Bidartondo, P. Karasch, B. Gravendeel and G. Gebauer - *Clades of mycorrhizal fungi differentiate isotope abundance patterns of partially mycoheterotrophic species in the orchid genus *Epipactis**

LT 4-15 **RINI, M.V.** and M. Faria - *Time of inoculation determines the success of arbuscular mycorrhizal fungal symbiosis in oil palm (*Elaeis guineensis* Jacq.) seedlings*

LT 4-16 **HAGE-AHMED, K.,** J. Kramer and S. Steinkellner - *Arbuscular mycorrhiza and *Fusarium oxysporum* f.sp. *lycopersici* interactions in intercropping systems*

3:30 PM Coffee Break - North Union Ballroom

4:00 PM IMS Business Meeting and Student Awards - Prochnow Auditorium

Thank you and safe travels!

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Pec, G.J.	CS 2-5, SY 4-4	Qin, M.	PS 1-13		
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ADDENDUM to the ICOM8 Program

I. ADDITIONS TO THE PROGRAM

A. Poster Session 1b: Role of mycorrhizal networks for individuals, communities and ecosystems; **Monday, August 3, 1:00-1:50 PM**

PS 1-71

Mycorrhizal status of northern highbush blueberry (*Vaccinium corymbosum* L.) on the Ljubljana Marshes nature reserve area

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Abstract: Northern highbush blueberry (*Vaccinium corymbosum* L.) plantations are rapidly spreading on the Ljubljana Marshes nature reserve area. Conditions are suitable for blueberry productivity, including acidic peat soil, high groundwater level and suitable climate. Despite the fact that this is a protected area there is no data on the diversity and seasonal dynamics of communities of ericoid mycorrhizal fungi in plantations of blueberries on the Ljubljana Marshes or the potential input of the non-indigenous fungi into this system with the newly imported seedlings. Furthermore, there is no data on how different agri-techniques, such as fungicide treatment, affect ericoid mycorrhizas on blueberry. We sampled blueberry roots of the newly imported seedlings, and in two plantations aged 18 and 30 years in October 2013, and in April and June 2014 to study the seasonal dynamics of ericoid mycorrhizal fungal communities in this area. Roots were inspected for mycorrhizal colonization and DNA was extracted from homogenized dried roots, followed by PCR using ITS1F and ITS4R primers and preparation of ITS rRNA clone libraries. We predict that increasing age of blueberry plantations results in an increase in species richness of ericoid mycorrhizal fungi. Our data have already shown that the new seedlings, imported from a producer in Italy, are not mycorrhizal and are therefore not a source of potentially new fungal taxa. This work will contribute to describing diversity of ericoid mycorrhizal fungi and the seasonal dynamics of their communities for the first time in the Ljubljana Marshes reserve area and also in Slovenia.

B. Poster Session 2b: Strategies to preserve and restore mycorrhizas for sustainable forestry; **Tuesday, August 4, 1:00-1:50 PM**

PS 2-32B

Does nursery management practice influence root associated fungal community? A case study of Scots pine (*Pinus sylvestris* L.) seedlings

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Abstract: Nursery managers have long recognized the importance of well-developed mycorrhizas for healthy seedling growth in the nursery and desired performance after outplanting. However, it is still unclear if intensive and long lasting nursery practices (fertilization, irrigation, and mechanical and chemical weed and pest control) influence the diversity of root-associated fungal communities. The objective, therefore, was to evaluate the composition of fungal communities inhabiting Scots pine seedling roots and surrounding bulk soil in bare-root forest nurseries in Poland that have been under cultivation for 20, 40, and 60 years. Naturally regenerated pine seedlings originating from clear-cuts of nearby forests were used as a reference. We used next-generation sequencing (454 pyrosequencing) to determine whether the composition of fungal communities (saprotrophic, pathogenic, mycorrhizal) differed among three forest bare-root nurseries. A special emphasis in our studies has been on ectomycorrhizal (ECM) fungi. In total,

917 operational taxonomic units (OTUs) of fungi have been obtained from root and soil samples. The number of OTUs from the nursery samples (580) were very similar to that obtained from clear-cuts (585). Among those, 46 and 52 ECM fungal OTUs were found exclusively from nursery or clear-cut samples, respectively, and 45 were common to both sample types. Unexpectedly, the number of overall fungal (293-320) and ECM OTUs (44-47) were very similar among nurseries of different ages. The most abundant OTUs detected in forest nurseries belonged to the *Russula-Lactarius*, *Amanita*, *Inocybe*, *Tomentella-Thelephora*, *Meliniomyces*, *Wilcoxina*, and *Terfezia-Peziza* lineages. *Suillus-Rhizopogon* OTUs were found exclusively in nurseries and *Elaphomyces* OTUs were found in clear-cuts. In conclusion, this study highlights, for the first time through 454 pyrosequencing, the richness and diversity of the fungal communities in forest nurseries and demonstrate that even long lasting silvicultural practices in the nursery do not lead to the impoverishment of the ECM community.

C. Poster Session 4a: Mycorrhizas and Global Change; Friday, August 7, 1:00-1:50 PM

PS 4-32B

Variation in arbuscular mycorrhizal fungal communities in alpine steppe along a precipitation gradient on the Tibetan Plateau

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Abstract: As the Earth's third pole, the Tibetan Plateau represents one of the largest and most unique habitats for various forms of organisms including arbuscular mycorrhizal fungi (AMF). By forming symbiotic relationships with most plants, AMF are potentially important for the establishment and stability of grassland communities on the Plateau. However, little is known about the community composition of AMF or how AMF respond to environmental factors in this harsh environment. This study tested if water availability influenced the spatial distribution of AMF communities at a regional scale as precipitation varies substantially along the alpine steppe on the Tibetan Plateau. Samples were taken from five sites along a 1000-km transect of alpine steppe in which precipitation increased from 100 mm to 400 mm eastwardly, and the altitude varied from 4400 to 4800 m a.s.l. Roots and rhizosphere soils were collected under three dominant species, *Stipa purpurea*, *Potentilla bifurca* and *Leontopodium nanum*. AMF richness and community composition were assessed by PCR amplification of 18S rRNA genes, cloning, sequencing and phylogenetic analyses. A total of 34 AMF phylotypes were identified from rhizosphere soils based on 2294 clones. They belonged to eight genera in six families, including *Glomus*, *Diversispora*, *Claroideoglomus*, *Paraglomus*, *Rhizophagus*, *Funneliformis*, *Archaeospora*, and *Ambispora*. The dominant genera were *Glomus* and *Diversispora*, representing approximately 34% and 33% of the total clones respectively. *Claroideoglomus* accounted for 22% of the clones. AMF community composition varied significantly among sites, and AMF diversity decreased with the reduction of precipitation. AMF phylotype richness was higher in rhizosphere soils than in roots for all three plant species, whereas AMF community composition did not vary among host plant species. Our preliminary results suggested that at a regional scale water availability could drive the changes of AMF communities in alpine steppe on the Tibetan Plateau.

II. CHANGES IN DAY OF PRESENTATION

A. **PS 2-32C** Cuong, B.V. and **P. FRANKEN** - *Acclimatization of arbuscular mycorrhizal fungi to heavy metal stress*, **Tuesday, August 4, 2015, 1:00-1:50** (Formerly PS 3-31, Thursday, August 6, 2015)

B. **PS 4-85 SRIVASTAVA, S.**, D. Cahill and A. Adholeya - *Mycorrhiza as an elicitor for rosmarinic acid in a co-culture system with hairy roots of Ocimum basilicum*, **Friday, August 7, 2015** (Formerly PS 2-56, Tuesday, August 4, 2015)

III. CANCELLED PRESENTATIONS

A. **Monday, August 3, 2015**

PS 1-49 LI, A.R., K.Y. Guan, X.L. Sui, X.Y. Huang, Y. Chen, R. Stonor, S.E. Smith and F.A. Smith - *AM fungi in roots of hemiparasitic Pedicularis: friends or foes?*

B. Tuesday, August 4, 2015

PS 2-20 CHAUBEY, O.P., Priyanka Bohre, Jamaluddin and G. Krishnamurthy - *Restore mycorrhiza for sustainable forestry*

C. Thursday, August 6, 2015

PS 3-22 BAHER, N. - *Protective effect of AM fungi on nitrogen fixation and proline molecule as a stress signaling in chickpea nodules under saline condition*

PS 3-34 JACH-SMITH, L.C. and R.D. Jackson - *N fertilizer effects on arbuscular-mycorrhizae fungi abundance and function in a perennial grass cropping system*

D. Friday, August 7, 2015

PS 4-81 SAMBODO, C., F.E. Astanti and Sukarsono - *Ectomycorrhizal garden as fruiting body provider*



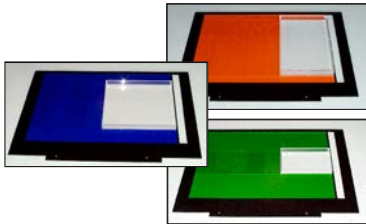
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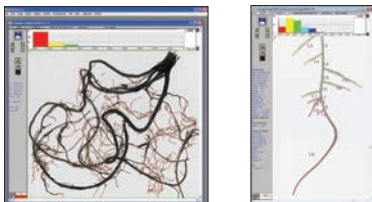
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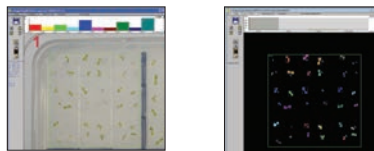


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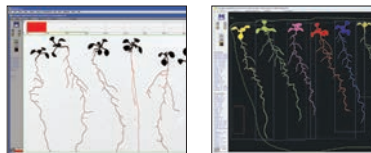
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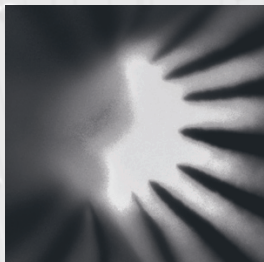
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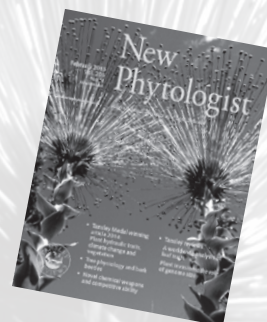


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Come to the High Country Conference Center's Agassiz Room from noon to 1 pm on Tuesday August 4th to meet the *New Phytologist* editors over the lunch break. We will be distributing copies of our recent Special Issue 'Ecology and evolution of mycorrhizas'!

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