



## **Special Session: Restoration Ecology in a Sustainable World**

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Human drivers of Earth System change have brought mankind to the precipice of the planet's sixth mass extinction. Because global patterns of little or no systemic change are often followed by precipitous responses in ES dynamics, mankind's very survival may be threatened. John Peterson Meyers posed the question, "how much of the earth's ecological integrity can we disrupt before we pass a threshold in the loss of life support services?" Humans have placed dramatic pressures on the planet's natural resources: nearly 50% of the land surface has been transformed by human action, half of all freshwater is appropriated for human use, more than 50% of the world's wetlands have been lost, approximately half of all marine food resources are fully exploited, and extinction rates are increasing sharply around the world. Additionally, the 21<sup>st</sup> century will be characterized by increasingly severe climate change and energy scarcity. The prospects for returning global ecosystem services to sustainable states form the basis for this special session. Invited papers will address ecosystem processes and natural capital through the lens of sustainability and resilience, climate change, energy scarcity, restoration and rehabilitation, system complexity and connectedness, biological invasions and creating the new systems knowledge required for a sustainability transition.

**Keywords:** sustainability, earth system dynamics and natural capital, restoration

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- 1) *Designing a future with humans in it*, **Robert Costanza**, Institute for Sustainable Solutions, Portland State University, Portland, OR 97201, USA [Robert.Costanza@pdx.edu](mailto:Robert.Costanza@pdx.edu), (503) 725-9940
- 2) *Resource use, economics, and global sustainability*, **James Hemphill Brown**, University of New

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- 3) *Sustainability and place: how mega trends of the 21st century will be expressed at a landscape level*, **John W. Day, Jr.**, Department of Oceanography and Coastal Sciences, Louisiana State University, Baton Rouge, LA 70803, USA, [johnday@lsu.edu](mailto:johnday@lsu.edu), (225) 578-6508
  - 4) *Biophysical economics: economics that matters for the 21st century*, **Charles A.S. Hall**, SUNY College of Environmental Science and Forestry, 354 Illick Hall, One Forestry Drive, Syracuse, NY 13210, USA, [chall@esf.edu](mailto:chall@esf.edu), (315) 470-6870
  - 5) *Increasing hunger and world agriculture*. **David Pimentel**, Professor Emeritus, Cornell University, Ithaca, New York 14853, USA [dp18@cornell.edu](mailto:dp18@cornell.edu), (607) 255-2212
  - 6) *The slippery slope of a paradigm shift: restoring ecosystems vs. restoring ecosystem services*, **Margaret A. Palmer**, Director, National Socio-Environmental Synthesis Center, University of Maryland, 1 Park Place, Annapolis, MD 21401, USA [palmer@umces.edu](mailto:palmer@umces.edu), (410) 326-7241
  - 7) *Testing our ability to restore biodiversity and ecosystem functioning in wetlands - plans vs. outcomes*, **Joy B. Zedler**, Aldo Leopold Chair in Restoration Ecology, Department of Botany, University of Wisconsin, 302 Birge Hall, 430 Lincoln Drive, Madison, WI 53706, USA, [jbzedler@wisc.edu](mailto:jbzedler@wisc.edu), 608-262-8629
  - 8) *When will ecologists learn engineering and engineers learn ecology? Nature waits*, **William J. Mitsch**, Ohio State University, Olentangy River Wetland Research Park, 352 Dodridge Street, Columbus OH 43202, USA [mitsch1@osu.edu](mailto:mitsch1@osu.edu), (614) 292-9774
  - 9) *Restoration pays: evidence from the field*, **James Aronson**, CEFE/CNRS, 1919 Route de Mende, 34293 Montpellier, France, [james.aronson@cefe.cnrs.fr](mailto:james.aronson@cefe.cnrs.fr), + 33 (0) 467613284
  - 10) *Defining ecological restoration for a rapidly changing world*, **Eric Higgs**, School of Environmental Studies, University of Victoria, Social Sciences & Math Building B243, 3800 Finnerty Road, Victoria, BC V8P 5C2, Canada, [ehiggs@uvic.ca](mailto:ehiggs@uvic.ca), (250) 721-8228
  - 11) *Battling biological invasions as globalization skyrockets? Do origins matter, and what is feasible?* **Dan Simberloff**, Department of Ecology and Evolutionary Biology, University of Tennessee, Knoxville, TN 37996, USA [dsimberloff@utk.edu](mailto:dsimberloff@utk.edu), (865) 974-0849
  - 12) *Reversing two centuries of wetland degradation: can science better inform policy & practice?*, **Michael P. Weinstein**, PSEG Institute for Sustainability Studies, Montclair State University, Montclair, NJ, USA, [weinsteinmi@mail.montclair.edu](mailto:weinsteinmi@mail.montclair.edu), (973) 655-3037
  - 13) *Restoring coastal ecosystems in the 21<sup>st</sup> century and beyond: the case of deltas*, **Carles Ibanez**, IRTA, Aquatic Ecosystems Program, 43540 St. Carles de la Ràpita, Catalonia, Spain, [carles.ibanez@irta.cat](mailto:carles.ibanez@irta.cat), (+34) 977745427.
  - 14) *What is necessary to achieve sustainable management of the Mississippi delta*. **G. Paul Kemp**, National Audubon Society, 6160 Perkins Road, Baton Rouge, LA 70803, USA, [pkemp@audubon.org](mailto:pkemp@audubon.org), (225) 772-1426
  - 15) *Sustainable management of tropical coastal ecosystems*. **Alejandro Yáñez Arancibia**, Km 2.5 Carretera Antigua Coatepec No. 351, Institute of Ecology, Xalapa 91070 Mexico, [Alejandro.Yanez@inecol.edu.mx](mailto:Alejandro.Yanez@inecol.edu.mx), 52 (228) 818-3611
  - 16) *The irrelevance of contemporary academic ecology to solving 21st century environmental problems*, **Charles A.S. Hall**, SUNY College of Environmental Science and Forestry, 354 Illick Hall, One Forestry Drive, Syracuse, NY 13210, USA, [chall@esf.edu](mailto:chall@esf.edu), (315) 470-6870 and **John W. Day, Jr.**, Department of Oceanography and Coastal Sciences, Louisiana State University, Baton Rouge, LA 70803, USA, [johnday@lsu.edu](mailto:johnday@lsu.edu), (225) 578-6508