

JENNIFER A. DUNNE

Santa Fe Institute • 1399 Hyde Park Road • Santa Fe NM 87501 • (505) 946-2766
jdunne@santafe.edu • www.santafe.edu/profiles/?pid=67 • www.foodwebs.org

EDUCATION

- **Ph.D.** 2000. University of California, Berkeley. Energy and Resources Group.
- **M.A.** 1994. San Francisco State University. Department of Biology.
- **A.B.** 1989. Harvard University. Department of Philosophy.

CURRENT POSITIONS

- **Research Professor.** Santa Fe Institute (SFI). Santa Fe, NM. 2009-present.
- **Faculty Member.** SFI Complex Systems Summer School. Santa Fe, NM. 2006-present.
- **Co-Director.** Pacific Ecoinformatics & Computational Ecology Lab. Berkeley, CA. 2004-present.

EDITORIAL POSITIONS

- **Editor.** *Ecology Letters*. 2009-present.
- **Series Editor.** *Oxford Series in Ecology and Evolution*. Oxford University Press. 2009-present.
- **Subject Editor.** *Oikos*. 2007-present.

PRIOR POSITIONS

- **Research Fellow.** Santa Fe Institute. Santa Fe, NM. 2007-2009.
- **Research Associate.** Rocky Mountain Biological Lab. Gothic, CO. 2003-2008.
- **Visiting Professor.** Santa Fe Institute. Santa Fe, NM. 2003-2007.
- **Postdoctoral Fellow.** Santa Fe Institute. Santa Fe, NM. 2001-2003.
- **Postdoctoral Fellow.** Romberg Tiburon Center for Environmental Studies, San Francisco State University. Tiburon, CA. 2000-2002.
- **Principal Investigator.** Rocky Mountain Biological Lab. Gothic, CO. 1996-2000.

HONORS

- **Research Fellowship.** Santa Fe Institute. 2007-2009.
- **Postdoctoral Fellowship.** Santa Fe Institute. 2001-2003.
- **Postdoctoral Fellowship in Biological Informatics.** National Science Foundation. 2000-2002.
- **Hollaender Distinguished Postdoctoral Fellowship.** Department of Energy. 2000, declined.
- **Berkeley Fellowship for Graduate Studies.** University of California. 1994-1996, 1999-2000.
- **Dissertation Writing Fellowship.** Soroptimist Founder Region. 1999.
- **Science to Achieve Results Grad. Fellowship.** Environmental Protection Agency. 1996-1999.

GRANTS

- 2009 Principal Investigator.** *Semantic Web Informatics for Species in Space and Time.* NSF DBI-0850373. \$1,499,426 (3 yrs).
- 2009 Principal Investigator.** *Humans as Explicit Players in Ecosystems: Using Bioenergetic Food-Web Dynamics and Agent-Based Modeling Approaches to Explore Persistence and Stability in Complex Ecological Networks.* A National Academies/Keck Futures Initiative Grant for Research on Complex Systems. \$25,000 (1 yr.)
- 2008 Principal Investigator.** *Ecological Network Research.* Funding provided by a grant to the Santa Fe Institute (PI: G. West) from the Oprah Winfrey Foundation in support of SFI's research and education mission. Salary grant \$34,625 (1 yr).
- 2008 Principal Investigator.** *Archipelago Art and Science Project.* Funding provided by a grant to the Santa Fe Institute (PI: G. West) from the Oprah Winfrey Foundation in support of SFI's research and education mission. Equipment grant \$15,375 (1 yr).
- 2006 Science Advisor.** *Archipelago: Digitally Modeled Ecosystems Inhabited by Artificially Intelligent Organisms.* New Visions/New Mexico Contract Awards. PI: D. Stout. \$15,000 (1 yr).
- 2006 Senior Scientist.** *Financial Markets as an Empirical Laboratory to Study an Evolving Ecology of Human Decision Making.* NSF HSD-0624351. PI: J.D. Farmer. \$749,661 (3 yrs).
- 2005 Senior Scientist.** *Complex Ecosystem Interactions over Multiple Spatial & Temporal Scales: The Biocomplexity of Sanak Island.* NSF Biocomplexity ARC-0508101. PI: H. Maschner. \$1,150,000 (3 yrs). Subcontract PI: J.A. Dunne. \$110,000 (3 yrs).
- 2003 Senior Scientist.** *Science on the Semantic Web: Prototypes in Bioinformatics.* NSF ITR-0326460. PI: T. Finin. \$2,350,001 (5 yrs). Subcontract PI: N.D. Martinez. \$439,001 (5 yrs).
- 2003 Principal Investigator.** *Paleofoodweb Construction and the Evolution of Ecosystem Structure, II.* SFI working group meeting funded by SFI's research programs on "Robustness" and "Network Dynamics" through funding from the Packard Foundation and Intel Research. \$8,000 (1 yr.).
- 2002 Co-Principal Investigator.** *Webs on the Web: Internet Database, Analysis, and Visualization of Ecological Networks.* NSF DBI-0234980. PI: N.D. Martinez. \$1,443,830 (4 yrs).
- 2002 Principal Investigator.** *Paleofoodweb Construction and the Evolution of Ecosystem Structure, I.* SFI working group meeting funded by the Thaw Trust for "Work on Innovations." \$10,000 (1 yr.).
- 2002 Principal Investigator.** *Webs on the Web: Internet Database, Analysis, and Visualization of Ecological Networks.* SFI working group meeting funded by SFI research programs on "Robustness" and "Network Dynamics" through funding from the Packard Foundation and Intel Research. \$11,000 (1 yr.).
- 2000 Principal Investigator.** *Effects of Biodiversity Loss on Complex Communities: A Web-Based Combinatorial Approach.* NSF Postdoctoral Fellowship DEB/DBI-0074521. \$100,000 (2 yrs).
- 1996 Principal Investigator.** *An Integrated Field Investigation of Interactions between Climate Change and Ecosystem Dynamics.* EPA STAR Graduate Fellowship U915000. \$78,670 (3 yrs).
- 1996 Principal Researcher.** *Vegetation Feedbacks to Climate Change: Extending Results from an Ecosystem Warming Experiment to the Landscape Level.* NSF Dissertation Improvement Grant DEB-9623258. Sponsoring PI: J. Harte. \$6,000 (1 yr).

PUBLICATIONS—ARTICLES, BOOKS, CHAPTERS

- 35) Hegland, S.J., **J.A. Dunne**, J. Memmott. In review. Sampling ecological structure and function: cost-efficiency in a management context. *Conservation Biology*.
- 34) Belgrano, A., **J.A. Dunne**, J. Bascompte. In press. Food webs. In Encyclopedia of Ocean Sciences 2nd Edition, eds. J.H. Steele, K. Turekian, S. Thorpe. Academic Press, San Diego.
- 33) Brose, U., **J.A. Dunne**. 2009. Modeling the dynamics of complex food webs. Pages 37-44 in Community Ecology: Processes, Models, and Applications, eds. H. Verhoef, P. Morin. Oxford University Press, Oxford.
- 32) Maschner, H.D.G., M.W. Betts, J. Cornell, **J.A. Dunne**, B. Finney, N. Huntly, J.W. Jordan, N. Misarti, K.L. Reedy-Maschner, R. Russell, A. Tews, S. Wood, B. Benson. 2009. An introduction to the biocomplexity of Sanak Island, Western Gulf of Alaska. *Pacific Science* 63:673-709.
- 31) **Dunne, J.A.** 2009. Food webs. Pages 3661-3682 in the “Complex Networks and Graph Theory” section of Encyclopedia of Complexity and Systems Science, ed. R.A. Meyers. Springer, New York.
- 30) **Dunne, J.A.**, R.J. Williams. 2009. Cascading extinctions and community collapse in model food webs. *Philosophical Transactions of the Royal Society B* 364:1711-1723.
- 29) Vermaat, J.E., **J.A. Dunne**, A. Gilbert. 2009. Major dimensions in food-web structure properties. *Ecology* 90:278-282.
- 28) Berlow, E.L., **J.A. Dunne**, N.D. Martinez, P.B. Stark, R.J. Williams, U. Brose. 2009. Simple prediction of interaction strengths in complex food webs. *Proceedings of the National Academy of Sciences USA* 106:187-191.
- 27) **Dunne, J.A.**, R.J. Williams, N.D. Martinez, R.A. Woods, D.E. Erwin. 2008. Compilation and network analyses of Cambrian food webs. *PLoS Biology* 6:693-708.
- 26) Lafferty, K.D., S. Allesina, M. Arim, C.J. Briggs, G. DeLeo, A. Dobson, **J.A. Dunne**, P.T.J. Johnson, A.M. Kuris, D.J. Marcogliese, N.D. Martinez, J. Memmott, P.A. Marquet, J.P. McLaughlin, E.A. Mordecai, M. Pascual, R. Poulin, D.W. Thieltges. 2008. Parasites in food webs: the ultimate missing links. *Ecology Letters* 11:533-546.
- 25) Srinivasan, U., **J.A. Dunne**, J. Harte, N.D. Martinez. 2007. Response of complex food webs to realistic extinction sequences. *Ecology* 88:671-682.
- 24) Pascual, M., **J.A. Dunne**, eds. 2006. Ecological Networks: Linking Structure to Dynamics in Food Webs. Santa Fe Institute Studies on the Sciences of Complexity. Oxford University Press, New York.
- 23) Pascual, M., **J.A. Dunne**. 2006. From small to large ecological networks in a dynamic world. Pages 3-24 in Ecological Networks: Linking Structure to Dynamics in Food Webs, eds. M. Pascual, J.A. Dunne. Oxford University Press, New York.
- 22) **Dunne, J.A.** 2006. The network structure of food webs. Pages 27-86 in Ecological Networks: Linking Structure to Dynamics in Food Webs, eds. M. Pascual, J.A. Dunne. Oxford University Press, New York.
- 21) Martinez, N.D., R.J. Williams, **J.A. Dunne**. 2006. Diversity, complexity, and persistence in large model ecosystems. Pages 163-185 in Ecological Networks: Linking Structure to Dynamics in Food Webs, eds. M. Pascual, J.A. Dunne. Oxford University Press, New York.
- 20) Memmott, J., D. Alonso, E.L. Berlow, A. Dobson, **J.A. Dunne**, R. Solé, J. Wietz. 2006. Biodiversity loss and ecological network structure. Pages 325-347 in Ecological Networks: Linking Structure to Dynamics in Food Webs, eds. M. Pascual, J.A. Dunne. Oxford University Press, New York.

- 19) Pascual, M, **J.A. Dunne**, S.A. Levin. 2006. Challenges for the future: integrating ecological structure and dynamics. Pages 351-371 in Ecological Networks: Linking Structure to Dynamics in Food Webs, eds. M. Pascual, J.A. Dunne. Oxford University Press, New York.
- 18) Green, J.L., A. Hastings, P. Arzberger, F. Ayala, K.L. Cottingham, K. Cuddington, F. Davis, **J.A. Dunne**, M.-J. Fortin, L. Gerber, M. Neubert. 2005. Complexity in ecology and conservation: mathematical, statistical, and computational challenges. *Bioscience* 55:501-510.
- 17) Belgrano, A., U. Scharler, **J.A. Dunne**, R.E. Ulanowicz, eds. 2005. Aquatic Food Webs: An Ecosystem Approach. Oxford University Press, Oxford.
- 16) **Dunne, J.A.**, U. Brose, R.J. Williams, N.D. Martinez. 2005. Modeling food-web dynamics: complexity-stability implications. Pages 117-129 in Aquatic Food Webs: An Ecosystem Approach, eds. A. Belgrano, U. Scharler, J.A. Dunne, R.E. Ulanowicz. Oxford University Press, Oxford.
- 15) Dell A.I., G.D. Kokkoris, C. Banasek-Richter, L.-F. Bersier, **J.A. Dunne**, M. Kondoh, T.N. Romanuk, N.D. Martinez. 2005. How do complex food webs persist in nature? Pages 425-436 in Dynamic Food Webs: Multispecies Assemblages, Ecosystem Development and Environmental Change, eds. P.C. de Ruiter, V. Wolters, J.C. Moore. Academic Press, San Diego.
- 14) Yoon, I., S. Yoon, R.J. Williams, N.D. Martinez, **J.A. Dunne**. 2005. Interactive 3D visualization of highly connected ecological networks on the WWW. *Proceedings of the 20th Annual ACM Symposium on Applied Computing (SAC 2005), Multimedia and Visualization Section* 1207-1217.
- 13) **Dunne, J.A.**, S.R. Saleska, M.L. Fischer, J. Harte. 2004. Integrating experimental and gradient methods in ecological climate change research. *Ecology* 85:904-916.
- 12) Starzomski, B.M., B.J. Cardinale, **J.A. Dunne**, M.J. Hillery, C.A. Holt, M.A. Krawchuk, M. Lage, S. McMahon, M.C. Melnychuk. 2004. Contemporary visions of progress in ecology and thoughts for the future. *Ecology & Society* 9, Article 14.
- 11) **Dunne, J.A.**, R.J. Williams, N.D. Martinez. 2004. Network structure and robustness of marine food webs. *Marine Ecology Progress Series* 273:291-302.
- 10) Yoon, I., R.J. Williams, E. Levine, S. Yoon, **J.A. Dunne**, N.D. Martinez. 2004. Webs on the Web (WOW): 3D visualization of ecological networks on the WWW for collaborative research and education. *Proceedings of the IS&T/SPIE Symposium on Electronic Imaging, Visualization & Data Analysis Section* 124-132.
- 9) Yoon, S., I. Yoon, R.J. Williams, N.D. Martinez, **J.A. Dunne**. 2004. 3D Visualization and analysis of ecological networks. *Proceedings of the Seventh LASTED International Conference on Computer Graphics and Imaging* 224-229.
- 8) **Dunne, J.A.**, J. Harte, K.J. Taylor. 2003. Subalpine meadow flowering phenology responses to climate change: integrating experimental and gradient methods. *Ecological Monographs* 73:69-86.
- 7) **Dunne, J.A.**, R.J. Williams, N.D. Martinez. 2002. Network structure and biodiversity loss in food webs: robustness increases with connectance. *Ecology Letters* 5:558-567.
- 6) Williams, R.J., E.L. Berlow, **J.A. Dunne**, A.-L. Barabási, N.D. Martinez. 2002. Two degrees of separation in complex food webs. *Proceedings of the National Academy of Sciences USA* 99:12913-12916.
- 5) **Dunne, J.A.**, R.J. Williams, N.D. Martinez. 2002. Food-web structure and network theory: the role of connectance and size. *Proceedings of the National Academy of Sciences USA* 99:12917-12922.
- 4) Saleska, S.R., M.R. Shaw, M.L. Fischer, **J.A. Dunne**, C.J. Still, M.L. Holman, J. Harte. 2002. Plant community composition mediates both large transient decline and predicted long-term recovery of soil carbon under climate warming. *Global Biogeochemical Cycles* 16:1055.

- 3) **Dunne, J.A.**, J. Harte. 2001. Greenhouse effect. Pages 277-293 in Encyclopedia of Biodiversity, Volume 3, ed. S. Levin. Academic Press, San Diego.
- 2) **Dunne, J.A.**, V.T. Parker. 1999. Species-mediated soil moisture availability and patchy establishment of *Pseudotsuga menziesii* in chaparral. *Oecologia* 119:36-45.
- 1) Martinez, N.D., **J.A. Dunne**. 1998. Time, space, and beyond: scale issues in food web research. Pages 207-226 in Ecological Scale: Theory and Applications, eds. D.L. Peterson, V.T. Parker. Columbia University Press, New York.

PUBLICATIONS—OTHER

- 4) **Dunne, J.A.** 2009. Book review: Human Impacts on Ancient Marine Ecosystems, eds. T.C. Rick, J.M. Erlandson. *The Quarterly Review of Biology* 84:190-191. (DOI: 10.1086/603471)
- 3) Martinez, N.D., **J.A. Dunne**. 2004. Virtual Ecosystems – Response to letter to the editor from Robert Paine. *Conservation in Practice* 5:40-41.
- 2) **Dunne, J.A.** 2000. Climate change impacts on community and ecosystem properties: integrating manipulations and gradient studies in montane meadows. Ph.D. Dissertation, University of California, Berkeley.
- 1) **Dunne, J.A.** 1994. Seasonal soil moisture patterns and establishment of *Pseudotsuga menziesii* in chaparral. M.A. Thesis, San Francisco State University.

PUBLICATIONS—CITATION METRICS (as of 11/12/2009, for publications prior to 2009)

- ISI Web of Science (13 articles) <http://www.researcherid.com/rid/C-4714-2008>
Total citations = 710; Mean = 54.2; H-index = 11; >100 per year starting 2006
- Google Scholar (13 articles, 9 chapters, 2 books)
Total citations = 1214; Mean = 50.6; H-index = 16
- Two most highly cited first-authored articles:
→ Dunne *et al.* 2002 *PNAS* (ISI 187, Google 271)
→ Dunne *et al.* 2002 *Ecology Letters* (ISI 184, Google 239)
- Most highly cited chapter:
→ Dunne 2006 “The network structure of food webs” (Google 60)

PUBLICATIONS—SELECTED PRESS

- 2008 “The Cambrian Smorgasbord.” *Nature* (News Feature).
- 2008 “Fossils Help Figure out Food Webs Old and New.” *Science* (News of the Week).
- 2008 Cambrian food web paper selected as a “Must Read” article by *Faculty of 1000 Biology*.
- 2006 “Restoring Nature’s Backbone.” *PLoS Biology*.
- 2003 “Virtual Ecosystems.” *Conservation in Practice* (Cover Article).
- 2002 “Untangled Food Webs.” *California Wild Magazine* (California Academy of Sciences).
- 2002 “Life’s Not So Complicated Web.” *BBC Science News*.
- 2002 “Nature’s Hidden Links.” *Focus Magazine*.

INVITED TALKS (75+)

2010

- *New frontiers in the empiricism and theory of highly resolved food webs: Parasites, paleowebs, and coupled human-natural systems*. Symposium, Ecological Society of America Annual Meeting. Pittsburgh, PA.
- TBA. Metabolic Basis of Ecology Gordon Research Conference, University of New England. Biddeford, ME.
- *Ecological network structure & dynamics* (two seminars). Santa Fe Institute Complex Systems Summer School. Santa Fe, NM.
- *Network approaches for understanding complex aquatic ecosystem dynamics*. Interactive Session co-chair and panelist. American Society for Limnology and Oceanography Annual Meeting. Santa Fe, NM.
- *Food webs: Using networks to study ecosystems*. SFI Educational Program: Growing Up Thinking Scientifically (GUTS) for Middle School Students. Santa Fe, NM.

2009

- *The organization of complex species interactions*. Presentation at SFI to the President of the Nanyang Technological University of Singapore. Santa Fe, NM.
- *The science, technology, and art of complex ecological interactions: Food web research, ecoinformatics, and the Archipelago project*. Environmental Science Cluster, University of North Texas. Denton, TX.
- *The robustness of ecological networks to species loss*. International Conference on Emergence in Chemical Systems, University of Alaska. Anchorage, AK.
- *Ecological network structure*. SFI Complex Systems Summer School. Santa Fe, NM.
- *Research on ecological networks*. Presentation to Boeing Corporation at the SFI. Santa Fe, NM.
- *A deep time perspective on the network structure of food webs: Patterns and constraints*. Department of Ecology and Evolutionary Biology, Princeton University. Princeton, NJ.
- *The post-Darwinian ecosystem*. Part of a SFI Public Lecture, "The Post-Darwinian World." Santa Fe, NM.
- *Dynamical modeling of complex food webs*. International Centre for Theoretical Physics (ICTP) Workshop on Theoretical Ecology and Global Change. Trieste, Italy.
- *Food web network structure: Data, models, and inference*. ICTP School on Theoretical Ecology. Trieste, Italy.

2008

- *Complex ecological networks*. SFI Latin American Complex Systems Summer School: Foundations and Frontiers of Complex Systems. San Carlos de Bariloche, Argentina.
- *Network models of food webs*. SFI Workshop: Statistical Inference for Complex Networks. Santa Fe, NM.
- *Ecological robustness: Is the biosphere sustainable?* Panelist, National Academies Keck Futures Initiative (NAKFI) Conference on Complex Systems. Irvine, CA.
- *The architecture of ecological interactions: Patterns and principles*. Plenary Lecture, European Conference on Complex Systems. Jerusalem, Israel.
- *Challenges and opportunities for ecological informatics*. European Conference on Complex Systems Satellite Conference: Large Databases in Biomedical Complex Systems Research. Jerusalem, Israel.
- *New frontiers in paleoecology*. SFI Researcher Overview Series. Santa Fe, NM.
- *Structural and dynamical roles of pre-industrial people in food webs of the North Pacific*. Symposium, Ecological Society of America Annual Meeting. Milwaukee, WI.
- *Putting ecology into the ecology of markets*. SFI Workshop: First Steps Toward Understanding Market Ecologies. Santa Fe, NM.

- *The architecture of biodiversity: Recent advances in food web research* (three seminars). University of Parma Summer School: A Primer in Ecological Networks—Data and Theory. Parma, Italy.
- *A brief history of food web concepts, data and research: 2000 B.C. to 2000 A.D.* University of Parma Summer School: A Primer in Ecological Networks—Data and Theory. Parma, Italy.
- *Food webs: Using networks to study ecosystems.* SFI Educational Program: Growing Up Thinking Scientifically (GUTS) Program for Middle School Students, Ortiz Middle School. Santa Fe, NM.
- *Ecological network structure* (two seminars). SFI Complex Systems Summer School. Santa Fe, NM.
- *The strangely familiar ecology of ancient ecosystems.* Presentation at SFI for the Santa Fe Westerners Association. Santa Fe, NM.

2007

- *Implications of Aleuts' topological and dynamical food-web roles for ecosystem sustainability.* Idaho State University. Pocatello, ID.
- *Current context for the collapse of ecological diversity.* SFI Board of Trustees Symposium: Diversity Collapse—Causes, Connections and Consequences. Santa Fe, NM.
- *Deep-time perspectives on the robustness of ecological network structure.* Symposium, Ecological Society of America Annual Meeting. San Jose, CA.
- *Food webs: Using networks to study ecosystems.* SFI Educational Program: Growing Up Thinking Scientifically (GUTS) for Girls Program for Middle School Students. Santa Fe, NM.
- *Ecological networks.* SFI Graduate Workshop: Computational Social Science Modeling. Santa Fe, NM.
- *Scaling in food webs.* SFI Workshop: Scaling in Biological and Social Networks. Santa Fe, NM.
- *Food webs: Using networks to study ecosystems.* SFI Educational Program: Growing Up Thinking Scientifically (GUTS) Program for Middle School Students. Santa Fe, NM.
- *Ecological network structure* (two seminars). SFI Complex Systems Summer School. Santa Fe, NM.
- *An overview of food-web structure and dynamics.* Tutorial, International Conference on Networks Science, New York Hall of Science. New York, NY.
- *Ecological network structure, robustness, and uncertainty.* International Conference on Networks Science, New York Hall of Science. New York, NY.
- *An overview of food-web structure and dynamics.* Tutorial, Ecological Networks Conference, Colorado State University. Fort Collins, CO.
- *New approaches for old webs: Archaeological and paleobiological ecological network analysis.* Ecological Networks Conference, Colorado State University. Fort Collins, CO.
- *Recent and deep-time perspectives on ecological network structure.* University of New Mexico Seminar Series: Interdisciplinary Biological and Biomedical Sciences. Albuquerque, NM.
- *Conservation of ecosystem structure over deep time.* Biology Departmental Seminar, Idaho State University. Pocatello, ID.
- *Aspects of ecosystem robustness.* SFI Workshop: Dynamic Structure of Robustness. Santa Fe, NM.

2006

- *Conservation of ecosystem structure over deep time.* Vrije Universiteit. Amsterdam, The Netherlands.
- *Shallow and deep-time perspectives on marine food-web robustness.* Hopkins Marine Station, Stanford University. Pacific Grove, CA.
- *Comments on the science and technology of sustainability.* Panelist, Session on Sustainability: Towards 2020 Science Forum. Organized by Microsoft External Research. Venice, Italy.

- *Structure and dynamics of ecological networks*. SFI Graduate Workshop: Computational Social Science Modeling. Santa Fe, NM.
- *Ecological network structure* (two seminars). SFI Complex Systems Summer School. Santa Fe, NM.
- *A half-billion years of ecological networks*. SFI Science Board Meeting. Santa Fe, NM.
- *Conservation of ecosystem structure over deep time*. SFI President's Circle Lunch. Santa Fe, NM.
- *Food-web methodology for biocomplexity research*. Project Meeting: The Biocomplexity of Sanak Island, Idaho State University. Pocatello, ID.

2005

- *The role of ecological network research in a potential unified theory of ecological complexity*. The 1st Workshop on Ecological Complexity: Approaches, Challenges & Opportunities for Integration. Valparaiso, Chile.
- *Ecoinformatic approaches to synthetic food-web research from Cambrian to contemporary ecosystems*. Organized Session, Ecological Society of America Annual Meeting. Montreal, Canada.
- *Ecological network structure through deep time*. SFI Workshop: Mathematical & Theoretical Biology Institute Workshop on Complexity. Santa Fe, NM.

2004

- *Modeling complex ecological networks*. SFI Teachers Program: Adventures in Modeling—Integrating Information Technology into Curriculum through Computer Modeling Approaches. Santa Fe, NM.
- *Fossil food webs and the evolution of ecosystem structure through deep time*. Santa Fe Science Writing Workshop at SFI. Santa Fe, NM.
- *Ecological network structure*. SFI Workshop: From Structure to Dynamics in Complex Ecological Networks. Santa Fe, NM.

2003

- *Extending food-web theory through deep time: Paleo-food webs and the evolution of ecosystem structure*. International Food Web Symposium. Giessen, Germany.
- *Network structure and robustness of food webs to species loss*. International Advancement of Community Ecology Theory (InterACT) Conference: Identifying Fragile Systems and Keystone Species. Linkoping, Sweden.
- *Structure and dynamics of ecological networks*. SFI Graduate Workshop: Computational Modeling. Santa Fe, NM.
- *Integrating structure and dynamics in ecological networks*. SFI Working Group: Networks and Markets. Santa Fe, NM.
- *Network structure and the robustness of aquatic food webs to species loss*. Symposium, American Society of Limnology and Oceanography Annual Meeting. Salt Lake City, UT.

2002

- *Food webs: structure, dynamics and robustness of ecological networks*. Department of Ecology and Evolutionary Biology, University of Michigan. Ann Arbor, MI.
- *Structure, scaling, and stability in complex food webs*. Biocomplexity Seminar Series, University of New Mexico. Albuquerque, NM.
- *The importance of metabolic parameters for the structure, dynamics, and stability of complex food webs*. SFI Workshop: Toward an Ecology Based on First Principles. Santa Fe, NM.
- *Exploring biocomplexity using food webs and computer models*. SFI High School Program: Exploring the World through Computer Models. Santa Fe, NM.

2001 and prior

- *Webs on the Web: Internet database, analysis, and visualization of ecological networks*. SFI Robustness Program Planning Meeting. Santa Fe, NM. (2001)
 - *Integrating multiple field approaches in ecological climate change research*. Energy and Resources Group Colloquium Series, University of California. Berkeley, CA. (2000)
 - *Scaling within ecological studies: Synthesizing experiments and gradients*. SFI Colloquium Series/Post-Doc Interview Talk. Santa Fe, NM. (2000)
 - *Sensitivity of subalpine vegetation phenology to manipulated and natural climate change*. Rocky Mountain Biological Laboratory Colloquium Series. Gothic, CO. (1998)
 - *Science and ideology in trophic ecology: A tale of two webs*. Workshop on Trophic Organization: Food Webs, Biodiversity and Conservation. Paris, FR. (1993)
-

MEETING ORGANIZATION

- 2010 The Ecophylogeny of Complex Species Interactions**. Santa Fe Institute Working Group. Co-organized with J. Green. April 6-9, Santa Fe, NM.
- 2009 Parasites in Food Webs**. National Center for Ecological Analysis and Synthesis Working Group meeting. Co-organized with K. Lafferty. April 6-10, Santa Barbara, CA.
- 2005 Integrating Spatial Macroecology, Ecological Networks, and Metabolic Allometry**. Planning Meeting for NSF Frontiers in Biological Research RFP. Co-organized with N. Martinez. Dec. 13-14, Berkeley, CA.
- 2005 Emerging Ecoinformatic Tools and Accomplishments for Synthetic Ecological Research Across Scales**. Ecological Society of America Organized Oral Session. Co-organized with N. Martinez. Aug. 10, Montreal, Canada.
- 2004 Pacific Ecoinformatics and Computational Ecology Lab**. Inaugural PEaCE Lab Meeting. Co-organized with N. Martinez. Nov. 16-17, Berkeley, CA.
- 2004 From Structure to Dynamics in Complex Ecological Networks**. Santa Fe Institute Workshop. Co-organized with M. Pascual. Feb. 19-21, Santa Fe, NM.
- 2003 Paleofoodweb Construction and the Evolution of Ecosystem Structure, II**. Santa Fe Institute Working Group. Co-organized with D. Erwin. April 23-25, Santa Fe, NM.
- 2002 Webs on the Web: Internet Database, Analysis and Visualization of Ecological Networks**. SFI Working Group. Co-organized with N. Martinez. April 18-20, Santa Fe, NM.
- 2002 Paleofoodweb Construction and the Evolution of Ecosystem Structure, I**. Santa Fe Institute Working Group. Co-organized with D. Erwin. March 21-23, Santa Fe, NM.

MULTI-YEAR WORKING GROUP PARTICIPATION

- **Parasites and Food Webs**. National Center for Ecological Analysis and Synthesis (NCEAS) Working Group. Santa Barbara, CA. 2007-2009.
- **Towards a Unified Theory of Biodiversity**. NCEAS Working Group. A follow-on to prior meetings at the Santa Fe Institute (2006) and in Chile (2005). Santa Barbara, CA. 2007-2009.
- **Paleofoodweb Construction and the Evolution of Ecosystem Structure**. Santa Fe Institute Working Group. Santa Fe, NM. 2002-2003.

TEACHING AT GRADUATE-LEVEL SCHOOLS & WORKSHOPS

- Santa Fe Institute (SFI) Complex Systems Summer School. Santa Fe, NM. 2006-2010.
- Workshop on Theoretical Ecology and Global Change. ICTP, Trieste, Italy. 2009.
- SFI Latin American Complex Systems Summer School. Bariloche, Argentina. 2008.
- A Primer in Ecological Networks: Data and Theory. University of Parma, Parma, Italy. 2008.
- International Workshop on Networks Science. New York Hall of Science, New York, NY. 2007.
- Ecological Networks Workshop. Colorado State University, Fort Collins, CO. 2007.
- SFI Graduate Workshop: Computational Social Science Modeling. Santa Fe, NM. 2003, 2006.

NSF ACTIVITIES

- **Panel Participant.** Mid-Term Site Review of Cedar Creek Ecosystem Science Reserve—a Long Term Ecological Research (LTER) site. Aug. 24-26, 2009, Cedar Creek, MN.
- **Reviewer.** Grant proposals starting 2003, primarily in DEB (Division of Environmental Biology).

REFEREEING

American Journal of Botany, Conservation Ecology, Ecology, Ecology Letters, Ecological Applications, Ecological Informatics, Ecological Modelling, Functional Ecology, Global Change Biology, Journal of Animal Ecology, Journal of Theoretical Biology, Nature, Nature Communications, Oikos, Oecologia, Paleobiology, Philosophical Transactions of the Royal Society B, PLoS Computational Biology, Proceedings of the National Academy of Sciences USA, Proceedings of the Royal Society B, Progress in Oceanography, Science, The American Naturalist, Theoretical Ecology, Trends in Ecology & Evolution, various book chapters/proposals/manuscripts.

PACIFIC ECOINFORMATICS AND COMPUTATIONAL ECOLOGY LAB

www.foodwebs.org • 1604 McGee Avenue, Berkeley, CA 94703

Mission Statement: The Pacific Ecoinformatics and Computational Ecology Lab is a non-profit research institute incorporated in 2004 to promote awareness of ecological interdependence through research, development, and education related to ecoinformatics and computational ecology. *Ecoinformatics* refers to technologies and practices for gathering, analyzing, visualizing, storing, retrieving and otherwise managing ecological knowledge and information. *Computational Ecology* refers to scientific research focused on the quantitative description and analysis of ecological systems using empirical data, mathematical and statistical models, and computational approaches. The Lab focuses on research related to the structure, function, and dynamics of complex networks of organisms interacting with each other and their environment, including the roles and impacts of humans in natural systems. Publications by Lab-affiliated scientists are available at www.foodwebs.org, along with information about Lab people, publications, activities, and projects. The Lab was founded by Neo Martinez, Jennifer Dunne, and Rich Williams. Dr. Martinez serves as Director, and Dr. Dunne as Co-Director.

Data Sharing: Dr. Dunne manages the Lab's data-sharing program, and has provided scores of scientists access to, and advice on, detailed food-web data. Analyses of those data have appeared in dozens of papers by non-Lab scientists in journals that include *Nature*, *Science*, *PNAS*, *Physical Review Letters*, *The American Naturalist*, *Ecology*, *Ecology Letters*, *Journal of Theoretical Biology*, and others.

Network Visualization: Non-Lab scientists have published food-web images from the Lab or generated by "FoodWeb3D" visualization software, developed by the Lab, in a variety of outlets, including:

- Dodds, W.K. 2009. *Laws, Theories, and Patterns in Ecology*. University of California Press.
- Tylianakas, J.M. 2008. Understanding the web of life: The birds, the bees, and sex with aliens. *PLoS Biology* 6(2):e47.
- Bascompte, J. & Jordano, P. 2007. Plant-animal mutualistic networks: The architecture of biodiversity. *Annual Review of Ecology, Evolution, and Systematics* 38:567-593.
- Thompson, J.N. 2006. Mutualistic webs of species. *Science* 312: 372-373.
- Pascual, M. 2005. Computational ecology: From the complex to the simple and back. *PLoS Computational Biology* 1(2): e18 (p101-105).
- Green, J.L., et al. 2005. Complexity in ecology and conservation: Mathematical, statistical, and computational challenges. *Bioscience* 55:501-510.
- Math Awareness Month Poster. 2004. "The Mathematics of Networks" includes FoodWeb3D image.
- McMahon, S.M., et al. 2001. Social science and ecology—Networking tips for social scientists and ecologists. *Science* 293: 1604-1605.
- Strogatz, S.H. 2001. Exploring complex networks. *Nature* 410: 268-275.

Selected Reporting of Research by Lab Members:

- 2008 The Cambrian Smorgasbord. *Nature* (News Feature).
- 2008 Fossils Help Figure out Food Webs Old and New. *Science* (News of the Week).
- 2006 Restoring Nature's Backbone. *PLoS Biology*.
- 2004 When Things Get Complicated. *Boston Globe*.
- 2003 Virtual Ecosystems. *Conservation in Practice* (Cover Article).
- 2002 Untangled Food Webs. *California Wild Magazine* (California Academy of Sciences).
- 2002 Nature's Hidden Links. *Focus Magazine*.
- 2002 Life's Not So Complicated Web. *BBC Science News*.
- 2001 The Weakest Link. *New Scientist*.