

## CAROLYN A. F. ENQUIST

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### EDUCATION

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- Ph.D. Biology, Ecology Program. 2002. University of New Mexico, Albuquerque.
- M.S. Biology, Ecology Program, with distinction. 1998. University of New Mexico.
- B.A. International Relations/French. 1990. Mount Holyoke College, South Hadley, MA.

### PROFESSIONAL EXPERIENCE

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August 2014-present, 40 hours/week:

**Deputy Director**, U.S. Geological Survey Southwest Climate Adaptation Science Center (SW CASC), U.S. Geological Survey, Tucson, AZ, August 2014-present.

- October 2019+ new duties include leading the overall operations, budget planning, research agenda execution, financial award process, and strategic planning for the SW CASC as part of the 8-region Climate Adaptation Science Center Network.
- Led, co-developed, coordinated, and executed strategic and scientific research plans, and program reviews to ensure research priorities meet the needs of managers from natural resource agencies and affiliated programs.
- Supervised program staff and scientists focused on tribal partner engagement, partnership development, research management, scenario planning and climate adaptation.
- Provided oversight on University of Arizona hosting agreement and consortium of six regional member universities on behalf of the USGS.
- Identified research goals, outputs, and objectives to advance the SW CASC Science Agenda, including evaluation and selection of research proposals for funding projects designed to produce actionable science.
- Cultivated and coordinated activities to engage a diversity of stakeholders and partners across the Southwest and throughout the U.S.
- Negotiated cooperative agreements and research grants with academic institutions and federal agencies to leverage existing resources in support of the development and implementation of collaborative initiatives and programs.
- Launched and led the organization of the inaugural Southwest Adaptation Forum in 2018 and next iteration of the gathering in 2021 (virtual gathering) focused on building a cross-sector network of climate adaptation practitioners.
- Led national-scale scientific working groups, symposia, and sessions consisting of experts on topics and issues, including the implications of ecological drought, the theory and practice of scenario planning, foundations of translational ecology, coordination and collaboration among climate science entities to promote the advancement of climate change science.
- Represented the SW CASC, National Climate Adaptation Climate Science Center, and USGS at regional, national, and international meetings and conferences focused climate change science, adaptation, and biodiversity conservation.

November 2018-September 2019, 40 hours/week:

**Acting Director**, Department of the Interior South Central Climate Adaptation Science Center (SC CASC), U.S. Geological Survey, Norman, OK.

- Worked closely with university SC CASC university director to coordinate, collaborate, and implement Center priorities as interim-federal director, including oversight of operations, RFP process, and supervision duties.

July 2010-August 2014, 40 hours/week:

**Director, Science & Applications**, USA National Phenology Network, *The Wildlife Society* (2010-2013), *The University of Arizona* (2014), Tucson, AZ.

- Led and coordinated team in the development and implementation of science priorities for a national biodiversity information delivery organization consisting of 12 staff members, including the facilitation of phenology and climate-related research across broader community.
- Prepared proposals, negotiated and managed cooperative agreements and partnerships with natural resource agencies and organizations, including the US Fish & Wildlife Service, USDA Forest Service, DoD Environmental Sciences and Applied Systems Branch; secured over \$400,000 in funding.
- Led and served on national working groups and task forces developing technical reports on ecological science, adaptation, and monitoring indicators for the National Climate Assessment.
- Led working group for the northeastern region of the Forest Service to develop implementation methods for phenology-related work to facilitate achievement of climate change and monitoring related goals.
- Advised government agencies and multi-stakeholder groups in the development of climate change-related goals and objectives, including vulnerability assessment and adaptation efforts by presenting complex concepts and findings via briefing high-level officials and by organizing and facilitating interagency forums, workshops, and National Conservation Training Center-sponsored courses.
- Published research results in peer-reviewed information sheets and journals.
- Communicated research results relative to the role of phenology in climate science, adaptive management, and public engagement at national workshops, conferences and webinars.
- Participated in programmatic reviews and evaluations by analyzing issues, identifying obstacles, and developing solutions designed to achieve science goals.

2008-Present, volunteer hours as requested:

**Adjunct Assistant Professor**, *University of Arizona, School of Natural Resources & the Env*, 2008-present.

- Provided ongoing consultation and interaction with faculty, staff and students via graduate seminars and meetings related to conservation science and natural resource planning, with emphasis on climate change adaptation, phenology, and how science informs decision-making.

2006-2010, 40 hours/week:

**Conservation Scientist/Climate Change Ecologist**, *The Nature Conservancy in New Mexico*.

- Proposed and launched the Southwest Climate Change Initiative, a collaboration consisting of NGOs, universities, and federal agencies with a goal of providing guidance and recommendations for multi-stakeholder groups in climate change assessment, adaptation planning and strategy implementation at landscape to regional scales.
- Designed and implemented spatially-explicit climate change and landscape assessments relative to forests, shrublands, woodlands, grasslands and other conservation and management priorities in New Mexico and the southwestern U.S.
- Served on 3 long-term (2+ years) national working groups developing novel climate change adaptation techniques and synthesizing the state of the knowledge relative to principles, theories, and techniques to address complex interdisciplinary problems.
- Presented complex scientific findings at national and regional conferences.
- Communicated and facilitated use of information and new methods via multi-stakeholder workshops across the Southwest.
- Published research results in peer-reviewed reports and journals.
- Secured \$250,000 in funding for research and proactive outreach efforts.

2001-2005, 40 hours/week:

**Conservation Science Specialist**, *The Nature Conservancy in Arizona, Tucson, AZ.*

- Co-designed and implemented ecological assessment and inventory of semi-arid grasslands in Arizona;
- Developed novel methods and techniques for prioritizing conservation planning and action;
- Published research results in peer-reviewed reports and journals.
- Contributed to conservation and management plans and ecoregional assessments based on key concepts and theories related to ecological science and collaborative adaptive management.

2001, 40 hours/week:

**Botanical Research Technician**, *University of Arizona, Department of Ecol. & Evol. Biology, 2001.*

- Conducted experiments and long-term monitoring in plots established for studying the ecology of desert winter annuals located on Tumamoc Hill, Tucson;
- Supervised and trained field assistants.

1996-1998, 20 hours/week:

**Biological Scientist**, *USDA Forest Service Region 3, Remote Sensing Unit. 1996-98.*

- Developed ecological computer models and vegetation classification maps utilizing GPS, GIS, and remote sensing platforms;
- Performed landscape-level vegetation change detection analyses using time series of satellite imagery;
- Assisted in interpretation of ecological modeling and analysis output for implementation in forest plans.

1994-1996, school year, 20 hours/week.

**Graduate Student Researcher**, *University of New Mexico, Department of Biology, Albuquerque. 1994-96.*

- Designed and implemented long-term monitoring protocol for detecting vegetation changes in 16-hectare plot consisting of secondary tropical dry forest vegetation, Santa Rosa National Park, Costa Rica.
- Generated a GIS-based multi-scenario approach for modeling and forecasting the impacts of climate change on the tropical forests of Costa Rica.

1993-1994, school year, 20 hours/week:

**Student GIS Technician**, *Earth Data Analysis Center (EDAC). University of New Mexico, Albuquerque, NM.*

- Created, edited and manipulated digital spatial database to generate complex vegetation & resource maps.

1993-1994, summer hire, 40 hours/week:

**Interpretive Park Ranger**, *National Park Service, Petroglyph National Monument, Albuquerque, NM 1993-94.*

- Developed and conducted cultural and natural history programs for park visitors.

1992-1993, summer hire, 40 hours/week:

**Naturalist-Interpreter**, *City of Colorado Springs Parks and Recreation Department, 1992-1993.*

- Developed & conducted natural history programs on Rocky Mountain ecosystems for schools & public.

1991-1992, 20 hours/week:

**Intern (paid)**, *Office of U.S. Senator Timothy Wirth of Colorado, Washington, D.C. 1991-92.*

- Researched environmental legislation for senate office and constituency. Wrote environmental briefs and environmental policy letters for constituents and decision makers.

1990-1991, 40 hours/week:

**Conservation Summit Co-Coordinator**, National Wildlife Federation, Washington, D.C. 1990-91.

- Planned and implemented national environmental education conferences for NWF members.

## PAPERS & TECHNICAL REPORTS

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### *Focus 1: Natural Resource Management & Stakeholder Engagement*

- Enquist, C.A.F.**, H.D. Safford, T. Wall. *In prep.* The importance of human dimensions in interpreting, managing, and responding to current and future fire. Invited paper for special issue entitled, *Principles of Fire Ecology*.
- Enquist, C.A.F.**, S.T. Jackson, G. Garfin, F.W. Davis, L.R. Gerber, J. Littell, J.L. Tank, A. Terando, T. Wall, B. Halpern, J. K. Hiers, T.L. Morelli, E. McNie, N.L. Stephenson, M.A. Williamson, C.A. Woodhouse, L. Yung M. Brunson<sup>17</sup>, K. Hall, L.M. Hallett, D.M. Lawson, M.Moritz, K. Nydick, A. Pairis, A.J. Ray, C. Regan, H.D. Safford, M.W. Schwartz, M.R. Shaw. 2017. Foundations of Translational Ecology, *Frontiers in Ecology and the Environment* 15:541-550.
- Jackson, S.T., G.M. Garfin, **C.A.F. Enquist**. 2017. Toward an effective practice of translational ecology. *Frontiers in Ecology and the Environment* 15: 540.
- Lawson, D.M., K.R. Hall, L. Yung, **C.A.F. Enquist**. 2017. Building translational communities of practice: insights from the field. *Frontiers in Ecology and the Environment* 15: 569-577.
- Elmendorf, S.C., K.D. Jones, B.I. Cook, J.M. Diez, **C.A.F. Enquist**, R.A. Hufft, M.O. Jones, S.J. Mazer, A.J. Miller-Rushing, D.J.P. Moore, M.D. Schwartz, J.F. Weltzin. 2016. The plant phenology monitoring design for the National Ecological Observatory Network. *Ecosphere*, 7(4).
- Kellermann, J.L., C.A.F. **Enquist**, D.L. Humple, N.E. Seavy, A. Rosemartin, R.L. Cormier, and L.A. Barnett. 2015. A bird's eye view of the USA National Phenology Network: an off-the shelf monitoring program. *Studies in Avian Biology*, CRC Press, London, p. 47-60.
- Enquist, C.A.F.**, J.L. Kellermann, K.L. Gerst, and A.J. Miller-Rushing. 2014. Phenology research for natural resource management in the U.S. *International Journal of Biometeorology*. DOI 10.1007/s00484-013-0772-6.
- Rosemartin, A.H., T.M. Crimmins, **C.A.F. Enquist**, K.L. Gerst, J.L. Kellermann, E.E. Posthumus, E.G. Denny, P. Guertin, L. Marsh, J.F. Weltzin. 2013. Organizing phenological data resources to inform natural resource conservation. *Biological Conservation*.  
<http://dx.doi.org/10.1016/j.biocon.2013.07.003>.
- Enquist, C.**, A. Rosemartin, M.D. Schwartz. 2012. Identifying and prioritizing phenological data products and tools. *Eos*. 93(37): 356.
- Hulshof, C.M., Swenson, N.G., Stegen, J.C., **Enquist, C.A.F.**, B.J. Enquist. (2012) Interannual variability of growth and reproduction in *Bursera simaruba*: The role of allometry and climatic variability. *Ecology* 93:180-190.
- Enquist, C.** and A. Miller-Rushing. 2011. Standards and tools for using phenology in science, management, and education. *Park Science* 28:  
<http://www.nature.nps.gov/ParkScience/index.cfm?ArticleID=516&Page=1>
- Enquist, C.A.F.** and D.F. Gori. 2008. Application of an expert system approach for assessing grassland status in the U.S.-Mexico borderlands: implications for conservation and management. *Nat Areas Journal* 28: 414-428.
- Marshall, R.M., M. List, and **C.A.F. Enquist**. 2006. Ecoregion-based conservation assessments of the southwestern United States and northern Mexico: a geodatabase for six ecoregions. *Technical report*, The Nature Conservancy, available at <http://www.azconservation.org>.

- Schussman, H., **C.A.F. Enquist**, and M. List. 2006. Historic fire return intervals for Arizona and New Mexico: a regional perspective for southwestern land managers. *Technical report*, The Nature Conservancy, available at <http://www.azconservation.org>.
- Enquist, C.A.F.** and D.F. Gori. 2005. An assessment of the spatial extent and condition of grasslands in the Apache Highlands ecoregion. In *Connecting Mountain Islands and Desert Seas: Biodiversity and Management of the Madrean Archipelago II*. USDA Forest Service Proceedings RMRS-P-36 pp.359-363. Technical report and GIS data available at <http://www.azconservation.org>.
- Enquist, C.A.F.**, R.M. Marshall, M. List. 2004. Generating a prioritization method for informing conservation action across the five ecoregions overlapping Arizona. *Technical report*, The Nature Conservancy.
- Enquist, C.A.F.**, R.M. Marshall, M. List, A. Gondor. 2004. Lessons learned from Arizona's pilot 5-ecoregion data roll-up. *Technical report*, The Nature Conservancy.
- Marshall, R.M., D. Turner, A. Gondor, D. Gori, **C. Enquist**, G. Luna, R. Paredes Aguilar, S. Anderson, S. Schwartz, C. Watts, E. Lopez, P. Comer. 2004. An ecological analysis of conservation priorities in the Apache Highlands ecoregion. Prepared by The Nature Conservancy of Arizona, Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora, agency and institutional partners. 152 pp. (available at <http://www.azconservation.org>).
- Enquist, C.A.F.** 2002. The spatial and temporal dynamics of tropical dry forest in Costa Rica. *Dissertation*. University of New Mexico.
- Mellin, T., Krausmann, W, Clark, K., and **C.A. F. Enquist**. 1998. Assessing gross changes in vegetation types associated with Mexican spotted owl habitat. *Technical report*, USDA Forest Service.

## ***Focus 2: Climate Change Science and Adaptation***

- Crausbay, S., J. Betancourt, J. Bradford, J. Cartwright, W. Dennison, J. Dunham, **C.A.F. Enquist**, et al. In press. Unfamiliar territory: emerging themes for ecological drought research and management, *One Earth*.
- Star, J., E.L. Rowland, M.E. Black, **C.A.F. Enquist**, G. Garfin, C. Hawkins Hoffman, H. Hartmann, K.L. Jacobs, R.H. Moss, A.M. Waple. 2016. Supporting adaptation decisions through scenario planning: Enabling the effective use of multiple methods, *Climate Risk Management*, 13: 88-94.
- Enquist, C.A.F.** and S.T. Jackson. 2016. Ensuring Coordination Among Regional Climate Science Programs, National Adaptation Forum, St. Louis, MO, 14 May 2015. *Eos, Meeting Reports*, 25 January 2016.
- Gerst, K.L., J. L. Kellermann, **C.A.F. Enquist**, A.H. Rosemartin, E.G. Denny. 2015. Estimating the onset of spring from a complex phenology database: trade-offs across geographic scales. *International Journal of Biometeorology*. 1-10. DOI 10.1007/s00484-015-1036-4.
- Staudinger, M.D, S. L. Carter, M. S. Cross, N.S. Dubois, J. E. Duffy, **C. Enquist**, R. Griffis, J. Hellmann, J. Lawler, J. O'Leary, S.A. Morrison, L. Sneddon, B. A. Stein, L. Thompson, W. Turner. 2013. Biodiversity in a changing climate: a synthesis of current and projected trends in the U.S. *Frontiers in Ecology and the Environment* 11: 465-464.
- Stein, B.A., A. Staudt, M. S. Cross, N. Dubois, **C. Enquist**, R. Griffis, L. Hansen, J. Hellman, J. Lawler, E. Nelson, A. Pairis. 2013. Preparing for and managing change: climate adaptation for biodiversity and ecosystems. *Frontiers in Ecology and the Environment* 11: 502-510.
- Fleishman, E., J. Belnap, N. Cobb, **C. Enquist**, K. Ford, G. MacDonald, M. Pellant, T. Schoennagel, L. Schmit, M. Schwartz, S. van Drunick, A. Westerling, A. Keyser, and R. Lucas. Review Editor: J. Sabo. 2013. Natural Ecosystems. Chapter 8, in: *Assessment of Climate Change in the Southwestern US*. In: Gregg Garfin, Angela Jardine, Robert Merideth, Mary Black, and Jonathan Overpeck (eds.) Island Press.
- Schwartz, M.D., **C.A.F. Enquist**, E.G. Denny. 2013. Phenological implications of warming temperatures and extreme climatic events. *Eos* 94 (10): 99.

- Cross, M.S., P.D. McCarthy, G. Garfin, D. Gori, **C. Enquist**. 2013. Accelerating climate change adaptation in vulnerable landscapes across the southwestern United States. *Conservation Biology* 27:4-13.
- Leicht-Young, S.A., **C.A.F. Enquist**, J.F. Weltzin. 2013. Observed changes in phenology across the USA: A regional review for the 2013 National Climate Assessment. [A series of eight information sheets for each of 8 NCA regions. USGS internal reviewed]
- Cross, M., E. Zavaleta, D. Bachelet, M. Brooks, **C. Enquist**, E. Fleishman, L. Graumlich, C. Groves, L. Hannah, L. Hansen, G. Hayward, M. Koopman, J. Lawler, J. Malcolm, J. Nordgren, B. Petersen, E. Rowland, D. Scott, S. Shafer, R. Shaw, and G. Tabor. 2012. The Adaptation for Conservation Targets (ACT) framework: A tool for incorporating climate change into natural resource management. *Environmental Management*. 50:341-351.
- Cross, M., E. Girvetz, A. Schragg, and **C. Enquist**. 2012. Integrating Climate Change Science into Large-Scale Conservation, *In: Conservation and climate disruption: Ecoregional science and practice in a changing climate* (Eds. Charles C. Chester, Jodi A. Hilty & Molly S. Cross), Island Press.
- Groves, C., E. Game, M. Anderson, M. Cross, **C. Enquist**, Z. Ferdana, E. Girvetz, A. Gondor, K. Hall, J. Higgins, R. Marshall, K. Popper, S. Schill, S. Shafer. 2012. Incorporating climate change into systematic conservation planning. *Biodiversity Conserv.* DOI 10.1007/s10531-012-0269-3.
- Enquist, C.A.F.**, S.L. Young, J.F. Weltzin, M.D. Schwartz, T. Ault, J. Betancourt. 2012. *Phenology as a bio-indicator of climate change impacts on people and ecosystems: towards an integrated national assessment approach*. Technical input for the 2013 National Climate Assessment, USA-NPN Technical Series 2012-003.
- Staudinger, M.D, S. L. Carter, M. S. Cross, N.S. Dubois, J. E. Duffy, **C. Enquist**, R. Griffis, J. Hellmann, J. Lawler, J. O'Leary, S.A. Morrison, L. Sneddon, B. A. Stein, L. Thompson, W. Turner, E. Varela-Acevedo, W. Reid. 2012. Impacts of Climate Change on Biodiversity. Chapter 2, in: *Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services: Technical Input to the 2013 National Climate Assessment*. Michelle D. Staudinger, Nancy B. Grimm, Amanda Staudt, Shawn L. Carter, F. Stuart Chapin III, Peter Kareiva, Mary Ruckelshaus, Bruce A. Stein [eds]. A Cooperative Report to the 2013 National Climate Assessment.
- Stein, B.A., A. Staudt, M. S. Cross, N. Dubois, **C. Enquist**, R. Griffis, L. Hansen, J. Hellman, J. Lawler, E. Nelson, A. Pairis, D. Beard, R. Bierbaum, E. Girvetz, P. Gonzalez, S. Ruffo, J. Smith. 2012. Adaptation to Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services. Chapter 6, in: *Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services: Technical Input to the 2013 National Climate Assessment*. Michelle D. Staudinger, Nancy B. Grimm, Amanda Staudt, Shawn L. Carter, F. Stuart Chapin III, Peter Kareiva, Mary Ruckelshaus, Bruce A. Stein [eds]. A Cooperative Report to the 2013 National Climate Assessment.
- Enquist, B.J. and **C.A.F. Enquist**. 2011. Long-term change in a Neotropical forest: assessing functional and floristic responses to drought and past disturbance. *Global Change Biology*. 17:1408-1424.
- Glick, P., B. Stein, N. Edelson, N., N. Green, R. Beach, M. Cross, **C. Enquist**, D. Finch, H. Gailbraith, E. Girvetz, J. Gross, M. Harris, K. Hayhoe, J. Hoffman, D. Inkley, B. Jones, L. Joyce, J. Lawler, D. Ojima, J. O'Leary, B. Young. 2011. *Scanning the conservation horizon: a guide to climate change vulnerability assessment*. The National Wildlife Federation, Washington, D.C.
- Robles, M.D. and **C. Enquist**. 2011. Managing changing landscapes in the Southwestern United States. The Nature Conservancy. Tucson, Arizona. 26 pp.
- Copeland, H.E., S.A. Tessman, E.H. Girvetz, L. Roberts, **C. Enquist**, A. Orabona, S. Patla, and J.M. Kiesecker. 2010. A geospatial assessment on the distribution, condition, and vulnerability of Wyoming's wetlands. *Ecological Indicators*. 10(4): 869-879.
- Groves, C., M. Anderson, **C. Enquist**, E. Girvetz, T. Sandwith, L. Schwarz, R. Shaw. 2010. Climate Change and Biodiversity Conservation: A Primer for Developing and Advancing Ecosystem-based Adaptation Strategies in The Nature Conservancy. The Nature Conservancy, Arlington, VA.

- West, J.M., P. Kareiva, C. Enquist, A. Johnson, S.H. Julius, J. Lawler, B. Petersen, L. Pitelka, R. Shaw. 2009. U.S. Natural resources and climate change: concepts and approaches for management adaptation. *Environmental Management*. 44 (6): 1001. DOI 10.1007/s00267-009-9345-1.
- Enquist, C.A.F.** 2009. Climate change adaptation in practice: its role in an integrated assessment framework for conservation planning & management. *White paper*, The Nature Conservancy & Wildlife Conservation Soc.
- Enquist, C.,** A. Bradley, M. Cross, G. Garfin, D. Gori, P. McCarthy and R. Oertel. 2009. Jemez Mountains Climate Change Adaptation Workshop: Process, Outcomes and Next Steps. *Technical report*, Southwest Climate Change Initiative. Report posted: [http://nmconservation.org/projects/new\\_mexico\\_climate\\_change/](http://nmconservation.org/projects/new_mexico_climate_change/).
- Kareiva, P., C. Enquist, A. Johnson, S.H. Julius, J. Lawler, B. Petersen, L. Pitelka, R. Shaw, and J.M. West, 2008: Synthesis and Conclusions. In: *Preliminary review of adaptation options for climate-sensitive ecosystems and resources*. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research [Julius, S.H., J.M. West (eds.), J.S. Baron, B. Griffith, L.A. Joyce, P. Kareiva, B.D. Keller, M.A. Palmer, C.H. Peterson, and J.M. Scott (Authors)]. U.S. Environmental Protection Agency, Washington, DC, USA, pp. 9-1 to 9-66.
- McCarthy, P., C.A.F. Enquist, and G. Garfin. 2008. Mitigating climate change in the American Southwest. *Eos* 89 (1): 3, Meeting Reports.
- Enquist, C.A.F.** and D. Gori. 2008. *A climate change vulnerability assessment for biodiversity in New Mexico, part 1: Implications of recent climate changes on conservation priorities in New Mexico*. The Nature Conservancy & Wildlife Conservation Soc., Santa Fe, NM. [http://nmconservation.org/projects/new\\_mexico\\_climate\\_change/](http://nmconservation.org/projects/new_mexico_climate_change/)
- Enquist, C.A.F.,** E. Girvetz, and D. Gori. 2008. *A climate change vulnerability assessment for biodiversity in New Mexico, part 2: Conservation implications of emerging moisture stress due to recent climate changes in the southwestern United States*. The Nature Conservancy & Wildlife Conservation Society, Santa Fe, NM. [http://nmconservation.org/projects/new\\_mexico\\_climate\\_change/](http://nmconservation.org/projects/new_mexico_climate_change/)
- Enquist, C.A.F.** 2002. Predicted regional impacts of climate change on the geographic distribution and diversity of tropical forests in Costa Rica. *Journal of Biogeography* 29(4):519-534.

#### **ORGANIZED WORKSHOPS & SYMPOSIA**

- Lead Organizer and Co-Convener.* Southwest Practitioners Adaptation Network (SPAN), launch meeting, brought together climate adaptation professionals from the vicinity of Las Vegas, NV, February 2020.
- Lead Organizer and Co-Convener.* The inaugural Southwest Adaptation Forum, brought together climate adaptation professionals from throughout the SW, and leading national thought leaders to build, cultivate, and sustain a regional network of cross-sectoral adaptation professionals, October 2018.
- Primary convener.* AGU Fall 2018 session entitled: Science To Action: Empowering ecologists to engage in translational ecology to support effective environmental decision-making, December 2018.
- Co-convener,* American Geophysical Union 2015, 2016. Effective Stakeholder Engagement for Climate Change Adaptation and Science-to-Action sessions.
- Lead Organizer,* Natural Areas Conference 2016, Davis California, *Forest Management in the Face of Climate Change and Widespread Forest Mortality and Die-off (primary focus on CA, but also national perspectives)*
- Lead Organizer,* Biennial Conference of Natural Resource Managers in the Colorado Plateau and the Southwest, Flagstaff, Arizona, 2015. *Forest Management in the Face of Climate Change and Widespread Forest Mortality and Die-off (focus on SW-only)*
- Lead Organizer,* National Adaptation Forum 2015. Effective Coordination and Collaboration between National and Regional Climate Adaptation Programs.
- Co-organizer and Moderator,* Ecological Society of America Annual Meeting 2013, Organized Oral Session entitled, "Implications of climate change for ecosystem processes in the southwestern U.S."

*Lead Organizer and Facilitator, Climate Adaptation Workshops: Camp Pendleton Marine Corps Base, San Diego, CA (May 2014), Detachment Fallbrook Naval Weapons Installation San Diego, CA (Aug. 2013), Flagstaff, AZ (May 2010), Gunnison, CO (December 2009), Jemez Mountains, NM (April 2009), Albuquerque, NM (October 2007). Workshop reports (2007-2010):*

[http://nmconservation.org/projects/new\\_mexico\\_climate\\_change/](http://nmconservation.org/projects/new_mexico_climate_change/)

*Lead Organizer and Facilitator, National Science Foundation Research Coordination Network workshop on behalf of the USA National Phenology Network, Milwaukee, WI, May 2012.*

### **INVITED WORKING GROUPS & TRAININGS**

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*Invited member, the inaugural (2020) Science Advisory Committee for the National Areas Association.*

*Chair: Dr. Reed Noss.*

*Lead Author, IPCC WGII AR6, Chapter 14 – North America; fourth lead authors meeting, November 2020 in Antigua, Guatemala. POSTPONED DUE TO COVID-19.*

*Lead Author, IPCC WGII AR6, Chapter 14 – North America; third lead authors meeting, January 2020 in Faro, Portugal.*

*Lead Author, IPCC WGII AR6, Chapter 14 – North America; second lead authors meeting, July 2019 in Katmandu, Nepal.*

*Lead Author, IPCC WGII AR6, Chapter 14 – North America; first lead authors meeting, January 2019 in Durban, South Africa. DID NOT ATTEND DUE TO GOVERNMENT SHUT-DOWN.*

*Co-convenor & organizer. Pilot Translational Ecology short course training for post-doctoral researchers and graduate students from the SW CASC consortium of universities.*

*Co-convenor and organizer. The Theory and Practice of Translational Ecology. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA. November 2015.*

*Co-convenor and organizer. Theory and Practice of Scenario Planning. Center for Climate Adaptation Science and Solutions, University of Arizona, April 2015.*

*Monitoring Team, Conservation Roundtable, Led by Simon Roosevelt & CEOs of 16 NGOs (Sept '12-April '13)*

*Lead Author, National Climate Assessment (NCA3), Biodiversity, Adaptation, Indicators technical input teams (Jan'12-Aug'13)*

*Lead Author, Southwest Climate Assessment, Natural Ecosystems technical working group (Aug '11-Aug '12)*

*Vulnerability Assessment Trainer, National Conservation Training Center, Shepherdstown, WV (May 2012+)*

*Working Group Member, committee of national experts assembled by the National Wildlife Federation to compile and distribute guidance for conducting climate change vulnerability assessments, 2/2009-3/2011.*

*Working Group Member, National Center Ecological Analysis and Synthesis (NCEAS) and Wildlife Conservation Society (WCS) working group on Climate Change Impact Assessment and Adaptation for Conservation Planning in the Inter-Mountain West. 2007-2009.*

*Working Group Member. Contributing author for Synthesis and Conclusions chapter in U.S. Climate Change Science Program's report: *Preliminary review of adaptation options for climate-sensitive ecosystems and resources, Synthesis Assessment Product 4.4*, coordinated by the U.S. Environmental Protection Agency representatives, 2007-2008.*

*Working Group Member, Bosque forest working group, Forest Guild workshop on climate change in forests of the Southwest, Albuquerque, NM, November, 2008.*

### **INVITED TALKS**

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*Panelist and Speaker, USGS Workshop. Fire Science and Management in an Uncertain Future. December 2020. POSTPONED FROM APRIL 2020 DUE TO COVID-19.*

*Panelist and Speaker, Joint Fire Science Program Workshop, Co-production and translational ecology for fire science. October 2019.*



*Speaker*, World Symposium on Climate Change Communication, Manchester, UK, February 2017.

*Panelist and Speaker*, National Research Council of the National Academy of Sciences. Landscape Conservation Cooperatives. May 2017.

*Speaker*, American Geophysical Union 2014. *Climate Adaptation for Forest Management: Lessons Learned*.

*Speaker*, National Conservation Training Center course on Climate-Smart Conservation, case study presentation: “*Adaptation planning in southern CA: Navy Installation Fallbrook*,” Tucson, May 2014.

*Speaker*, Organized Symposium entitled “Predicting synergistic impacts under climate change,” The Wildlife Society (TWS) Annual Meeting, organized by the USDA Forest Service, talk entitled “*Phenology for wildlife conservation and climate adaptation*,” Milwaukee, WI, October 2013.

*Speaker*, Organized Oral Session entitled “Heralding Change: How Can Plant Phenology be Used to Facilitate Sustainable Natural Resources Management,” Ecological Society of America (ESA) Annual Meeting, talk entitled “*Using phenology as a tool for resource management and climate change adaptation*,” Austin, TX, August 2011.

*Speaker*, Organized Oral Session on Climate Change Vulnerability Assessment, George Wright Society Annual Meeting, talk entitled “*Application of an integrated climate change assessment and adaptation framework for conservation planning and management in the southwestern USA*,” New Orleans, LA, March 2011.

*Speaker & Panelist*, Climate Change session, WWF & UA Conference on River Restoration in the Southwest, talk entitled “*Phenology monitoring to track environmental variation and climate change: the USA-National Phenology Network*,” Tucson, AZ, December 2010.

*Speaker*, Organized Oral Session on Climate Change & Conservation Planning, Ecological Society of America (ESA) Annual Meeting, talk entitled “*Application of an integrated climate change assessment and adaptation framework for conservation planning and management in the southwestern USA*,” Albq, NM, August 2009.

*Panel Speaker*, “Adaptation 2009: Safeguarding Fish, Wildlife, and Natural Systems in the Face of Climate Change,” convened by the National Council for Science and the Environment and National Wildlife Federation, Feb. 18-19, 2009: DECLINED INVITATION.

*Panel Speaker*, U.S. Fish & Wildlife Service’s Regions 2 & 8 and U.S. Geological Services Central and Western Regions Conference on “Effects of Climate Change on Fish, Wildlife, and Habitats in the Arid and Semiarid southwestern U.S.: Putting Knowledge and Science into Action.” Tucson, AZ, August 19-20, 2008.

*Speaker*, State of the Knowledge on Climate Change Impacts in the Southwestern U.S. USDA Forest Service Regional Leadership Team Meeting, Albuquerque, NM, May 2007.

*Panelist*, City of Tucson work group meeting focused on implications of climate change for habitat conservation plans and the Endangered Species Act. August 2008.

#### **PROFESSIONAL DEVELOPMENT TRAINING**

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- Virtual Leadership in Uncertain Times (The Grove, LLC, August 2020)
- Leadership 101 & 202 courses (USGS, July 2018 and August 2020; DOI University, June ‘16)
- Working with Tribes (Seventh Generation, LLC, January 2020)
- Structured Decision Making (National Conservation Training Center)
- Conflict Resolution (Relational Advantage, Inc.)
- Leadership Development (Conservation Impact)
- Project Management (The Nature Conservancy)
- Negotiation Skills (The Nature Conservancy)

#### **SELECTED MEDIA ARTICLES & COVERAGE**

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Enquist, C. A Budding Partnership: The USA National Phenology Network and the Landscape Conservation Cooperatives. *The Wildlife Professional* Fall 2011, p. 35.

Enquist, C., T. Crimmins, L. Marsh. The USA-Phenology Network: A partner for tracking environmental change in the Southwestern U.S. and beyond. *Restoring Connections, A Newsletter of the Sky Island Alliance*, Volume 14, Issue 2, Summer 2011, p 12.

Leatherman, Courtney. Interview with Carolyn Enquist. *Nature Conservancy*, Autumn 2009, pp. 24-25.

Aldous, Peter. Climate maps offer hope of sanctuary. *The New Scientist*. August 9, 2008, pp. 8-9.

#### **AWARDS & FUNDING**

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*Best paper award:* World Symposium on Climate Change Communication, Manchester, U.K. February 2017: *Empowering Ecologists to engage in translation, engagement and communication.*

*Partnership negotiation,* U.S. Fish & Wildlife Service, \$400K to the USA National Phenology Network.

*Recipient,* Rodney Johnson/Katherine Ordway (RJ/KOSE) fund: “*Regional Impacts Assessment and Beyond: Implementing a Climate Change Adaptation Framework for Conservation Planning & Management at Local Scales,*” (\$150K); in early 2009, this launched the Southwest Climate Change Initiative (SWCCI), consisting of collaborators from four TNC state chapters (NM, AZ, CO, UT), USFS-R3, the University of Arizona, the University of Washington, and the Wildlife Conservation Society.

*Recipient,* Wildlife Conservation Society (WCS)/Doris Duke Foundation Wildlife Action Opportunities fund, March 2007 (\$75K); in late 2006, this launched TNC-NM’s state-wide climate change vulnerability assessment in support of the New Mexico Department of Game & Fish’s Comprehensive Wildlife Conservation Strategy, or state wildlife action plan.

*Finalist,* Society for Conservation Biology’s David H. Smith Post-Doctoral Fellowship in Conservation Research, December 2005.

#### **OTHER SKILLS**

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*Software:* ArcGIS, JMP statistics, Miradi Conservation Planning package, and working knowledge of remote sensing, UNIX and R.

*Foreign Languages:* Working knowledge of French (minor as undergraduate) and Spanish.