

**ELLIS QUINN MARGOLIS, Ph.D.**

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**EDUCATION**

**University of Arizona; Tucson, Arizona, 85721**  
(1995) B.S. – General Biology (math/chem/physics: spanish)  
(2003) M.S. – Watershed Management  
(2007) Ph.D. – Watershed Management (geography)

**WORK EXPERIENCE**

**University of Arizona Laboratory of Tree-Ring Research**  
Research Associate

Ongoing and recent research projects include:

- Spatial and temporal analysis of climate-driven trends in wildfire pattern across the Southwestern U.S.
- Forest-to-Shrub Type Conversions: Climate-Disturbance Interactions in the Southwestern U.S.
- Landscape assessment and NEPA planning for large-scale restoration at the piñon-juniper, ponderosa pine ecotone.
- Fire modeling and fire-scar estimates of spatial variability in burn probability
- Mixed-conifer forest stand and fire history reconstruction to guide recovery of the federally threatened Jemez Mountain Salamander
- Stream flow and fire history reconstruction to guide management of the Santa Fe Municipal Watershed, New Mexico.
- Spatial and temporal patterns of forest structure in a frequently burned landscape, Gila Wilderness, New Mexico.
- Effects of prescribed fire on quaking aspen regeneration in Lassen National Park, California.

*Duties include: Project design, proposal writing, data management, data analysis, report writing, employee supervision, budgeting and accounting, workshop and outreach presentations, and multi-party collaboration with private and Federal land management stakeholders.*

Instructor

- Lead instructor for Our Changing Climate: Introduction to Weather and Climate, Dendroecology, Introduction to Dendrochronology Lab

*Duties include: Course design, syllabus development, lecture development, course instruction, TA supervision, website updates, student recruitment, course fee budgeting and accounting, field course logistics and planning.*

Graduate Research and Teaching Assistant, M.S. and Ph.D.

- Climate variability effects on spatial and temporal patterns of crown fire; tent caterpillar outbreak reconstruction (1999 – 2007)

**Supervisor: Dr. T.W. Swetnam**

*Research Duties: Research design, proposal writing, collection, preparation, and analysis of tree-ring and climate data to reconstruct stand-replacing fire history and fire-climate relationships in upper montane forests of the southwest United States*

*Teaching Duties: T.A. for Introduction to Physical Geography and Environmental History of the SW*

**Independent Contractor - Santa Fe Watershed Association Collaborative Forest Restoration Project (2008 - 2009)**

- Collaborated with Dr. Melissa Savage (UCLA Geography Dept., 4 Corners Institute) to summarize current research and create recommendations for forest and fire management, as part of a multi-stakeholder effort to develop a watershed management plan in the Santa Fe, NM municipal watershed.

**The Nature Conservancy, National Fire Management & Research Program**

- National Fire Program Technician (1998 – 1999)

**PUBLICATIONS**

Peer-reviewed

Fule, P.Z., Swetnam, T.W., Brown, P.M., Falk, D.A., Peterson, D.L., Allen, C.D., Aplet, G.H., Battaglia, M.A., Binkley, D., Farris, C., Keane, R.E., **Margolis, E.Q.**, Grissino-Mayer, H., Miller, C., Sieg, C.H., Skinner, C., Stephens, S.L., and Taylor, A. *in press*. Unsupported inferences of high severity fire in historical western United States dry forests: Response to Williams and Baker. *Global Ecology and Biogeography*.

**Margolis, E.Q.** *in press*. Fire exclusion linked to increased forest density in a piñon-juniper savanna landscape. *International Journal of Wildland Fire*.

**Margolis, E.Q.** and Swetnam, T.W. 2013. Historical fire-climate relationships of upper elevation (>2700m) fire regimes in the southwestern United States. *International Journal of Wildland Fire* 22:588-598.

**Margolis, E.Q.**, Swetnam, T.W., and Allen, C.D. 2011. Historical stand-replacing fire in upper montane forests of the Madrean Sky Islands and Mogollon Plateau, southwestern USA. *Fire Ecology* 7(3):88-107.

- Margolis, E.Q.**, Meko, D.M., and Touchan, R. 2011. A tree-ring reconstruction of streamflow in the Santa Fe River, New Mexico. *Journal of Hydrology* 397:118-127.
- Margolis, E.Q.** and Balmat, J. 2009. Fire history and fire-climate relationships along a fire regime gradient in the Santa Fe Municipal Watershed, New Mexico, USA. *Forest Ecology & Management* 258:2416-2430.
- Farris, C.A., **E.Q. Margolis**, and J.A. Kupfer. 2008. Spatial Characteristics of Fire Severity Patches in Relation to Fire Growth in a Rocky Mountain Subalpine Forest. In: *Proceedings: Managing Fire and Fuels in the Remaining Wildlands and Open Spaces of the Southwestern United States*. U.S. Forest Service, Pacific Southwest Research Station PSW-GTR-189.
- Margolis, E.Q.**, Swetnam, T.W. and Allen C.D. 2007. A stand-replacing fire history in the Southern Rocky Mountains. *Canadian Journal of Forest Research* 37:2227-2241.

In review or in preparation

- Margolis, E.Q.** and Farris, C.A. *In review (2/2014)* Post-fire quaking aspen regeneration in Lassen Volcanic National Park. *Fire Ecology*
- Margolis, E.Q.** *in preparation*. Landscape patterns of burn probability derived from fire modeling and tree-ring fire scars. *Landscape Ecology*
- Margolis, E.Q.** and Comrie, A.C. *in preparation*. Sub-regional spatial and temporal climate variability in southwest North America derived from a network of moisture sensitive tree-ring chronologies. *International Journal of Climatology*
- Margolis, E.Q.**, J.Danloe, M.Crimmins. *in preparation*. Climate drives fire to higher elevations in the southwestern U.S. *Journal of Biogeography*

Other publications (selected)

- Margolis, E.Q.**, Huffman, D.W., and Iñiguez, J.M. 2013. Southwestern mixed-conifer forests: evaluating reference conditions to guide ecological restoration treatments. Ecological Restoration Institute Working Paper No. 28. Northern Arizona University, Flagstaff, AZ.
- Margolis, E.Q.** 2011. Rowe Mesa landscape assessment for restoration planning. Submitted to USDA Forest Service Pecos/Las Vegas Ranger District for CFRP grant 34-10.
- Margolis, E.Q.** 2011. Leopold reversed himself on fires. Letter to editor – *Albuquerque Journal* 11/16/2011.
- Margolis, E.Q.** and M. Savage. 2008. Vegetation management plan. In: Santa Fe municipal watershed plan, 2010-2029. Final report for Collaborative Forest Restoration Grant # 27-07.
- Margolis, E.Q.** 2007. Fire history and fire-climate relationships in upper elevation

forests of the southwestern United States. Ph.D. Dissertation. University of Arizona, Tucson, AZ.

**Margolis, E.Q.** 2005. Quaking Aspen. Restoring Connections – The Sky Island Alliance Quarterly Newsletter: 8(3) 8-9.

## **PRESENTATIONS/OUTREACH (since 2008)**

### Conference oral presentations

Margolis, E.Q. 2013. Fire regime shift linked to increased forest density in a piñon-juniper savanna ecotone landscape. 12<sup>th</sup> Biennial Conference of Science and Management of the Colorado Plateau. September 17 -19, 2013. Flagstaff, AZ.

Margolis, E.Q. 2013. Collapse of frequent fire regime linked to increased tree density in a piñon-juniper landscape, New Mexico, USA. 2<sup>nd</sup> American dendrochronology conference. May 13-17, 2013. Tucson, AZ.

Iniguez, J.J, **E. Q. Margolis**, M Hunter. 2012. The Gila Wilderness as a natural landscape experiment for ponderosa pine forests. 5<sup>th</sup> International Fire Ecology and Management Congress. Uniting Research, Education, and Management. Dec 3-7, 2012. Portland, OR.

Iniguez, J.J, **E. Q. Margolis**, M Hunter. 2012. The Gila Wilderness as a natural landscape experiment for ponderosa pine forests. 4<sup>th</sup> Natural History of the Gila Symposium. Oct 26-28, 2012. Silver City, NM.

Margolis, E.Q. 2012. Is high severity fire a natural part of the Gila Wilderness? 4<sup>th</sup> Natural History of the Gila Symposium. Oct 26-28, 2012. Silver City, NM.

Iniguez, J., J. Jenness and E.Q. Margolis. 2012. 2011 Fire Season: An overview. Association for Fire Ecology Southwest Fire Ecology Conference. Fire landscapes, wildlife, and people: building alliances for restoring ecosystem resilience. Feb 27 – March 1, 2012. Santa Fe, New Mexico.

Iniguez, J. and **E.Q. Margolis**. 2012. Ponderosa pine spatial patterns in relation to recent burn history in the Gila Wilderness, NM. Association for Fire Ecology Southwest Fire Ecology Conference. Fire landscapes, wildlife, and people: building alliances for restoring ecosystem resilience. Feb 27 – March 1, 2012. Santa Fe, New Mexico.

Margolis, E.Q. 2012. Fire history to guide restoration at the piñon-juniper/ponderosa pine ecotone. Association for Fire Ecology Southwest Fire Ecology Conference. Fire landscapes, wildlife, and people: building alliances for restoring ecosystem resilience. Feb 27 – March 1, 2012. Santa Fe, New Mexico.

Margolis, E.Q. and B. Armstrong. 2011. Rowe Mesa Landscape-Scale Assessment: Planning for Fire-Focused Forest Restoration. Collaborative Forest Restoration Program Annual Meeting, Santa Fe, NM, April 7, 2011.

Margolis, E.Q. 2011. Aspen, climate and stand-replacing fire. Climate Change Workshop: Santa Fe and Carson National Forests. Abuiqui, NM, January 27, 2011.

Margolis, E.Q. 2011. A 700-yr history of fire and streamflow: Santa Fe watershed, New Mexico. Climate Change Workshop: Santa Fe and Carson National Forests. Abuiqui, NM, January 27, 2011.

Margolis, E.Q. 2010. Tree-ring applications for watershed management. New Mexico Watershed Forum, Albuquerque, NM, September 29, 2010.

Margolis, E.Q. and J. Balmat. 2010. A 700-year history of fire: Santa Fe Watershed. New Mexico Watershed Forum, Albuquerque, NM, September 28, 2010.

Margolis, E.Q. and J. Balmat. 2009. Fire history and fire-climate relationships along an elevation, forest type, and fire regime gradient in a high-profile municipal watershed: Santa Fe, New Mexico. Ecological Society of America Annual Meeting, Albuquerque, NM, August 6, 2009.

Margolis, E.Q. 2008. Variability in historical fire regimes of aspen/mixed conifer forests of the southwest. Mixed conifer/aspen ecology and management workshop, Santa Fe, NM, February 20, 2008.

Margolis, E.Q. and T.W. Swetnam. 2008. Fire-climate relationships in upper elevation forests of the southwestern United States. Association for Fire Ecology Southwest Fire Ecology Conference. Fire in the Southwest: Integrating Fire Into Management of Changing Ecosystems, Tucson, AZ, January 28-31, 2008

#### Other lectures/outreach

- National Advanced Fire and Resource Institute (NAFRI) lecture – M580 Fire in Ecosystem Management; Ecosystem dynamics lecture (2012 - present)
- Workshop for Jemez Pueblo Natural Resource Managers & The Nature Conservancy - Applications of tree rings for fire management –(7/2012)
- Collaborative Forest Restoration Program – Lead field trip to Rowe Mesa, NM for restoration outreach and YCC youth training (6/2012)
- Society of American Foresters National Meeting field trip presentation: Fire history in the Santa Fe Watershed. Santa Fe, NM (October 27, 2010).
- LTRR Brown Bag, University of Arizona, A 700-yr history of fire and streamflow: Santa Fe Watershed, NM (November 10, 2010).

- Introductory tree-ring and fire lecture to multiple local elementary school classes (2007 – 2012)
- Guest lecture (fire history, dendroecology) at multiple undergraduate/graduate level courses at the University of Arizona (2002 - 2007)

## GRANTS

- Margolis, E.Q. 1/2014 – 12/2016. Strategic Restoration Implementation in a Large Ponderosa Pine/Piñon-Juniper Landscape. USFS Collaborative Forest Restoration Program Grant -13. **\$359,494.**
- Margolis, E.Q. 9/2013 – 12/2014. Forest-to-Shrub Type Conversions: Climate-Disturbance Interactions in the Southwestern U.S. USGS Cooperative agreement G13AC00247. **\$53,000.**
- Margolis, E.Q. 3/2012 – 10/2013. Tree-ring reconstruction of forest structure and fire history of Jemez Mountain Salamander habitat. Nature Conservancy contract NMFO-120511. **\$88,447.**
- Margolis, E.Q. and Lewis, A. 6/13/2011. Managing fire in a municipal watershed: Santa Fe Watershed Forum. SW Fire Consortium workshop grant. **\$6,500.**
- Margolis, E.Q. 9/2010 – 9/2012. Rowe Mesa Landscape-Scale Assessment: Planning for Fire-Focused Forest Restoration. USFS Collaborative Forest Restoration Program Grant 34-10. **\$235,720.**
- Margolis, E.Q. 7/2010 – 12/2010. Tree-ring corroboration of modeled net primary productivity in the Santa Fe Watershed, NM. Contract from UC Santa Barbara. **\$8,863.**
- Margolis, E.Q. and Iniguez, J. 8/2009 – 9/2011. Assessing forest age structure and tree spatial patterns in repeatedly burned forests: Gila National Forest, NM. Rocky Mountain Research Station Joint Venture Agreement – 09-JV-11221635-33 **\$61,000.**
- Margolis, E.Q. and Farris, C. 9/2008 – 9/2010. Post-fire quaking aspen regeneration response. National Park Service, Lassen Volcanic National Park, CA. **\$15,000.**
- Margolis, E.Q., Swetnam, T.W. and Meko, D. 5/2008 – 10/2009. Tree-ring reconstruction of fire history and streamflow in the Upper Santa Fe Watershed, NM. Contract with the City of Santa Fe, NM. **\$104,225.**
- Swetnam, T.W., Allen, C.D., and Margolis, E.Q. 2005. Response of Western Mountain Ecosystems to Climatic Variability and Change: The Western Mountain Initiative -- Upper Santa Fe Watershed. USGS-BRD Global Change Research Program. **\$29,218.**
- Swetnam, T.W., Allen, C.D., and Margolis, E.Q. 2003. Investigating the role of crown fires in the southwestern U.S. – A supplementary proposal to USGS Global Change Project on Climate-Induced Disturbances in Semiarid Ecosystems in the Southwestern U.S. **\$75,949.**

## **SERVICE, SOCIETY MEMBERSHIP, AWARDS**

### Service

- Manuscript reviews: Canadian Journal of Forest Research, Dendrochronologia, Ecological Applications, Fire Ecology, Forest Ecology and Management, Journal of Ecology, International Journal of Wildland Fire, Tree-Ring Bulletin and multiple book chapters and proceedings.
- Santa Fe Watershed technical advisory group member (2005-2007)

### Professional society involvement

- Session chair – Ameridendro (2013)
- Program committee and session chair – AFE SW Fire Ecology Conference (2012)
- Field trip leader: Ecological Society of America Annual Meeting (2009)
- National co-chair: Student Association for Fire Ecology (SAFE) (2002 – 2004)
- Board member: Association for Fire Ecology (AFE) (2002 – 2003)
- Session chair - 2003 AFE International Fire Congress (fire history)

### Awards

- LTRR Outstanding Graduate Teaching Assistant (May 2006)
- Association for Fire Ecology travel grant recipient (2003, 2012)
- Schulman Award for excellence in tree-ring research – Univ. of Arizona (2002)
- Graduate Professional Student Council travel grant recipient (2002)
- Phi Eta Sigma academic honor society

## **ADDITIONAL TRAINING/SKILLS**

- In my research I use a variety of software including: ESRI ArcMap (GIS), FlamMap (fire modeling), R (statistical analysis and graphics), Matlab, SPSS, Minitab, Sigmaplot, Correl Draw, and Photoshop.

## **REFERENCES**

Dr. Thomas Swetnam; Director of the Laboratory of Tree-Ring Research, University of Arizona; email: [tswetnam@ltrr.arizona.edu](mailto:tswetnam@ltrr.arizona.edu); phone: (520) 621-2112

Dr. Craig Allen; USGS Jemez Mountain Field Station; email: [craig\\_allen@usgs.gov](mailto:craig_allen@usgs.gov); phone: (505) 672-3861

Dr. Don Falk; Associate Research Professor, School of Natural Resources, University of Arizona; email: [dafalk@u.arizona.edu](mailto:dafalk@u.arizona.edu); phone: (520) 626-7201