

# Kaelin M. Groom, Ph.D.

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## MISSION STATEMENT

Fervently dedicated to fieldwork, discovery, and fusing art with science, my life's mission—as a scholar and as a person—rests in understanding how our beautifully complex world all fits together, what makes it tick, and how to proactively conserve the landscapes of the past for the sake of the future through heritage science and cultural resource management. By maintaining an active and contributing role in each arena, my career is built upon passionately bridging the rifts between education, policy, and scientific exploration.

## EDUCATION

- Master Class for Teaching Online** November 2017  
Certificate of Completion. ASU-Online™  
Arizona State University.
- Doctor of Philosophy (PhD) in Environmental Dynamics** March 2017  
Dept. of Geosciences and King Fahd Center for Middle East Studies  
University of Arkansas, Fayetteville, AR  
Rock Art Management and Landscape Change: Mixed Field  
Assessment Techniques for Cultural Stone Decay
- Master of Arts (MA) in Geography** (foci: Cartography and Arid Lands) May 2014  
Dept. of Geosciences and King Fahd Center for Middle East Studies  
University of Arkansas, Fayetteville, AR
- Bachelor of Arts (BA) in Geography, with Honors** May 2012  
Dept. of Geography and Environmental Sciences  
University of Colorado Denver, CO

## UNIVERSITY EMPLOYMENT

- ASU-Online™ Faculty Associate** Spring 2017 – Present  
School of Geographical Science and Urban Planning  
Arizona State University, Tempe, AZ
- Instructor and Curriculum Developer** Spring 2012 – Fall 2016  
Dept. of Geosciences, University of Arkansas, Fayetteville, AR
- Co-Instructor** Sum 2014 & Win 2014/15  
Dept. of Geography and Environmental Sciences, University of Colorado Denver
- Teaching and Research Assistant** July 2010 – May 2012  
Dept. of Geography and Environmental Sciences, University of Colorado Denver

## COURSES TAUGHT

- Geography by Rail®: Morocco
- Geography of Fictional Worlds
- Geography of the Middle East and North Africa
- Geographic Research Methods
- Introduction to Cartography
- Computer Mapping
- Introduction to Physical Geography (with lab)
- Sustainability in the Caribbean: Grenada, W.I.
- World Regional Geography

FUNDING RECEIVED (~\$560,000 external, ~\$50,000 internal)

- **Lead-Principal Investigator and Project Director.** *Community Based Rock Art and Epigraphic Recording (CBRAER) Extension: Hisma Rock Art Rangers Initiative (HRARI)* in Wadi Rum, Jordan. August 2019 – July 2021. Under: Sustainable Cultural Heritage through Engagement of Local Communities Project (SCHEP) funded by USAID. **\$390,000.**
- **Fulbright U.S. Scholar Fellowship** to the Hashemite Kingdom of Jordan, Award# 10358-JO. September 2019 – June 2020. Funded by the Council for International Exchange of Scholars (CIES) and the U.S. State Department. **\$61,560.**
- **Co-Principal Investigator.** *The Geomorphology and Conservation of Damaged Heritage in Modern Conflict Zones—International Network Fund* in Wadi Rum, Jordan. Funded by Manchester Metropolitan University. September 2018. **\$6,500.**
- **Co-Principal Investigator.** *The Geomorphology and Conservation of Damaged Heritage in Modern Conflict Zones* in Wadi Rum, Jordan. Funded by the Global Challenges Fund at Manchester Metropolitan University. December 2017 – November 2018. **\$10,700.**
- **Co-Principal Investigator.** *Community Based Rock Art and Epigraphic Recording* in Wadi Rum, Jordan. March 2017 – February 2018. Under: Sustainable Cultural Heritage through Engagement of Local Communities Project (SCHEP) funded by USAID. **\$98,080.**
- **Doctoral Academy Fellowship** for outstanding doctoral students. Graduate School and International Education, University of Arkansas. August 2014 – May 2017. **\$30,000**
- **Roy and Christine Sturgis International Fellowship** for international research. Doctoral research in Amman, Jordan. Graduate School and International Education, University of Arkansas, Fayetteville, AR. January 2016 – June 2016. **\$15,500.**
- **Doctoral Student Travel Grant** for the *2015 AAG National Conference*, Chicago, IL. University of Arkansas. April 2015. **\$1,100.**
- **Graduate Student Travel Grant** for the *2014 AAG National Conference*, Tampa, FL. University of Arkansas. April 2014. **\$660.**
- **King Fahd Center for Middle East Studies Summer Research Grant** for thesis/masters research in Petra, Jordan. May-June 2013. **\$3,000.**
- **Graduate Student Travel Grant** for the *2014 AAG National Conference*, Los Angeles, CA. University of Arkansas. April 2013. **\$660.**
- **Association of American Geographers Todd Reynolds Memorial Fund Disability Travel Grant** for the *2012 AAG National Conference*, New York, NY. **Sole Awardee.** February 2012. **\$288.**

BOOKS and MANUALS

- **Groom, K.M.** and C.D. Allen (2019). *Cultural Stone Stability Index Reference Manual*. Utah, USA: Stone Heritage Research Alliance, LLC. 112 pages.
- **Groom, K.M.** and C.D. Allen (2017). *Rock Art Rangers Handbook for the Wadi Rum Protected Area*. Aqaba Special Economic Zone Authority. Aqaba, Jordan. 58 pages.
- **Groom, K.M.** (2017). *English/Arabic Rock Art Stability Index (RASI) Reference Manual*. American Center for Oriental Research and the Sustainable Cultural Heritage Through the Engagement of Local Communities Project (SCHEP). Amman, Jordan. 238 pages.

PEER-REVIEWED PUBLICATIONS and BOOK CHAPTERS

- **Groom, K.M.**, G. Bevan, M.D. Al-Zalabieh, S.M. Al-Noaimat, C.D. Allen (2020, Under Review). “Community Engagement in Geologic Assessments of Thamudic Inscripton and Petroglyphs in the Wadi Rum Protected Area, Jordan” in Global Perspectives for the Conservation and Management of Open-Air Rock Art Sites, A.B. Fernandes and M. Marshall, eds. Routledge.
- Allen, C.D., C.D. Kennedy, **K.M. Groom**, N.V. Cervený, R.I. Dorn, and D.S. Whitley (2020, Under Review). “The Rock Art Stability Index: A Non-Invasive Rapid Field Assessment for Condition Evaluation” in Global Perspectives for the Conservation and Management of Open-Air Rock Art Sites, A.B. Fernandes and M. Marshall, eds. Routledge. pp. forthcoming.
- **Groom, K.M.**, N.V. Cervený, C.D. Allen, R.I. Dorn, J. Theuer (2019). Protecting Stone Heritage in the Painted Desert: Employing the Rock Art Stability Index in the Petrified Forest National Park, Arizona. *Heritage*. 2(3): 2111-2123. *Invited*.
- Mol, L., C. Brassey, L. Clarke, **K.M. Groom**, R. King (2019). In The Crosshairs: Ancient Rock Art Under Fire. *Eos: Earth and Space Science News*, pp. Online.
- **Groom, K.M.** (2018). Historic Repeat Photography as a Tool to Assess Touristic Landscapes: A Case Study in Petra, Jordan. *Refereed Proceedings of the First Conference on the Archaeology and Tourism of the Maan Governorate, 3rd- 4th October, 2017, Petra, Jordan* (Eds. Al-Salameen, Z.M. & M.B. Tarawneh). Supplement to *Al-Hussein Bin Talal University's Journal of Research (AHUJ)*.
- Allen, C.D., E. Stacy, **K.M. Groom**, R. Schubert, C. Heagle, D. Olof, and M. James. (2018) “A Geologic Assessment of Historic St. Elizabeth of Hungary Church Using the Cultural Stone Stability Index, Auraria Campus, Denver, Colorado” in Urban Geomorphology: Landforms and Processes in Cities, M.J. Thornbush and C.D. Allen, eds. Elsevier. pp. 277-302.
- **Groom, K.M.**, R. Sincavage, and F. Chambers (2017). “The Virgin Islands” in Landscapes and Landforms of the Lesser Antilles, C.D. Allen, ed. Springer. pp. 17-30.
- Garmon, W.T., C.D. Allen, and **K.M. Groom**. (2017). “Lesser Antilles Geomorphologic and Climatic Overview” in Landscapes and Landforms of the Lesser Antilles, C.D. Allen, ed. Springer. pp. 7-16.
- **Groom, K.M.** (2016). The Applicability of Repeat Photography in Rock Art Conservation: A Case Study of Mixed Methods in the Arkansan Ozarks. *Zeitschrift für Geomorphologie*. 60(3): 11-28.
- **Groom, K.M.** (2016) Fading Imagery: a Mixed Method Analysis of Rock Art Deterioration in the Arkansan Ozarks. *International Newsletter of Rock Art*.
- **Groom, K.M.**, C.D. Allen, L. Mol, T.R. Paradise, and K. Hall (2015). Defining Tafoni: Re-Examining Terminological Ambiguity for Cavernous Rock Decay Phenomena. *Progress in Physical Geography*. 39(6): 775-793.
- **Groom, K.M.** and C.D. Allen (2014). Denver’s Forgotten Flood: The Geomorphologic Impacts of the 1933 Castlewood Dam Failure. *The Journal of the West* 53(2): 54-65.
- Allen, C.D. and **K.M. Groom** (2013). Evaluation of Grenada’s “Carib Stones” via the Rock Art Stability Index. *Applied Geography Special Issue: Cultural Geomorphology*. 42: 165-175.
- Allen, C.D. and **K.M. Groom** (2013). A Geologic Assessment of Grenada’s Carib Stones. *International Newsletter on Rock Art* 65: 19-24.
- Dorn, R.I., S.J. Gordon, C.D. Allen, N.V. Cervený, J.C. Dixon, **K.M. Groom**, K. Hall, E. Harrison, L. Mol, T.R. Paradise, G. Pope, P. Sumner, T.J. Thompson, and A.V. Turkington. (2013). The role of fieldwork in rock decay research: Case studies from the fringe. *Geomorphology* 200: 59-74. *Invited*.
- Dorn, R.I., J. Dorn, E. Harrison, E. Gutbord, S. Gibson, P. Larson, N. Cervený, N. Lopat, **K.M. Groom**, C.D. Allen (2012). Case Hardening Vignettes from the Western USA: Convergence of Form from a Divergence of Hardening Processes. *Association of Pacific Coast Geographers Yearbook* 74: 1-12.

## HONORS and AWARDS

- **Fulbright U.S. Scholar Fellowship.** CIES and U.S. State Department. Hashemite Kingdom of Jordan. September 2019 – June 2020.
- **Sir Richard F. Burton Award for Outstanding Field Research in Geography.** University of Arkansas and the Department of Geosciences. *Sole Awardee.* May 2014.
- **Outstanding Geography Graduate Student Award.** University of Arkansas and the Department of Geosciences. *Sole Awardee.* April 2014. \$500.
- **Brigadier General Rodger's Scholarship for Geography Majors,** University of Colorado Denver. April 2011. \$1000.
- **Outstanding Student Organization Leader,** CU Denver and Anschutz Medical Campus. *Sole Awardee.* May 2011.
- **University of Colorado Denver College of Liberal Arts and Sciences Dean's List Scholarship,** August 2011 – May 2012. \$1088.
- **Second Place,** all-student paper competition, Great Plains-Rocky Mountains Association of American Geographers regional meeting, Denver, CO, October, 2011.

## ADVISORY POSITIONS

- **Director and Co-Founder.** Stone Heritage Research Alliance LLC. Tremonton, UT. [www.shralliance.com](http://www.shralliance.com). 2019 – Present
- **International Research Associate.** Various projects conducted by the Barbados National Trust, St. Michael, Barbados. 2018 – Present.
- **Affiliated Researcher.** Heritage in the Crossfire. Research Project Funded by the Leverhulme Trust, UK. 2019.
- **Stone Heritage Research Consultant.** Stone Decay Mapping and Monitoring in Vulnerable Excavated Structures at Stobi, Republic of North Macedonia. Funded by the JM Kaplan Foundation and Balkan Heritage Foundation. 2019.
- **Co-Director.** Har Michia Rock Engraving Site: In-situ Implementation of Documentation and Assessments Tools Fieldtrip. The Fund for the Advancement of Humanities and Social Sciences in Israel Workshop on Science and Negev Rock-art. Negev, Israel. May 2018. *Invited.*
- **Cultural Resource Management Consultant.** *December 2017 SOC Response to UNESCO Decision WHC/16/40 COM/7B.* Wadi Rum Protected Area under the Aqaba Special Economic Zone Authority (ASEZA). Aqaba, Jordan. October 2017.
- **Research Consultant,** Cultural Heritage Management. University of Colorado Denver's *Sustainability in the Caribbean* Field Study (Grenada, West Indies). Summers 2012-2014.
- **Collaborating Scientist.** National Science Foundation Course Curriculum and Laboratory Improvement grant (0837451, 0837051, and 0836812). June 2011 – July 2013.

## INVITED and REFEREED CONFERENCES

- L. Mol, C. Brassey, L. Clarke, **K.M. Groom**, O. Gilbert, O. Campbell, T. Blenkinsop (Sept 2020–Scheduled). *Heritage in the Crossfire.* 14<sup>th</sup> International Congress on the Deterioration and Conservation of Stone. Göttingen, Germany. *Refereed.*

INVITED and REFEREED CONFERENCES (Cont.)

- L. Mol, O. Gilbert, O. Campbell, C. Brassey, L. Clarke, **K.M. Groom**, R. King, T. Blenkinsop (Sept 2019). *Ballistics: Extremely Rapid Stone Deterioration*. Annual Meeting of the British Society for Geomorphology 2019. University of Sheffield, UK. **Refereed**.
- **Groom, K.M.**, G. Bevan, and C.D. Allen. (January 2019). *The Rock-Art Rangers Program: Enhancing Tourism and Improving Employment Outcomes in Wadi Rum*. International Conference on the History and Archaeology of Jordan, Florence, Italy. **Refereed and Invited**.
- Bevan, G., **K.M. Groom**, and C.D. Allen (November 2018). *Community-Based Rock-Art and Epigraphic Recording using GPS-enabled Smartphones in Wadi Rum, Jordan*. 2018 American Schools of Oriental Research Annual Meeting. Denver, CO. **Refereed**.
- **Groom, K.M.** (May 2018). *Advancements in Petroglyph Documentation and Analysis using the Rock Art Stability Index (RASI)*. The Fund for the Advancement of Humanities and Social Sciences in Israel Workshop on Science and Negev Rock-art. Ben Gurion University of the Negev, Sde Boker, Israel. **Refereed and Invited**.
- **Groom, K.M.** (November 2017). *Potential Threshold Response in Tafoni Development: An Alternative Approach to Cavernous Rock Decay*. 9<sup>th</sup> International Conference on Geomorphology (9<sup>th</sup> ICG). Vigyan Bhawan, New Delhi, India. **Refereed**.
- **Groom, K.M.** (October 2017). *Historic Repeat Photography as a Tool to Assess Heritage Tourism Landscapes: A Case Study in Petra, Jordan*. The First Conference on the Archaeology and Tourism of the Ma'an Governorate. Al-Hussein Bin Talal University, Wadi Mousa, Jordan. **Refereed and Invited**
- **Groom, K.M.** (November 2016). *A Preliminary Assessment of Rock Art Stability and Heritage Management in Wadi Hassan, Jordan*. 2016 American Schools of Oriental Research Annual Meeting. San Antonio, TX. **Invited**.
- **Groom, K.M.** (November 2015). *Changing Imagery: Potential of Repeat Photography to Assess Tourism Impacts in Petra, Jordan*. 2<sup>nd</sup> Annual University of Arkansas Research Conference. Fayetteville, AR. **Invited**.
- **Groom, K.M.** (October 2014). *Environmental Impacts on Cultural Stone Decay via Tafoni Development on Djinn Block X in Petra, Jordan*. 1st Annual University of Arkansas Research Conference, Fayetteville, AR. **Invited**.
- **Groom, K.M.** (April 2014). *Analysis of Environmental Influences on Dressed Stone Decay: A Case Study of Tafoni Development on a Hewn Djinn Block in Petra, Jordan*. Special Session on Geoarcheology and Stone Decay, Association of American Geographers Annual Conference, Tampa, FL. **Invited**.
- **Groom, K.M.** (March 2014). *Assessment and Preservation of Rock Art: Analysis and Technologies for Petroglyphic Conservation in Wadi Rum*. Man and the Deserts: 2nd International Conference in Wadi Rum. Wadi Rum, Jordan. **Refereed and Invited**.
- Allen, C.D. and **K.M. Groom** (August 2013). *Geologic Analysis of Grenada's Carib Stone and Implications for Future Management*. 8<sup>th</sup> International Association of Geomorphologists International Conference, *Sustainability and Geomorphology*, Paris, France. **Refereed**.

## INVITED GUEST LECTURES

- **Groom, K.M.** (May 2019). *Keynote Lecture: Now What? The Complex Realities of Heritage Management in Post-Conflict Landscapes*. Heritage in the Crossfire: Multi-Method Approaches to Heritage Protection and Destruction in Conflict Zones. Special event hosted by the University College London and the Victoria and Albert Museum. London, UK.
- **Groom, K.M.** (April 2019). *Mass Wasting: Concepts, Processes, and Forms*. Guest Lecture in Natural Hazards. The University of the West Indies-Cave Hill. Cave Hill, Barbados.
- Mol, L., L. Clark, C. Brassey, **K.M. Groom**, and R. King (January 2019). *Ballistic Damage to Wadi Rum Rock Art: an Interdisciplinary Approach*. Special Topics Research Lecture. University of West of England. Bristol, United Kingdom.
- **Groom, K.M.** (August 2017). *Encouraging Community Based Cultural Landscape Management Using the Rock Art Stability Index: A Case Study in Wadi Rum, Jordan*. Guest Scholar Lecture. Ben-Gurion University of the Negev. Beersheba, Israel.
- **Groom, K.M.** (August 2017). *From the Ground Up: Community Engagement in Rock Art Management in Wadi Rum*. American Center for Oriental Research (ACOR) Lecture Series. ACOR Amman Office, Amman, Jordan.
- **Groom, K.M.** (February 2014). *Earthquake Mechanics and Susceptibility of Salt Lake City, UT*. Guest Lecture in Hazard & Disaster Assessment, Mitigation, Risk & Policy. University of Arkansas, Fayetteville, AR.

## NON-REFEREED CONFERENCES

- **Groom, K.M.** and C.D. Allen (April 2017). *Rock Art Stability Index Using GIS and GPS: A Valuable Tool for the Assessment and Conservation of Rock Art*. The First International Workshop on Applications of Geomatics Engineering in Natural and Cultural Heritage Conservation and Management. Al al-Bayt University, Mafrq, Jordan.
- **Groom, K.M.** (April 2017). *Visualizing Tourism and Landscape Change in Petra, Jordan*. American Association of Geographers Annual Conference. Boston, MA.
- **Groom, K.M.** and C.D. Allen. (April 2013). *Benefits of Geomorphologic-Based Research to Support Cultural Heritage Management of Grenada's Carib Stones*, Association of American Geographers Annual Conference, Los Angeles, CA.
- Dorn, R.I., S.J. Gordon, C.D. Allen, N.V. Cervený, J.C. Dixon, **K.M. Groom**, K. Hall, E. Harrison, L. Mol, T.R. Paradise, G. Pope, P. Sumner, T.J. Thompson, and A.V. Turkington, (Sept 2012) *The Role of Field Work in Rock-Decay Research: Case Studies from the Fringe*. 43<sup>rd</sup> Binghamton Geomorphology Symposium, Jackson Hole, WY.
- **Groom K.** (Feb 2012). *Geospatial Analysis of the 1933 Castlewood Canyon Dam Breach*. Association of American Geographers Annual Conference, New York, NY.
- **Groom, K.** (Oct 2011). *Paleoflood Forensics of the Castlewood Canyon Dam Breach*. Great Plains-Rocky Mountain Association of American Geographers, Denver, CO (second place in all-student paper competition).
- **Groom, K.**, F. Zamora, R. Poole, T. Toms. (Oct 2010). *Squatting on Cactus and Rootbeer Floats: Benefits of Fieldwork in Undergraduate Education*. Great Plains-Rocky Mountain Association of American Geographers, Lawrence, KS.

## TECHNICAL REPORTS and MULTI-MEDIA

- **Groom, K.M.** (2019–Under Review). Treasures of the Desert: Lessons Learned with the Inaugural Wadi Rum Rock Art Rangers Class 2018. *American Center of Oriental Research Blog*. Ed. John Green. Forthcoming. **Invited.**
- **Groom, K.M.** (2016) Heritage in Stone: Assessing the Geologic Stability of Jordan’s Rock Art. *American Center of Oriental Research Blog*. Ed. Glenn Corbett. June 13, 2016. **Invited.**
- **Groom, K.M.** (2011). Historical Assessment of Rock Decay on Dry Wash Bridge, Petrified Forest National Park. *Rocky Mountain Cooperative Ecosystem Study Unit Project Summary Report*. National Park Service, with annotated illustrations.
- **Groom, K.M.** and T.J. Thompson (2011). RASI Survey of Sites in Petrified Forest National Park 2011. *Rocky Mountain Cooperative Ecosystem Study Unit Project Summary Report*, with annotated illustrations.
- **Groom, K.** and R. Poole. (2010). RASI Survey of Sites in Petrified Forest National Park 2010. *Rocky Mountain Cooperative Ecosystem Study Unit Project Summary Report*. National Park Service, with annotated illustrations.

## CONTRACTED CARTOGRAPHY

- **“Mount Manaslu Avalanche”** and **“Manaslu Trekking Circuit”**. Contextual maps in *All In* by John Hill (2019). Retelling Personal Historians and Samizdat Creative Publishing, Denver, CO.
- **“Southeast Asia and Oceania”** (2017). Regional map in *When the Sharks Come* by Ray Pittman. Retelling Personal Historians and Samizdat Creative Publishing, Denver, CO.
- **“Islands of the Lesser Antilles” et al.** (2017). 22 regional and informational maps in *Landscapes and Landforms of the Lesser Antilles*, C.D. Allen, ed., Springer. *World Geomorphological Landscapes* series.
- **“Amerindian Heritage Sites: Grenada, Carriacou, and Petite Martinique”** (2014). Large Cartographic and informational panel in the Amerindian Exhibit, Grenada National Museum, St George’s, Grenada (Caribbean).
- **“Grenada’s Rock Art: The Carib Stones”** (2014, with C.D. Allen). Large Cartographic and informational panel in the Amerindian Exhibit, Grenada National Museum, St George’s, Grenada (Caribbean).

## PROFESSIONAL SERVICE

- **Tutorial Director** (April 2019). “Factors and Hazards of Mass Wasting Events” applied lab in *Natural Hazards*, The University of the West Indies-Cave Hill. Cave Hill, Barbados.
- **Book Reviewer.** *Heritage Stone Conservation in Urban Churchyards: The Impact of Air Pollution*, by M.J. Thornbush and S.E. Thornbush (2018). SpringerBrief Series in Geography. New York City, New York, USA. **Invited.**
- **Content Accuracy Reviewer** (Fall 2016). *Physical Geography Lab Manual 12<sup>th</sup> Edition*. Pearson Education, Upper Saddle River, NJ.

## PROFESSIONAL AFFILIATIONS

- Sigma Xi: Scientific Research Society, full member 2015 – Present
- Gamma Theta Upsilon (*Mu Lambda* and *Gamma Kappa* chapters) 2012 – Present
- American Association of Geographers, member 2010 – Present
- Geography and Environmental Science/GIS Club, President 2010 – 2012

## OTHER SKILLS and CERTIFICATIONS

- Foreign Language Proficiencies:
  - *Arabic*: intermediate speaking, reading, and writing
  - *Spanish*: conversational speaking, beginning reading and writing
- Expert in the Rock Art Stability Index (RASI) and Cultural Stone Stability Index (CSSI)
- PADI™ Certified Rescue Diver and Emergency First Response
- Graffiti removal and basic stone heritage restoration
- Thin-section rock sample preparation
- Gold leafing preparation and restoration techniques
- Technologically Proficient in:
  - ESRI™ ArcGIS software
  - ArcPad and GPS technologies
  - Complete Adobe™ Suite
  - Microsoft Office™ Suite
  - Mac and PC Operating Systems
  - Gigapan and Repeat Photography