

# MARCUS JOHN HAMILTON

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## CURRENT POSITIONS

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- 2009-present National Science Foundation (NSF) postdoctoral fellow, Dept. of Biology, UNM. NSF RCN grant DEB 0541625 (PI's F. Smith, S.K. Lyons, and M. Ernest): *Integrating Macroecological Pattern and Processes across Scales* (IMPPS).
- 2009-present Affiliated faculty, *Program in Interdisciplinary Biological and Biomedical Sciences* (PIBBS), UNM. Howard Hughes Medical Institute grant 1T32EB009414-01 (PI's J.H. Brown and F. Smith).
- 2008-present Adjunct Assistant Professor, Dept. of Anthropology, UNM.

## ACADEMIC HISTORY

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- 2002-2008 Ph.D. *with Distinction* in Anthropology, UNM. Dissertation: *Quantifying Clovis Dynamics: Confronting Theory with Models and Data Across Scales*.
- 2000-2002 Master of Science (M.S.) *with Distinction* in Anthropology, UNM.
- 1995-1998 Bachelor of Science (B.Sc.) *with 1<sup>st</sup> Class Honours*, Institute of Archaeology, University College London (UCL), UK. Dissertation: *Broken Bison Bones: A Faunal Analysis of 41LUI Area 10, Lubbock Lake Landmark, Texas, USA*.

## VISITING POSITIONS

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- 2007 Visiting scholar, Centre for the Evolution of Cultural Diversity, Institute of Archaeology, University College London, UK (October). Host: James Steele.
- 2007-2008 Visiting scholar, Institute of Ecology, National University of Mexico (UNAM), Mexico City, MX. Host: Gerardo Ceballos.

**FELLOWSHIPS AND FUNDING (~\$100,000)**

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- 2009-present NSF postdoctoral fellow, Dept. of Biology, UNM, \$34,000 + benefits.
- 2008 PIBBS travel grant to present at the 73<sup>rd</sup> Annual Society of American Archaeology (SAA) Meetings, Vancouver, BC, \$1,000.
- 2007 Arizona Archaeological and Historical Society research grant, \$250.
- 2005-2006 NSF *Fellowship in Ecological Complexity*, NSF Biocomplexity grant DEB 0083422 (PI's J.H. Brown, B.T. Milne, and G.B. West), \$15,000 + tuition.
- 2004-2005 *Hibben Foundation Senior Fellowship*, Dept. of Anthropology, UNM, \$15,000 + tuition.
- 2005 *Graduate and Professional Student Association/Student Research Allocation Committee (SRAC)*, UNM award for costs associated with dissertation data collection and presenting at the 70<sup>th</sup> Annual Society of American Archaeology (SAA) Meetings, Salt Lake City, UT, \$340.
- 2004 SRAC, UNM award for presenting at the 69<sup>th</sup> SAAs, Montreal, Canada, \$500.
- 2000-2003 *Lewis R. Binford Fellowship*, Dept. of Anthropology, UNM, \$30,000 + tuition.
- 2001 *Tinker Foundation* field research grant from the Latin American and Iberian Institute, UNM, for archaeological survey in northern Mexico, \$1,500.
- 1995+1996 *Undergraduate Field Research Grants*, Institute of Archaeology, UCL, \$2,000.

**TEACHING AND RESEARCH POSITIONS**

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- 2009 Class Instructor: Section on *Human Metabolic Ecology*, Program for Interdisciplinary Biological and Biomedical Sciences, UNM (scheduled).
- 2007 (Sum.) Teaching Assistant: *UNM Archaeology Field School*.
- 2005-2006 Research Assistant: National Science Foundation (NSF) *Research Fellow in Ecological Complexity*, Dept. of Biology, UNM.
- 2004 (Fall) Class Instructor: *Quantitative Methods in Anthropology* (ANTH 372/572).
- 2004 (Spring) Teaching Assistant: Museum of Southwestern Biology, Dept. of Biology, UNM.
- 2003 (Fall) Research Associate: Museum of Southwestern Biology, Dept. of Biology, UNM.
- 2003 (Spring) Teaching Assistant: *Human Evolution Laboratory* (ANTH 151L).

- 2003 (Spring) Teaching Assistant: *Evolution and Human Emergence* (ANTH 150).
- 2002 (Fall) Teaching Assistant: *Quantitative Methods in Anthropology* (ANTH 372/572).
- 2002 (Sum.) Teaching Assistant: *UNM Archaeology Field School*.
- 2002 (Spring) Teaching Assistant: *World Archaeology* (ANTH 220).
- 2002 (Spring) Teaching Assistant: *Mesoamerican Prehistory* (ANTH 322).
- 2001 (Fall) Teaching Assistant: *Archaeological Methods and Theory Laboratory* (ANTH 121L).
- 2001 (Sum.) Teaching Assistant: *UNM Archaeology Field School*.
- 2001 (Spring) Teaching Assistant: *Introduction to Anthropology* (ANTH 101).
- 2000 (Fall) Teaching Assistant: *Introduction to Anthropology* (ANTH 101).
- 1994-2000 Research Associate: Department of Anthropology, Museum of Texas Tech University, Lubbock, Texas.

#### ACADEMIC HONORS

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- 2008 Distinction in the Ph.D. dissertation defense, Dept. of Anthropology, UNM.
- 2006 Elected *Phi Kappa Phi* academic honors society.
- 2005 Santa Fe Institute (SFI) Complex Systems Summer School.
- 2004 *Brolio-Basehart Award* for the leading paper contributions from the Dept. of Anthropology, UNM to the SAA meetings.
- 2002 *High Pass* (distinction) in the comprehensive examinations for the Master's of Science degree, Dept. of Anthropology, UNM.
- 2001 *Brolio-Basehart Award* for the leading paper contributions from the Dept. of Anthropology, UNM to the SAA meetings.
- 1998 1<sup>st</sup> Class Hons. in the Bachelor of Science degree, Institute of Archaeology, UCL.
- 1998 *Roy Hodson Undergraduate Dissertation Award*, Institute of Archaeology, UCL. Dissertation: *Broken Bison Bones: A Faunal Analysis of 41LUI, Area 10, Lubbock Lake, Texas*.

**PEER-REVIEWED PUBLICATIONS**

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- In review Burnside, B., L. Bettencourt, O. Burger, **M.J. Hamilton**, M.E. Moses, and J.H. Brown. Human macroecology: Linking pattern to process in big-picture human ecology. *Ecology Letters*.
- In review Burger, O., R.S. Walker, and **M.J. Hamilton**. Lifetime reproductive effort in humans. *Proceedings of the Royal Society of London, Series B*.
- In review **Hamilton, M.J.**, A.D. Davidson, R.M. Sibly, and J.H. Brown. Universal scaling of production rates in mammals: convergence of placentals, marsupials, and monotremes. *Science*.
- In review Baker, J. K. Hill, M. Hurtado, M. Frey, R.S. Walker, **M.J. Hamilton**, and A. Alcantra. Toward an applied anthropological demography: how Anthropology—and Anthropologists—can improve population estimates of vulnerable human populations. *Human Organization*.
- In review Collard, M., B. Buchanan, and **M.J. Hamilton**. On the status of the Clovis First Model for the colonization of the Americas. *Evolutionary Anthropology*.
- In review Rivera Tellez, E.,A. Martinez Chacon, and **M.J. Hamilton**. Body size matters: estimating field metabolic rate for *Sylvilagus cunicularius* with equations from Nagy and Speakman. *The Southwestern Naturalist*.
- 2009 **Hamilton, M.J.**, B.B. Huckell, and M.S. Shackley. Clovis obsidian sources in the central Rio Grande Rift region of New Mexico. *Current Research in the Pleistocene* (in press).
- 2009 **Hamilton, M.J.**, O. Burger, M.E. Moses, J. DeLong, R.S. Walker, and J.H. Brown. Population stability, cooperation and the invasibility of the human species. *Proceedings of the National Academy of Sciences* (in press).
- 2009 Davidson, A.D, **M.J. Hamilton**, A.D. Boyer, J.H. Brown, and G. Ceballos. Multiple ecological pathways to extinction in mammals. *Proceedings of the National Academy of Sciences* **106(26)**: 1702-1705.
- 2009 Buchanan, B. and **M.J. Hamilton**. A formal test of the origin of variation in North American Early Paleoindian points. *American Antiquity* **74(2)**: 279-298.
- 2009 Holliday, V.T., B.B. Huckell, R.H. Weber, **M.J. Hamilton**, W.R. Reitze, and J.H. Mayer. Geoarchaeology of the Mockingbird Gap (Clovis) Site, Jornada del Muerto, New Mexico. *Geoarchaeology* **24(3)**: 348-370.

- 2009 **Hamilton, M.J.** and B. Buchanan. The accumulation of stochastic copying errors causes drift in culturally transmitted technologies: quantifying Clovis evolutionary dynamics. *Journal of Anthropological Archaeology* **28**: 55-69.
- 2008 Huckell, B.B., V.T. Holliday, **M.J. Hamilton**, C. Sinkovec, C. Merriman, M. S. Shackley, and R.H. Weber. The Mockingbird Gap Clovis Site: 2007 investigations. *Current Research in the Pleistocene* **25**: 95-97.
- 2008 Walker, R.S., M. Gurven, O. Burger, and **M.J. Hamilton**. The trade-off between number and size of offspring in humans and other primates. *Proceedings of the Royal Society of London, Series B* **275(1636)**: 827-833.
- 2008 Walker, R.S. and **M.J. Hamilton**. Life history consequences of density-dependence and the evolution of human body size. *Current Anthropology* **49(1)**: 115-122.
- 2007 **Hamilton, M.J.** and B. Buchanan. Spatial gradients in Clovis-age radiocarbon dates across North America suggest rapid colonization from the north. *Proceedings of the National Academy of Sciences, USA* **104(40)**: 15629-15634.
- 2007 **Hamilton, M.J.**, B.T. Milne, R.S. Walker, O. Burger, and J.H. Brown. The complex structure of hunter-gatherer social networks. *Proceedings of the Royal Society of London, Series B* **274 (1622)**: 2195-2202.
- 2007 **Hamilton, M.J.**, B.T. Milne, R.S. Walker and J.H. Brown. Nonlinear scaling of space use in human hunter-gatherers. *Proceedings of the National Academy of Sciences, USA*. **104(11)**: 4765-4769.
- 2005 Burger, O., **M.J. Hamilton**, and R.S. Walker. The prey as patch model: Optimal handling of resources with diminishing returns. *Journal of Archaeological Science* **32(8)**: 1147-1158.
- 2003 Huckell, B.B., J.D. Kilby, and **M.J. Hamilton**. 2002 excavations at Boca Negra Folsom site, north-central New Mexico. *Current Research in the Pleistocene* **20**: 33-34.
- 2002 Huckell, B.B., J.D. Kilby, B. Buchanan, **M.J. Hamilton** and S. Ruth. 2001 excavations at Boca Negra Folsom site, north-central New Mexico. *Current Research in the Pleistocene* **19**: 39-40.

#### **ARCHAEOLOGICAL SITE REPORTS AND OTHER WRITING**

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- 2008 Huckell, B.B., V.T. Holliday, D.S. Amick, P.D. LeTourneau, M.E. Hill, C.V. Haynes, and **M.J. Hamilton**. 2008. Remembering Robert H. Weber, 1919-2008. *Mammoth Trumpet* **23(3)**: 8-9.

- 2008      **Hamilton, M.J.** *Quantifying Clovis Dynamics: Confronting Theory with Models and Data Across Scales*. Unpublished PhD dissertation, Dept. of Anthropology, UNM.
- 2005      **Hamilton, M.J.**, R. Holdaway, and S. Litvin. Statistical self-similarity in the structural organization of human forager populations. *Collected Papers of the Santa Fe Institute Complex Systems Summer School, 2005*.
- 2002      **Hamilton, M.J.** and M. Gill. Excavation program at 41LU1 Area 10 for the 1998 field season. In: E.J. Johnson (Ed.). *Holocene Investigations at the Lubbock Lake Landmark, Texas, 1991-2000*. Lubbock Lake Landmark Quaternary Research Center Series No. 11, Museum of Texas Tech University.
- 2002      **Hamilton, M.J.** Excavation program at 41LU1 Area 5 for the 1998 field season. In: E.J. Johnson (Ed.). *Holocene Investigations at the Lubbock Lake Landmark, Texas, 1991-2000*. Lubbock Lake Landmark Quaternary Research Center Series No. 11, Museum of Texas Tech University.
- 2002      Buchanan, B. and **M.J. Hamilton**. Excavation program at 41LU1 Area 5 for the 2000 field season at the Lubbock Lake Landmark. In: E.J. Johnson (Ed.). *Holocene Investigations at the Lubbock Lake Landmark, Texas, 1991-2000*. Lubbock Lake Landmark Quaternary Research Center Series No. 11, Museum of Texas Tech University.
- 1998      **Hamilton, M.J.** *Broken Bison Bones: A Faunal Analysis of 41LU1 Area 10, Lubbock Lake Landmark, Texas, USA*. Unpublished undergraduate dissertation, Institute of Archaeology, UCL.
- 1994      **Hamilton, M.J.** Glass Artifact Analysis of the Lamb County Survey. Chapter in: E.J. Johnson (Ed.). *Wastewater Treatment Plant Survey, Lamb County, Texas*. Lubbock Lake Landmark Quaternary Research Center Series, Museum of Texas Tech University.

#### INVITED WORKSHOP PARTICIPATION

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- 2009      Nekola, J. (organizer), *Universal Patterns of Diversity Across the Sciences*. Santa Fe Institute, NM, Feb 23-26<sup>th</sup>. Participants: **M.J. Hamilton**, J. Harte, F. He, B. McGill, J. Nekola, J. Okie, A. Sizling and D. Storch.

#### ORGANIZED SYMPOSIA

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- 2004      Buchanan B.B., **M.J. Hamilton** (organizers), and J.D. Kilby (chair). *The Clovis-Age Continent: Early Paleoindian Foragers in North America*. Held at the 69<sup>th</sup> annual meetings of the Society for American Archaeology (SAA), Montreal, QC.

**PRESENTATIONS**

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- 2009 Baker, J., K. Hill, A.M. Hurtado, M. A. Frey, R.S. Walker, and **M. J. Hamilton**. *An Evaluation of the Utility of Anthropological Demographic Studies for Estimating Hunter-Gatherer Populations and Implications for the Measurement of Health Disparities*. 26<sup>th</sup> IUSSP International Population Conference, Marrakech, Morocco, October 2<sup>nd</sup>.
- 2009 Ceballos, G., A.D. Davidson, **M.J. Hamilton**, A. Boyer, and J.H. Brown. *Multiple Ecological Pathways to Extinction in Mammals*. Society for Conservation Biology, Beijing, China (scheduled).
- 2009 Davidson, A.D., **M.J. Hamilton**, A. Boyer, J.H. Brown, and G. Ceballos. *Ecological Pathways to Extinction in Mammals*. International Society for Mammals, Mendoza, Argentina (scheduled).
- 2009 **Hamilton, M.J.** *Scaling Energy Use in Human Systems from Hunter-Gatherers to Nation States*. Ecological Society of America, Albuquerque, NM (scheduled).
- 2009 **Hamilton, M.J.** and B. Buchanan. *Cultural Transmission as a Stochastic Process*. 74<sup>th</sup> Annual Meetings of the SAA, Atlanta, GA, April 24<sup>th</sup>.
- 2009 **Hamilton, M.J.** *Scaling Complex Human Systems*. SFI workshop, Santa Fe, NM, February 23<sup>rd</sup>.
- 2009 Davidson, A.D., **M.J. Hamilton**, A. Boyer, J.H. Brown, and G. Ceballos. *Ecological Pathways to Extinction in Mammals*. International Biogeography Society, Merida, MX, January 9<sup>th</sup>.
- 2008 **Hamilton, M.J.** *Scaling the Metabolism of Human Systems from Hunter-Gatherers to Nation States*. Consortium of the Americas for Interdisciplinary Science, Dept. of Physics, UNM, October 20<sup>th</sup>.
- 2008 **Hamilton, M.J.** *Human Macroecology: Scaling the Metabolism of Human Systems from Hunter-Gatherers to Nation States*. SFI, Santa Fe, NM, March 3<sup>rd</sup>.
- 2008 Walker, R.S., M. Gurven, O. Burger, and **M.J. Hamilton**. *The Trade-Off Between Number and Size of Offspring in Humans and Other Primates*. 83rd AAAS-SWARM meetings, Albuquerque, NM, April 10<sup>th</sup>.
- 2008 **Hamilton, M.J.** *Scaling the Metabolism of Human Socio-Economies from Hunter-Gatherers to Nation States*. 83rd AAAS-SWARM meetings, Albuquerque, NM, April 10<sup>th</sup>.
- 2008 **Hamilton, M.J.** *Energy and Information Flows Form Complex Networks in Hunter-Gatherer Social Systems*. Organized symposium, Connected Pasts:

- Current Network Approaches in Archaeology. 73<sup>rd</sup> Annual Meetings of the SAA, Vancouver, BC, March 29<sup>th</sup>.
- 2007 **Hamilton, M.J.** *Quantifying Hunter-Gatherer Space Use: Macroecology and Metabolic Scaling Theory*. Dept. of Anthropology, University College London, UK, October 16<sup>th</sup>.
- 2007 **Hamilton, M.J.** *Metabolic Scaling and Social Network Structure: The Fractal Organization of Hunter-Gatherer Populations*. NSF sponsored symposium at the American Association of Physical Anthropologists meetings, Philadelphia, PA, March 30<sup>th</sup>.
- 2007 Buchanan, B. and **M.J. Hamilton**. *A Formal Test of the Origin of Clovis Projectile Point Variation Across North America*. Durham University, UK.
- 2006 **Hamilton, M.J.** *Scaling of Energy Use, Population Size, and Structure in Human Subsistence Populations*. Paper presented at the Human Evolutionary Behavior Society, UNM, April 14<sup>th</sup>.
- 2005 **Hamilton, M.J.** *Cultural Innovations and Phenotypic Adaptations in Stochastic Environments: Some Quantitative Insights into the Evolutionary Dynamics of Foraging Societies*. 1<sup>st</sup> annual meeting of the Society for Anthropological Sciences (SASci) in Santa Fe, NM.
- 2005 **Hamilton, M.J.** and J.L. Boone. *Epidemiological Approaches to Cultural Change: Evolutionary Models of Transmission, Fitness, and Demography*. 70<sup>th</sup> annual meetings of the SAA in Salt Lake City, UT.
- 2005 Burger, O., **M.J. Hamilton**, M.E. Moses, and J.H. Brown. *Using Allometry to Investigate Energetic Constraints on Human Demography*. 70<sup>th</sup> annual meetings of the SAA in Salt Lake City, UT.
- 2005 **Hamilton, M.J.**, R. Holdaway, and S. Litvin. *Statistical Self-Similarity in the Structural Organization of Human Hunter-Gatherer Populations*. Santa Fe Institute Complex Systems Summer School, Santa Fe, NM.
- 2004 **Hamilton, M.J.**, B. Buchanan, and J.D. Kilby. *A Neutral Model of Technological Variation in the North American Late Pleistocene*. 69<sup>th</sup> annual meetings of the SAA in Montreal, QC.
- 2004 Kilby, J.D., B. Buchanan, and **M.J. Hamilton**. *Deconstructing Clovis: The Independence of Critical Issues*. 69<sup>th</sup> annual meetings of the SAA in Montreal, QC.
- 2003 **Hamilton, M.J.** *Paleoindian Cultural Transmission: The Evolutionary Processes of Cultural Change*. 68<sup>th</sup> annual meetings of the SAA in Milwaukee, WI.



- 2002            Buchanan, B., R. Walker and **M.J. Hamilton**. *Patterns of Carcass Use Among the Ache*. 75<sup>th</sup> Anniversary of the Department of Anthropology at UNM, Hibben Center/Maxwell Museum, UNM (poster).
- 2001            Buchanan, B., R. Walker and **M.J. Hamilton**. *Patterns of Carcass Use Among the Ache*. 66<sup>th</sup> annual meetings of the SAA in New Orleans, LA, (poster).

**REFERENCES**

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