

CURRICULUM VITAE

updated 3/15/24

Jack M. Broughton

Department of Anthropology

University of Utah

Salt Lake City, Utah 84112

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Education

1995 Ph.D., Anthropology, University of Washington, Seattle
1988 M.A., Anthropology, California State University, Chico
1986 B.A., Anthropology, California State University, Chico

Academic Positions

2019-present Department Chair, Department of Anthropology, University of Utah
2006-present Professor, Department of Anthropology, University of Utah
2001-2006 Associate Professor, Department of Anthropology, University of Utah
1995-2001 Assistant Professor, Department of Anthropology, University of Utah
1995-present Adjunct Curator, Vertebrate Zoology, Natural History Museum of Utah

Professional Affiliations

International Council for Archaeozoology (ICAZ)
Society for California Archaeology
Society for American Archaeology
Great Basin Anthropological Association

Professional Interests

Zooarchaeology, hunter-gatherer paleoecology, evolutionary ecology; western North America.

Awards and Honors

2014 Superior Teaching Award. University of Utah, College of Social and Behavioral Sciences.
2013 Superior Teaching Award, Finalist. University of Utah College of Social and Behavioral Sciences.
2012 Senior Superior Teaching Award, Finalist. University of Utah College of Social and Behavioral Sciences.
2011 Superior Teaching Award, Finalist. University of Utah College of Social and Behavioral Sciences.
1998 Society for American Archaeology Dissertation Award (nominee).

Editorial and Advisory Roles

2010-2011 Chair, University of Utah Press, Faculty Advisory Committee.
1998-2010 Member, University of Utah Press, Faculty Advisory Committee.

Publications

BOOKS/MONOGRAPHS

- Broughton, J.M.** and Miller, S.D.
2016 *Zooarchaeology and Field Ecology: A Photographic Atlas*. University of Utah Press.
- Broughton, J.M.** and Cannon, M.D. (eds.)
2010 *Evolutionary Ecology and Archaeology: Applications to Problems in Human Evolution and Prehistory*. University of Utah Press.
- Broughton, J.M.**
2004 *Prehistoric Human Impact on California Birds: Evidence from the Emeryville Shellmound Avifauna*. Ornithological Monographs 56.
- Broughton, J.M.**
1999 *Resource Depression and Intensification During the Late Holocene, San Francisco Bay: Evidence from The Emeryville Shellmound Vertebrate Fauna*. University of California Anthropological Records 32.
- Broughton, J.M.** (ed.)
1996 *Excavation of The Emeryville Shellmound, 1906: Nels C. Nelson's Final Report*. Contributions of the University of California Archaeological Research Facility 54.

ARTICLES, BOOK CHAPTERS

- Byers, D.A., R McGrath, P. Yaworsky, T. Popp, G. Maughan, **J.M. Broughton**
2024 Climatic controls and costly signaling: An integrated analysis of Holocene hunting in the Bonneville and Wyoming Basins, USA. *The Holocene* 34:149-161.
- Broughton, J.M.**, M.J. Broughton, K.E., Cole, D.M. Dalmás, J. Brenner-Coltrain
2023 Late Holocene tule elk (*Cervus canadensis nannodes*) resource depression and distant patch use in central California: Faunal and isotopic evidence from King Brown and the Emeryville Shellmound. *Journal of Anthropological Archaeology* 71 (2023) 101512.
- Cole, K.E., M. Moffatt, B.F. Codding, **J.M. Broughton**
2023 Human settlement density, not late Holocene climate change, influenced Artiodactyla species abundance in northeastern California faunal assemblages. *Quaternary International* 2023.
- Broughton, J.M.**, B.F. Codding, J.T. Faith, K.A. Mohlenhoff, R. Gruhn, J. Brenner-Coltrain, I.A. Hart
2022 El Niño Frequency threshold controls coastal biotic communities. *Science* 377:1202-1205.
- Wolfe, A. and **J.M. Broughton**
2021 More on overkill, the associational critique, and the North American megafaunal record: A reply to Grayson et al. (2021). *Journal of Archaeological Science* Volume 128 <https://doi.org/10.1016/j.jas.2020.105313>
- Wolfe, A. and **J.M. Broughton**

- 2020 A Foraging Theory perspective on North American Pleistocene megafaunal extinctions. *Journal of Archaeological Science* Volume 119.
<https://doi.org/10.1016/j.jas.2020.105162>
- Broughton, J.M.** and E. Weitzel
 2018 Population reconstructions for humans and megafauna suggest mixed causes for North American megafaunal extinctions. *Nature Communications* 9: 5441. doi.org/10.1038/s41467-018-07897-1
- Broughton, J.M.** and G.R. Smith
 2016 The fishes of Lake Bonneville: Implications for drainage history, biogeography and lake levels. *Developments in Earth Surface Processes* 20. *Lake Bonneville: A Scientific Update*, eds. C. Oviatt and J. Shroder, pp. 292-351. Elsevier.
- Wolfe, A. L. and **J.M. Broughton**
 2016 Bonneville basin avifaunal change at the Pleistocene/Holocene transition: Evidence from Homestead Cave. *Developments in Earth Surface Processes* 20. *Lake Bonneville: A Scientific Update*, eds. C. Oviatt and J. Shroder, pp. 371-419. Elsevier.
- Broughton, J.M.**, Martin, E., McEneaney, B., Wake, T., and Simons, D.
 2015 Late Holocene anthropogenic depression of sturgeon in San Francisco Bay, California. *Journal of California and Great Basin Anthropology* 35:3-27.
- Hart, I.A., **Broughton, J. M.**, and Gruhn, R.
 2015 El Nino controls Holocene rabbit and hare populations in Baja California. *Quaternary Research* 84:46-56.
- Broughton, J.M.** and D.K. Grayson
 2015 Zooarchaeology. IN: *The International Encyclopedia of Social and Behavioral Sciences, Second Edition*. Elsevier, Oxford, UK.
- Broughton, J.M.** and F.E. Bayham
 2013 Zooarchaeology and the social dynamics of hunting. IN: *Revealing Archaeology* 3.4. Thinking Strings, LLC.
- Broughton, J.M.**, Beck, R.K., O'Rourke, D.H., Rogers, A.R., and Coltrain, J.
 2013 A late Holocene population bottleneck in California tule elk (*Cervus elaphus nannodes*): Provisional support from ancient DNA. *Journal of Archaeological Method and Theory* 20: 495-524.
- Broughton, J.M.**, Cannon, M., Bayham, F., and Byers, D.
 2011 Prey body size and ranking in zooarchaeology: Theory, empirical evidence, and applications from the northern Great Basin. *American Antiquity* 76:403-428.
- Byers, D.A., Yesner, D.R., **Broughton, J. M.**, and Coltrain, J.
 2011 Stable isotope chemistry, population histories and Late Prehistoric subsistence change in the Aleutian Islands. *Journal of Archaeological Science* 38:183-196.

- Broughton, J.M.**, Cannon, M. and Bartelink, E.J.
 2010 Evolutionary ecology, resource depression, and niche construction theory: Applications to central California hunter-gatherers and Mimbres-Mogollon Agriculturalists. *Journal of Archaeological Method and Theory* 17:371-421.
- Broughton, J.M.**
 2010 Prey spatial structure and behavior affect archaeological tests of optimal foraging models: Examples from the Emeryville Shellmound vertebrate fauna. Reprinted article IN: *Evolutionary Ecology and Archaeology: Applications to Problems in Human Evolution and Prehistory*, ed. J. M. Broughton and M. D. Cannon, pp. 192-207. University of Utah Press
- M. D. Cannon and **Broughton, J.M.**
 2010 Evolutionary ecology and archaeology: An introduction. IN: *Evolutionary Ecology and Archaeology: Applications to Problems in Human Evolution and Prehistory*, ed. J. M. Broughton and M. D. Cannon, pp. 1-12. University of Utah Press.
- Cannon, M. D., S. D. Livingston, and **Broughton, J.M.**
 2009 Faunal Remains from the Sunshine Locality. In, *The Archaeology of the Eastern Nevada Paleoarchaic, Part 1: The Sunshine Locality*, University of Utah Anthropological Papers 126, pp. 218-228, ed. by C. Beck and G. T. Jones. University of Utah Press.
- Broughton, J.M.**, Byers, D., Bryson, R., Eckerle, W., Madsen, D.
 2008 Did climatic seasonality control late Quaternary artiodactyl densities in western North America? *Quaternary Science Reviews* 37:1916-1937.
- Broughton, J.M.**, Mullins, D. and Ekker, T.
 2007 Avian resource depression or intertaxonomic variation in bone density? A test with San Francisco Bay avifaunas. *Journal of Archaeological Science* 34: 374-391.
- Broughton, J.M.**, Cannon, V. I., Bogiatto, R.J., Arnold, S. and Dalton, K.
 2006 The taphonomy of owl-deposited fish remains and the origin of the Homestead Cave ichthyofauna. *Journal of Taphonomy* 4:69-95.
- Bogiatto, R.J., **Broughton, J.M.**, Cannon, V. I., Arnold, S. and Dalton, K.
 2006 Fish remains dominate Barn Owl pellets in northwestern Nevada. *Western North American Naturalist* 66:395-396.
- Byers, D.A. , C. Smith, and **Broughton, J.M.**
 2005 Holocene artiodactyl population histories and large game hunting in the Wyoming Basin, USA. *Journal of Archaeological Science* 32:125-142.
- Byers, D.A. and **Broughton, J.M.**
 2004 Holocene environmental change, artiodactyl abundances, and human hunting strategies in the Great Basin. *American Antiquity* 69:235-256.
- Broughton, J.M.**
 2004 Declines in mammalian foraging efficiency during the late Holocene, San Francisco Bay. IN: *Prehistoric California: Archaeology and the Myth of Paradise*, ed. by L. M. Raab and T. Jones, pp. 34-52. University of Utah Press, Salt Lake City.

Broughton, J.M.

- 2004 A late Pleistocene record of Humboldt cutthroat trout (*Oncorhynchus clarki* subsp.) from Mineral Hill Cave, Northeastern Nevada. IN: Paleontological Investigations at Mineral Hill Cave, ed. B. Hockett and E. Dillingham. Contribution to the Study of Cultural Resources Technical Report No. 18. (BLM Nevada).

Broughton, J.M.

- 2004 Prestine benchmarks and indigenous conservation? Implications from California zooarchaeology. IN: *The Future from the Past: Archaeozoology in Wildlife Conservation and Heritage Management*, pp. 6-18. ed. R. Lauwerrier and I. Plug, Oxbow Books, Oxford.

Broughton, J.M. and Bayham, F.E.

- 2003 Showing off, foraging models, and the ascendance of hunting in the California Middle Archaic. *American Antiquity* **68**:783-789.

Broughton, J.M.

- 2002 Prey spatial structure and behavior affect archaeological tests of optimal foraging models: examples from the Emeryville Shellmound vertebrate fauna. *World Archaeology* **34**: 60-83.

Broughton, J.M., Rampton, D., and Holanda, K.

- 2002 A test of an osteologically-based age determination method in the Double-crested Cormorant (*Phalacrocorax auritus*). *Ibis: The International Journal of Avian Science* **144**: 143-146.

Broughton, J.M.

- 2002 Human optimal foraging strategies: an overview. Invited entry for *Encyclopedia of Evolution*, ed. M. Pagel, Oxford Univ. Press.

Broughton, J.M.

- 2002 Pre-Columbian human impact on California vertebrates: evidence from old bones and implications for wilderness policy. IN: *Wilderness and Political*

Broughton, J.M.

- 2002 *Ecology: Aboriginal Influences and the Original State of Nature*, edited by C.E. Kay, and R. T. Simmons. University of Utah Press.

Rogers, A.R. and **Broughton, J.M.**

- 2001 Selective transport of animal parts by ancient hunters: A new statistical method and an application to the Emeryville Shellmound fauna. *Journal of Archaeological Science* **28**:763-773.

Madsen, D. B., Rhode, D., Grayson, D.K., **Broughton, J. M.**, Livingston, S. D., Hunt, J., Quade, J., Schmitt, D. N., and Shaver, M.W.

- 2001 Late Quaternary environmental change in the Bonneville Basin, Western USA. *Palaeogeography, Palaeoclimatology, Palaeoecology* **167**: 243-271.

Huckleberry, G., Beck, C., Jones, G., Holmes, A., Cannon, M., Livingston, S., and **Broughton, J.M.**

- 2001 Terminal Pleistocene/Early Holocene environmental change at the Sunshine Locality, north-central Nevada, U.S.A. *Quaternary Research* **55**:303-312.

Broughton, J.M.

- 2001 Resource Intensification and Late Holocene Human Impacts on Pacific Coast Bird Populations: Evidence from the Emeryville Shellmound Avifauna
IN: *Posing Questions for a Scientific Archaeology*, edited by T. Hunt, C. Lipo, and S. Sterling. Greenwood Publishing Group, Series: Scientific Archaeology for the Third Millennium.

Broughton, J.M.

- 2000 The Homestead Cave Ichthyofauna, pp. 103-121. IN: *Late Quaternary Paleoeecology in the Bonneville Basin*, ed. D. Madsen. *Utah Geological Survey Bulletin* **130**.

Broughton, J.M.

- 2000 Cathedral Cave Fishes, pp. 134-135. IN: *Late Quaternary Paleoeecology in the Bonneville Basin*, ed. D. Madsen. *Utah Geological Survey Bulletin* **130**.

Broughton, J.M.

- 2000 Terminal Pleistocene fish remains from Homestead Cave, Utah, and implications for fish biogeography in the Bonneville basin. *Copeia* **2000**:645-656.

Broughton, J.M., Madsen, D.B., and Quade, J.

- 2000 Fish remains from Homestead Cave and lake levels of the past 13,000 years in the Bonneville Basin. *Quaternary Research* **53**: 392-401.

Broughton, J.M., and O'Connell, J.F.

- 1999 On evolutionary ecology, selectionist archaeology, and behavioral archaeology. *American Antiquity* **62**:153-165.

Broughton, J.M.

- 1997 Widening diet breadth, declining foraging efficiency, and prehistoric harvest pressure: Ichthyofaunal evidence from the Emeryville Shellmound. *Antiquity* **71**: 845-862.

- 1994 Declines in mammalian foraging efficiency during the late Holocene, San Francisco Bay, California. *Journal of Anthropological Archaeology* **13**, 371-401.

- 1994 Late Holocene resource intensification in the Sacramento Valley, California: The vertebrate evidence. *Journal of Archaeological Science* **21**, 501-514.

- 1993 Size of the Bursa of Fabricius in relation to gonad size and age in Laysan and Black-footed Albatrosses. *The Condor* **96**:203-207.

Broughton, J.M. and Grayson, D.K.

- 1993 Diet breadth, adaptive change, and the White Mountains faunas. *Journal of Archaeological Science* **20**:331-336.

Broughton, J.M. and Buckskin, F.

- 1992 Racing Simloki's shadow: the Ajumawi interconnection of power, shadow, equinox, and solstice. IN *Earth and Sky: Visions of the Cosmos in Native American Folklore*, edited by C. Farrer and R. Williamson. University of New Mexico Press. Pp. 184-191.

BOOK/ARTICLE REVIEWS

Broughton, J.M.

2021 Review of *Alpine Archaeology of Alta Toquima and the Mt. Jefferson Tablelands (Nevada) Parts 1 and 2*. David Hurst Thomas. New York: American Museum of Natural History, 2020. *Journal of Anthropological Research*.

Broughton, J.M. and Cannon, M.

2012 Review of "Genes, Culture, and Agriculture: An Example of Human Niche Construction" by M. J. O'Brien and K. Laland. *Current Anthropology* 53:451-452.

Broughton, J.M.

2006 Review of *Camels Back Cave*, by D. N. Schmitt and D. B. Madsen, University of Utah Anthropological Papers 125. *Journal of Anthropological Research* 62:574-576.

Broughton, J.M. and Ugan, A.

2004 Review of "Zooarchaeological Measures of Hunting Pressure and Occupation Intensity in the Natufian: Implications for Agricultural Origins," by N. Munro. *Current Anthropology* 45:s23-s24.

Broughton, J.M.

2003 Review of "Huna Tlingit Traditional Environmental Knowledge. Conservation, and the Management of a Wilderness Park", by E. Hunn et al. *Current Anthropology* 44:595.

Broughton, J.M.

2000 Review of *Rediscovering Darwin: Evolutionary Theory and Archeological Explanation*, edited by C. M. Barton and G.A. Clark. Archeological Papers of the American Anthropological Association No. 7. *Human Biology*. 72:261-265.

Grants

- 2019 Behavior at the Margins of Social Boundaries: A Novel Approach for Evaluating Prehistoric Inter-Tribal Buffer Zone Formation. VPR/CSBS Research Incentive Seed Grant, University of Utah. Funded: \$20,000.
- 2016 A Trans-Holocene ENSO-Driven Faunal Change and Human Response record from Northern Baja California, Mexico (with Co-PI: J. Coltrain). National Science Foundation (Archaeology). Funded: \$205,557.
- 2016 Strengthening our Hands-on Approach to Science. University of Utah Academic Affairs, Group Teaching Grant. Pi: Lisbeth Louderback. Co PI(s): J. M. Broughton, A. Brunelle, M. Power. Funded: \$6,783
- 2013 Did Hunting or Climate Change Cause a Late Holocene Bottleneck in California Tule Elk? An Integrated Test using Ancient DNA and Stable Isotopes (with Co-PI's: D. O'Rourke, A. Rogers, J. Coltrain). National Science Foundation (Archaeology). Funded: \$203,716.
- 2011 Analysis of the Los Escorpiones Vertebrate Fauna. University of Alberta Research Fund (Ruth Gruhn, Alan Bryan PIs). Funded as consultant: \$5,000.

- 2010 An Ancient DNA Analysis of Prehistoric Human-Caused Population Declines in California Elk—Proposal Initiative Grant Proposal. CSBS, University of Utah. Funded: \$4000.
- 2010 Teaching & Learning Technologies Course Development Grant, University of Utah. To develop online version of Archaeology (Anth 2030). Funded: \$5000
- 2009 Doctoral dissertation research: The Molecular Genetics of Prehistoric Marine Mammal Hunting on San Miguel Island, California. Wenner-Gren Foundation, Co-PI: Raymond Kelly Beck, Funded: \$24,937.
- 2008 Analysis of the Los Escorpiones Vertebrate Fauna. University of Alberta Research Fund (Ruth Gruhn, Alan Bryan PIs). Funded as consultant: \$16,000.
- 2005 Did Aboriginal Hunters Cause a Population Decline in California Elk? A Test Using Ancient DNA. University of Utah Research Foundation—Funding Incentive Seed Grant. Funded: \$24,000.
- 2002 Did Prehistoric Hunters Cause a Population Bottleneck in California Elk? A Test Using Ancient DNA. Proposal Initiative Grant (Univ. of Utah). Funded: \$4000.
- 2002 University of Utah, University Teaching Assistant (UTA): Archaeology Technical Skills TA Funded: \$8,750.
- 2001 Did Prehistoric Hunters Cause a Population Bottleneck in California Elk? A Test Using Ancient DNA. University Research Committee (Univ. of Utah). Funded: \$5,986.
- 2001 University of Utah, University Teaching Assistant (UTA): Archaeology Technical Skills TA Funded: \$8,750.
- 1998 Society for American Archaeology Dissertation Award (nominee).
- 1997 Late Holocene Human Impacts on Pacific Coast Bird Populations: Evidence from the Emeryville Shellmound Avifauna. National Science Foundation (Archaeology). Funded: \$ 55,614.
- 1997 University Teaching Grant, University of Utah, (acquisition of skeletal / fossil specimens for the Department of Anthropology). Funded: \$6,744.
- 1996 Late Holocene Human Impacts on Pacific Coast Bird Populations: Evidence from the Emeryville Shellmound Avifauna. Proposal Initiative Grant, College of Social and Behavioral Sciences, University of Utah. Funded: \$4000.
- 1994 Dissertation Fellowship, The Graduate School, University of Washington. \$3,300.
- 1993 Graduate Student Travel Grant, Department of Anthropology, University of Washington. Funded: \$500.
- 1992 Doctoral Dissertation: Human Impacts on Prehistoric Faunas: A Zooarchaeological Analysis of San Francisco Bay Shellmounds. National Science Foundation (Archaeology). Co-PI: Donald K. Grayson. Funded: \$ 9,800.

Invited Lectures, Symposia, and Panel Contributions

Broughton, J.M.

2023 Terminal Pleistocene environments and human foraging in the Old River Bed Delta: Evidence from the Wishbone Site fauna. **IN: Tracking the Human Landscape of the Old River Bed Delta at the Pleistocene-Holocene Transition.** 38th Meeting Great Basin Anthropological Association. October 18.

Cole, K.E., M. Moffatt, B.F. Coddling, **J.M. Broughton**

2023 Human settlement density, not late Holocene climate change, influenced Artiodactyla species abundance in northeastern California faunal assemblages. **IN: Behavioral Ecology and Archaeology.** Society for American Archaeology, 88th Annual Meeting, Portland, OR, March 29.

Byers, D.A., R McGrath, P. Yaworsky, T. Popp, G. Maughan, **J.M. Broughton**

2023 Climatic controls and costly signaling: An integrated analysis of Holocene hunting in the Bonneville and Wyoming Basins, USA. Society for American Archaeology, 88th Annual Meeting, Portland, OR, March 29.

Dalmas, D. and **Broughton, J.M.**

2022 Taphonomic implications of modern lake level fluctuations and osprey prey choice and fish bone deposition at Eagle Lake, California. Society for American Archaeology, 87th Annual Meeting, Chicago, IL March 31.

Broughton, J.M.

2021 Exploring the causes of extinction for mammoths and other Pleistocene megafauna: Recent approaches from North America. **Keynote Speaker: IN: VIII International Conference on Mammoths and their Relatives.** Indian Institute of Science, Bangalore, India. 25-28 October.

Broughton, J.M. and I.A. Hart

2021 El Nino frequency threshold controls coastal biotic communities. **IN: Papers in Honor of Dwight D. Simons.** Society of California Archaeology, Annual Meeting, Virtual, March 28, 2021.

Broughton, J.M.

2019 The Behavioral Ecology of Large Game Hunting in Western North America. Invited Lecture, **University of Utah, Department of Anthropology, Colloquium Series,** Australia, Oct 7.

Broughton, J.M. and E.M. Weitzel

2019 Population reconstructions for humans and megafauna suggest mixed causes for North American megafaunal extinctions. **IN: Human Interactions with Extinct fauna.** Society for American Archaeology, 84th Annual Meeting, Albuquerque, NM, April 18.

Broughton, J.M., L. Sykora, K. Beck, J. Tackney, A. Rogers, D. O'Rourke, M. Broughton and J. Coltrain

2018 Stable Isotopes and Ancient DNA in Zooarchaeology: A Case Study of Resource Depression and Distant Patch Use with California Elk. **IN: Plenary Session: Arrow of Time: Anthropological Disciplines of the Future.** Great Basin Anthropological Conference. Salt Lake City, Utah, November 7-10.

Broughton, J.M. and E. Weitzel
2017 North American Pleistocene Megafauna and Human Populations Grew Together before Younger Dryas Declines and Extinctions. Paper presented at the **14th Annual Eagle Lake Zooarchaeology Conference**. Eagle Lake, California. July 24.

Broughton, J.M.
2016 Discussant, IN: **Foraging Theory: Zooarchaeology and Archaeobotany**. The Society of Ethnobiology, 9th Annual Conference. March 16-19, Tucson, AZ.

Wolfe, A.L., **J.M. Broughton**, and W. Rath
2016 A Foraging Theory Perspective on the Paleoindian Exploitation of North American Megafauna. IN: **Foraging Theory: Zooarchaeology and Archaeobotany**. The Society of Ethnobiology, 9th Annual Conference. March 16-19, Tucson, AZ.

Broughton, J.M.
2015 Late Holocene Resource Depression in San Francisco Bay: Recent Research with Waterfowl, Sturgeon, and Tule elk, IN: **Ancestral Native American Archaeology of the San Francisco Bay Area**. Society for American Archaeology, 80th Annual Meeting, San Francisco, April 18.

Hart, I.A., **J. M. Broughton** and R. Gruhn
2015 ENSO and the Rabbits of Baja California. IN: **Environmental Archaeology and Human Ecology**. Society for American Archaeology, 80th Annual Meeting, San Francisco, April 18.

Broughton, J. M. and Hart, I. A.
2014 El Nino and Great Basin Prehistory, IN: **Plenary Session: Records of Past Climate and Environmental Change in the Great Basin—A Landscape of Transitions**. Great Basin Anthropological Conference. Boise, ID, October 15.

Broughton, J.M.
2014 The Behavioral Ecology of Large Game Hunting in Western North America. Invited Lecture, **University of Queensland Colloquium Series**, Australia. May 29.

Broughton, J.M.
2014 Discussant, IN: **University of Queensland-University of Western Australia Zooarchaeology Symposium**. May 26-28, Queensland, Australia.

Broughton, J.M.
2014 The Behavioral Ecology of Large Game Hunting in Western North America. Plenary Speaker, IN: **Northwest Evolution, Ecology, and Human Behavior 2nd Annual Symposium**. Boise, ID, March 7-9.

Hart, I. A., **Broughton, J.M.**, Gruhn, R.
2014 El Nino controls lagomorph populations in Baja California, Mexico: Evidence from the Abrigo de los Escorpiones vertebrate fauna. Paper presented at the **11th Annual Eagle Lake Zooarchaeology Conference**.

Eagle Lake Field Station, California. July 24.

- Broughton, J.M.,** Beck, R.K., O'Rourke, D.H., Rogers, A.R., and Coltrain, J.
2014 Ancient DNA, stable isotopes, and faunal population histories: An Example from California Tule elk. IN: **Multi-disciplinary zooarchaeological contributions to environmental and ecological research.** Paper presented at the 12th Congress of the International Council of Archaeozoology. San Rafael, Argentina. September 23.
- Edwards, G.A., **Broughton, J.M.,** Coddling, B. F., Hart, I., and Gruhn, R.
2014 Holocene ENSO variation affects woodrat (*Neotoma*) body size and species composition in northern Baja California. IN: **Multi-disciplinary zooarchaeological contributions to environmental and ecological research.** Paper presented at the 12th Congress of the International Council of Archaeozoology. San Rafael, Argentina. September 23.
- Hart, I. A., **Broughton, J. M.,** Gruhn, R.
2014 El Nino controls lagomorph populations in Baja California, Mexico: Evidence from the Abrigo de los Escorpiones vertebrate fauna. IN: **Multi-disciplinary zooarchaeological contributions to environmental and ecological research.** Paper presented at the 12th Congress of the International Council of Archaeozoology. San Rafael, Argentina. September 23.
- Edwards, G.A., **Broughton, J.M.,** Hart, I., and Gruhn, R.
2013 Trans-Holocene environmental change in northern Baja California: Evidence from the Abrigo de los Escorpiones woodrat (*Neotoma*) remains. Poster presented at the 47th Annual Meeting for the Society of American Archaeology, Honolulu, HI. April 7.
- Beck, R.K., **Broughton, J.M.,** O'Rourke, D.H., Rogers, A.R., and Coltrain, J.
2013 Ancient DNA analysis confirms a late Holocene population bottleneck in California tule elk (*Cervus elaphus nannodes*). IN: **Ancient DNA in Zooarchaeology.** Poster presented at the 47th Annual Meeting for the Society for American Archaeology, Honolulu, HI. April 7.
- Broughton, J.M.**
2013 Zooarchaeology and Field Ecology: An Interdisciplinary Field School. **Anthropology Colloquium Series, University of Utah.** 28 March 2013.
- Broughton, J.M.,** Beck, R.K., O'Rourke, D.H., Rogers, A.R., and Coltrain, J.
2012 Ancient DNA analysis confirms a late Holocene population bottleneck in California tule elk (*Cervus elaphus nannodes*). IN: **California Archaeology's Contribution to Conservation Biology.** Paper presented at the 46th Annual Meeting of the Society for California Archaeology, San Diego. March 30.
- Broughton, J.M.,** Beck, R.K., O'Rourke, D.H., Rogers, A.R., and Coltrain, J.
2012 Ancient DNA analysis confirms a late Holocene population bottleneck in California tule elk (*Cervus elaphus nannodes*). Invited lecture presented at the Anthropology Forum, Department of Anthropology, **California State University, Chico.** March 14
- Broughton, J.M.**

2012 Late Holocene resource depression and intensification in Northern California: The archaeofaunal evidence. Invited lecture presented at the Department of Anthropology, **California State University, Chico**. March 15.

Broughton, J.M.

2011 The behavioral ecology of Holocene hunting in western North America. Invited lecture for IGERT Program in Evolutionary Modeling, **Washington State University**, Pullman. November 3.

2011 Holocene climate change and artiodactyl densities in western North America: indices and tests from behavioral ecology. Invited lecture given at **California State University, Chico**. March 18.

2011 Climate change and hunting impacts on western artiodactyls: The last 10,000 years and the future. Invited lecture given at the Anthropology Forum, Department of Anthropology, **California State University, Chico**. March 19.

Broughton, J.M., Beck, R.K., O'Rourke, D.H., Rogers, A.R., and Coltrain, J.

2011 Did aboriginal hunters cause a population bottleneck in California elk? A test using ancient DNA and implications for prehistory and resource management. IN: **Fryxell Symposium: Papers in Honor of R. Lee Lyman**. Paper presented at the 76th Annual Meeting for the Society for American Archaeology, April 1, Sacramento, CA.

Broughton, J.M.

2010 Comparative osteology of western vertebrates: a photographic atlas. IN: **Theoretical and Ethnological Models in Zooarchaeology**. Paper presented at the **6th Annual Eagle Lake Zooarchaeology Conference**. Eagle Lake Field Station, California. July 24.

Broughton, J.M.

2010 Did climatic seasonality control late Quaternary artiodactyl densities in western North America? Invited lecture given at the **Department of Atmospheric Sciences, University of Utah**, February 24.

Beck, R. K. and Broughton, J.M.

2010 Did prehistoric hunters cause a population bottleneck in California elk? A test using ancient DNA: status update and preliminary data. IN: **Theoretical and Ethnological Models in Zooarchaeology**. Paper presented at the **6th Annual Eagle Lake Zooarchaeology Conference**. Eagle Lake Field Station, California. July 24.

Broughton, J.M.

2009 Climatic seasonality controls Holocene artiodactyl densities in western North America: Tests using behavioral ecology. IN: **The Residues of Human Decision Making**. Paper presented at the **Theoretical Archaeology Group**, Stanford, CA, May 2.

2009 The Vertebrate Fauna from Abrigo de los Escorpiones, Baja California. Current Perspectives in Zooarchaeology of Western North America. **5th Annual Eagle Lake Zooarchaeology Conference**. Eagle Lake Biological Field Station, California. July 19.

Broughton, J.M.

- 2008 Did climatic seasonality control late Quaternary artiodactyl densities in western North America? Invited lecture given at the **Department of Anthropology, Stanford University**, April 10.
- 2008 **4th Annual Eagle Lake Zooarchaeology Conference**. Co-organizer and Chair. Eagle Lake Biological Field Station, California. July 26-27.
- 2008 Did climatic seasonality control late Quaternary artiodactyl densities in western North America? IN: Current Perspectives in Zooarchaeology of Western North America. **4th Annual Eagle Lake Zooarchaeology Conference**. Eagle Lake Biological Field Station, California. July 26-27.
- 2008 Resource intensification in prehistoric California: The archaeofaunal evidence. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station, CA. July 23.
- 2008 Holocene environmental change, artiodactyl abundances, and human hunting strategies in the arid west. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station, CA. July 22.
- 2008 Fish, bird and mammalian osteology. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station, CA. July 21.

Broughton, J.M., and Cannon, M.

- 2008 Evolutionary ecology and niche construction theory in archaeology. IN: **Niche Construction Theory and Archaeology**. Paper presented at the 73rd Annual Meeting of the Society for American Archaeology, March 26-30, Vancouver, B.C.

Broughton, J.M.

- 2007 Discussant: IN: **Human Behavioral Ecology and California Archaeology**. Paper presented at the 41st Annual Meeting of the Society of California Archaeology, San Jose, California, March 22-25.
- 2007 Resource intensification in prehistoric California: The archaeofaunal evidence. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station, CA. June 23.
- 2007 Holocene environmental change, artiodactyl abundances, and human hunting strategies in the arid west. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station, CA. June 23.
- 2007 Fish, bird and mammalian osteology. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station, CA. June 24.

Broughton, J.M.

- 2006 Prehistoric human impacts on California birds. *Tracy Aviary Lecture Series*, November 16, 2006, Salt Lake City.

Broughton, J.M.

- 2006 Zooarchaeology and ornithology. Lecture given to Biol 5385 (Ornithology: Professor D. Clayton). 27 November. University of Utah.

Broughton, J.M. and Byers, D.

- 2006 Did extreme late Pleistocene and early Holocene climatic seasonality depress artiodactyl populations in the Great Basin? IN: **Zooarchaeology of the Late Pleistocene/Early Holocene in the Americas**. Paper presented at the 10th Congress of the International Council of Archaeozoology, 23-28 August, Mexico City.

Broughton, J.M.

- 2006 **3rd Annual Eagle Lake Zooarchaeology Conference**. Co-organizer. Eagle Lake Biological Field Station, California. July 22-23.
- 2006 Zooarchaeology at the University of Utah: Current projects in research and teaching. IN: Current Perspectives in Zooarchaeology of the Western North America. **3rd Annual Eagle Lake Zooarchaeology Conference**. Eagle Lake Biological Field Station, California. July 22-23.
- 2006 Resource intensification in prehistoric California: The archaeofaunal evidence. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station. July 17.
- 2006 Holocene environmental change, artiodactyl abundances, and human hunting strategies in the arid west. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station. July 17.
- 2006 Fish, bird and mammalian osteology. Invited lecture given at the **Comparative Osteoarchaeology Workshop**, Eagle Lake Biological Field Station. July 16.

Broughton, J.M.

- 2005 **2nd Annual Eagle Lake Zooarchaeology Conference**. Co-organizer. Eagle Lake Biological Field Station, California. July 24-27.
- 2005 Holocene artiodactyl population histories in western North America: archaeological and paleontological evidence and implications for game management. IN: Current Perspectives in the Zooarchaeology of Western North America. **2nd Annual Eagle Lake Zooarchaeology Conference**. Eagle Lake Biological Field Station, California. July 24-27.
- 2005 **Perspectives on Trans-Holocene Artiodactyl Hunting Behavior in Western North America**. Roundtable discussion host. 70th Annual meeting of the Society for American Archaeology, Salt Lake City, March 30-April 3.
- 2005 Small mammals of the Great Basin. **Invited presentation Washington Elementary School, 5th-6th grade**. Salt Lake City Utah. October 26.
- 2005 Artiodactyl populations in Utah: The last 10,000 Years. **Invited presentation at Washington Elementary School**, April 22.

Broughton, J.M.

- 2004 Plenary Presentation. Artiodactyl populations in western North America: The last 10,000 Years. **Interdisciplinary Research and Management in**

Mountain Areas. Banff, Canada. September 23-26.

Broughton, J.M.

- 2004 The archaeological record of human impacts on vertebrate populations of western North America (Abstract). IN: **History and Ecology: Interdisciplinary Tools for Investigating Human-Ecosystem Interactions.** 89th Annual meeting of the Ecological Society of America. Portland, OR, August 1-6.
- 2004 **1st Annual Eagle Lake Zooarchaeology Conference.** Co-Organizer. Eagle Lake Biological Field Station, California. July 24-27.
- 2004 Small prey and archaeological applications of foraging models: Examples from California and the Great Basin. IN: **Understanding Small Prey in Archaeological Sites: Theoretical approaches and explanations.** 69rd Annual Meeting of the Society for American Archaeology, Montreal. March 30-April 4.
- 2004 Endangered Utah Birds. **Invited presentation at Washington Elementary School, April 20.**

Broughton, J.M. and Byers, D.

- 2004 Holocene environmental change, artiodactyl abundances, and human hunting strategies in the arid west. IN: Current Perspectives in the Zooarchaeology of Western North America. Paper presented at the **1st Annual Eagle Lake Zooarchaeology Conference.** Eagle Lake Biological Field Station, California. July 24-27.

Broughton, J.M.

- 2003 Fish remains from Homestead Cave and lake levels of the past 13,000 years in the Bonneville Basin. Invited lecture given at the **Zooarchaeology and Field Ecology Field class.** Eagle Lake Biological Field Station. July 26.
- 2003 California Archaeofaunas and conservation Biology. Invited lecture given at the **Zooarchaeology and Field Ecology Field class.** Eagle Lake Biological Field Station. July 27.

Broughton, J.M.

- 2002 Measuring resource depression with archaeological faunas: Insights from the Emeryville Shellmound. IN: **Beyond Foraging: Multiple uses of Relative Abundance Indices.** Paper Presented at the 28th Meeting of the Great Basin Anthropological Society, Elko, Nevada, October 10-11.
- 2002 Pre-Columbian human impacts on California Vertebrates: Zooarchaeological evidence and implications for wilderness policy. IN: **The Role of Zooarchaeology In Wildlife Conservation Issues.** Paper presented at the 9th Congress of the International Council of Archaeozoology. Durham, UK. August 23.
- 2002 Pre-Columbian human impacts on California vertebrates: Zooarchaeological evidence and implications for conservation biology. IN: **Zooarchaeology's Contribution to Conservation Biology.** Paper presented at the 67th Annual Meeting of the Society for American Archaeology, Denver. March 22.

Broughton, J.M.

- 2002 Measuring resource depression with archaeological faunas: Insights from the Emeryville Shellmound. IN: **History, Process, and Tradition in**

- Archaeology: A Symposium for Makoto Kowta.** Paper Presented at the 36th Annual Meeting of the Society of California Archaeology, San Diego, California. April 5.
- 2002 Fish remains from Homestead Cave and lake levels of the past 13,000 years in the Bonneville Basin. Guest lecture given at the **Zooarchaeology and Field Ecology Field class**. Eagle Lake Biological Field Station. July 20.
- 2002 California Archaeofaunas and conservation biology. Guest lecture given at the **Zooarchaeology and Field Ecology Field class**. Eagle Lake Biological Field Station. July 25.
- 2001 Fish remains from Homestead Cave and lake levels of the past 13,000 years in the Bonneville Basin. Guest lecture given at the **Zooarchaeology and Field Ecology Field class**. Eagle Lake Biological Field Station. July 26.
- 2001 Owl Pellets and the Homestead Cave faunal sequence. Lecture given at an **Assembly of the Evergreen Junior High School**, Salt Lake City, Utah. May 10.
- 2000 Discussant. IN: **Resource Intensification and Material Culture Variability: A Point of View From Evolutionary Ecology**. 27th Great Basin Anthropological Conference, October 5-7, Ogden Utah.
- 2000 Fish remains from Homestead Cave and lake levels of the past 13,000 years in the Bonneville Basin. IN: **Faunal and Vegetation Records**. Paper presented at Paleoclimate and Human Responses: An Interdisciplinary Workshop, SMU-in Taos, Ft. Burgwin, New Mexico. June 5-9.

Broughton, J.M.,

- 2000 Archaeofaunal evidence for late Holocene declines in foraging efficiency and implications for change in technology, health and stature. IN: **The Evolutionary Ecology of Eden: New Perspectives in California Prehistory**. Paper Presented at the Annual Meeting of the Society of California Archaeology, Riverside, California. April 19-22.
- 2000 Owl Pellets and the Homestead Cave faunal sequence. Lecture given at an **Assembly of the Evergreen Junior High School**, Salt Lake City, Utah. May 4.

Broughton, J.M., and Raab, M. L. (symposium organizers and chairs)

- 2000 **The Evolutionary Ecology of Eden: New Perspectives in California Prehistory**. Symposium at the Annual Meeting of the Society of California Archaeology, Riverside, California. April 19-22.

Rogers, A. R., and **Broughton, J.M.**

- 1999 Re-analysis of the Emeryville fauna using ABCML. IN: **Applications of Foraging Theory to Archaeological Problems**. Paper presented at the 64th Annual Meeting of the Society for American Archaeology, Chicago.

Broughton, J.M.

- 1998 Invited Participant. **Panel on Issues in Recovery, Identification, Quantification and Interpretation of Vertebrate Faunal Remains**. 8th

International Congress of the International Council for Archaeozoology,
Victoria, BC, Canada.

1998 Resource intensification in prehistoric California: Were native peoples over-using their environment? Lecture given for the class **Wilderness Policy and Ecology**, Department of Political Science, Utah State University. April 27, 1998.

1998 The Homestead Cave ichthyofauna and the loss of fishes in Lake Bonneville. **Colloquium: Department of Anthropology, University of Utah**. May 7, 1998.

Broughton, J.M., Madsen, D.B., Quade J., and Rampton, D.

1997 The Homestead Cave ichthyofauna: implications for late Pleistocene lake level fluctuations and fish biogeography in the Bonneville Basin. IN: **Life Science Perspectives on Great Basin Aquatic System History**. The Great Basin Symposium on Glacial and Postglacial Drainage. Salt Lake City, Utah. September 17-20.

Broughton, J.M., and Bayham, F. (symposium organizers and chairs)

1996 **Foraging Theory and Analyses of Archaeological Vertebrates in the Great Basin**. 25th meeting of the Great Basin Anthropological Conference, Kings Beach, California. October 5-10.

Broughton, J.M. , and Ekker, T.

1996 Foraging theory, archaeological vertebrates, and paleoenvironmental reconstruction. IN: **Foraging Theory and Analyses of Archaeological Vertebrates in the Great Basin**. 25th meeting of the Great Basin Anthropological Conference, Kings Beach, California.

Harvey, P., and **Broughton, J.M.**

1996 Variations in hunting efficiency during the Fremont: zooarchaeological evidence from the Evans Mound, Southwestern Utah. IN: **Foraging Theory and Analyses of Archaeological Vertebrates in the Great Basin**. 25th meeting of the Great Basin Anthropological Conference, Kings Beach, California.

Broughton, J.M.

1995 Resource depression and intensification during the late Holocene, San Francisco Bay: evidence from the Emeryville Shellmound vertebrate fauna. IN: **Archaeological Evidence for Resource Intensification Among North American Hunter-gatherers**. 60th Annual Meeting of the Society for American Archaeology, Minneapolis, Minnesota.

1995 Invited Participant. **Legacies Panel: Ninety-Five Years of California Archaeology at Berkeley**. Sponsored by the Hearst Museum of Anthropology.

1994 Homestead Cave and the late Pleistocene biogeography of Bonneville Basin fishes. IN: **Paleoenvironmental Change in the Bonneville Basin**. 24th meeting of the Great Basin Anthropological Conference, Elko, Nevada.

1994 Resource intensification in northern California: The archaeological vertebrate evidence. **Burke Museum Research Series**, University of Washington. Seattle. November 6, 1994.

Bayham, F.E., and **Broughton, J.M.**

1994 Rodent and lagomorph remains as indicators of resource stress: An example from the pithouse period in the Chihuahuan Desert, west Texas. IN: **Mickey Mouse Archaeology: Mice Rats and Other Rodents**. 59th Annual Meeting of the Society for American Archaeology, Anaheim.

Broughton, J.M., and Bayham, F.

1993 Resource intensification in northern California: patterns in the archaeological vertebrate evidence. IN: **Archaeology and Prehistory of Western North America**. 58th Annual Meeting of the Society for American Archaeology, St. Louis.

Broughton, J.M.

1990 Bones on the range: Five decades of interpreting Great Plains archaeofaunas. IN: **Bone on the Range: Taphonomic Research in Plains Faunal Studies**. 48th Plains Anthropological Conference, Oklahoma City.

Broughton, J.M.

1987 Prehistoric patterns of fish exploitation in the Sacramento Valley, California. IN: **Archaeofaunal Research in Northern California**. Annual Meeting of the Society of California Archaeology, Fresno.

Contributed Papers

Broughton, J.M.

2016 Terminal Pleistocene and Holocene Climate Change in the Bonneville Basin: New Interpretations from the Fish Record at Homestead Cave. Paper presented at the 35th Great Basin Anthropological Conference, Reno, NV. Oct 5-8.

Wolfe, A, and **J.M. Broughton**

2016 A Foraging Theory Perspective on the Paleoindian Exploitation of North American Megafauna. Paper presented at the 35th Great Basin Anthropological Conference, Reno, NV. Oct 5-8.

Creel, D., Cannon, M., **Broughton, J.M.**, and Francis, C.

2014 The significance of birds at Old Town and other Mimbres sites. Mogollon Conference. Las Cruces, New Mexico. October 9.

MacDonald, S. and **Broughton, J.M.**

2014 Mammalian resource depression in San Francisco Bay: Additional indices from the Yerba Buena Shellmound fauna. Poster presented at the 80th Annual Meeting of the Society for American Archaeology. Austin, Texas. April.

Edwards, G., **Broughton, J.M.**, and I. Hart.

2013 Trans-Holocene moisture change in northern Baja California: The woodrat assemblage from Abrigo de los Escorpiones. Poster presented at the 79th Annual Meeting of the Society for American Archaeology. Honolulu, HI, April 7.

Cannon, M. D and **Broughton, J.M.**

2012 Exploring the rise and fall of Fremont agriculture with a comprehensive archaeological database. Poster presented at the 78th Annual Meeting of the Society for American Archaeology. Memphis, TN, April 19-22.

Broughton, J.M., Byers, D., Bryson, R., Eckerle, W., Madsen, D.

2008 Did climatic seasonality control late Quaternary artiodactyls densities in western North America? Poster presented at the 73rd Annual Meeting of the Society for American Archaeology, March 26-30, Vancouver, B.C.

Broughton, J.M., and Byers, D.

2004 Holocene environmental change, artiodactyl abundances, and human hunting strategies in the arid west. Paper presented at the **Eagle Lake Zooarchaeology Conference**. Eagle Lake Biological Field Station, California. July 24-27.

Byers, D. A., and **Broughton, J.M.**

2004 Holocene environmental change, artiodactyl abundances and human hunting strategies in the Great Basin. Poster. Great Basin Anthropological Conference, Sparks, NV. October 14.

Byers, D. A., and **Broughton, J.M.**

2004 Holocene environmental change, artiodactyl abundances and human hunting strategies in the Great Basin. General session: Great Basin. 69rd Annual Meeting of the Society for American Archaeology, Montreal.

Broughton, J.M.

1998 Diet breadth, foraging efficiency, and prehistoric human impacts on a California sturgeon population: Evidence from the Emeryville Shellmound Ichthyofauna. General session: Zooarchaeology. 63rd Annual Meeting of the Society for American Archaeology, Seattle.

Broughton, J.M., Madsen, D., Quade, J., Rampton, D., and Shaver, W.

1998 The Homestead Cave ichthyofauna: Implications for late Pleistocene lake level fluctuations and fish biogeography in the Bonneville Basin, U.S.A. General poster session: 8th International Congress of the International Council for Archaeozoology, Victoria, BC, Canada.

Cannon, M.D., Livingston, S., and **Broughton, J.M.**

1998 Faunal remains from the Sunshine Locality, east-central Nevada. IN: General Session: Sunshine Locality, Sundance Foundation, and Camels Back Cave. 26th Great Basin Anthropological Conference, Bend, Oregon.

Madsen, D.B., Rhode, D., Grayson, D.K., Livingston, S., **Broughton, J.M.**, and Quade, J.

1995 Faunal and vegetational records from the Bonneville Basin, Utah-Nevada, and their relationship to lake level changes, 14,000-7,000 BP. Past Global Change Past Changes in Western North American Conference. Albuquerque.

Broughton, J.M.

1994 An evolutionary analysis of late Holocene mammal exploitation around San Francisco Bay, California. 59th Annual Meeting of the Society for American Archaeology, Anaheim.

1988 Differential identifiability and the quantification of archaeological ichthyofaunas. 54th Annual Meeting of the Society for American Archaeology, Phoenix.

Field Experience

- 2019 Modern tule elk bone collection for isotope analysis, central California (March)
- 2018-2002 Bird and small mammal collecting, Utah and California.
- 2001 Bird and small mammal collecting, northern Utah and California.
- 2001 Selection of archeological Elk samples for DNA analysis. P. Hearst Museum of Anthropology, University of California, Berkeley. (June)
- 2000 Bird and small mammal collecting, northern Utah (various locations).
- 1999 Bird, fish, and small mammal collecting expedition, Uinta Mountains, Utah (with J. Higgins, S. Allin, J. Campbell, D. Brallier).
- 1999 Waterfowl collecting Farmington Bay wetlands, Utah.
- 1998 Waterfowl collecting, Farmington Bay wetlands, Utah (with M. Cannon).
- 1997 Small mammal collecting expedition, northern California (with M. Cannon).
- 1996 Bird survey /collecting expedition, eastern Utah (with S. Drovetski).
- 1994 Member, Desert Research Institute crew: excavation of the Black Rock Desert mammoth site, Nevada. PI: S. Livingston
- 1994 Bird survey /collecting expedition, Burke Museum Ornithology, Milk Canyon, eastern Washington (with G. Voelker, D. Banin).
- 1993 Common Murre (*Uria aalge*) survey /collecting expedition, Burke Museum Ornithology, Cape Scott, Vancouver Island, British Columbia (with J.P. Dunn).
- 1993 Bird survey /collecting expedition, Burke Museum Ornithology, Banks Lake, eastern Washington (with G. Voelker).
- 1992 Mammal and bird survey /collecting expedition in Siberia (lower Kolyma River, Sea of Okhotsk, southern Kamchatka), Burke Museum. PI: S. Rohwer
- 1992 Gray Jay (*Perisoreus canadensis*) survey /collecting expedition, Burke Museum Ornithology, Kachess Lake, Kittitas County, Washington (with G. Voelker).
- 1991 Zooarchaeology and Field Ecology Field School. Instructor. Eagle lake Biological Field Station, C.S.U., Chico.
- 1991 *Dendroica* warbler survey of western Washington (King, Cowlitz, Wakiakum, Grays Harbor, and Mason Counties), Burke Museum Ornithology (PI: S. Rohwer).

- 1991 Bird survey/collecting, Burke Museum Ornithology, Eagle Lake, Lassen County, California.
- 1990 Bird survey/collecting expedition, Burke Museum Ornithology, Banks Lake, Grant County, eastern Washington (with C. Wood, S. Rohwer).
- 1990 Zooarchaeology and Field Ecology Field School. Instructor. Eagle lake Biological Field Station, C.S.U., Chico.
- 1990 Bird survey/collecting expedition, Burke Museum Ornithology, Mount Baker, Whatcom County, Washington (with C. Wood, S. Rohwer).
- 1990 Bird survey/collecting, Burke Museum Ornithology, Eagle Lake, Lassen County, California.
- 1990 Bird survey/collecting, Burke Museum Ornithology, Moses Lake, eastern Washington (with G. Shugart, C. Wood, D. Paulson).
- 1989 Zooarchaeology and Field Ecology Field School. Teaching Assistant: Eagle lake Biological Field Station, C.S.U., Chico.
- 1988 Ethnographic (ethnoastronomy) research of the Ajumawi Indians, Shasta County, California.
- 1988 Zooarchaeology and Field Ecology Field School. Teaching Assistant: Eagle lake Biological Field Station, C.S.U., Chico.
- 1988 Crew Chief, C.S.U., Chico archaeological crew: survey of parcel in city of Chico, Butte County, California. PI: K. Johnson
- 1988 Crew Chief, C.S.U., Chico archaeological crew: survey of Cohasset Highway, Butte County, California. PI: K. Johnson
- 1987 Survey of Sacramento Sucker (*Catostomus occidentalis*) spawning behavior at Big Lake prehistoric fish traps, Shasta County, California (with P. Schulz, T. Taylor and B. Dreyer).
- 1987 Crew Chief, Cartographer, C.S.U., Chico archaeological crew: Excavation of Bidwell Mansion Horse Carriage Shed, Chico, California. PI: K. Johnson
- 1987 Member, C.S.U., Chico archaeological crew: survey at Squaw Peak, Plumas County, California. PI: F.E. Bayham
- 1987 Member, C.S.U., Chico archaeological crew: survey at Ram Creek, Butte County, California. PI: F.E. Bayham
- 1987 Cartographer, C.S.U., Chico archaeological field crew: excavation near Quincy, Plumas County, California. PI: M. Kowta
- 1987 Cartographer, C.S.U., Chico archaeological crew: excavation near Redding, Shasta County, northern California. PI: M. Kowta
- 1987 Crew Chief, C.S.U., Chico archaeological crew: excavation in north Sacramento Valley (CA-GLE-105), Glenn County, California. PI: K. Johnson

- 1987 Member, C.S.U., Chico archaeological crew: excavation of historic gold miner's camp, northern Sierra Nevada, near Graeagle, Plumas County, California. PI: B. Dryer
- 1986 Member, C.S.U., Chico archaeological crew: excavation of the Monroeville Historic Cemetery, Glenn County, California. PI: K. Johnson
- 1986 Member, C.S.U., Chico archaeological crew: excavation in northern Sierra Nevada (CA-PLU-128), Plumas County, California. PI: B. Dryer
- 1986 Member, C.S.U., Chico archaeological crew: survey at Ajumawi Lava Springs State Park, Shasta County, California. PI: B. Dryer
- 1986 Crew Chief, C.S.U., Chico archaeological crew: survey in north Sacramento Valley (Aqua Frias), Butte County, California. PI: K. Johnson
- 1985 Member, C.S.U., Chico archaeological crew: excavation of the Monroeville Historic Cemetery, Glenn County, California. PI: K. Johnson
- 1985 Member, C.S.U., Chico archaeological crew: excavation in northern Sierra Nevada (CA-PLU-226), Plumas County, California. PI: B. Dryer
- 1984 Member, C.S.U., Chico archaeological crew: excavation of the Finch Site, Butte County, California. PI: M. Kowta

Museum Collections Research

- 2013 Analysis of the King Brown (CA-SAC-29) Tule Elk. Archaeological Collections Facility, Sacramento State University, CA.
- 2012 Analysis of the Hogup Cave artiodactyl fauna (supervising graduate student E. Martin). Utah Museum of Natural History, University of Utah, Salt Lake City.
- 2012 Analysis of the King Brown (CA-SAC-29) Tule Elk. Archaeological Collections Facility, Sacramento State University, CA.
- 2009 Analysis of the Abrigo de Los Escorpiones vertebrate fauna. California Academy of Sciences, San Francisco.
- 2007 Analysis of Aleutian Islands faunal collection. California Academy of Sciences, San Francisco.
- 2006 Analysis of the Hogup Cave vertebrate fauna (supervising graduate student D. Byers). Utah Museum of Natural History, University of Utah, Salt Lake City.
- 2004 Analysis of the Emeryville Shellmound tule elk. Phoebe Hearst Museum of Anthropology, University of California, Berkeley.
- 2003 Analysis of the Evans Mound and Median Village vertebrate faunas (supervising graduate student A. Ugan). Utah Museum of Natural History, University of Utah, Salt Lake City.
- 1998 Analysis of the Emeryville Shellmound avifauna. Phoebe Hearst Museum of Anthropology, University of California, Berkeley.

- 1998 Analysis of the Sudden Shelter Vertebrate Fauna (supervising graduate student D. Rampton). Utah Museum of Natural History, University of Utah, Salt Lake City.
- 1999 Analysis of the Emeryville Shellmound avifauna. Museum of Vertebrate Zoology, University of California, Berkeley.
- 1995 Analysis of the Evans Mound Vertebrate Fauna (supervising graduate student P. Harvey). Utah Museum of Natural History, University of Utah, Salt Lake City.
- 1993 Analysis of the Emeryville Shellmound vertebrate fauna. Phoebe Hearst Museum of Anthropology, University of California, Berkeley.
- 1993 Analysis of the Emeryville Shellmound ichthyofauna. California Academy of Sciences, San Francisco.
- 1993 Analysis of the Emeryville Shellmound sea mammals. California Academy of Sciences, San Francisco.
- 1992 Analysis of Laysan and Black-footed albatrosses bursa of fabricius in relation to gonad size and age. Burke Museum of Natural History, Seattle, WA.
- 1992 Morphometric variation in eastern Pacific Common Murres (*Uria aalge*). Burke Museum of Natural History, Seattle, WA.
- 1991 Analysis of fish remains from Tacoma sites. National Oceanic and Atmospheric Administration, Marine Mammal Lab, Seattle, WA.
- 1990 Analysis of the Yerba Buena Shellmound vertebrate fauna. Burke Museum of Natural History, Seattle, WA.
- 1990 Analysis of the Malheur Lake vertebrate fauna. Burke Museum of Natural History, Seattle, WA.
- 1988 Analysis of fish remains from the Sacramento Valley. California Academy of Sciences, San Francisco.
- 1987 Analysis of Sacramento Valley archaeofaunas. Northeast Information Center, California State University, Chico, CA.

Courses Taught

University of Utah

Anthropology 5712	Zooarchaeology and Field Ecology
Anthropology 2030	Archaeology
Anthropology 3312/5312	California Prehistory
Anthropology 1030	World Prehistory
Anthropology 4372/5372	Zooarchaeology
Anthropology 4271/5271	Human Osteology
Anthropology 4371/5371	Vertebrate Osteology
Anthropology 3311/5311	North American Prehistory
Anthropology 6399	Applied Zooarchaeology
Anthropology 6399	Zooarch. Method and Theory
Anthropology 6361	Behavioral Ecology & Archaeology

University of Washington
Anthropology 105

World Prehistory

California State University, Chico
Anthropology 101
Anthropology 298

Physical Anthropology Lab
Zooarchaeology and Field Ecology

University of California, Los Angeles
Anthropology 3271

Zooarchaeology and Field Ecology

Student Degrees (completed) Chaired

Masters:

Elic Weitzel
Allison Wolfe
Megan Giles
Erik Martin
Gillian Edwards
Isaac Hart
Daniel Mullins
Brian McEneaney
Brian Durkin
Brenda Hill

Doctorate:

Andrew Ugan (2005)
David Byers (2006)
R. Kelly Beck (2015)
Isaac Hart (2017)
Shawn Miller (2019)
Erik Martin (2020)
Kathryn Mohlenhoff (2020)
Allison Wolfe (2021)
Kasey Cole (2023)