ISSN 0033-5894

QR | QUATERNARY RESEARCH



EDITORS
Nicholas Lancaster
Lewis A. Owen

CAMBRIDGE UNIVERSITY PRESS

https://doi.org/10.1017/qua.2025.10066 Published online by Cambridge University Press

Quaternary Research
Published on behalf of Quaternary Research Center
www.cambridge.org/core/journals/quaternary-research
Volumes 123-128
eISSN: 1096-0287; ISSN: 0033-5894

Editors
Nicholas Lancaster, Desert Research Institute
Lewis A. Owen, North Carolina State University

Associate Editors
Lesleigh Anderson, U.S. Geological Survey
Pat Bartlein, University of Oregon
Louisa Bradtmiller, Macalester College
John Dodson, Institute of Earth Environments, Xi'an, China and University of Wollongong
Jason Dortch, University of Kentucky
Mary Edwards, University of Southampton and University of Alaska
Tyler Faith, Natural History Museum of Utah and University of Utah
Jaime Urrutia Fucugauchi, National University of Mexico and Instituto de Investigacion y Estudios Avanzados Chicxulub
Kathleen R. Johnson, University of California, Irvine
Terri Lacourse, University of Victoria
Pete Langdon, University of Southampton
Thomas Lowell, University of Cincinnati
Curtis W. Marean, Arizona State University
Jim O'Connor, U.S. Geological Survey
Wyatt Oswald, Emerson College
Yeong Bae Seong, Korea University
James (Jamie) Shulmeister, University of Canterbury, Christchurch
Ximena Villagran, Museu de Arqueologia e Etnologia, Universidade de São Paulo
Xiaoping Yang, Zhejiang University

Editorial Board
Zhisheng An, Institute of Earth Environment, Chinese Academy of Sciences
Gail Ashley, Rutgers University
Julie Brigham-Grette, University of Massachusetts
John Dodson, Institute of Earth Environments, Xi'an, China and University of Wollongong
Yehouda Enzel, Hebrew University of Jerusalem
David Fink, Australian Nuclear Science and Technology Organisation
Sheri Fritz, University of Nebraska – Lincoln
Alan R. Gillespie, University of Washington
Lisa Graumlich, University of Washington
Vance T. Holliday, University of Arizona
Richard G. Klein, Stanford University
Melanie Leng, British Geological Survey, University of Nottingham
Danial R. Muhs, U.S. Geological Survey
Colin V. Murray-Wallace, University of Wollongong
Maria Socorro Lozano-Garcia, Universidad Nacional Autónoma de México
Cathy L. Whitlock, Montana State University
Yurena Yanes, National Science Foundation
Liping Zhou, Peking University

Information about editors and editorial board members correct as of 1st January 2025. For the latest information please see https://www.cambridge.org/core/journals/quaternary-research/editors-and-advisory-board

https://doi.org/10.1017/qua.2025.10066 Published online by Cambridge University Press

Aims & Scope

Quaternary Research is an international journal devoted to the advancement of the interdisciplinary understanding of the Quaternary Period. We aim to publish articles of broad interest with relevance to more than one discipline, and that constitute a significant new contribution to Quaternary science. The journal's scope is global, building on its 50-year history in advancing the understanding of Earth and human history through interdisciplinary study of the last 2.6 million years.

Research areas include geoarcheology, geochemistry and geophysics, geochronology, geomorphology, glaciology, neotectonics, paleobotany and paleoecology, paleoclimatology, paleogeography, paleohydrology, paleontology, paleoceanography, paleopedology, Quaternary geology, volcanology and tephrochronology.

Quaternary Research Center

The QRC is a community of scholars collaborating and fostering interdisciplinary environmental research at the University of Washington through strategic investments in seed grants, expeditions, seminars, workshops, and the publication of *Quaternary Research*.

© University of Washington
Published by Cambridge University Press.





https://doi.org/10.1017/qua.2025.10066 Published online by Cambridge University Press

QUATERNARY RESEARCH

Volume 129, January 2026

RESEARCH ARTICLES

1 Late glacial lake and marine strandlines in the Ontario, St. Lawrence, and Champlain Lowlands, USA and Canada record steadily decreasing water levels interrupted by breakout floods
David A. Franzi, Brian S. Carl and Hadar S. Pepperstone

19 Late glacial and Holocene climate and landscape dynamics in the Valdai Highlands (East European Plain) inferred from lake sediment records
Grigory Fedorov, Larisa Savelieva, Nikita Bobrov, Anna Ludikova, Natalia Kostromina, Anna Cherezova, Aleksey Petrov, Evgenia Bazhenova and Andrei Andreev

36 Characteristics of Late Pleistocene and Holocene dune activity and soil formation in the Podravina, NE Croatia
Koen Beerten, Lidija Galović, Mihajlo Pandurov, Petar Stejić, Rodoljub Gajić, Jasmina Martinčević Lazar, Branko Kordić and Ajka Pjanić

55 Sedimentology and geochronology of aeolian deposits on the Middle Negro River, northern Amazon, Brazil
Jefferson Jesus de Souza, Emílio Alberto Amaral Soares, Sonia Hatsue Tatumi, Márcio Yee, Rodolfo Dino, Luis Antonio Castillo López, Emanuele Dantas Oliva Grudzin, Luzia Antonioli, Mayara Fraeda Barbosa Teixeira, Raphael Di Carlo Silva dos Santos and Carlos Alejandro Salazar

70 The giant hyena *Pachycrocuta brevirostris* (Carnivora, Hyaenidae) from the Early Pleistocene of Central Asia (Zasukhino-3 and Nalaikha), with insights on the dental evolution of crocutoid hyenas
Polina Nikolskaia, Rivka Rabinovich and Marina Sotnikova

88 Potential refugia on the Tibetan Plateau during the last glacial maximum
Chantelle K. Fuller and Daniel J. Hill

99 Morphological characteristics and factors influencing ice-free cirques in the Qilian Mountains
Hang Cui and Tao Jing

117 Late Pleistocene small mammal community from the Chongphadae Cave Site (DPRK)
Rye-Sun Choe, Kum-Sik Han, Jun-Chol Kanga, Myong-Won Ri, Ryong-Il Kanga, Hyon-Hui Yunc and Song-Il Kimd

Photo Caption: View southwards from tufa towers on the shore of Mono Lake in east-central California, USA. This hypersaline alkaline lake has a productive ecosystem based on the endemic brine shrimp (*Artemia monica*) and alkali flies (*Ephydra hians*). The name "Mono" derives from "Monachi," a Yokut term for the tribes that lived on both sides of the Sierra Nevada, and the region has an archaeological record extending back into the Early Holocene. Recent freshwater diversions severely lowered lake levels starting in AD 1941. Litigation in 1994 allowed the water to steadily rise. Levels are still far short of early 20th century heights, however, partially because of many years of drought in the American West. Mono Lake Basin has a geomorphic, volcanic, glacial and lacustrine record extending beyond the early Quaternary. It has been the focus of much research over the years, including many prominent papers published in Quaternary Research on glaciation, lacustrine sedimentology, geochemistry, palynology, archeology, and climate change that exemplify the interdisciplinary emphasis of the journal (see Bursik and Gillespie, 1993, 39, 24–35; Benson et al., 1998, 49, 1–10; Davis, 1999, 52, 243–249; Madsen et al., 2002, 57, 382–390; Zimmerman et al., 2011, 76, 264–271; Bacon et al., 2018, 90, 276–302). (Photo by Lewis Owen.)

https://doi.org/10.1017/qua.2025.10066 Published online by Cambridge University Press