

ISSN 0033-5894
Volume 114, June 2023

QR | QUATERNARY RESEARCH



EDITORS

Derek B. Booth
Nicholas Lancaster
Lewis A. Owen



CAMBRIDGE
UNIVERSITY PRESS

Editors

Derek B. Booth, University of Washington
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
Robert Booth, Lehigh University
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
Barbara Mauz, University of Liverpool and University of Salzburg
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
Jay Quade, Department of Geosciences, University of Arizona
Ashok Kumar Singhvi, Physical Research Laboratory, Ahmedabad, India
Maria Socorro Lozano-Garcia, Universidad Nacional Autónoma de México
Cathy L. Whitlock, Montana State University
Yurena Yanes, University of Cincinnati
Liping Zhou, Peking University

Information about editors and editorial board members correct as of 1st January 2023. For the latest information please see
<https://www.cambridge.org/core/journals/quaternary-research/editors-and-advisory-board>

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.



CAMBRIDGE
UNIVERSITY PRESS



QUATERNARY RESEARCH

VOLUME 114, JUNE 2023

RESEARCH ARTICLES

- 1 The timing and ecological consequences of Pleistocene megafaunal decline in the eastern Andes of Colombia
Felix C. Pym, Felipe Franco-Gaviria, Ismael G. Espinoza and Dunia H. Urrego
- 18 Anthropogenic activities in the páramo trigger ecological shifts in Tropical Andean lakes
Kimberley Hagemans, Timme H. Donders, Kees Nooren, Iris E.E. Scheper, Martin C.A. Stekelenburg, Maud Theunissen, Philip S.J. Minderhoud, Alejandra Goldenberg-Vilar, Susana León-Yáñez, Manuela Ormaza, Friederike Wagner-Cremer and Aleksandra Cvetkoska
- 30 Human–animal–environment dynamics and formation of pastoralism in the southern Tibetan Plateau during the Middle–Late Holocene
Yiru Wang, Yu Gao, Zhengwei Zhang, Zhengquan Gu, Jishuai Yang, Yanren Wang, Qingli Sun, Wei He, Yang tsho, Wangdue Shargan, Chunmei Ma, Joris Peters and Xiaoyan Yang
- 52 Human occupation, site formation, and chronostratigraphy of a mid-Holocene archaeological site at the eastern Pampa-Patagonia transition, Argentina
Gustavo Martínez, Gustavo Adolfo Martínez and Lewis A. Owen
- 69 Mid- to Late Holocene geomorphodynamics in a long-term settled mountain catchment in the Pergamon micro-region, western Turkey
Xun Yang, Fabian Becker, Moritz Nykamp, Bernhard Ludwig, Mehmet Doğan, Turhan Doğan, Daniel Knitter and Brigitta Schütt
- 93 The unique Late Paleolithic artifactual bone assemblage from the Volchia Griva site, Western Siberia
Sergey V. Leshchinskiy, Vasiliy N. Zenin, Elena M. Burkanova and Yaroslav V. Kuzmin
- 114 Geophysical sediment properties of a late Pleistocene loess–paleosol sequence, Chenarli, northeastern Iran
Amin Ghafarpour, Farhad Khormali, Hossein Tazikeh, Martin Kehl, Christian Rolf, Manfred Frechen and Christian Zeeden
- 130 Mid-Pleistocene drainage rearrangement of the Dadu River in response to plate convergence in southeastern Tibet
Yong Zheng, Haibing Li, Jiawei Pan, Zheng Gong, Ping Wang, Ya Lai, Zhongbao Zhao and Fucui Liu
- 148 Landscape dynamics and chronological refinement of the Middle Pleistocene Reinsdorf Sequence of Schöningen, NW Germany
Brigitte Urban, Thomas Kasper, Kim J. Krahn, Thijs van Kolfschoten, Bent Rech, Marco Holzheu, Mario Tucci and Antje Schwallb
- 178 Tracking the extinct giant Cape zebra (*Equus capensis*) on the Cape south coast of South Africa
Charles W. Helm, Andrew S. Carr, Hayley C. Cawthra, Jan C. De Vynck, Mark G. Dixon, Pieter-Jan Gräbe, Guy H. H. Thesen and Jan A. Venter
- 191 Towards a better knowledge of the molar morphology and ecology of extant and fossil grass rats (Muridae: *Arvicanthis* Lesson, 1842)
Emmanuelle Stoetzel, Helder Gomes Rodrigues and Raphaël Cornette

CORRIGENDUM

- 207 Stratigraphic evidence for culturally variable Indigenous fire regimes in ponderosa pine forests of the Mogollon Rim area, east-central Arizona – CORRIGENDUM
Christopher I. Roos, Nicholas C. Laluk, William Reitze and Owen K. Davis

Photo Caption: Monquentiva is a peat bog situated ~ 3000 m above sea level in the high Andean slopes of the eastern Colombian Cordillera, Cundinamarca, ~50 km northeast of the capital city of Bogotá. The climate, geographical location, and topography of Monquentiva favour a mosaic of vegetation and concentration of biodiversity including High Andean Forest, Subpáramo, and Páramo species, making the site an attractive habitat for extant megafauna. A 3.65 m sediment core recovered from Monquentiva presents the first multi-species record of spores of coprophilous fungi (SCF) from South America to investigate the decline of Late Pleistocene megafauna. The SCF record indicates the presence of Pleistocene megafauna since at least 30,290 BP, with two waves of megafaunal decline at ca. 22,900 BP and 10,990 BP. At Monquentiva, fossilised pollen and charcoal show that megafaunal decline in the Early Holocene resulted in transitional non-analogue vegetation, loss of some herbivore-dispersed plant taxa, an encroachment of palatable and woody flora, and a rise in fire activity. Photo: Felix Pym (see Pym et al., 2023, pages 1–17 of this issue).