Testate Amoebae As A Proxy For Reconstructing Holocene

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Testate Amoebae Analysis in Ecological and Paleoecological Studies of Wetlands: Past, Present and Future
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Changing Climates, Earth Systems and Society ScholarlyEditions
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Three Volume Set Springer
This book aims to quantify and discuss how societies have directly and indirectly benefited from ecosystem services in Patagonia; not only in terms of provisioning and cultural services, but also regulating and supporting services. Patagonia, a region that stretches across two countries (ca. 10% in Chile and 90% in Argentina), is home to some of the most extensive wilderness areas on our planet. Natural grasslands comprise almost 30% of the Americas, including the Patagonian steppe, while Patagonian southern temperate forests are important for carbon sequestration and storage, play a pivotal role in water regulation, and have become widely recognized for their ecotourism value. However, profound changes are now underway that could affect key ecosystem functions and ultimately human well-being. In this

context, one major challenge we face in Patagonia is that ecosystem services are often ignored in economic markets, government policies and land management practices. The book explores the synergies and trade-offs between conservation and economic development as natural landscapes and seascapes continue to degrade in Patagonia. Historically, economic markets have largely focused on the provisioning services (forest products, livestock) while neglecting the interdependent roles of regulating services (erosion and climate control), supporting services (nutrient cycling) and cultural services (recreation, local identity, tourism). Therefore, the present work focuses on ecosystem functions and ecosystem services, as well as on trends in biodiversity and the interactions between natural environments and land-use activities throughout Patagonia.

Global Change in the Holocene

Springer Science & Business Media

The International Year of Planet Earth (IYPE) was established as a means of raising worldwide public and political awareness of the vast, though frequently under-used, potential the Earth Sciences possess for improving the quality of life of the peoples of the world and safeguarding Earth's rich and diverse environments. The International Year project was jointly initiated in 2000 by the International Union of Geological Sciences (IUGS) and the Earth Science Division of the United Nations Educational, Scienti?c and Cultural Organisation (UNESCO). IUGS, which is a Non-Governmental Organisation, and UNESCO, an Inter-Governmental Organisation, already shared a long record of productive cooperation in the na- ral sciences and their application to societal problems, including the International Geoscience Programme (IGCP) now in its fourth decade. With its main goals of raising public awareness of, and enhancing research in the Earth sciences on a global scale in both the developed and less-developed countries of the world, two operational programmes were demanded. In 2002 and 2003, the Series Editors together with Dr. Ted Nield and Dr. Henk Schalke (all four being core members of the Management Team at that time) drew up outlines of a Science and an Outreach Programme. In 2005, following the UN proclamation of 2008 as the United Nations International Year of Planet Earth, the "Year" grew into a triennium (2007–2009).

Status, Distribution and Conservation

ScholarlyEditions

The Neolithic —a period in which the first sedentary agrarian communities were established across much of Europe—has been a key topic of archaeological research for over a century. However, the variety of evidence across Europe, the range of languages in which research is carried out, and the way research traditions in different countries have developed makes it very difficult for both students and specialists to gain an overview of continent-wide trends. The Oxford Handbook of Neolithic Europe provides the first comprehensive, geographically extensive, thematic overview of the European Neolithic —from Iberia to Russia and from Norway to Malta —offering both a general introduction and a clear exploration of key issues and current debates surrounding evidence and interpretation. Chapters written by leading experts in the field examine topics such as the movement of plants, animals, ideas,

and people (including recent trends in the application of genetics and isotope analyses); cultural change (from the first appearance of farming to the first metal artefacts); domestic architecture; subsistence; material culture; monuments; and burial and other treatments of the dead. In doing so, the volume also considers the history of research and sets out agendas and themes for future work in the field.

Was There a '4.2 Kyr Event' in Great Britain and Ireland? Evidence from the Peatland Record Cambridge University Press

A classification system for Canadian wetlands based on the collective expertise and research of scientists across Canada. The system is provisional and subject to revision in future editions.

Tracking Environmental Change Using Lake Sediments Routledge

This long-awaited book about non-pollen palynomorphs (NPPs) aims to cover gaps in our knowledge of these abundant but understudied palynological remains. NPPs, such as fungal spores, testate amoebae, dinoflagellate cysts, acritarchs and animal remains, are routinely recovered from palynological preparations of marine or terrestrial material, from Proterozoic to recent geological times. This book gives the reader a comprehensive overview of the different types of NPPs, with examples from diverse time periods and environments. It provides guidance on sample preparation to maximize the recovery of these NPPs, detailed information on their diversity and ecological affinity, clarification on the nomenclature and demonstrates their value as environmental indicators. This volume will become the reference guide for any student, academic or practitioner interested in everything else in their palynological preparations.

Environment and Society in the Long Late Antiquity OUP Oxford

Advances in Climate Change and Global Warming Research and Application: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Aerosol Forcing. The editors have built Advances in Climate Change and Global Warming Research and Application: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Aerosol Forcing in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Advances in Climate Change and Global Warming Research and Application: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Issues in Earth Sciences, Geology, and Geophysics: 2011 Edition Testate Amoebae Analysis in Ecological and Paleoecological Studies of Wetlands: Past, Present and FutureTestate amoebae are an abundant and diverse polyphyletic group of shelled protozoa living in aquatic to moist habitats ranging from estuaries to lakes, rivers, wetlands, soils, litter, and moss habitats. Owing to the preservation

of shells in sediments, testate amoebae are useful proxy indicators complementary to long-established indicators such as pollen and spores or macrofossils. Their primary use to date has been for inferring past moisture conditions and climate in ombrotrophic peatlands and, to a lesser extent, to infer pH in peatlands and the trophic or nutrient status of lakes. Recent research on these organisms suggests other possible uses in paleoecology and ecology such as sea-level reconstruction in estuarine environments, as indicators of soil or air pollution, and monitoring recovery of peatland. We review the past and present use of testate amoebae, the challenges in current research, and provide some ideas on future research directions.Applications of Non-Pollen Palynomorphsfrom Palaeoenvironmental Reconstructions to Biostratigraphy Examines the various forms of evidence used to establish the history and scale of environmenal changes during the Quaternary. The evidence is extremely diverse, ranging from landforms and sediments to fossil assemblages and isotope ratios, bringing the book fully up to date since its last publication.

Environmental Archaeology in Ireland ScholarlyEditions

In response to a request from Congress, Surface Temperature Reconstructions for the Last 2,000 Years assesses the state of scientific efforts to reconstruct surface temperature records for Earth during approximately the last 2,000 years and the implications of these efforts for our understanding of global climate change. Because widespread, reliable temperature records are available only for the last 150 years, scientists estimate temperatures in the more distant past by analyzing "proxy evidence," which includes tree rings, corals, ocean and lake sediments, cave deposits, ice cores, boreholes, and glaciers. Starting in the late 1990s, scientists began using sophisticated methods to combine proxy evidence from many different locations in an effort to estimate surface temperature changes during the last few hundred to few thousand years. This book is an important resource in helping to understand the intricacies of global climate change.

Soil Fauna Assemblages Geological Society of London

Agglutinated foraminifera are among the most widely distributed and abundant groups of marine meiofauna in some environments (e. g. marshes, deep-sea). They are tolerant of environmental extremes, tending to live where the evolutionarily more advanced calcareous foraminifera cannot survive. However, largely because of historical reasons, the amount of scientific effort invested in this group has been small in comparison to studies of other marine organisms. The NATO Advanced Studies Institute conference on the paleoecology, biostratigraphy, paleoceanography and taxonomy of agglutinated foraminifera in TUbingen September 17-29, 1989, was a direct outgrowth of two previous workshops on agglutinated foraminifers held in Amsterdam in September 1981 (IW AF I) and in Vienna in June 1986 (IW AF 11). As such, the TUbingen conference constitutes the Third International Workshop on Agglutinated Foraminifera (IW AF III) and was organised to provide a platform for synthesizing the current state of knowledge on this group of organisms, and to strengthen interactions between basic research and applied micropaleontology. One of the main

underlying themes of the conferen:e was to identify topics in the paleoecology, biostratigraphy, paleoceanography and taxonomy of agglutinated foraminifera which are in urgent need of further research. About 80 scientists and students from 5 continents participated in the TUbingen conference, which is one measure of the growth in interest in agglutinated foraminifers over the past decade. During four days of technical sessions, scientific results were communicated in the form of 34 oral presentations and 15 poster displays.
Ecosystem Services in Patagonia SAGE
The aim of this study is to produce high-resolution multi-proxy records of hydrological change, spanning the last c. 250 years, from nine ombrotrophic peatlands across the north of Ireland. The results provide important insights into the nature of recent climate change in the region. To quantify hydrological change, a combination of established proxy indicators are utilised, including testate amoebae, plant macrofossils and humification analysis. Reconstructions of water table change from testate-amoebae assemblages are undertaken using a transfer function previously developed for the north of Ireland. Chronological control is provided via tephrochronology and Spheroidal Carbonaceous Particle (SCP) analysis, supplemented by AMS 14C dating. Two important regional crypto-tephra's, the Hekla 1947 and Hekla 1510 tephra layers, are used to enhance the age-depth models. A new intermediate Hekla tephra layer is also described at six sites which is inferred to be sourced from the Hekla 1845 eruption event, from which tephra deposits have only previously. been established in Orkney and the Faroe Islands. The bog surface moisture records from the nine sites show a high degree of similarity, with synchronous changes occurring at all sites. Allogenic climate forcing rather than internal peatland dynamics, is thus suggested to be. driving the inferred hydrological changes. A phase of cool and wet conditions predominates in all the records from c. AD 1750 until the late 1800's/early 1900's, probably reflecting the end of the Little Ice Age (LIA). A phase of rapid drying is then recorded, although the timing of the onset varies locally between sites, it is prominent at all sites from c. AD 1940. The testate amoebae based records of hydrological change are validated through statistical comparisons with instrumental climate datasets from the region. Strong correlations are observed between the hydrological records and summer temperatures, and to a lesser extent summer precipitation, indicating that it is the interaction of summer seasonal temperature and precipitation which drives peatland hydrological change in the regional peatlands. Comparisons with other observed climate proxy records from elsewhere in northwest Europe suggest the recent drying in the peatlands from the north of Ireland is part of a climatic shift with wide spatial extent, although the exact timing shows minor variations. The acquisition of multiple intra-regional records preliminarily suggests that smaller bogs and those in lower topographic settings appear to be more sensitive to hydrological change than larger bogs and those in upland settings. This study thus contributes to the wider understanding of the character and impact of recent temperature/precipitation change on Irish peatlands and provides important baseline data for examining the response of future

climate change on the region's peatlands.

Landform Dynamics and Evolution in Romania Cambridge University Press

Concerns about the effects of global climate change have focused attention on the vulnerability of circumpolar regions. This book offers a synthesis of the spectrum of techniques available for generating long-term environmental records from circumpolar lakes.

The Routledge Handbook of Landscape Ecology Oxford University Press, USA

"Salt marshes and mangrove forests, the intertidal wetlands of the world's coastlines, provide key ecological services to all areas of the globe, and are vital sinks and sources in carbon budgets"--

Reconstructing Quaternary Environments Springer Science & Business Media

Owing to their importance as primary producers of energy and nutrition, algae and cyanobacteria are found as symbiotic partners across diverse lineages of prokaryotic and eukaryotic kingdoms. Algal and Cyanobacteria Symbioses presents a compilation of recent, updated research in fields of diverse symbioses, including in marine, freshwater, and terrestrial habitats. It gives a comprehensive overview of algal and cyanobacteria symbioses, including reviews on their diversity and information on symbiotic specificity and stress tolerance. Also covered is a review of regulatory mechanisms in the communication between symbiotic partners. The highly interdisciplinary character of this book is demonstrated through the range of algae and cyanobacteria as energy-providing symbionts in organismal lineages which are discussed. It is a valuable source of knowledge for researchers, university lecturers, professors and students of biology and life sciences, specifically biochemistry, mycology, cell biology and plant-microbe interactions.

Functional Traits as Indicators of Past Environmental Changes National Academies Press

Testate amoebae are an abundant and diverse polyphyletic group of shelled protozoa living in aquatic to moist habitats ranging from estuaries to lakes, rivers, wetlands, soils, litter, and moss habitats. Owing to the preservation of shells in sediments, testate amoebae are useful proxy indicators complementary to long-established indicators such as pollen and spores or macrofossils. Their primary use to date has been for inferring past moisture conditions and climate in ombrotrophic peatlands and, to a lesser extent, to infer pH in peatlands and the trophic or nutrient status of lakes. Recent research on these organisms suggests other possible uses in paleoecology and ecology such as sea-level reconstruction in estuarine environments, as indicators of soil or air pollution, and monitoring recovery of peatland. We review the past and present use of testate amoebae, the challenges in current research, and provide some ideas on future research directions.

People, the Earth, Environment, and Technology. C-Cor Springer Nature

The Oxford Handbook of Wetland Archaeology is the most comprehensive survey of global wetland archaeology ever published. Well known for the spectacular quality of its surviving evidence, from both an archaeological and environmental perspective, wetland archaeology enables scholars to investigate and reconstruct past people's dwellings, landscapes,

material culture, and daily lives in great detail. Through concise essays written by some of the world's leading scholars in the field, this Handbook describes the key principles, methodologies, and revealing results of past and present archaeological investigations of wetland environments. The volume provides unique insights into past human interactions with lakes, bogs, rivers, and coastal marshlands across the world from prehistory to modern times. Opening with a detailed introduction by the editors, the Handbook is divided into seven parts and contains 54 essays and over 230 photographs, figures, maps, and graphs.

A Multi-Criteria Approach for an Integrated Assessment John Wiley & Sons

Accessibly written by a team of international authors, the Encyclopedia of Environmental Change provides a gateway to the complex facts, concepts, techniques, methodology and philosophy of environmental change. This three-volume set illustrates and examines topics within this dynamic and rapidly changing interdisciplinary field. The encyclopedia includes all of the following aspects of environmental change: Diverse evidence of environmental change, including climate change and changes on land and in the oceans Underlying natural and anthropogenic causes and mechanisms Wide-ranging local, regional and global impacts from the polar regions to the tropics Responses of geo-ecosystems and human-environmental systems in the face of past, present and future environmental change Approaches, methodologies and techniques used for reconstructing, dating, monitoring, modelling, projecting and predicting change Social, economic and political dimensions of environmental issues, environmental conservation and management and environmental policy Over 4,000 entries explore the following key themes and more: Conservation Demographic change Environmental management Environmental policy Environmental security Food security Glaciation Green Revolution Human impact on environment Industrialization Landuse change Military impacts on environment Mining and mining impacts Nuclear energy Pollution Renewable resources Solar energy Sustainability Tourism Trade Water resources Water security Wildlife conservation The comprehensive coverage of terminology includes layers of entries ranging from one-line definitions to short essays, making this an invaluable companion for any student of physical geography, environmental geography or environmental sciences.

Volume 3: Terrestrial, Algal, and Siliceous Indicators Oxbow Books Limited

Issues in Anthropology, Evolution, and Development: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Paleontology. The editors have built Issues in Anthropology, Evolution, and Development: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Paleontology in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Anthropology, Evolution, and Development: 2013 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from

peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Floods and Long-Term Water-Level Changes in Medieval Hungary Springer

The Handbook provides a supporting guide to key aspects and applications of landscape ecology to underpin its research and teaching. A wide range of contributions written by expert researchers in the field summarize the latest knowledge on landscape ecology theory and concepts, landscape processes, methods and tools, and emerging frontiers. Landscape ecology is an interdisciplinary and holistic discipline, and this is reflected in the chapters contained in this Handbook. Authors from varying disciplinary backgrounds tackle key concepts such as landscape structure and function, scale and connectivity; landscape processes such as disturbance, flows, and fragmentation; methods such as remote sensing and mapping, fieldwork, pattern analysis, modelling, and participation and engagement in landscape planning; and emerging frontiers such as ecosystem services, landscape approaches to biodiversity conservation, and climate change. Each chapter provides a blend of the latest scientific understanding of its focal topics along with considerations and examples of their application from around the world. An invaluable guide to the concepts, methods, and applications of landscape ecology, this book will be an important reference text for a wide range of students and academics in ecology, geography, biology, and interdisciplinary environmental studies.

Testate Amoebae Analysis in Ecological and Paleoecological Studies of Wetlands: Past, Present and Future OUP Oxford

The Holocene spans the 11,500 years since the end of the last Ice Age and has been a period of major global environmental change. However the rate of change has accelerated during the last hundred years, due largely to human impacts and this has led to a growing concern for the future of our environmental resources. Global Change in the Holocene demonstrates how reconstructing the record of past environmental change can provide us with essential knowledge about how our environment works and presents the reader with an informed viewpoint from which to project realistic future scenarios. The book brings together key techniques that are widely used in Holocene research, such as radiocarbon dating, dendrochronology and sediment analysis and offers a comprehensive analysis of various archives of environmental change including instrumental and documentary records, corals, lake sediments, glaciers and ice cores. This reference will be an informative and cutting-edge resource for all researchers in the fields of climate change, environmental science, geography, palaeoecology and archaeology.

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