

Mesozoic fish assemblages of North America

Mark V. H WILSON & John C. BRUNER

Abstract

The Mesozoic record of fossil fishes in North America is characterized by temporally and geographically discontinuous areas of strength. Important assemblages of marine fishes are known from the Lower Triassic of Western Canada, the Albian through Maastrichtian of the Western Interior of both USA and Canada (culminating in the famous “Kansas Chalk” fauna), and the Santonian to Maastrichtian of the Gulf and Atlantic Coasts of the USA. Important freshwater fish assemblages include those of the Triassic Dockum and Chinle groups in Western Interior USA, the Triassic/Jurassic Newark Supergroup in Eastern USA, the Middle Jurassic Sundance and Wanakah formations of Western Interior USA, and the Upper Cretaceous fluvial formations of the Western Interior of Canada and USA.

Chondrichthyans are common in marine and in fluvial formations, but not in lacustrine ones; actinopterygians are common in nearly all assemblages. Lungfishes are common in freshwater formations during the Triassic and Jurassic, but disappear from the Western Interior record during the Early Cretaceous. Coelacanths are common in marine and some freshwater formations in the Triassic, disappearing from the Western Interior record after the Middle Jurassic. There are isolated reports of both lungfishes and coelacanths from the Upper Cretaceous of the Atlantic Coast.

Certain diverse and geologically complex assemblages, such as those of the ‘Kansas Chalk’ and the Cretaceous of the Gulf and Atlantic Coasts, would be much more accessible to future researchers after completion of comprehensive reviews of the diversity and taxonomy of their contained fishes. Overall, study of North American Mesozoic fishes would benefit from greatly increased local and international cooperation and collaboration, thus stimulating interest in these fishes by more researchers and leading to an increased pace of discovery.

Introduction

The Mesozoic fishes of North America, consisting of chondrichthyans, coelacanths, lungfishes, and actinopterygians, have been studied for more than a century and a half, but our knowledge of them is very uneven. A few have been studied in great detail, but many others have been studied only in a preliminary way. One of the most useful ways of summarizing our knowledge about these fossil fishes may be to organize information under a system of assemblages of similar age and environment, as has been done for some assemblages and time periods (SCHAEFFER & PATTERSON 1984, RUSSELL 1988, HUBER et al. 1993). Most such previous attempts at organization have been regional in nature. As a result, relatively few general patterns have been identified and relatively few researchers have been drawn to this important field.

The purpose of the present review, at the beginning of the 21st Century, is to help to remedy this situation by providing an introduction to the literature of the 19th and 20th centuries, by summarizing major findings to date, and by organizing information about North American Mesozoic fishes according to what we term “macro-assemblages” characterized by similar geological time, geographic region, ancient environment, and mode of preservation. It is hoped that this will reveal previously unseen connections, highlight areas with potential for future research, and stimulate further studies.

Major divisions of geologic time used for compiling the macro-assemblages in the present work are: Early Triassic, Middle to Late Triassic, Late Triassic/Early Jurassic, Late Jurassic, Early Cretaceous, and Late Cretaceous. The Late Cretaceous time frame is in turn subdivided in more detail by stage as appropriate. Geographical regions distinguished in this study are: Western Interior North America,

The whole contribution can be purchased as PDF file.

Availability

Generally all our publications are available as PDF files; full publications as a general rule after the printed version is out of print. If you have questions concerning particular contributions please contact us by e-mail:

pdf@pfeil-verlag.de.

The PDF files are protected by copyright.

The PDF file may be printed for personal use.

The reproduction and dissemination of the content or part of it is permitted.

It is not allowed to transfer the digital personal certificate or the password to other persons.

Prices

Books: Prices are to be found in the catalog.

Articles in journals and single contributions or chapters in books:

10 EURO basic price per order (including the first 10 pages),
and

0.50 EURO per page, beginning with the 11th page.

Page numbers are found in the contents of the publications.

Orders

Use our order form for PDF files or send your order informal per e-mail (pdf@pfeil-verlag.de). The only accepted payment is by credit card. While using the order form for PDF files, your data will be transmitted by secure link (ssl). You also may send the informations informally by e-mail, fax, phone or mail.

Handling

As soon as possible, depending on our business hours and your order, you will receive your PDF file together with the certificate and password by e-mail.

Larger PDF files can be downloaded from our webpage, if necessary.

Your invoice will be sent out by e-mail after we charged your credit card.

To open the encrypted PDF files you have to install your personal certificate after your first order. All PDF files with the same certificate can be opened from that time on.

Dieser Beitrag kann als PDF-Datei erworben werden.

Verfügbarkeit von PDF-Dateien

Prinzipiell sind von allen unseren Publikationen PDF-Dateien erhältlich. Komplette Publikationen in der Regel erst nachdem die gedruckte Version vergriffen ist. Anfragen bezüglich bestimmter Beiträge richten Sie bitte per E-Mail an pdf@pfeil-verlag.de.

Die PDF-Dateien sind urheberrechtlich geschützt.

Ein Ausdruck der PDF-Dateien ist nur für den persönlichen Gebrauch erlaubt.

Die Vervielfältigung von Ausdrucken, erneutes Digitalisieren sowie die Weitergabe von Texten und Abbildungen sind nicht gestattet.

Das persönliche Zertifikat und das Passwort dürfen nicht an Dritte weitergegeben werden.

Preise

Bücher: Die Preise sind dem Katalog zu entnehmen. Zeitschriftenbeiträge und einzelne Kapitel aus Sammelbänden bzw. Büchern:

10 EURO Grundbetrag pro Bestellung (einschließlich der ersten 10 Seiten),
und

0,50 EURO pro Seite ab der 11. Seite.

Den Umfang der Beiträge entnehmen Sie bitte den Inhaltsverzeichnissen.

Bestellungen

Bestellungen sind mit dem PDF-Bestellformular oder formlos per E-Mail (pdf@pfeil-verlag.de) an uns zu richten. Die Bezahlung ist ausschließlich per Kreditkarte möglich. Bei Verwendung unseres Bestellformulars werden die Kreditkartendaten über eine gesicherte Verbindung (ssl) übermittelt. Sie können die Daten aber auch formlos per E-Mail, Fax, Post oder telefonisch übermitteln.

Abwicklung

So bald wie möglich, aber abhängig von unseren Bürozeiten und der gewünschten Bestellung, schicken wir Ihnen die PDF-Datei(en) zusammen mit Ihrem persönlichen Zertifikat und dem zugehörigem Passwort per E-Mail. Größere Dateien bieten wir Ihnen gegebenenfalls zum Herunterladen an.

Der fällige Betrag wird von Ihrer Kreditkarte abgebucht und Sie erhalten die Rechnung ebenfalls per E-Mail.

Um die verschlüsselten PDF-Dateien öffnen zu können, muss bei der ersten Bestellung das passwortgeschützte persönliches Zertifikat installiert werden, welches anschließend auf dem Rechner verbleibt. Alle mit diesem Zertifikat verschlüsselten Dateien können anschließend auf diesem Rechner geöffnet werden.