

# Evolution and Ecology: The Pace of Life

K. D. BENNETT

*Department of Plant Sciences, University of Cambridge, UK*



**CAMBRIDGE**  
**UNIVERSITY PRESS**

# Contents

<i>Tables</i>	<i>page xi</i>
<i>Illustrations</i>	<i>xiii</i>
<i>Preface</i>	<i>xvii</i>
<b>1 Introduction</b>	<b>1</b>
Outline	3
Terms and Definitions	3
<b>2 Development of ideas</b>	<b>6</b>
Evolutionary processes	6
Ecological processes	35
Quaternary research	39
Discussion	42
<b>3 Orbital-forcing of climatic oscillations</b>	<b>44</b>
Orbital parameters	45
Insolation	48
Climate models	51
<b>4 Geological evidence for orbital-forcing</b>	<b>65</b>
Cenozoic	66
Mesozoic	74
Paleozoic	82
Proterozoic	84
Continental glaciation in Earth history	85
Discussion	89
<b>5 Biological response: distribution</b>	<b>92</b>
The physical background	92
The terrestrial record	94
The marine record	145
Discussion	148

<b>6</b>	<b>Biological response: evolution</b>	154
	Geological time	155
	Ecological time	168
	Discussion	173
<b>7</b>	<b>Biological response: extinction</b>	178
	Animals	178
	Plants	181
	Discussion	183
<b>8</b>	<b>Evolution and ecology: synthesis</b>	184
	Biological responses	184
	Post-modern evolutionary synthesis	184
	Difficulties	195
	<i>References</i>	199
	<i>Index</i>	226