

Contents

<i>Editors' preface, dedication and acknowledgements</i>	<i>iv</i>
1 Designing an investigation	1
Designing and setting up experiments and surveys	2
Types of data	3
Sampling strategies	3
Selecting independent data points	5
Asking questions	6
2 Sampling invertebrates	8
Conducting fieldwork responsibly and safely	9
Surveying vegetation	9
Measuring environmental properties	12
Monitoring substrates such as sand and soil	14
Monitoring water	15
Measuring physical attributes of a habitat	17
Sampling invertebrates from water	18
Sampling invertebrates from substrates	20
Sampling invertebrates from rocky shores	22
Sampling surface active invertebrates	22
Sampling invertebrates living on and in plants	23
Sampling aerial insects	25
Marking invertebrates	27
Keeping live invertebrates	28
Killing and preserving invertebrates	29
3 Identifying invertebrates	31
Marine invertebrates	33
Freshwater invertebrates	34
Terrestrial invertebrates	37
4 Describing data	43
Examining frequencies	43
Finding the average value	44
Examining variation	46
Estimating the reliability of the sample mean	51
Estimating population sizes and densities	52
Identifying clumped, regular and random distributions	55
Examining community diversity	57
Examining similarities between communities	62
5 Statistical testing	65
Choosing a statistical test	69
Testing for differences between samples	69
Testing for relationships between variables	84
Testing for associations between frequency distributions	89
6 Presenting your results	94
Creating tables and graphs	94
Writing up work	96
Some useful addresses	97
Appendix I Calculating statistics	101
Mathematical glossary	102
Appendix II Statistical tables	105
References and further reading	110
Index	118