

Cambridge University Press & Assessment 978-1-009-22593-9 — Understanding Reproduction Giuseppe Fusco , Alessandro Minelli Table of Contents More Information

## **Contents**

	Foreword	page xiii
	Preface	XV
	Acknowledgements	xix
1	Individuals and Reproduction	1
	Forms of Persistence	1
	Box 1.1 A Classification of Living Organisms	3
	What Is Reproduction?	5
	Asexual and Sexual Reproduction	7
	Generations	11
	Reproduction and Individuality	15
	Reproduction and Senescence	18
	Reproduction and Us	22
	The Theoretical Minimum	25
2	Reproduction in the Life Cycle	29
	Monogenerational and Multigenerational Life Cycles	29
	Chromosome Sets Through the Life Cycle	33
	Box 2.1 Cell Theory and Reproduction	34
	Common Haplodiplontic Cycles in Plants	38
	Alternation of Sexual and Asexual Generations	40
	Alternation of Biparental and Uniparental Sexual Reproduction	43
	Cycles with Reproductive Options	45



Cambridge University Press & Assessment 978-1-009-22593-9 — Understanding Reproduction Giuseppe Fusco , Alessandro Minelli Table of Contents More Information

## x CONTENTS

3	Reproduction Without Sex	49
	Clones and Asexual Reproduction	49
	Asexual Reproduction in Unicellular Organisms	52
	Unicellular Propagules in Multicellular Organisms	54
	Multicellular Propagules in Plants and Fungi	55
	Multicellular Propagules in Animals	58
	Polyembryony and Larval Amplification	61
4	Reproduction with Sex	64
	Gametes	64
	Diversity of Gametes	67
	Sexes, Sex Conditions and Breeding Systems	69
	Separate Sexes and Sexual Dimorphism	72
	Box 4.1 Sexual Selection	75
	Hermaphroditism	77
	Germ Cells and Reproductive Organs	81
	The Evolutionary Enigma of Sex	85
5	Two-Parent Sexual Reproduction	88
	The Meeting Place of Gametes	88
	External Fertilization Strategies	90
	Internal Fertilization: Gamete Encounters in Animals	92
	Internal Fertilization: Gamete Encounters in Plants	95
	Partner Encounters in Animals	96
	Partner Encounters in Seed Plants: Pollination	99
	Reproductive Incompatibility	102
	Mating Systems	105
6	One-Parent (or Nearly so) Sexual Reproduction	108
	Self-Fertilization	108
	Parthenogenesis	111
	Parthenogenesis in Animals	113
	Parthenogenesis in Plants	115
	Natural History of Parthenogenesis	117
	Other Forms of Sexual Reproduction	120



Cambridge University Press & Assessment 978-1-009-22593-9 — Understanding Reproduction Giuseppe Fusco , Alessandro Minelli Table of Contents More Information

	CONTE	NTS xi
7	Development of Sexual Traits	123
	Sex Determination: A Complex Affair	123
	Common Genetic Sex-Determination Systems	125
	Less Common Genetic Sex-Determination Systems	128
	Environmental Sex-Determination Systems	131
	Maternal Sex-Determination Systems	134
	Notes on Sexual Differentiation	137
	Typological Versus Populational Thinking in Sexual Characters	139
8	Widening the View: Reproductive Strategies	143
	Resources for Reproduction and How to Spend Them	143
	Fecundity	145
	Lifelong Temporal Distribution of Reproductive Effort	149
	Mothers, Eggs and Embryos in Animals	153
	Parental Care in Animals	158
	Provisioning by Plants for Offspring Development and Dispersal	161
	Concluding Remarks: Difficult Boundaries	167
	Setting Sail	167
	Reproduction or Development?	167
	Reproduction or Growth?	169
	Reproduction or Regeneration?	170
	Again, What Is Reproduction?	171
	Summary of Common Misunderstandings	172
	References and Further Reading	176
	Figure Credits	184
	Index	186