

Acknowledgements

List of contributors

Introduction to applied environmental genomics

#### Section A: Biodiversity

- 1: Design considerations for eDNA metabarcoding surveys
- 2: Measuring biodiversity with eDNA metabarcoding
- 3: Perspective – eDNA and metagenomics: a story of a disruptive technology for biodiversity monitoring
- 4: Revealing animal diet and food webs through DNA metabarcoding
- 5: Approaching ecological questions using DNA barcodes

#### Section B: Life history and population biology

- 6: Lifespan estimation from genomic analysis
- 7: Development of epigenetic clocks
- 8: Molecular sex identification for applications in conservation, industry and veterinary medicine
- 9: Perspective – Whole genome assemblies, devils and disease
- 10: Genetic-based inventories of wildlife abundance
- 11: The practical magic of close-kin mark-recapture
- 12: Perspective – Genomics and bear management
- 13: How can we use genomics to predict and improve population viability?

#### Section C: Adaptation and change

- 14: Adaptive responses to the environment and environmental change
- 15: Perspective – The power of genomics for guiding reintroductions
- 16: Palaeo- and museo-genomics: perspectives on modern species
- 17: Perspective – Genomics and the prioritisation of taxa and populations for conservation

#### Section D: Environmental molecular physiology

- 18: Applied epigenomics in a rapidly changing world
- 19: DNA-based microbial bioindication of environmental state
- 20: Perspective – The promise of ecotoxicogenomics for assessing aquatic health

#### Section E: Spatial genomics

- 21: Unravelling plant-pollinator interactions through pollen DNA analysis
- 22: Genomic approaches to study dispersal in wild animal populations: implications

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23: Conservation prioritisation based on evolutionary distinctiveness of communities

Section F: Biosecurity and disease monitoring

24: Invasive species detection and management using genomic methods

25: Genomic identification and surveillance of infectious diseases in natural systems

26: Management of vertebrate pests using genetic control techniques

27: Perspective – The ‘E’ in RD&E and the application of genomics for environmental and biosecurity risk management

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