

INDEX

Note: **bold** page numbers refer to illustrations.

- abundance estimation 5–6, 268, 307, 308, 314
 - red foxes 292
 - spotted-tailed quolls 271, 276
 - using the random encounter model 317–22
- Accipiter fasciatus* **165**
- Acrobates pygmaeus* 239
- agile antechinus 17, 237, **238**
 - camera orientation and detection 233, 236
 - detection by camera type 117
- agile wallaby **167**
- Ailurus fulgens* 88
- Akaike Information Criterion (AIC) 16, 47, 114, 126, 274, 293
- Alces alces* 49
- Allen and Engeman index 193, 194, 196, 197, 198
- Alpine National Park, Vic., spotted-tailed quoll
 - survey protocol 271–7
- American marten 234
- amphibians 6
- animal movement speed, REM 319–20
- Antechinus* 14
 - A. agilis* 16, 114, 233, 236, 237, **238**
 - A. spp.* 125, **162**, 163, 303
 - A. stuartii* 301
 - A. swainsonii* 16, 114, 254, 301
- applied management 6–7
- arboreal/scansorial mammals
 - camera trap detection 233–40, **238**
 - camera trap orientation 233, 235–7
 - glide poles and rope canopy-bridges usage
 - monitoring **158–9**, 245–51
- Asian badger 48
- Asian elephant 88
- Asiatic golden cat 87, 88, 91
 - colour morphs 90, **150**
- Australasian Wildlife Management Society, First International Camera Trapping Colloquium in Wildlife Management and Research 349–51
- Australian Privacy Principles (AAPs) 334
- Austria, camera traps and privacy 332, 339
- automated species identification 6, 299–304
- automatic camera trap data organisation, storage and analysis 283–90
- bait or no bait debate 209–10
- bandicoots 13, 14, 16, 18, 19, 25, 194, 196, 211
 - see also* specific types, e.g. southern brown bandicoot
- Bandipur Tiger Reserve, Karnataka, India 168
- bare-nosed wombat, diurnal activity 35–42, **143**
- Barro Colorado Island, Panama, Central American
 - agouti density estimation 164, 318–22
- baseline inventory 20–1
- Bassian thrush 13, 16, 18, 19, 22, 26
- Bennett's wallaby 254
- Bhutan 87–8
 - wildlife camera trapping 87, 88–95, 148
- Bhutan Biological Corridors Complex 148
 - small mammals **151**
- biodiversity monitoring
 - Mongolia 45–52, 144
 - Pacaya Samiria National Reserve, Peru 53–60, 144, 145
 - Torricelli Mountain Range, PNG 69–76
- birds 6, 13, 18, 19
 - see also* specific types, e.g. brown goshawk
- black agouti 57
- black rat 19, 196, **208**, 254
 - detection by camera type 117
 - population size estimation, Port Jackson, NSW 307–14
- blue duiker **167**
- blue sheep 88
- Bluetooth 106, 107
- Bos*
 - B. gaurus* 168
 - B. grunniens* 91
- Brazilian tapir 457
- broad scale area surveys, Grampians National Park, Vic. 161, 293
- broad-toothed rat 19
- bronze ground-dove 74
- brown antechinus 301
- brown bear 49

- brown goshawk 165
- brush-tailed phascogale, detection by camera type 116, 117
- brush-tailed rock wallabies, population estimates using time-lapse photography 61–7, 146
- brushtail possums 118, 128, 194, 196, 237, 238, 254, 257
- BuckEye Cam camera 106, 107
- Budorcas taxicolor* 87, 88
- Bukit Barisan Selatan National Park, Sumatra, Indonesia 268–9
- Bundjalung National Park, NSW, comparison between camera traps and sand plots, free ranging dog monitoring 189–200
- bush rats 208, 237, 238
 - detection by camera type 117
 - identification by texture patterns 299–304
- Bushnell Trophy Cam cameras 79, 147
- Bwindi Impenetrable Forest, Uganda 267
- camera orientation during field placement 206–9
 - arboreal species 233, 235–7
 - vertical versus horizontal orientation 157, 207, 222, 228–9, 233, 235–7
- Camera Overhead Augmented Temperature (COAT) protocol, reptile surveys 156, 225–31
 - augmenting the thermal environment in the field 227–8
 - effectiveness 229–30
 - potential problems 230–1
 - testing the COAT protocol in the field 228–9
- camera sensitivity, REM 320
- camera trap applications
 - arboreal mammal detection 233–40
 - bare-nosed wombat behaviour study 35–42, 143
 - brush-tailed rock wallaby estimates 61–7, 146
 - foraging behaviour of mycophagous mammals 154, 215–23
 - poison bait uptake by invasive predators and non-target species 131–8
 - small mammal population size estimation 307–14
 - temporal patterns in habitat use, swamp wallaby 181–7
 - wildlife ecology, review 3–9
- camera trap data, methodology for automatic organisation, storage and analysis 283–90, 353
- camera trap housing 106
- camera trap imagery, computer-assisted
 - identification of small Australian mammals 299–304
- camera trap market survey 102
- camera trap monitoring
 - biodiversity, Pacaya Samiria National Reserve, Peru 53–60, 144, 145
 - infectious disease in Tasmanian devils 7, 27–33
 - mallefowls, WA Wheatbelt 77–85
 - Mongolian biodiversity 45–52, 144
 - standards 354
 - Victorian national parks 13–26
- camera trap placement, REM 318–19
- camera trap research registry 353
- camera trap surveys
 - comparison with live trapping of mammals, Tasmania 253–60
 - density estimation using random encounter model 317–22
 - diurnal terrestrial reptiles 225–31
 - effectiveness, population estimates for nondescript species 173–8
 - faunal biodiversity, Torricelli Mountain Range, PNG 69–76
 - fox occupancy changes, Grampians National Park, Vic. 291–7
 - Leadbeater's possum 233–40
 - mammal species, Bhutan 87–95, 148
 - Pacaya Samiria National Reserve, Peru 54–5, 144
 - protocol to detect the rare spotted-tailed quoll 271–7
 - to detect effects of population management 325–30
 - trap effectiveness comparison, ground-mammals 123–8
- camera trap types
 - addressing major differences between types and models 354
 - choice of camera to use 116–19
 - contrasts between traps 115
 - effectiveness comparison, ground-dwelling mammal surveys 123–8
 - impact on capacity to detect mammals 111, 115
 - probability of detecting different size classes of Australian mammals 111–19
 - see also specific brands/models, e.g. Reconyx cameras

- camera trap users
 - invasion of an individual's privacy 336–40
 - survey on detection of people during wildlife surveys 335–6
- camera trapping
 - as education 7–8, 8
 - factors underpinning contemporary 351–3
 - future 353
 - hazards, Bhutan 92–3
 - for mythical animals 88–9
 - need for standard national camera trapping protocol 94–5, 353, 354
 - and privacy law in Australia 331–45
 - small mammals and Buddhism, Bhutan 93–4
 - time-efficiency compared to live trapping 253, 254, 255, 256, 260–1
- camera trapping methodology 205–12
 - bait or no bait debate 209–10
 - camera orientation during field placement 157, 206–9, 222, 228–9, 233, 235–7
 - length of time cameras should be left at a site 210–12
 - mounting bracket to protect camera against rain 243
 - standardised reporting of methods 354
- camera traps
 - comparison with live trapping of mammals, Tasmania 253–61
 - comparison with sand plots 135–6, 189–200
 - constraints where small species are the target 107
 - data gathering from 4
 - performance issues 41–2, 137–8, 176–7, 222–3, 250–1
 - specifications 102–6
 - surprise discoveries through 21–2, 74
 - training in use 21, 82, 84
 - ultimate, review 101–8
 - and unintentional filming 331–2, 335–6
 - use with complementary methods 22
- Canis lupus* 49, 332
 - C. l. dingo* 190
 - C. l. familiaris* 190
- Capra hircus* 132
- Capreolus pygargus* 49
- Capricornis thar* 88
- capture-mark-recapture camera technique 254, 308
 - use with reptiles 229–30
- CAPTURE2 software 55
- Carrai National Park, NSW, computer-assisted identification of small Australian mammals 299–304
- Casuarius bennetti* 74
- Catling and Burt index 193, 194, 195, 196, 197, 198
- Central American agouti 164
 - density estimation using random encounter model 318–22
- Central Highlands, Vic., Leadbeater's possum survey 233–40
- Central Surinam Nature Reserve, Surinam 268
- Central Victoria, mammal size, camera trap type probability of detection 112–19, 151
- Cephalophus harveyi* 254
- Cervus elaphus* 49, 153
- chimpanzees 172
- 'chu-drey' (mythical animal) 8
- CITES-listed endangered species, Sumatra 268–9
- citizen science 7–8
 - malleefowl monitoring, WA Wheatbelt 77–86, 147
- Clethrionomys gapperi* 218
- clouded leopards 91, 254
- common brushtail possum 254, 257
 - detection by camera type 118
 - rope canopy-bridge use 247, 249
- common ringtail possum 197, 237, 238
 - rope canopy-bridge use 247
- common wombat
 - detection by camera type 118
 - diurnal activity 35–42, 143
- community engagement, fauna survey, Torricelli Mountain Range, PNG 70–1, 74, 75
- Compton Road land-bridge, Brisbane 158, 246, 247, 248, 250
 - cameras positioned above sheet-metal collars 160
- computer-assisted identification of small Australian mammals in camera trap imagery 299–304
- conservation and the community, Torricelli Mountain Range, PNG 75–6
- Coranderrk Bushland Reserve, Vic., swamp wallaby study 181–7
- cryptic arboreal marsupials, camera trap surveys 233–40
- Cuddeback Capture camera 79, 103, 147
- currawongs 134

*Dasyprocta**D. fuliginosa* 57*D. punctata* 164, 318–22

dasyurids 14

*Dasyurus**D. albopunctatus* 72*D. maculatus* 20, 153, 165, 172, 209, 271–7

data analysis (automatic camera data) 288

data creation (automatic camera data) 287–8

data gathering, streamlining by camera traps 4, 354

data retrieval and labelling (automatic camera data) 284–5

data storage (automatic camera data) 286–7

De Hoge Veluwe National Park, The Netherlands 170

*Dendrolagus**D. inustus finschi* 75*D. pulcherrimus* 69*D. scottae* 69, 71–2, 73, 75

DeskTEAM software 263, 266, 267

devil facial tumour disease (DFTD), monitoring progression of 7, 27–33, 32

camera trap sites, Tasmania 143

confirmed locations, Tasmania 142

Dicerorhinus sumatrensis 268

DigitalEye cameras 133, 207, 273, 301

disease monitoring, Tasmanian devils 7, 27–33

DISTANCE software 55–6, 57

diurnal activity

bare-nosed wombat 35–42, 143

terrestrial reptiles, COAT protocol use 156, 225–31

Dorcopsulus sp. 71, 74, 75

duikers 167, 254

dunnarts 13, 14, 19, 116, 117, 132

dusky antechinus 17, 254, 301

detection by camera type 117

dwarf cassowary 74

eastern barred bandicoot 154, 218–19

eastern grey kangaroos 194

echidna 19, 125, 152, 195

ectomycorrhizal fungi 215

educational use of camera trapping technology 7–8, 8

ejector sites, visitations by invasive predators and non-target species 131–8

Elaphomyces sp. nov. 216*Elephus maximus* 88*E. m. sumatranus* 268

eMammal of the Smithsonian Institution 269

emus 133, 134, 135, 136

Eradicat 1080 baits, target and non-target species uptake, South Australia 131–8

Eurasian lynx 49, 332

European brown hares 196

experimental design, getting it right 21

FaunaFocus cameras 247

faunal biodiversity, Torriceli Mountain Range, PNG 69–76

fawn-footed melomys 301

feathertail glider 239

Felis catus 19, 131–8, 170, 194, 254, 258, 326–8

feral cats 19, 170, 194, 254

poison bait uptake, South Australia 131–8

trapping program, effectiveness

measurement 326–8

feral goats 132, 134, 136

feral pigs 49, 197

consuming bait 169

trapping program, effectiveness

measurement 326–8

Finsch's tree kangaroo 75

flying squirrels 94, 151

focused area surveys, Grampians National Park,

Vic. 161, 292–3

foraging behaviour of mycophagous mammals 154, 215–23

foxes 171, 190, 197

baiting effectiveness

central NSW 326–8

Great Otway National Park, Vic. 14, 15–20, 22, 24–6

detection by camera type 118

occupancy changes detection, Grampians National Park, Vic. 291–7

occupancy rates compared to prey species 13, 14, 16–18, 20

poison bait uptake, South Australia 131–8

free ranging dogs

marking territory 166

monitoring/capturing, comparison of camera traps with sand plots 189–200

Fundy National Park, New Brunswick, Canada,

truffle recovery by mammals 154, 215–23

- Gallicolumba beccarii* 74
- generalised linear mixed effects model (GLMM) 326–9
- Geographical Positioning System (GPS) 106
- Germany, camera traps and privacy 332
- Gippsland, Vic., mammal size, camera trap type
probability of detection 112–19, 151
- Glaucomys sabrinus* 216
- glide poles
with cameras 159
land-bridges with, Brisbane 158
monitoring usage by Australian gliding mammals 245–51
with ropes 158
showing pole height and inter-pole distances 159
- goannas 194, 196
- golden langur 88
- golden-mantled tree kangaroo 69
- Gorilla beringei beringei* 267
- Grampians National Park, Vic.
camera trapping versus live trapping 254, 261
detection of changes in occupancy, foxes 161, 291–7
- Great Otway National Park, Vic. 14
fox baiting effectiveness study 14, 15–20, 22, 24–6
- greater gliders 239, 251
- greater melampitta 73, 74, 75
- grey wolf 49
- grey-headed flying squirrel 151
- Groote Eylandt, agile wallaby 167
- ground birds 6, 13, 18, 19
see also Bassian thrush; greater melampitta; Lewin's rail; malleefowl
- ground-dwelling mammals
camera trap type effectiveness, surveys 123–8
inventory, Victorian national parks 13–17, 19–21
- Group Special Mobile (GSM) 106
- guar 168
- Gulo gulo* 4
- Gymnobelideus leadbeateri*, camera trap surveys 233–40, 238
- habitat use, temporal patterns, swamp wallaby 181–7
- Hamilton Road land-bridge, Brisbane 158, 159, 246–8, 250
- Harpyopsis novaeguineae* 72, 74, 74
- Harvey's duiker 254
- Hastings River mouse, identification by texture patterns 299–304
- Healthy Bushland camera trapping workshop 79–80
- heath mouse 292
- Himalayan black bear 88
- Himalayan goral 88
- Himalayan serow 88
- house mouse 19, 196, 254
- hunters, use of camera traps 8, 101, 102
- Hydromys chrysogaster* 196
- illegal activities captured by camera traps 336
- image clarity 103
- image data storage 103–4
- infrared cameras 88, 102, 212, 237, 239, 249
detection reliability 309
- infrared LED cameras 103
- Isodon*
I. macrourus 166, 194
I. obesulus 125, 207, 208, 254, 258
- IUCN Red List of Threatened Species-listed mammalian species detected at WPI study sites in Mongolia 48
- jacky dragons 229, 230
- jaguars 8, 54, 57, 145
- jaguarundi 90
- Jigme Dorji National Park, Bhutan 90, 149
- Jigme Singye Wangchuck National Park, Bhutan 89–90, 94
- kangaroos 133, 134, 135, 136, 194
see also tree kangaroos
- Korup National Park, Cameroon 167, 172
- kriging 17
- Kunzea leptospermoides* canopy cover, and swamp wallaby occurrence 181–7
- land-bridges
camera placements on poles 160
with glide poles, Brisbane 158
monitoring usage by Australian gliding mammals 245–51
- landholder engagement in camera trapping 77–85
- large mammals
camera trap type effectiveness, for surveying ground-dwelling mammals 123–8

- camera trap type probability of detecting
 - Australian mammals 111–19
- Leadbeater's possum, camera trap surveys 233–40, 238
- Leaf River cameras 79
- LED illumination 103
- Leipoa ocellata* 132, 168
 - monitoring, WA Wheatbelt 77–85
- length of time cameras should be left at a site 210–12
- leopard cats 91, 254
- leopards 88, 91, 177
 - camera trapping, Bhutan 89–90
- Leopardus pardalis* 54
- Lepus*
 - L. capensis* 196
 - L. timidus* 47
- Lewin's rail 13, 19, 21
- line transects 53, 54, 55–6
- live trapping of mammals, comparison with camera traps, Tasmanian coastal woodland and heathland 253–60
- long-nosed bandicoot 13, 17, 25, 125, 208, 211
- long-nosed potoroo 14, 19, 25, 125, 154, 207, 208, 219, 220, 221, 253–4, 256–9, 261, 293
- lure choice, fox baiting 15–16, 18, 20
- Lynx lynx* 49, 332
- M-44 ejectors, uptake by invasive predators and non-target species, South Australia 131–8
- Macrogalidia musschenbroekii* 4
- Macropus*
 - M. agilis* 167
 - M. giganteus* 194
 - M. rufogriseus* 194, 254, 257
 - M. spp.* 125
- malleefowl 132, 133, 168, 169
 - monitoring, WA Wheatbelt 77–86, 147
- mammal size
 - camera trap type effectiveness, for surveying ground-dwelling mammals 123–8
 - camera trap type probability of detecting Australian mammals 111–19
- mammals
 - Bhutan 87–95
 - Mornington Peninsula National Park, Vic. 14–15, 16, 17, 19–20
 - Myangan Ugalzat National Park, Mongolia 50
 - truffle foraging behaviour, Canada and Australia 154, 215–23
- marbled cat 91
- marsupial carnivores
 - detection, camera trap survey protocol, spotted-tailed quoll 271–7
 - Tasmanian devil facial tumour disease monitoring 7, 27–33, 32, 142, 143
- Martes*
 - M. americana* 234
 - M. flavigula* 151
 - M. spp.* 94
 - M. zibellina* 49
- Mastacomys fuscus* 19
- medium mammals
 - camera trap type effectiveness, for surveying ground-dwelling mammals 123–8
 - camera trap type probability of detecting Australian mammals 111–19
- Melampitta gigantea* 73, 74, 75
- Meles leucurus* 49
- Melomys cervinipes* 301, 303
- Menura novaehollandiae* 171
- mice *see* specific types, e.g. house mouse
- minimum known-to-be-alive (MKA) estimates, brush-tailed rock wallaby 61, 63–4, 146
- MMS (Multimedia Messaging Services) 106, 107
- moles 94
- Mongolian biodiversity monitoring, using Wildlife Picture Index 45–52, 144
- monitoring
 - of animal communities at local, regional and international scales 7
 - for inventory and management effectiveness, Victorian national parks 13–22
- moose 49
- Mornington Peninsula National Park, Vic. 14–15, 142
 - mammal inventory 14, 15, 16, 17, 19–21
- Moschus moschiferus* 49
- mouflon 170
- Moultrie® cameras 133, 326
- mountain brushtail possum 237, 238
- mountain gorilla 267
- mountain hare 47
- mountain lion 141

- mounting bracket to protect cameras against rain **243**
- mule deer **141**
- Mus musculus* 19, 196, 254, 257, 258, 308
- musk deer 49
- Mustela*
- M. kathiah* 151
- M. sibirica* 151
- M. spp.* 94
- Myangan Ugalzat National Park, Mongolia 46, 48, 50, 51
- mycophagous mammals, foraging behaviour **154**, 215–23
- MyRenamer software 288–9
- mythical animals, early camera trapping for 88–9
- Naemorhedus goral* 88
- national camera trapping protocol, standardisation 94–5, 353, 354
- national parks
- fox baiting effectiveness 14, 15–19, 20
- ground-dwelling mammals inventory 13–17, 19–21
- Neofelis*
- N. diardi* 254
- N. nebulosa* 91
- Nesolagus timminsi* 4
- Nestor notabilis* 7
- New Guinea harpy eagle 72, 74, **74**
- New Guinea quoll 72
- New Zealand kea 6–7
- nondescript species, reliability of population estimates, camera trap surveys 173–8
- northern brown bandicoot **166**, 194
- northern flying squirrel 216, 218
- occupancy 4, 5, 6, 7, 64, 181–2
- definition 113
- occupancy matrices for program PRESENCE 289–90
- occupancy models 190, 198, 254, 266, 268, 327, 329
- arboreal mammals 233–40
- bandicoots and potoroos 16, 18
- based on WPI 46, 47–8
- Bassian thrushes 13, 16, 18, 19
- for detecting different size classes of Australian mammals 113–18
- Mongolian mammals 48–51
- red foxes 13, 14, 16–18, 20, 291–7
- single-season-multi-method occupancy model 256
- spotted-tailed quolls 271–7
- for surveying ground-dwelling mammals 123, 128
- Tasmanian devils 32
- ocelots 8, 54, 57
- Ochotona spp.* 94
- Odocoileus hemionus* **141**
- opossums 57
- optical surveillance device use, and privacy 333–5, 337–9, 340
- optimal deployment lengths for camera traps 210–12
- Oryctolagus cuniculus* 132
- Otocolobus manul* 87, 90
- Otway Ranges, Vic. 124, 126, 127, 152
- Ovis orientalis* **170**
- Oxley Wild Rivers National Park 191
- brush-tailed rock wallaby estimates 61–7, **146**
- pacas 57
- Pacaya Samiria National Reserve, Peru, biodiversity monitoring 53–60, 144, 145
- painted button-quail 19
- pale winged trumpeter 57
- Pallas's cat 87, 90
- Pan troglodytes* **172**
- Panthera*
- P. marmorata* 91
- P. onca* 8, 54, 57, **145**
- P. pardus* 88
- P. tigris* 4, 54, 87, 88, **149**
- P. tigris sumatrae* 268
- P. uncia* 87, 88, 90–1, **91**
- Pardofelis temminckii* 87, 88, 150
- Parks Victoria
- Policy on the Use of Surveillance Cameras for Wildlife and Compliance Monitoring 332
- Signs of Healthy Parks Ecological Monitoring Program 14, 21
- participatory learning 80, 82, 83–4
- Perameles*
- P. gunnii* 219, 254, 257
- P. nasuta* 17, 125, 194, **208**, 211

- personal information, collection of 334–5
- pest animal population management program
effectiveness, through analysis of camera trap
surveys 325–30
- Petaurista caniceps* 151
- Petauroides volans* 239, 251
- Petaurus norfolcensis* 245, 246, **248**, 249
- Peter Murrell Reserves, Tasmania
comparison of camera trapping and life trapping
of mammals 253–60
truffle recovery by mammals **154**, 215–23
- Petrogale penicillata*, population estimates 61–7, **146**
- Phascogale tapoatafa* 114, 116
- Philantomba monticola* **166**
- photo intervals 102–3
- photo resolution 103
- Picture Information Extractor (PIE) software 47
- pikas 94
- PIR camera traps 54, 102, 107, 215
- PIR triggered cameras 226
with COAT protocol 225, 226, 227–31
misconceptions and limitations 226
temperature difference requirements 227
- PixController cameras 16, 28, 88–9, 106, 107, 273, 275,
276, 301
comparison studies 112–13, 115–19
- Point Nepean/Mornington Peninsula National Park
see Mornington Peninsula National Park
- poison baits
effectiveness against foxes, baiting effectiveness,
Great Otway National Park, Vic. 14, 15–20, 22,
24–6
uptake by invasive predators and non-target
species, South Australia 131–8
- population estimates
brush-tailed rock wallabies, using time-lapse
photography 61–7, **146**
quokkas, camera trap surveys 173–8
small mammals, from camera traps 307–14
- population management effects, demonstration via
camera trap survey analysis 325–30
- potoroos 14, 16, 18, 25
long-nosed *see* long-nosed potoroo
- Potorous tridactylus* 14, 125, 207, **208**, 219, 253–4,
256–9, 261, 292
- predator control, poison bait uptake, semi-arid South
Australia 131–8
- PRESENCE software 47, 63, 255, 256, 293
- occupancy matrices 289–90
- presence-absence studies, swamp wallaby 181–7
- Prionailurus bengalensis* 91, 254
- privacy laws in Australia
and invasion of privacy by camera trap
users 336–40
relevance to camera trapping 331–5, 341–5
- Pseudechis porphyriacus* 229, 230
- Pseudocheirus peregrinus* 197, 237, **238**, 247, 257
- Pseudomys*
P. fumeus 292
P. oralis **162**, 163, **163**, 299–304
P. shortridgei 292
- Psophia leucoptera* 57
- Psuedois nayaaur* 88
- Puma*
P. concolor 141
P. yagouaroundi 90
- quokkas, population estimates, camera trap
surveys 173–8, **176**
- quolls 20, 32, 72
- rabbits 132, 133
- Rallus pectoralis* 19
- random encounter model (REM) 5, 6
for density estimation using camera trap
surveys 317–22
- rarefaction curves, Pacaya Samiria National Reserve,
Peru 56, 57, 59, 145
- Rattus*
R. fuscipes 114, **162**, 163, **208**, 237, **238**, 299–304
R. lutreolus 253, 254, 257, 258, 301, 303
R. rattus 19, 114, 196, **208**, 254, 258, 307–14
- Ratufa bicolor* 94
- Reconyx cameras 71, 103, 106–7, 131, 133, 137, 152,
174, 191–3, 222–3, 227, 235, 247, 250, 326
comparison studies 112–13, 115–19, 123–8
detection zone bands **156**, 228
mounted with different orientations **157**,
228–9
mounting bracket to protect cameras against
rain **243**
- red-backed voles **154**, 218, 220, 221–2
- red-bellied black snake 229, 230
- red brocket deer 57
- red deer 49, **153**
- red fox 14, 19, 131–8, **171**, 190, 291–7, 326

- red necked wallabies 194
- red panda 88, 94
- red squirrels 57, **154**, 218, 220, 221
- remote communication for data access 106
- ReNamer, usage 285–6
- reptile surveys 6
 - Camera Overhead Augmented Temperature (COAT) protocol **156**, 225–31
 - capture-mark-recapture surveys with cameras 229–30
 - PIR triggered cameras 226–7
 - thermal images **155**
 - traditional methods 225–6
- roe deer 49
- rope canopy bridges, monitoring usage by Australian gliding mammals **158**, **160**, 245–51
- Royal Manas National Park, Bhutan, felid species 91–2
- Rusa unicolor* 92
- sable 47
- Sachse family, citizen science malleefowl monitoring, WA Wheatbelt 77–86, **147**
- Saguaro National Park, Arizona 7–8
 - wildlife **141**
- sambar deer 92
- sand plots 131, 132, 133, 134, 138
 - comparison with camera traps 135–6, 189–200
- sandhill dunnart 132
- Sarcophilus harrisii* 7, 27–33
- Scott's tree kangaroo *see* tenkile
- ScoutGuard® cameras 16, 35–6, 41–2, 106–7, 133–4, 136, 222–3, 247, 250, 256, 292, 307, 309
 - comparison studies 112–13, 115–19, 123–8
- Scrub Road glide poles, Brisbane **159**, 246–7, 248, 249, 250
- Setonix brachyurus*, population estimates 173–8
- short-beaked echidna 19, 125, **152**, 195, 257
- shrews 93, 94, 217
- Siberian weasel 151
- Signs of Healthy Parks Ecological Monitoring Program (Parks Victoria) 14, 21
- single-season-multi-method occupancy model 256
- skinks 229, 230
- sleepy lizards 134
- small mammals
 - camera trap type effectiveness, for surveying ground-dwelling mammals 123–8
 - camera trap type probability of detecting Australian mammals 111–19
 - camera trapping, Bhutan 93–4
 - computer-assisted identification, camera trap imagery 299–304
 - identification via texture patches 299–304
 - population size estimation from camera traps 307–14
 - studies of 5–6
- Sminthopsis*
 - S. leucopus* 14, 114, 116
 - S. psammophila* 132
- smokey mouse 292
- SMS (Short Message Service) 106, 107
- snow leopards 87, 88, **91**
 - grouping behaviour 90–1
- Snowy River National Park, Vic., spotted-tailed quoll survey protocol 271–7
- Sorex* spp. 217
- southern brown bandicoot 25, 125, 207, **208**, 254
- southern tamandua 57
- species accumulation curves 268
 - Pacaya Samiria National Reserve, Peru 55, 57, 59, 145
- species richness 4, 5, 6
 - camera type comparison, ground-dwelling mammal survey 123, 124, 126, 127
 - Mornington Peninsula National Park, Vic. 17, 19–21
 - Pacaya Samiria National Reserve, Peru 54, 55, 59
- spotlighting 239
- spotted-tailed quolls 20, 32, **153**, **165**, **172**, 209
 - camera trap survey protocol to detect 271–7
- spreadsheet camera trap data 289
- Spypoint® cameras 106, 107
- squirrel gliders, usage of rope-canopy bridges and glide poles, Brisbane 245–51, **248**
- squirrels 93, 94
 - see also* flying squirrels; red squirrels
- standard national camera trapping protocol 94–5, 353, 354
- streamlining of software for photo and data management 354
- striped rabbit 4
- Sulawesi palm civet 4
- Sumatran elephant 268
- Sumatran rhinoceros 268
- Sumatran tigers 268

- Sunda clouded leopards 254
 superb lyrebird 171
 surprise discoveries through camera traps 21–2, 74
 surveillance device use, and privacy 333–5, 337–9, 340
Sus scrofa 49, 197, 326–8
 swamp rats 253, 254, 301
 swamp wallabies 17, 125, 152, 194
 detection by camera type 118
 temporal patterns in habitat use 181–7
 Switzerland, camera trap ban 332, 339
 Sydney Harbour National Park, NSW, camera trap
 estimates of black rat population size 307–14

Tachyglossus aculeatus 19, 125, 152, 195, 257
Taeniopygia guttata 165
 takins 87, 88, 90, 94
Tamiasciurus hudsonicus 218
Tamiops mccllellandii 94
Tapirus terrestris 57
 Tasmanian devils, devil facial tumour disease
 progression monitoring 7, 27–33, 32
 camera trap sites 143
 confirmed locations 142
 Tasmanian pademelon 254
 TEAM camera trap arrays 265
 TEAM protocols 7, 47
 principles 265–6
 to monitor terrestrial vertebrate communities in
 tropical forests 263–9
 TEAM survey data, open source 266–7
 TEAM surveys 167, 172
 ‘Camera Trap Federation’ 269
 examples of results 267–9
 locations of 264
 tenkile 69, 71–2, 73, 75
 Tenkile Conservation Alliance (TCA) 69, 70, 75, 76
 terrestrial mammal communities, monitoring using
 TEAM, tropical forests 263–9
 terrestrial reptile surveys, diurnal studies, COAT
 protocol 156, 225–31
 texture patches
 Pseudomys oralis 163
 to identify small Australian mammals 299–304
 three-dimensional scatterplot, grouped according to
 species 163
 Thrumshingla National Park, Bhutan 87, 89, 90, 149
Thylogale billardieri 254, 257

 tigers 4, 54, 87, 88, 91, 94, 168
 camera trapping, Bhutan 89–90, 149
 dragging a killed guar 168
 high-altitude, Bhutan 89, 149
Tiliqua rugosa 134
 time-efficiency of camera trapping compared to live
 trapping, mammals 253, 254, 255, 256, 260–1
 time-lapse photography
 rock-wallaby population estimates 61–6, 67
 suitability for estimating population size 66–7
 tinamou 57
 Torricelli Mountain Range, PNG, fauna
 survey 69–76
Trachypithecus geei 88
 TrailMac cameras 273, 274, 275, 276
 training in use of camera traps 21, 82, 84
 tree kangaroos 69, 71–2, 73, 75
 tree squirrels 94
Tregellasia leucops 72
Trichosurus
 T. cunninghamii 237, 238
 T. spp. 128
 T. vulpecula 194, 197, 247, 248, 257, 258
 Tropical Ecology Assessment and Monitoring
 (TEAM) network *see* TEAM programs; TEAM
 protocols
 tropical forests
 biodiversity, camera trapping and line transect
 effectiveness, Peru 53–60
 terrestrial mammal community monitoring using
 TEAM 263–9
 truffle-foraging behaviour, by mycophagous
 mammals 154, 215–23
Turnix varia 19

 ultimate camera trap, specifications 102–6
 ungulate occupancy estimates, Mongolia studies 49
 unintentional filming with camera traps 331–2,
 335–6
Ursus
 U. arctos 47
 U. spp. 332
 U. thibetanus 88

Varanus spp. 194
 video mode feature 103
 Volcan Barva, Costa Rica 268
Vombatus ursinus 35–42

Vulpes vulpes 14, 19, 131–8, **171**, 190, 291–7, 326–8

Wallabia bicolor 17, 114, 125, **142**, 194

temporal patterns in habitat use 181–7

Wangchuck Centennial Park, Bhutan 90–1, 94

water rats 196

weasels 94, 151

weimang 69, 72

white-faced robin 72

white-flash cameras 102, 107

white-footed dunnart 13, 14, 19

detection by camera type 116, 117

white LED technology 103, 107

wifi communication 106, 107

Wilcoxon matched pairs test 326, 327

wild boar 49, **169**

wild dogs *see* free-ranging dogs

Wildlife Picture Index (WPI) 7, 263, 268

to monitor Mongolian biodiversity 45–52, 144

wolverines 4

wolves 332

wombats, diurnal activity 35–42, **143**

yak 91

yellow-bellied weasel **151**

yellow-throated marten **151**

‘yeti’ (mythical animal) 89

zebra finch **165**

Zoothera lunulata 16