Index

Note: Page numbers followed by “b, f and t” refer to “boxes, figures and tables” respectively.

**a**
abscesses
aural 385
closed 142f
intra-oral 141f
mandibular 385f
papular and swollen/ nodular dermatoses 265–266
sublingual 274, 275f
subspectacular 359–360
absorbable gelatin sponges, for haemorrhage control 384, 384f
Acanthocephala 437
Acanthosaura nataliae 427f
acoustic sensation 37
acrodonts, teeth 27
adrenal glands 30
Agama finchi
Heterakid egg 426f
pinworm/oxyurid eggs from 428f
Aldabrachelys gigantea, see Aldabran tortoise
Aldabran tortoise 312, 313f
Alethinophidia 1
alfaxalone 375, 450
alimentary tract
lower 207–208
upper 207
alligator, American 93f
Alligatoridae 2
Alligator mississippiensis, see American alligator
alpha-2 adrenergic agonists 375
aluminium hydroxide, hyperphosphataemia treatment 329
Amblyomma komodoensis 438
American alligator 93f
amoebiosis 432–433
amphotericin B 328
amputation
limb/digit 394–395
tail 394
anaemia and emaciation
hookworms and roundworms 433–434
snake mites 436–437, 437b
anaerobic metabolism 369
anaesthesia 111
anaesthetic support
fluid support 378
mechanical/assisted ventilation 377
recovery and post-operative management 380
thermal support 377–378, 378f
and sedatives 468t–469t
cardiac shunting 370
equipment 124
induction of 374–375
intravenous administration 370–372, 371f, 372f
maintenance of 375–377, 376f, 377f
monitoring of blood gas measurements 379
capnography 379
Doppler blood flow detection 379–380
electrocardiogram 380
parameters 378–379, 378f, 379f
pulse oximetry 379
patient assessment and preparation for 373–374
premedication 374
surgical nursing and alcohol/ultrasound gel 447
capnography 447
Doppler unit 447
equipment and supplies 446–447
patient support 447–448
preoperative nursing 445–446
pulse oximetry 447
recovery 448
analgesia 372–373, 470t
euthanasia 450
turtle shell repair 399
analgesics 182–183
anapsid skull 19
anoles 47
Anolis spp., see anoles
Antaresia maculosa, see Children's python; spotted python
antibiotic therapy 455t–459t
dosage of 178, 181
duration of 181
reason for 177–178
specific drug choice 181
antifungals 181, 460t
anti-inflammatories 182–183
antiparasitics 182
antivirals 181–182, 461t
aquatic chelonians
food preferences 57, 58
nutrition 57–59
obesity in 59
septicaemic cutaneous ulcerative disease 264
aquatic enclosures 46
and water quality 72–73
arboreal species 45–46
arendavirus infection, in snakes 340
artificial tears 363
artificial ventilation 369
Aspidites melanocephalus, see black-headed python
atalipamezole 375
aural abscesses 385
in chelonians 365
in turtle 365, 366f
azurophils 25

bacterial infections
cardiovascular system 295
in reptilian dermatoses 269t
muscular and soft tissue disorders 354–355
musculoskeletal system related 349–350
of nervous systems 339
respiratory system related 301
ball python, ferlavirus infection 206f
bandaging 170, 171f
barbiturates 374
Basiliscus plumifrons, see double-crested basilisk
beak and claw overgrowth, chelonians 263
bearded dragon adenovirus infection 341–342, 342f
blood parameters, renal disease assessment 325t
cloacal prolapse 281f
coccidia oocysts in faeces of 278f
eyelid trauma 361
haemoclips 123f
hyperglycaemia 194–195
melanomas in eyelids 360
metabolic bone disease 186f
Nannizziopsis guarroi growth 143f
nutritional secondary hyperparathyroidism 335, 337f
obesity 191f
rubber jaw 188f
sex identification 131
spinal deformity 187f, 189f
behaviour, captive reptiles
body temperature and disease 36
and ectothermy 35–36
preferred 36
chemoreception and acoustic sensation 37
comfort signs 42, 42f
digestion and nutrition 38
discomfort signs 42, 42f
distance-reducing behaviour 39–41
courtship and mating 39
digging 39
gravid state 39
hand waving 39
head bobbing 39
maternal incubation 39–40
mock combat 40, 40f
social/solitary 39
tail whipping 39
and environmental enrichment 45
fitness and environmental enhancement 41–42
light and photoreception 36–37
maintenance behaviours 38–39
captive feeding routines 39
constriction 38
envenomation 39
feeding 38
heat sensing pits 38
hyperactivity and hypoactivity 39
normal needs and 33–34, 34f
pain and stress 38
physiological responses 34–35
respiration and circulation 38
water exchange and humidity 37–38
Bellinger river turtles 343
benzodiazepines 374
biosecurity 122
black-headed python cardiocentesis in 290, 290f
nebulization of 306f
blepharospasm 361
blood cells 25, 136f
blood disease 213
blood gas measurements, anaesthesia 379
blood parasitism 426
blood smears
haemogregarines 136f
slide preparation 135
blood transfusion 170
capnography, anaesthesia 379
carapace 16
Carboniferous period 1
cardiocentesis, in black-headed python 290,
cardiovascular disease, clinical
    signs of 293
    cardiovascular system
        anatomy 22–23, 287, 288f
        examination of
            computed tomography
            292
            electrocardiography
            292, 293f
            history and husbandry
            288
            laboratory analysis
            289–290, 291f
            MRI 292
            physical examination
            288–289
            radiography 290–291
            ultrasonography
            291–292, 291f, 292f
            infectious disorders
                bacterial infections 295
                parasitic infections
                295–296
                viral infections 296
            necropsy examination
                of 412, 415f
            neoplasia 295
            nutritional disorders 294
            physiology 287, 288f
            trauma 294
            carnivores 55
            carpet python 7t, 16t, 100t,
                293, 303f, 329
            centralian 256f
            early stomatitis 274f
            glottis and trachea, sterile
                feeding tube into
                304, 305f
            jaguar 111
            jungle 108f, 128f, 210f
            neonatal 102f
            segmental aplasia 332, 334f
            sublingual abscess 274, 275f
Caryospora species 427f,
     431f
cataract development 364
Cestoda 437
chameleon
    characteristics 6t
    forelimb fracture, repair
        of 394f
    lateral, mid-sagittal view of
        a male 25f
    ligation of ovarian
        vasculature 388, 390f
    lungs 26
    mandibular symphysis
        fracture, wiring
        of 395f
    veiled 12f
cheilitis 143f
Chelodina expansa, see
    broad-shelled turtles
Chelodina longicollis, see
    eastern long-necked
    turtle
chelonia 2
    adrenal glands 30
    anapsid skull 19f
    anorexia 235–236
    ascites 237
    aural abscesses 365
    beak and claw overgrowth
    263
    blepharoedema 241
    blepharospasm 241
    characteristics 1
    cloaca
        bleeding from 244
        swelling 244
    coelioscopy 157
    coeliotomy in 388
    coelomic masses
        palpable 243–244
    conjunctivitis 241
    constipation 243
    depression 237
    diarrhoea 243
    digits/tail tip 245
    distended coelom (bulging
        inguinal fossae)
    236–237
caecum 28
canker, see stomatitis
Caryospora species (cont’d)
dyspnoea 242–243
dystocia management 309–310
ecdysis 18
examination 132, 132f
exophthalmia 241
external anatomy 16–17
eyes 240–241
faecal output reduction 243
gait abnormalities 245
gender assessment 92, 93f
glottis 26
heart 22
herpesvirus infection 304
hind-limb paresis/paralysis 338
inability to submerge 237–238
infectious agents 204t
intracloacal and pericloacal ulceration 244
ivermectin in 338
joint swelling 245
kidneys 28
lameness 245
lethargy 237
liver lobectomy, complete/ partial 392
lungs 26
midsagittal view 23f
muscle innervation assessment 335
nasal/oral discharge 242
neurological signs 246
nutrition 55–59
ocular discharge 241
oral inflammation 241–242
oral mucous membrane colour 242
oviposition 244–245
oxytocin therapy 309
pancreas 30
paralysis 245–246
parathyroid glands 30
parenteral formulations of medication 306
paresis 245–246
phallus
  eversion 133, 133f
  prolapse 244, 317
  prolapse 244
pyramidal carapace 239
radiography
  positioning 145–146, 146f
reference intervals for 478t–479t
regurgitation 243
reproductive system 29–30
respiration 26
sex identification 133, 133f
shell
  abscessation 240
  deformities of 352–353
  deformity 239
  discolouration 239–240
  epidermis erythema 240
  epidermis masses 240
  epidermis ulceration 240
  flaking 239–240
  fractures and wounds 239
  petechiae 240
  soft 239
  thickening 239–240
  sight 30
skin
  abrasions/ulcerations 238–239
  discoulouration 238
  swellings 239
  stomach 28
  subcutaneous oedema 237
  sudden death 246
 superficial bacterial infections 264
  swollen limbs 245
  thyroid glands 30
toenails 240
tracheal discharge 242
tympanic membrane
  bulge 241
ultrasonography 150–151, 151f
uneven floating 238
vascular access 169
ventral view 22
vertebrae 20
vision loss 241
vomiting 243
weakness 237
weight loss 236
Chelonia mydas, see green turtles
chemical burns 263
chemoreception 37
Children’s python
  with central nervous system dysfunction 332, 334f
  reflex during neurological examination 332, 334f
  chlamydia 302
Chlamydosaurus kingii, see frilled lizard
Choleoeimeria species 431f
chronic pain management, NSAIDs for 373
circulation 38
cloaca 28
  prolapse 280
  in bearded dragon 281f
  causes of 281
  in green python 281f
  prognosis 282
  treatment 281–282
  scent glands 28
cloacitis 282–283
cloacoscopy-cystoscopy 156–157, 157f
coastal carpet python, segmental aplasia 332, 334f
Coccidia oocysts 278f
coccidiosis 182, 431–432, 431f
coeioscopy 157
coeirotomy
  in chelonians 388, 388f
  in green iguana 387f
  in lizards 387–388
  in snakes 388
  collateral lizard, chelitis 143f
colic impaction
  causes of 279–280
clinical signs 280

Chelonia mydas, see green turtles
chemical burns 263
chemoreception 37
Children’s python
  with central nervous system dysfunction 332, 334f
  reflex during neurological examination 332, 334f
  chlamydia 302
Chlamydosaurus kingii, see frilled lizard
Choleoeimeria species 431f
chronic pain management, NSAIDs for 373
circulation 38
cloaca 28
  prolapse 280
  in bearded dragon 281f
  causes of 281
  in green python 281f
  prognosis 282
  treatment 281–282
  scent glands 28
cloacitis 282–283
cloacoscopy-cystoscopy 156–157, 157f
coastal carpet python, segmental aplasia 332, 334f
Coccidia oocysts 278f
coccidiosis 182, 431–432, 431f
coeioscopy 157
coeirotomy
  in chelonians 388, 388f
  in green iguana 387f
  in lizards 387–388
  in snakes 388
  collateral lizard, chelitis 143f
colic impaction
  causes of 279–280
clinical signs 280

Chelonia mydas, see green turtles
chemical burns 263
chemoreception 37
Children’s python
  with central nervous system dysfunction 332, 334f
  reflex during neurological examination 332, 334f
  chlamydia 302
Chlamydosaurus kingii, see frilled lizard
Choleoeimeria species 431f
chronic pain management, NSAIDs for 373
circulation 38
cloaca 28
  prolapse 280
  in bearded dragon 281f
  causes of 281
  in green python 281f
  prognosis 282
  treatment 281–282
  scent glands 28
cloacitis 282–283
cloacoscopy-cystoscopy 156–157, 157f
coastal carpet python, segmental aplasia 332, 334f
Coccidia oocysts 278f
coccidiosis 182, 431–432, 431f
coeioscopy 157
coeirotomy
  in chelonians 388, 388f
  in green iguana 387f
  in lizards 387–388
  in snakes 388
  collateral lizard, chelitis 143f
colic impaction
  causes of 279–280
clinical signs 280
anorexia 247
behaviour changes 247–248
cloaca
prolapse from 251
swelling 251
conjunctival swelling 249
diagnosis 280
congenital cardiac disease 293
congenital musculoskeletal system disorders 345–346, 346f
congenital nervous system disorders 335
congestive heart failure 293
conjunctivitis 361–362
constipation, see also colonic impaction
chelonia 243
lizard 232
snakes 222
consultation
appointment 125
diagnosis 133
diagnostic pyramid
126, 126f
patient’s history 126, 127b
physical examination
126–133, 128f, 129b, 129f–131f
summary 133
consultation room 117–118
consumables 124
contrast radiology
angiography, excretory nephrography 148
barium sulphate 147, 147f
iodine-based contrast agents 148
Corallus caninus 427f
corneal disorders 363–364
corneal ulcers 363
corn snake 354
Correlophus ciliatus, see crested geckos
crested geckos 47
crocodile
gastrointestinal system examination 251
granulomas proliferative nodules 248–249
hyperkeratosis 248–249
hyperkeratoses 248–249
plexiform lesions 248–249
pustules 248–249
thickening 249
ulceration 248–249
sudden death 252
supportive care 160
swelling 249, 251
swimming motion, abnormal 248
tachypnoea 250
tail necrosis/loss 251–252
thrombosis 250
ulceration 249–250
ultrasonography 153
venipuncture in 371, 372f
weight loss 247
Crocodilia 2
Crocodylidae 2
Crocodylus porosus, see estuarine crocodile
Crotaphytus collaris, see collared lizard
Cryptodirans 2
Cryptosporidium species 431f
cutaneous fibropapillomatosis 267
cystotomy 392, 392f
cytological examination 138–139
d
decapitation, euthanasia 449
dehydration 111
dentition
front-fanged snakes 28
rear fanged snakes 27–28
Dermatophilus congolensis 266–267
dermatoses
abnormal/excessive scaling 258
bacterial infections 262
drug contraindications 270t
dermatoses (cont’d)
dysecdysis 259, 260f
ectoparasitic infections 260, 261f
erosive/ulcerative 263–265
fungal infections 261–262
hypovitaminosis A 262–263
moist erythematous 263–265
necrotic 263–265
nutritional osteodystrophy 268
papular and swollen/nodular 265–268
vesicular 263–265
diagnostic imaging
computed tomography 153–154
diagnostic endoscopy 154–157
magnetic resonance imaging 154
radiography
contrast radiology 147–148, 147f
evaluation of 148–150
exposure 146–147
plain radiographs 147
positioning 145–146
sedation and anaesthesia 145
training 157
ultrasonography 150–153
diagnostic techniques
blood collection 161–162, 162f
blood handling 162–163, 162f
microbiology 163
diagnostic testing
biochemical analyses 136–138
culture 141–143, 143f
cytology 138–139
haematology 135–136, 136f, 137t
serology
enzyme-linked immunosorbent assay 140
haemagglutination inhibition tests 140
molecular diagnostics 140
polymerase chain reaction 140, 141t
virus/serum neutralization tests 139
Diplodactylus galeatus, see gecko
Diploglossa 1
Doppler analysis 290, 291f
Doppler blood flow detection 379–380
double-crested basilisk 168f
dragons bearded 3f
water 6t
drugs administration 175–177, 176b
compounding 177
for kidney disease treatment 466t
for liver disease treatment 465t
DuoDERMR® use, in shell fracture repair 170, 171f
dysecdysis 18, 259, 260f, see also ecdysis
dyspnoeic snake 303f
dystocia aetiology 307
clinical signs 308
diagnosis 308–309
environmental and husbandry related factors 307
host factors 307–308
prevention and control 310
radiography 308
treatment 309–310
ultrasonography 308
ear diseases 365–366, 366f
eastern bearded dragon anaesthesia monitoring 378, 379f
gender assessment 94f
eastern blue-tongued skink 187f
eastern brown snake 112f
nasolacrimal duct atresia 362f
eastern long-necked turtle dorsoventral radiograph 400, 401f
oesophageal foreign body, endoscopic removal of 276, 277f
septicaemia 132, 132f
shell fracture repair 171f
traumatic panophthalmitis 363, 364f
eastern water dragons hatching 106f
sex identification 131–132, 131f
ecdysis 18
ectoparasitic infections 260, 261f
ectoparasitism 426
ectopic eggs 320–321
ectothermy 15, 45, see also thermoregulation
egg anatomy 92
binding 338
clutches, multiple 99
incubation 99–101
laying 98–99
viability determination 101
Eimeria species 431f
Elapidae, fangs 28
electrocardiogram (ECG) anaesthesia, monitoring of 380
cardiovascular system examination 292, 293f
electrolyte imbalances 294
emergency drugs 454t
enclosure 120–122, 120f, 121f, see also indoor enclosures; outdoor enclosures
aquatic 46, 72–73
for arboreal species 45–46
heat and humidity 46
indoor/outdoor 61–62
for non-climbing species 46
opening of 46
positioning of 46
semi-aquatic species 46
shape and interior design of 45
size of 46
for terrestrial species 46
endocrine system 30
endoscopy 154–157
enemas 170
ophthalmos 365
Entamoeba invadens 432–433
enucleation 386
environmental enrichment 46–47
behaviour and 45
epidermal colour and texture variation 255, 256f
equipment
acrylic oral specula 119f
metal oral specula 118f
reptile sexing probes 119f
estuarine crocodile body temperature measurement 377, 378f
systemic lymphoid proliferation and non-suppurative encephalitis 343
Eublepharis macularius, see leopard gecko euthanasia confirming death 450, 451f
methods of analgesia 450
decapitation 449
freezing 449
gas 450
instantaneous brain destruction 449
pentobarbitone 449–450
redundancy 451
exertional rhabdomyolysis 353, 354
exophthalmos 364–365
external marketing 115–116
external parasiticides 463t
eye(s) ancillary tests 357
diseases conjunctivitis 361–362
of cornea 363–364
enophthalmos 365
exophthalmos 364–365
eyelid disorders 360–361
of lens 364
microphthalmia 365
nasolacrimal duct 362–363
periocular region 361
of retina 364
spectacle disorders 358–360
of uvea 364
examination 129f
ophthalmic instruments 358
physical examination of 357
sight 31
eyelid disorders 360–361
surgery 386
facilities 120
feeding frequency 28
fee setting 116
felt 28
female reproductive system 30
Ferguson zone concept 84, 85b, 85t
ferlavirus infection, in snakes 303, 341
Fijian crested iguana 319, 320f
financial health measurement 116–117
fitness, captive reptiles behaviour 41–42
flagellate protozoal enteritis, in diamond python 282, 283f
floation 427
fluid therapy 164, 165f, 165t, 166
turtle shell repair 399–400
fluorescein staining 357
formulary 453
anaesthesia 468t–469t
analgesia 470t
antibiotics 455t–459t
anti-fungal drugs 460t
antiviral drugs 461t
drugs for kidney disease treatment 466t
liver disease treatment 465t
emergency drugs 454t
external parasiticides 463t
gastrointestinal drugs 467t
hormonal therapies 464t
internal parasiticides 462t
nutritional support 471t
sedatives 468t–469t
fracture fixation, turtle shell repair
adhesives 403–404, 403f
bridging methods 404–405, 404f
under general anaesthesia 402, 402f
orthopaedic fixation methods 405–406, 406f
freezing method, euthanasia 449
freshwater turtles
inability to submerge 237–238
uneven floating 237–238
frilled lizard 128f
obesity 191f
front-opening enclosures 67–68
fungal infections 261–262
muscular and soft tissue disorders 354–355
nervous systems 339
papular and swollen/ nodular dermatoses 267
respiratory system related 302
Furcifer pardalis 430f
furniture 68–69
galapagos
in direct sunlight 84f
rhabdomyosarcoma 354
gas in euthanasia 450
gastrointestinal drugs 467t
gastrointestinal system anatomy and physiology 273
diseases of
cloacal prolapse 280–282, 281f
cloacitis 282–283, 282f, 283f
colic impaction 279–280
diarrhoea 278–279, 278f
intestinal obstruction 279
liver disease 283–285, 284t
mandibular and maxillary fractures 276, 277f
oesophageal foreign bodies 276, 277f
regurgitation 276–278
stomatitis and dental disease 273–276, 274f, 275f
necropsy examination of 418, 420, 420f
gastrointestinal tract 28
radiographs evaluation 148–149, 149f
gastropages 17
gastroscopy 156
gastrootomy and gastrectomy 390
Gavialidae 2
gcko
albino leopard 89f
characteristics 5t
gender assessment 94f
Gekko gecko, see Tokay gecko
Gekkota 1
gender assessment
chelonians 92, 93f
crocodilians 92, 93f
lizards 92–94, 94f
snakes 95, 95f
genetic defects 111
Geochelone denticulata, see yellow-footed tortoise
Geochelone nigra, see Galapagos tortoise
gestation, length 98
glass reptile enclosure 64–65, 64f, 65f
GLaucoma 363–364
glucose concentrations 137
Goniurosaurus huuliensis
Heterakid egg 426f
pentastomid eggs from 429f
pinworm/oxyurid eggs from 428f
strongylid eggs from 427f
Goniurosaurus lului 429f
gravidity determination 96, 97f
green anoles, skin alterations 212f
green iguana 12f, 48, 50
coeliotomy 387f
lungs 26
MRI 154, 155f
Oochoristica species from 430f
pinworm/oxyurid eggs from 428f
post-ovulatory period 97f
sex identification 131
supportive care 160f
surgical curettage of mandibular abscess 385f
green python
cloacal prolapse 281f
gender assessment 95f
green turtle
CT 153, 153f
spirochid flukes 343
systemic coccidiosis 342–343
gut transit time 28
h
haematocrit 25
haematopoietic tissues 418
haemoclips, bearded dragon 123f
haemogregarines 136f
haemorrhage control 399
handling aids 122
and restraint techniques 48
hatching/birth 101–102
oviparous neonates 105–107
ovoviviparous/viviparous neonates 107
health care, of captive reptiles 49
hearing 30–31
Index

heart, radiographs
evaluation 148
heating 123, 163–164
heat sensing 31
heat-sensitive receptors 367
heat source 69, 69f, 70f, 122
heliothermy 16
*Heosemys spinosa* 426f
herbivores
chelonians 56, 57f
lizard 53
herbivorous diets,
disadvantage 50
hereditary cardiac
disease 293
hereditary musculoskeletal
system disorders 345–346, 346f
hereditary nervous system
disorders 335
Hermann’s tortoise 207f
pinworm/oxyurid eggs
from 428f
Herpesvirus infections 262
hiding places 122
hind-limb paresis 338
hookworm infestation
433–434
*Hoplocephalus bungaroides*,
see broad-headed snake
hormonal therapies 464f
hospital enclosure, design
diligent care 443
furniture 443
heating methods 443
humidity 443
lighting considerations 443
nonporous materials 443
substrate 443
veterinary grade
disinfectant 443
hospitalization 120
housing 45–46, see also
enclosure
breeding racks 70–72, 71f
genral considerations
construction
materials 64–68, 64f–68f
design 62–64
furniture 68–69
heat source 69, 70
lighting 69
location 62
pest control 70
substrate options
70, 70f
humidity 37–38, 122
husbandry
conspecifics 48
environmental
enrichment 45–47
handling and restraint
techniques 48
housing 45–46
hygiene 47
lighting
artificial sunlight
79–84
natural sunlight 78–79
recommendations
88–89
solar spectrum 75–78
ultraviolet requirement
84–88
preventative health
care 49
sex identification 48
transport requirements 48
water quality 47–48
hygiene 47
hyperglycaemia 194–195
hyperkalaemia 294
hyperkeratosis, see abnormal/
excessive scaling
hyperuricaemia 137
hypervitaminosis A 265
causes 193
clinical signs 193–194
prevention 194
treatment 194
treatment 294
hypoglycaemia 110
hypokalaemia 294
hypothermia 110, 344
hypovitaminosis A 50,
262–263, 300, 301
clinical signs 193
diagnosis 193
pathogenesis 192–193
prevention 193
treatment 193
hypovitaminosis E 265
I
*iguana iguana*, see green
iguana
Iguana 1
immune system 25, 299
immunology 214–215
inclusion body disease
(IBD) 206
incubation behaviour, python
species 45
indoor enclosures
cage cleaning 67–68, 68f
construction
materials 64–66,
64f–66f
design 62–63
feeding access 67–68
furniture
branches 68–69
cage furniture 69f
food and water
dishes 68
privacy shelters 68
heat sources 69, 69f, 70f
lighting 69
location 62
pest control 70
substrate options 70
infectious diseases 111–112
infectious agents
198t–203t
planning 213–214
undiscovered infectious
agents 214
injectable anaesthetics 370
inland bearded dragon 327f
insecticide toxicity 338–339
instantaneous brain
destruction,
euthanasia 449
anatomy and physiology of 255, 256f
integument 17–18
disorders
abnormal/excessive scaling 258
bacterial infections 262
beak and claw overgrowth 263
common clinical lesions 258
dermatoses 263–265
ectoparasitic infections 260, 261f
fungal infections 261–262
hydropvitaminosis A 262–263
papular and swollen/nodular dermatoses 265–268
skin disease management approach 256–258, 257f
viral infections 262
ecdysis 18
intermandibular cellulitis 266
internal marketing 115
internal parasiticides 462f
intestinal obstruction 279
intracardiac blood shunting 23–25
intracardiac shunts 370
intracoelomic dosing 169
intra-oral abscesses 141f
invertebrate diet limitations 50
Iodosorb®, 170, 171f
Isospora jaracimrmani 431f

Jacobson’s organ 31, 366–367
jungle carpet python mouth gaping 210f
with sunshinevirus 128f

K
Kalicephalus
species 433–434
keratitis 363
keratoconjunctivitis sicca 363
ketamine hydrochloride 374
key performance indicators (KPIs) 116, 117, 117t
kidney disease 212–213
Krefft’s turtle, phallos prolapae 318f

lace monitor
anaesthesia monitoring 378, 378f
bone loss 187f
egg size 97f
laser/radiosurgical unit 123
lead toxicity 339
lens 364
leopard gecko 89f
pinworm/oxyurid eggs from 428f
leucocyte 136, 136f, 137t
counts 136
light/lighting 122, 164
artificial sunlight
basking lamps 79–81
coloured lamps 81
ultraviolet lamps 82–84
visible light 81–82
captive reptiles behaviour 36–37
for enclosures 69
natural sunlight 78–79
reptile keepers, recommendations 88–89
solar spectrum
infrared 75–76
ultraviolet A 76–77
ultraviolet B 77
visible light 76–77
vitamin D3, 77–78
ultraviolet requirement excessive exposure 86–88

Ferguson zone concept 84, 85f
gradient 84–86
lignocaine 373
lithophagia 148, 149f
liver biopsy 392
disease 208–209
classification 283, 284t
clinical signs 283
haematology and biochemistry analysis 284
treatment 285
ultrasound 284
lobectomy, complete/partial 392
necropsy examination of 416, 417f, 418

lizard
adductor muscles 19, 20f
adrenal glands 30
anorexia 226–227
backbone 21
blepharoedema 230
blepharospasm 230
blisters 228
calculus 231
calcium 4t
cloaca/hemipenal swelling 233
cloaca prolapse 233
celioscopy 157
celiotomy in 387–388
constipation 232
C. varanii infection 430
deformities 232
dental loss 231
depression 227
diapsid 19
diarrhoea 232
digits/tail tip 234
discoloured urates 233
distended coelom 227
dysec dysis 228
dyspnoea 230–231
dystocia management 310, 311f
ecdysis 18
Index

examination 131–132

excessive salivation 230–231

external anatomy 17

exudation 231

eyes
  colour change 229
  opacities 229
  spectacle distension 229–230

facial/jaw swellings 232

gait and posture
  abnormalities 234

gender assessment
  92–94, 94f

gingival inflammation 231

granulomas 228

gravid female 233–234

hyperplasia 231

infectious agents 204t

internal swellings 233

kidneys 28

lameness 234

lethargy 227

limb/vertebral swellings 234

liver lobectomy, complete/
  partial 392

lungs 26

muscle innervation
  assessment 332, 335

nails, overgrown/
  misshapen 229

nasal discharge 230–231

nephrectomy 393

neurological signs 235

nutrition 53–55

ocular discharge 230

opaque/dry spectacle 229

open mouth
  breathing 230–231
  oral discharge 231

oral mucous membrane
  colour 231–232

papules 228

paralysis 235

parathyroid glands 30

paresis 235

periocular swelling 230

plaque 231

proliferative nodules 228

pustules 228

radiography
  positioning 146

recession 231

reduced faecal output 232

reference intervals
  for 474t–475t

reproductive
  system 29–30

respiration 26–27

salivation 231

sex identification
  131–132, 131f

sight 30

skin
  abrasions 228

  discolouration 227–228

  disruption 228

  hyperkeratosis 228

  thickening 228

spinal and head
  trauma 337–338

sudden death 235

superficial bacterial
  infections 263–264

supportive care
  159–160, 160f

swellings 228–229

thermoregulation 16

tongue lesions 231

ulceration 228, 231

ultrasonography 151–152

ultraviolet index (UVI)
  exposure levels 85t

uroliths in 329

vascular access 169

venipuncture in 370–371

ventral view of female 24f

weakness 227

weight loss 227

lockable enclosures 67, 68f

loggerhead genital—respiratory
  herpesvirus
    (LGRV) 304

loggerhead orocutaneous
  herpesvirus
    (LOCV) 304

lone star retractor 124f

loss of spectacle 360

lower urinary tract
  disease 329

lymphoid tissues 418

m

magnetic resonance imaging
  (MRI) 154, 292

magnification loupes 123

maintenance behaviours, see
  behaviour, captive
  reptiles

male reproductive system
  29–30

mandibular fractures 276, 277f

marine iguana 84f

marine turtles
  inability to submerge
    237–238

  uneven floating 237–238

marketing, in reptile
  practice 115–116

mating 96

maxillary fractures 276, 277f

medetomidine 375

medical records 119–120

medications administration
  intramuscular dosing 169

  intraosseous dosing 169

  intravenous dosing 169

  oral and parenteral
    dosing 168

  subcutaneous dosing
    168–169

metabolic bone disease
  aetiology 185

  causes 185

  clinical signs 186–188,
    187f, 188f

  diagnosis 188–189, 189f

  differential diagnosis 188

  pathogenesis 186

  prognosis 190

  treatment 189–190

  vitamin D synthesis
    185–186

metabolic myopathies 353

metabolic rate 15
Index

methadone 372
microphthalmia 365
microsporidia 355
midazolam 374
mite management plan 437b
mites, reptile 130
Morelia spilota, see coastal carpet python
Morelia viridis, see green tree python
Ascarid egg from 426f
Capulotaenia species from 430f
cloacal prolapse 281f
mouth rot, see stomatitis
Murray river turtle eye examination 358f
muscle relaxants 370
muscular and soft tissue disorders
bacterial and fungal infections 354–355
genital and hereditary disorders 353
infectious disorders
bacterial and fungal infections 354–355
parasitic infections 355
viral infections 354
non-infectious disorders
musculoskeletal system
N
earthworm egg from 426f
M. agassizii 197
Mycoplasma infections 301–302
mycoplasma infections 301–302
musculoskeletal system
related 349–350
respiratory tract 302
Myuchelys georgesi, see Bellinger river turtles

N
Nannizziopsis guarroi 143f
nasolacrimal duct blockage 362
bulla spectaculopathy 362–363
obstruction 386
nebulization 305–306
of black-headed python 306f
carcass 412, 413f
maximizing carcass quality 409
minimal routine diagnostic necropsy samples 424b
opening carcass 412, 414f
preliminary considerations 409–410, 410t, 411f
safety 409
taneous aggression 109
maternal factors 107
post-hatch/birth inappetence 107–108
thermoregulation 108–109
neoplasia
  cardiovascular system related 295
muscular and soft tissues related 354
musculoskeletal disorders 348, 349f
nervous system related 338
papular and swollen/nodular dermatoses 268
respiratory system related 301
nephrectomy and renal biopsy 393
nervous system 30–31
anatomy and physiology 331
diseases of congenital and hereditary disorders 335
diagnostic work-up 335, 336t
history and husbandry 331
hypothermia 344
infectious disorders 339
necropsy examination of 421–422, 422f
neurological examination close examination 332
cranial nerve function 332, 333t
distant examination 331–332
muscle innervation assessment 332, 334f, 335
non-infectious disorders egg binding 338
hypocalcaemia 336–337
neoplasia 338
nutritional secondary hyperparathyroidism 335, 336, 337f
toxicities 338–339
trauma 337–338
viral diseases of snakes 339–342, 340f, 342f
neurological disease 209–211
neuromuscular blocking agents 374
nitrogen cycle 72
non-climbing species 46
non-crocodilian heart 287
non-obstructive dystocia management 309
non-pathogenic pinworm infection 436
nonsteroidal anti-inflammatory drugs (NSAIDs) 373
nursing, reptile patient hospital care
daily care 443–445, 444f, 445f
hospital enclosures 443
housing during 442
reception fixing appointments 441
separate waiting area 441–442
transportation process 441, 442f
surgical nursing and anaesthesia
alcohol/ultrasound gel 447
capnography 447
Doppler unit 447
equipment and supplies 446–447
patient support 447–448
preoperative nursing 445–446
pulse oximetry 447
recovery 448
nutrition captive reptiles behaviour 38
carnivory 50
chelonian 55–59, 56t, 57t
herbivory 50
lizard 53–55
omnivory 50
snake 50, 53
nutritional delivery 167–168, 167t
nutritional diseases 301
nutritional osteodystrophy 268
nutritional secondary hyperparathyroidism (NSHP) 335, 336, 337f
nutritional support 166–167, 167t, 471t
obesity 294
aquatic chelonians 59
bearded dragon 191f
frilled lizard 191f
pathogenesis 190–191, 191f
treatment 191–192, 192f
oculoscopy 155
oesophageal foreign bodies 276, 277f
oesophagoscopy 156
oesophagostomy tube placement 386–387
olfactory organ 31
omnivores chelonians 56–57
lizard 54, 55
omnivorous 1
challenges of 50
Oochoristica species 437
Ophidascaris species 433
ophidian paramyxovirus (OPMV), see ferlavirus
Ophionyssus natricis 436, see reptile mite
opiates 373
opioids 373, 374
oral examination 130f
orchidectomy 390
orthopaedic surgery bone healing 393
external and internal fixation 394
external coaptation 393–394
fracture repair principles 393
osteitis deformans 351f
Index

otoscopy 155
outdoor enclosures
cage cleaning 67–68, 68f
cage furniture 69
construction materials 66–67, 67f
design 63–64
feeding access 67–68
food and water
dishes 68
privacy shelters 68
heat sources 69, 69f, 70f
lighting 69
location 62, 63f
pest control 70
substrate options 70
ovariectomy 388
oviductal prolapse 316–317, 317f
oviparous 1, 105–107
ovoviviparous 1, 107
oxytocin therapy 309
oxyurid nematodes 436

p
paediatrics
anaesthesia 111
examination and diagnostic testing 109
failure to thrive 112–113
Genetic defects 111
hatching/birth
oviparous neonates 105–107
ovoviviparous/viviparous neonates 107
infectious diseases 111–112
neonatal care
conspecific aggression 109
maternal factors 107
post-hatch/birth inappetence 107–108
thermoregulation 108–109
substrate ingestion 112
treatment
dehydration 111
hypocalcaemia 110–111
hypoglycaemia 110
hypothermia 110
Paget’s disease, see osteitis deformans
pain, captive reptiles
behaviour 38
pancreas 28, 30
Pantherophis guttatus, see corn snake
Pantherophis obsoletus 427f
papillomas 267
papular and swollen/nodular dermatoses
bacterial infections
abscesses 265–266
D. congolensis 266–267
intermandibular cellulitis 266
fungal infections 267
mycobacterial infections 267
viral infections
cutaneous fibropapillomatosis 267
papillomas 267
parasites 268
Poxviruses 267
Ranaviruses 267–268
parasitic infections
Cardiovascular system 295–296
muscular and soft tissue disorders 355
musculoskeletal system related 350–351
nervous systems 342–343
papular and swollen/nodular dermatoses 268
respiratory system related 303
Parasitology
Acanthocephala 437
anaemia and emaciation 433–434, 436–437, 437b
Capillaria 437
Cestoda 437
faecal sample diagnostic techniques 427–428
gastric and intestinal diseases 430–431
Heterakid nematodes 437
in-clinic diagnostics 425–427, 426f–433f
intestinal and biliary coccidiosis 431–432, 431f
intestinal and liver amoebiosis 432–433
non-pathogenic pinworm infection 436
parasite infections, management of 438–439, 438f
parasites and parasite groups, selection of 435f
Parasitological results 428–429
Pentastomida 437
pneumonia 435–436
spirurid nematodes 437
parathyroid glands 30
parthenogenesis 92
Pentastomida 437
pentobarbitone, euthanasia 449–450
perentie 94f
femur fracture 189f
with yolk coelomitis 314f
periocular region diseases of 361
periocular region disorders 361
pest control, enclosures 70
petechiae/ecchymoses 262
phallus prolapse
clinical signs 318, 318f
diagnosis 318
pathogenesis 317–318
predisposing factors 317
prevention and control 319
Phallus prolapse treatment 318–319
pharmacology
analgesics 182–183
antibiotic therapy 177–181
antifungals 181
anti-inflammatories 182–183
antiparasitics 182
antivirals 181–182
drug compounding 177
drugs administration 175–177, 176b

Photo-keratoconjunctivitis 89f
Photo-microhabitat 79
photoreception 36–37
physical examination, in cardiovascular system
auscultation 289
clinical signs 289
heart rate 288–289
mucous membranes 288
pulse rates 289
respiratory rates 289
pinworm infection 436
pithing technique 451
pit organs 367
plastic moulded enclosures 65, 66f
plastron fracture repair, bridging method of 404f
plastronotomy 388, 389f
Platynota 1
Pleurodirans 2
pleurodont teeth 27
pneumonia 435–436
Pogona barbarta, see eastern bearded dragon
Pogona vitticeps, see bearded dragon; inland bearded dragon
post-ovulatory egg stasis, see dystocia
postprandial cardiac hypertrophy, pythons 194
poxvirus 262, 267
practice management see reptile practice
preferred body temperature (PBT) 16, 16t
premedication protocol 374
preovulatory follicular stasis
aetiology 311
clinical signs 312
diagnosis 312, 313f
pathogenesis 311–312, 312f
prevention and control 313–314
treatment 312–313
prolapsed hemipene/phallus 393
propofol 375
protein catabolism 137
pseudobuphthalmos 386, see also bullous spectaculopathy
pulmonoscopy 155–156, 156f
pulse oximetry 447
anaesthesia, monitoring of 379
pylon
ball 8t
capillaria eggs from 427f
cardiomegaly 289f
carpet 7t
cloacitis 282f
green 7t, 13f
heart, ventral and dorsal aspect 287, 288f
jungle carpet 12f
postprandial cardiac hypertrophy 194
regurgitation 276–278
with retained spectacle 359f
Python regius 427f
Python reticulatus, see reticulated python
r
radiography
cardiovascular system examination 290–291
contrast radiology 147–148, 147f
evaluation of 148–150
exposure 146–147
plain radiographs 147
positioning 145–146
sedation and anaesthesia 145
ranaviruses 267–268
rattlesnakes 91
hemipenes 149
record keeping 49
rectum 28
red-eared slider turtle 346f
blood parameters, renal disease assessment 325t
eyelid trauma 360
reference intervals 473
for chelonians 478t–479t
for lizards 474t–475t
for snakes 476t–477t
reflexes monitoring 447t
regurgitation
aetiology 277
causes of 277
clinical signs 277
diagnosis 278
in pythons 276
treatment 278
renal disease
diagnosis 323–325, 325t
infectious causes of 325–326, 326f
non-infectious aetiologies
renal cysts and aplasia 326
urate tophi in renal tubules 327, 328f
visceral gout 327, 328f
prognosis and treatment 329
renal osteodystrophy 328

q
quarantine protocol, in health care 49
renal secondary hyperparathyroidism (RSHP) | 190
reproduction | 91
breeding management | 95–96
clutches, multiple | 99
eyeg anatomy | 92
incubation | 99–101
laying | 98–99
viability determination | 101
embryonic mortality | 102
gender assessment | —
chelonians | 92, 93f
crocodilians | 92, 93f
lizards | 92–94, 94f
snakes | 95, 95f
gravid females
management | 98
gravidity determination | 96, 97f
hatching | 101–102
length of gestation determination | 98
mating | 96
parthenogenesis | 92
physiology | 91–92
reproductive system | 29–30
anatomy and physiology | 307
disorders of
dystocia/post-ovulatory egg stasis | 307–310, 311f
ectopic eggs | 320–321
hemipenial plugs | 319, 320f
infertility | 321
oviductal prolapse | 316–317, 317f
phallus prolapse | 317–319, 318f
preovulatory follicular stasis | 311–314, 312f, 313f
salpingitis | 315–316, 316f
yolk-associated coelomitis | 314–315, 314f, 315f
necropsy examination of | 418
reptile keepers
recommendations | 88–89
reptile practice
anaesthetic equipment | 124
biosecurity | 122
consultation room | 117–118
consumables | 124
enclosures | 120–122, 120f, 121f
equipment
acrylic oral specula | 119f
metal oral specula | 118f
reptile sexing probes | 119f
external marketing | 115–116
facilities | 120
fee setting for | 116
financial health measurement | 116–117
handling aids | 122
heating | 123
heat source | 122
hiding places | 122
hospitalization | 120
humidity | 122
instrumentation | 123
internal marketing | 115
laser/radiosurgical unit | 123
light | 122
magnification loupes | 123
medical records | 119–120
reusable retractor rings | 123
surgical suite | 122–123
vascular clips | 123
Reptilia
characteristics | 1
families | 1, 2t
genera and species | 1, 2t
orders | 1, 2t
reptilian needs, hierarchy | 33b
respiration
captive reptiles
behaviour | 38
control | 26
respiratory disease diagnosis of | 304–305, 305f
infectious diseases
bacteria | 301
chlamydia | 302
fungal | 302
mycobacteria | 302
mycoplasma | 301–302
parasites | 303
viral infections | 303
non-infectious disease
neoplasia | 301
nutritional diseases | 301
trauma | 300–301
predisposing factors | 299–300
treatment principles | 305–306, 306f
respiratory support | 168
respiratory system
anatomy and physiology | 299
lower tract | 26
necropsy examination of | 412, 415–416, 416f
upper tract | 26
respiratory tract
lower | 205–206
radiographs evaluation | 148
upper | 197–205
retained spectacles | 359, 359f
reticulated python clinical examination | 129f
egg, ultrasonographic appearance | 97f
retinal diseases | 364
reusable retractor rings | 123
Rhabdias | 435
rhabdomyosarcoma
in corn snake | 354
in Galapagos tortoise | 354
Rhynchocephalia 2
roundworm infestation 433–434

Salmonella sp., 142, 159, 178, 247, 250, 252, 263, 265, 269, 274, 295, 301, 315, 326, 339, 349, 409
salpingectomy 388, 390f
salpingitis 315–316, 316f
salpingotomy 390

Savannah monitor 55
scaling, abnormal/excessive 258
Schirmer tear test 357
Scincomorpha 1
Scolecophidia 1
semi-aquatic chelonians
feeding recommendations 57, 58
semi-aquatic species 46
senses 30–31
ear 365–366, 366f
eye 357–365
heat-sensitive receptors/pit organs 367
Jacobson’s organ 366–367
septicaemia 339
serology
enzyme-linked immunosorbent assay 140
haemagglutination inhibition tests 140
molecular diagnostics 140
polymerase chain reaction 140, 141t
virus/serum neutralization tests 139
sex identification 48
shell, see also turtle shell repair
abscessation 240
deformities 239, 352–353
discouragement 239–240
diseases 211–212
epidermis erythema 240
epidermis masses 240
epidermis ulceration 240
flaking 239–240
fractures and wounds 239
petechiae 240
soft 239
thickening 239–240
trauma, causes of 397, 398f
shingelback lizards 91
with conjunctivitis 361f
short neck turtles, eyelid trauma 360
sixth sense 31
skeletal system
disorders, of indeterminate/or mixed origin 351–353, 351f, 352f
radiographs
evaluation 150
skull 18–20
vertebrae 20–22
skin diseases 211–212
skinks, blue tongued 3f
skin wounds and burns 384
smudgeocytes 135
snake
abnormal body position 226
adrenal glands 30
anoxia 217–218
blisters 219
characteristics 7t–8t
choanal discharge 221
cloaca
prolapse 224
scent glands 28
swelling 224
coeлиoscopy 157
coeлиotomy in 388
constipation 222
corn 13f
C. Serpentis infection 430
cutaneous swellings 220
diarrhea 222
diffuse distension 224
digestion 28
discoloured urates 224
distended coelom 218
Duvernay’s gland 27f
dysphyia 219
dysphonia 221
dystocia management 310
ecdyasis 18
examination 132
excessive salivation 221
external anatomy 17
exudation 221
eyes
colour change 220
dry spectacle 220
opaque 220
periocular swelling 220
spectacle distension 220
facial/cephalic swelling 221
feral virus infection 303
firmness 224
gender assessment 95, 95f
gingival inflammation 221
glottis 27
granulomas 219
hemipenal region
swelling 224
hyperkeratosis 219
increased activity 218–219
infectious agents 204f
injectable medications 306
internal anatomy 18f, 21f
kidneys 28
liver lobectomy, complete/partial 392
mid-body swelling 222
missing tail tip 225
mouth gaping 221
muscle innervation
assessment 332, 334f
muscle tone 218
nasal discharge 221
nephrectomy 393
neurological signs 225
nutrition 50, 53
oral discharge 221
oral mucous membrane
colour 221
osmoregulation 29
with osteitis deformans 351f
papules 219
paralysis 225
parathyroid glands 30
snake (cont’d)
  parturition 224–225
  petechiation 221
  proliferative nodules 219
  puffiness 224
  pustules 219
  radiography positioning 146
  reduced faecal output 222
  reference intervals
    for 476t–477t
  regurgitation 221–222
  reproductive system
    29–30
  respiration 27
  respiratory disease, causes
    of 303
  salpingitis 225
  sex identification 132
  skin
    abrasions 220
    discolouration 219
    disruption 220
    thickening 220
  skull 20f
  spondylosis 225
  stridor 221
  subcutaneous
    swellings 220
  sudden death 226
  superficial bacterial
    infections 263–264
  supportive care 159, 160f
  tail necrosis 225
  teeth 27
  thermoregulation 16
  thyroid glands 30
  time spent basking 219
  time spent soaking in water
    bowl 219
  tongue lesions 221
  tooth loss 221
  ulceration 219, 221
  ultrasonography 152–153
  ultraviolet index (UVI)
    exposure levels 85f
  uroliths in 329
  vascular access 169–170
  venipuncture in 370
  venom gland location 27f
  vertebral swellings 225
  viral diseases of 339–342,
    340f, 342f
  visible internal swellings
    222–224, 223f
  vomiting 221–222
  wheezing 221
  soft-tissue surgery
    aural abscesses 385
    enucleation 386
    eyelid surgery 386
    nasolacrimal duct
      obstruction 386
    pseudobuphthalmos 386
    skin wounds and
      burns 384
    subcutaneous abscess
      removal 385
    substernal abscess 385
    tracheal resection and
      anastomosis 386
    spargana (plerocercoid) 426,
      433f, 437
    spectacle disorders
      358–360
  Sphenodon punctatus, see
tuatara
  spinal osteopathy 351–352,
    351f, 352f
  spine 20
  spirorchid flukes, in green
    turtles 343
  Spirurida 437
  spotted python
    lower respiratory tract,
      endoscopic
      examination of
      304, 305f
    open-mouth
      breathing 300f
    spur-thighed tortoise,
      rhinitis 205f
  Squamata
    Amphisbaenia 1
    characteristics 1
    Lacertilia 1
    order 1
    Serpentes 1
  steppe tortoise 316, 317f
  stomatitis
    aetiology 273–274
    clinical signs and physical
      examination 274
    description 273
    diagnosis and categorization
      274–275
    treatment 275–276
  stratum germinatum 222–224
  subcutaneous abscess
    removal 385
  subspectacular abscess
    359–360, 385
  substrate ingestion 112
  substrate options,
    enclosures 70
  sunbeam method 86
  Sunshinevirus infection 262,
    303, 341
  superficial bacterial
    infections 262–264
  surgery
    amputation 394–395
    coeliotomy 387–388, 387f,
      388f
    cystotomy 392, 392f
    enterotomy 391, 391f
    gastrotomy and
      gastrectomy 390
    lasers 384
    liver biopsy 392
    liver lobectomy, complete/
      partial 392
    nephrectomy and renal
      biopsy 393
    oesophagostomy tube
      placement 386–387
    ophthalmological surgical
      instruments 384
    orchidectomy in
      lizards 390
    orthopaedic 393–394
    ovarietomy 388
patient assessment and preparation 383
patient preparation 383–384
positioning 383
pre-and perioperative care 383
prolapsed hemipene/phallus 393
radiosurgery 384
salpingectomy 388, 390
salpingotomy 390
skull and facial bone fractures 395
soft-tissue
aural abscesses 385
enucleation 386
eyelid surgery 386
nasolacrimal duct obstruction 386
pseudouhphalamos 386
skin wounds and burns 384
subcutaneous abscess removal 385
subspectacular abscess 385
tracheal resection and anastomosis 386
surgical equipments 384
suture materials 384
tongue 386
venomoid 396
surgical nursing and anaesthesia
alcohol/ultrasound gel 447
capnography 447
Doppler unit 447
equipment and supplies 446–447
patient support 447–448
preoperative nursing 445–446
pulse oximetry 447
recovery 448
surgical suite 122–123
swollen eyelids 361
systemic coccidiosis, in green turtles 342–343
systemic lymphoid proliferation and non-suppurative encephalitis 343

†
taste buds 31
tears 27, see also dentition
terrapin 2
terrestrial species
chelonians, nutrition 56–57
enclosure for 46
testudines, see chelonia
Testudo hermanni, see Hermann's tortoise
Testudo horsfieldii, see Steppe tortoise
thecodonts, teeth 27
thermal burns 263
thermoregulation 15–16
captive reptiles
behaviour 35–36
mechanism 16
preferred optimum temperature zone 16, 16†
thiamine deficiency 194
thigmothermy 16
thyroid glands 30
ticks 38
Tiliqua rugosa, see Shingleback lizard
Tiliqua scincoides, see blue-tongued lizards; blue-tongue skink
timber enclosure 66–67, 66†
Tokay gecko 55
tonometry 358
TopClosure® Tension Relief System 404
tortoises 2
osmoregulation 29
spur thighed/Greek star 14f
stones and pebbles, stomach 148, 149f
testudinid herpesviral infection 304
touch, sense 31
tracheal resection and anastomosis 386
tracheal washes 206f
Trachemys scripta elegans, see red-eared slider turtle
tracheoscopy 155–156, 156†
tramadol 372
transport requirements 48
trauma
cardiovascular system related 294
eyelids 360–361
induced neuropathies 338
muscular and soft tissues related 353
musculoskeletal disorders 348
nervous system related 337–338
respiratory system related 300–301
traumatic lesions 263
tuatara 2
characteristics 2
diapsid 19
egg anatomy 92
turtle
aural abscesses 365, 366f
Bellinger river 343
broad-shelled 93f
carapace fractures 337
characteristics 9t–10t
eastern long-necked turtle
dorsoventral radiograph 400, 401f
oesophageal foreign body, endoscopic removal of 276, 277f
traumatic panophthalmitis 363, 364f
green turtles
spirorchid flukes 343
systemic coccidiosis 342–343
turtle (cont’d)
Krefft’s turtle, phallus prolapse 318f
Murray river turtle, eye examination of 358f
oesophagostomy feeding tube 276, 277f
short necked 13f, 360
side necked/long necked 2
supportive care 160
urooliths in 329
venipuncture in 371, 371f
turtle shell repair
anatomy 397
appropriate temperature gradient 399
fracture fixation
adhesives 403–404, 403f
bridging methods 404–405, 404f
under general anaesthesia 402, 402f
orthopaedic fixation methods 405–406, 406f
initial fracture stabilization and wound protection 401, 400f
post-surgical care 400–407
prognostic categories, for shell injury assessment 398, 398t
radiographs 400, 401f
supportive care and stabilization analgesia 399
antibiotics 399
appropriate temperature gradient 399
computed tomography 400
fluid therapy 399–400
haemorrhage control 399
initial fracture stabilization and wound protection 400, 400f
radiographs 400, 401f
triage 397–398
vacuum-assisted wound closure 402
wound care 400–402, 401f
u
ultrasonography 150–153, 291–292, 291f, 292f
ultraviolet index (UVI) exposure levels 85f
ultraviolet lighting 69
uric acid concentrations 138
urinary system 28
anatomy and physiology 323
case reports 329–330
clinical note 29
lower urinary tract disease 329
necropsy examination of 418, 419f
osmoregulation 29
renal disease 323–329, 325t, 326f, 327f, 328f
renal portal system 29
urinary tract disease 212–213
urogenital tract 149
uro lithiasis, causes of 329
Uromastyx acanthinurus 428f
Uromastyx species 430f
uveitis 364
v
vacuum-assisted wound closure 402
Varanus exanthematicus, see savannah monitor
Varanus giganteus, see perentie
Varanus varius, see lace monitor
vascular access 169
vascular clips 123
veiled chameleon supportive care 160f
venipuncture in crocodiles 371, 372f
in lizards 370–371
in snakes 370
in turtles 371, 371f
venomoid surgery 396
venomous reptiles handling protocols 131
ventilation 26
vestibular disease, signs of 367
Viperidae, fangs 28
vipers 91
viral infections cardiovascular system 296
muscular and soft tissue disorders 354
respiratory system related 303
vitamin B1, see thiamine deficiency
vitamin E deficiency 294, 353
vomeronasal organ, see Jacobson’s organ
w
water exchange 37–38
water quality 47–48
aquatic enclosures and 72–73
western brown snake 316f
wound care, turtle shell repair 400–402, 401f
wound management 170, 171f
y
yellow-footed tortoise 89f
yellow fungus disease 261–262
z
zinc toxicoses 339
zolazepam-tiletamine 375