



# Reptile & Amphibian Emergencies

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# Husbandry

While critically important, this is a topic that deserves its own lecture.

Good resources:

- Association of Reptile & Amphibian Veterinarians ([arav.org](http://arav.org))
- LafeberVet
- Mader's Reptile and Amphibian Medicine and Surgery 3<sup>rd</sup> edition
- Reptiles Magazine (use with caution)

# Signs of Illness (general)

- Depression, inactivity
- Eyes – sunken, closed, bulging
- Anorexia
  - May be associated with seasonal changes and breeding activity (not illness)
- weight loss/changes in body condition
- Behavior change
  - Often dependent on owner for this observation
  - Caution: this relies on owner knowing normal behavior of the species they keep

# Signs of Illness (order specific)

- Testudines

- Shell lesions

- Ulcers
    - Fractures
    - Discharge
    - Red/pink discoloration at scute junctions and on skin around legs

- Lizards

- Chameleons – weak or absent grip
  - Color change to a darker color than is normal
    - Varies by species
    - May be normal stress/excitation response in some species



# Signs of Illness (order specific)

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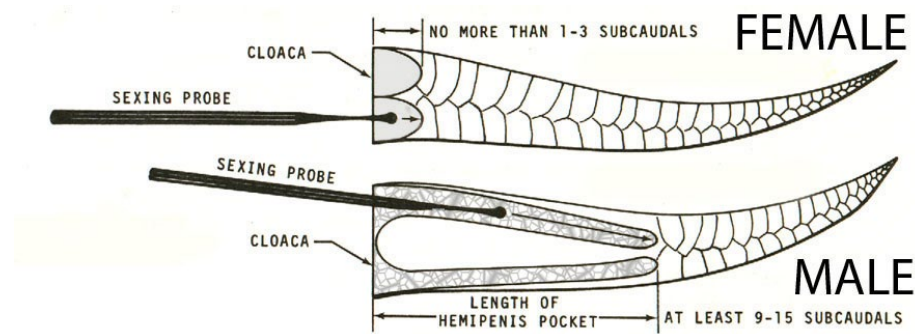
- Snakes
  - Stretched out or uncoiled body position
  - Loss of tongue flicking
  - Loss of righting reflex
  - Unusual aggression
    - Typically due to pain

# Sex determination

- Owners may not know the sex of their animal or may be mistaken
- Females with reproductive tract disease are common
- Don't rely on owners to know

- Snakes

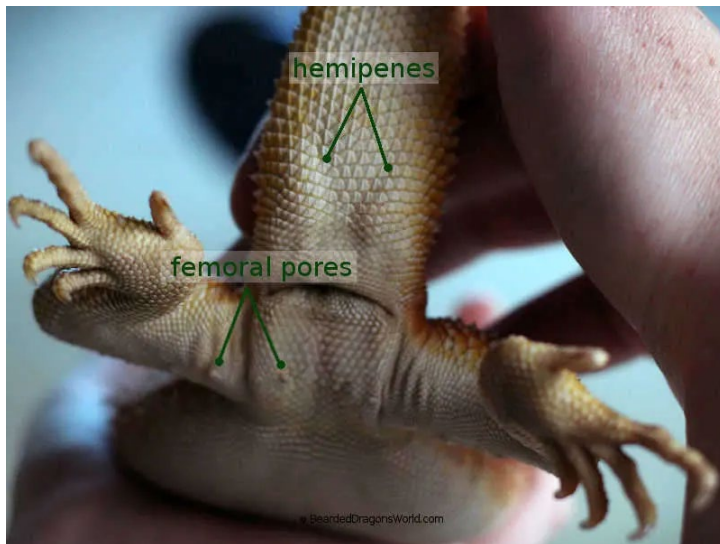
- Typically not sexually dimorphic
- Most accurate
  - Probing caudal cloaca
  - Visualize/eversion of hemipenes



# Sex determination

- Lizards

- Hemipenes visible
- Sexually dimorphic in some
- Except skinks – nearly impossible



- Turtles

- Varies by species
- Typically males have longer tails with more distal cloacal opening



**Female**  
Cloaca Closter To Scutes



**Male**  
Cloaca Coster To Tail's Tip

# Common Reptile Emergencies

1. Trauma
2. GI foreign bodies
3. Reproductive Disease
4. Respiratory Disease
5. Neurologic presentations
6. (Owner perception/concern)



# Common Reptile Emergencies

1. Trauma
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# Trauma – more than just broken limbs

- Thermal injury
- Fractures
- Lacerations
- Bite wounds
  - Self inflicted and otherwise
  - Bitten by feeder insects (eyes & facial structures)
- Back to basics
  - Analgesia
  - Antimicrobials?
  - Stabilization of fractures
  - Diagnostics
- Wounds take longer to heal compared to mammals

# Trauma

- Plastron fracture



- Prey (rat) bites



# Trauma

- Chronic, necrotic tail wound



- Post amputation



# Trauma

- Thermal injury



- Thermal injury



# Analgesia

## Opioids

**Pure mu agonists only**

Hydromorphone 0.5 mg/kg SC/IM q24hr

Methadone 3-5 mg/kg SC/IM q24hr

**Tramadol**

10-11 mg/kg PO q48-72 hours (most species)

## NSAIDs

Meloxicam 0.5 mg/kg PO/SC/IM q24hr

Carprofen 1-4 mg/kg PO/SC/IM/IV q24hr (limited efficacy data, reserved for larger patients)

## Local

Lidocaine 2-5 mg/kg (10 mg/kg maximum)

Bupivacaine 1-2 mg/kg q4-12hr (4 mg/kg maximum)

# Antimicrobials

- Not everything needs ceftazidime!
- Consider PO
  - Enrofloxacin, ciprofloxacin
  - SMZ (choice of least concern for resistance but often less effective compared to fluoroquinolones)
- Injection
  - Ceftazidime – doses and frequency vary by Order & Species (turtles vs lizards vs snakes)
  - Enrofloxacin – use with caution, dilute in saline
    - Sterile injection site abscess
  - Aminoglycosides – caution unless well hydrated
- Nebulized
  - Most drugs that can be used via injection
- Topical
  - Dilute betadine soaks (10-20 minutes q12-24hrs, dry docking w/ turtles)
  - SSD (light layer q12hr, some recent anecdotal work may indicate delayed healing)

# Stabilization

- Splints
  - Tape, tongue depressors
- Bandages
  - Lizards – bandage leg to tail or body in extended position
- Shell fractures
  - Do not close until any potential infection has been addressed





# GI Foreign Bodies

- Substrate
- Overly large prey
- Accidental scavenging during free roaming
- Imaging
  - Rads vs. CT vs. Ultrasound
- Fluid therapy
- Analgesia
- Provide POTZ
- (surgery)

# Fluid therapy

- Maintenance requirement: 10-15 mL/kg/day
- Correct dehydration in the fashion it occurred
  - If acute, correct more quickly (48-72 hours)
  - If chronic, correct slowly (72-96 hours)
- Perfusion deficits
  - Crystalloids 5-10 mL/kg bolus
  - Colloids 3-5 mL/kg bolus
- Routes
  - Preferred - IV, SC, PO
  - Last resort – intracoelomic
    - Compression of lungs

# Fluid therapy

- Replacement fluids
  - LRS
  - Norm-R
  - Plasmalyte 148
- Maintenance fluids
  - Normosol-M
  - Plasmalyte 56
- Blood transfusion
  - If you think you need this, please call



POTZ

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Preferred

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Optimal

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Temperature

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Zone

# Thermal Support/POTZ

- Essential for drug metabolism, organ function, healing
- Generally, 80-90 F
  - Varies by species
  - There are resources to find this information for common species
    - ARAV, VIN, Mader's text
    - Carpenter Formulary

# Reproductive Disease

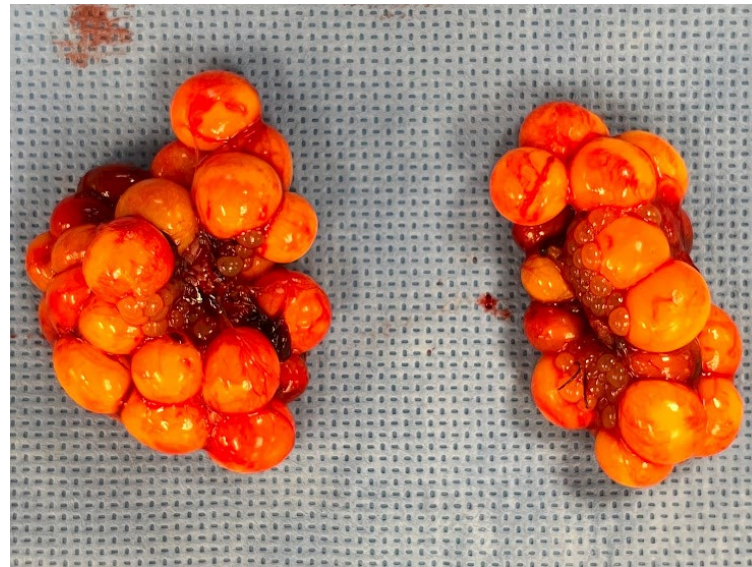
- Pre-ovulatory follicular stasis
- Dystocia (Egg Bound)

- Signs

- Depression
- Anorexia
- Cloacal prolapse
- tremors

- Diagnosis

- Coelomic palpation
- Imaging (rads vs. ultrasound)
- Ca:P
- Exploratory coeliotomy

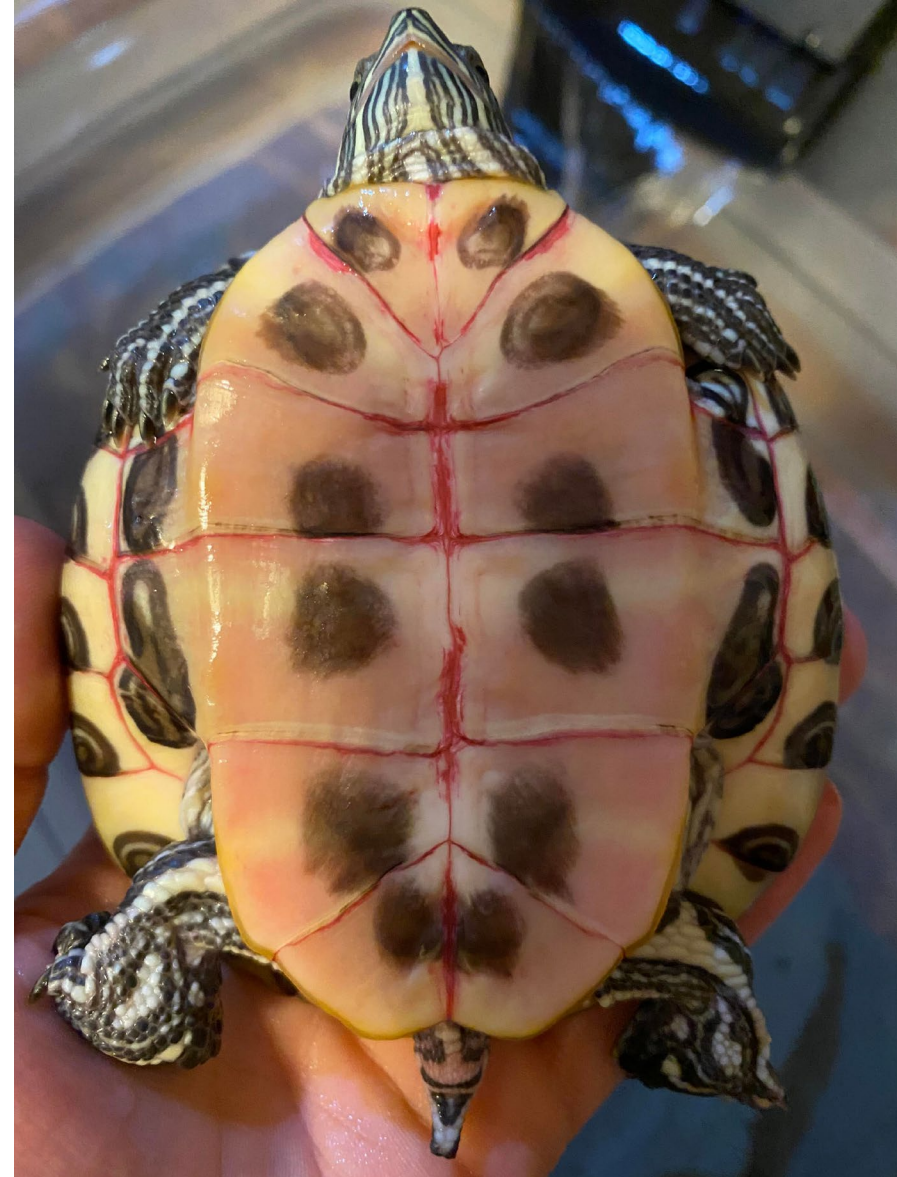


# Reproductive Disease

- Support care
- Rarely a need for emergency surgery
- Reduction of cloacal prolapse
- Follicular stasis
  - Challenging to differentiate normal from abnormal w/o owner history
  - Not a surgical emergency
- Dystocia critical windows
  - Snakes
    - 24 hours
  - Lizards
    - 47-72 hours
  - Turtles
    - Surgery rarely indicated for true dystocia
    - exceptions:
      - Broken/ruptured eggs
      - Sepsis
      - Eggs that are too large (subjective)

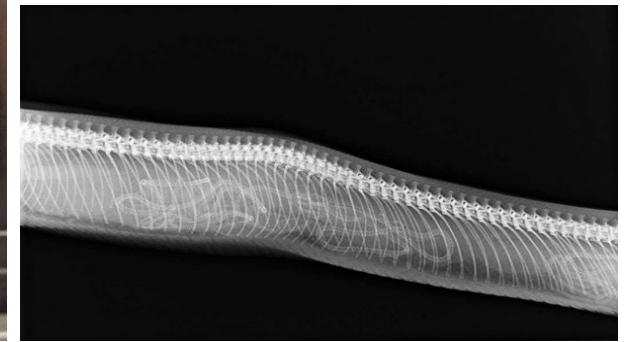
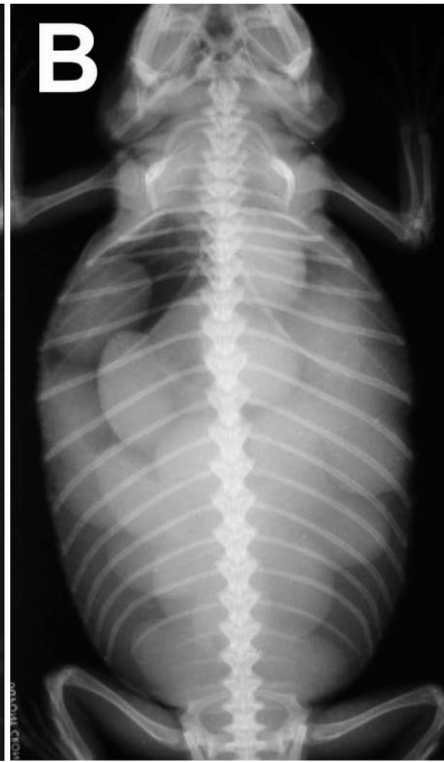
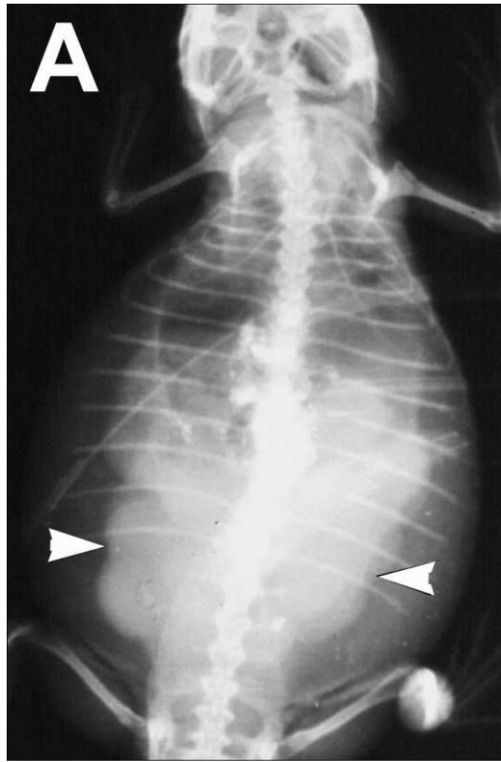
# Reproductive Disease

- Look for evidence of coelomitis/sepsis





# Reproductive Disease



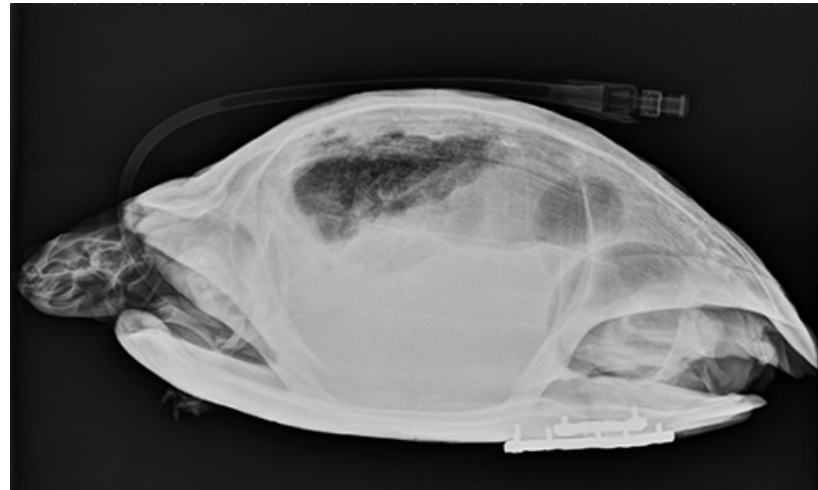
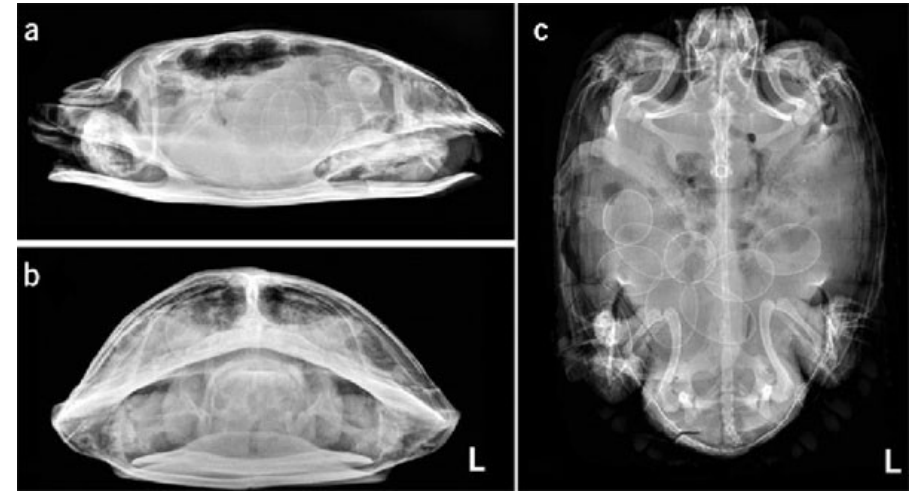
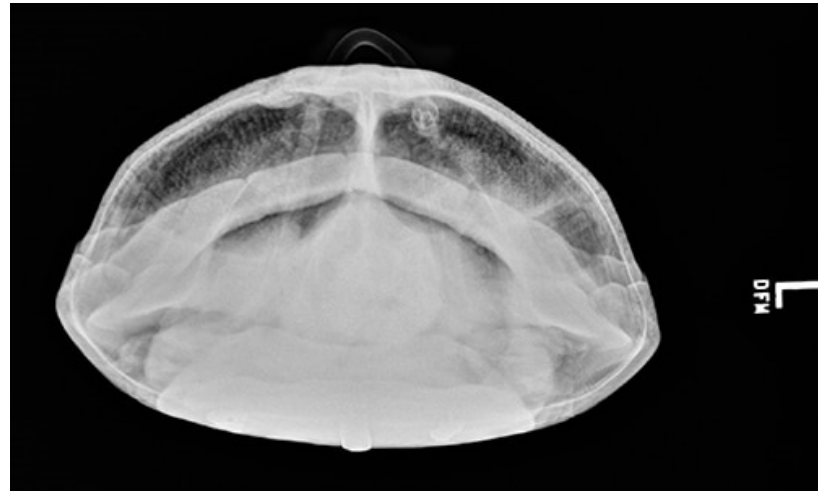
# Respiratory Disease

- Signs: open mouth breathing, nasal discharge, increased moisture in mouth, buoyancy alterations (aquatic/semi aquatic)
- No diaphragm = coelomic disease alters respiration
- Pneumonia (bacterial, viral, fungal, verminous)
- Tracheitis/tracheal obstruction
- Nasal obstruction (Dysecdysis)

# Respiratory Disease

- Oxygen supplementation
  - NO more than 40%
- Nebulize w/ saline
- Warm slowly to POTZ
- Imaging
  - Lateral, DV, Cranial-caudal (turtles)
  - Symmetry of lungs
  - Densities w/in lungs
- May not be appropriate to assist feed until less dyspneic
- Stabilize, image, transfer

# Respiratory Disease



# Neurologic Presentations

- Tremors, seizures, muscle weakness
- Loss of righting reflex, rolling/torticollis
- NSHP vs. renal hyperparathyroidism (older animals)
- Viral infection
- Primary CNS disease (abscess, neoplasia)
- Neuroendocrine gastric neoplasia (Bearded Dragons)



# Metabolic Disease

- Nutritional secondary hyperparathyroidism (NSHP)
  - “Metabolic Bone Disease”
- Never acute
- Often concurrent w/ more emergent disease process as a secondary sequelae
- Always a safe assumption
- Guarded to poor prognosis





# Metabolic Disease



- General treatment
- Ca Gluconate 100 mg/kg PO/IM q24hr x 30 days
- Analgesia
- Vitamin AD 0.15 mL/kg IM once
- Nutritional support

# CPR

- Respiratory
  - 1 to 6 breaths per minute
- Intubation with uncuffed ET tube or catheter sleeve
- Ventilate with room air or 40% oxygen
- Cardiac
  - Tolerant of significantly lower HR
  - No published information about compressions
- Thermal Support!



# Med Doses

- Atropine
  - 0.1-0.2 mg/kg IV, IM, IO, IT
- Epinephrine
  - 0.1 mg/kg IV
- Glycopyrrolate
  - 0.01-0.02 mg/kg IV, IM
- Nutrition
  - Start with 1% of weight in grams SID
  - Slowly increased to 3% over the course of a week

# Amphibians

- Not just reptiles without scales
- More sensitive to topical exposures & transdermal toxins
- Oral/injectable meds > topical
- Fungal infections more common compared to reptiles
- Common diseases
  - NSHP
  - Cloacal prolapse
  - Dermatitis
- Water Quality
- Gloves
- Vitamin A

# Chromomycosis in a White's Tree Frog

- Contagious between cage mates
- Often systemic



# Misc. Herps

- Ornate Horn Frog (Pacman Frog)



- Axolotl



# Misc. Herps

- Amphiuma



- Crocodile Skink



# Misc. Herps

- Nile Monitor



- Blue Tongue Skink



# Misc. Herps

- Uromastyx



- Senegal Chameleon



# Misc. Herps

- Spotted Salamander



- Florida Softshell Turtle





# Mandibular symphysis fracture secondary to NSHP



# Monitor threat stance/dance

