Reptile Husbandry for the Practitioner

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Introduction

- Why husbandry matters
- Asking the right questions
- Elements of husbandry
- Getting the right recommendations quickly

Reptile husbandry

- Herpetoculture
  - Keeping of live reptiles and amphibians in captivity

Importance of husbandry

- Improper husbandry is the number one cause of disease in captive reptiles

Reptile husbandry

- The entire environment is controlled by the reptile keeper
  - Instead of the natural processes that the animal has evolved in over millennia

Effects of improper husbandry

- Immune regulation
  - Chronic immunosuppression
- Digestion
  - Functional ileus
  - Poor calcium absorption
- Malnutrition
- Developmental abnormalities

Effects of improper husbandry

- Calcium metabolism

Effects of improper husbandry

- When calcium regulation goes wrong
  - Nutritional secondary hyperparathyroidism
    - Metabolic bone disease

Effects of improper husbandry

- Long term effects of nutritional secondary hyperparathyroidism
  - Bony deformation
    - Abnormal gait, arthritis
    - Gingival exposure
  - Secondary renal insufficiency
  - Abnormal calcium regulation lifelong

Effects of improper husbandry

- Among a plethora of other issues:
  - GI dysfunction
  - GI obstruction (ingestion of improper substrate)
  - Dysecdysis/dermatitis
  - Thermal burns
    - Ventral and dorsal
  - Chronic trauma
  - Photokeratitis

Elements of husbandry

- Enclosure
- Temperature
- Humidity
- Lighting
  - UVB
- Nutrition
- “Wild cards”

Getting the right info

- Your ability to properly evaluate husbandry is directly related to your ability to get the right info from your owner
- History sheets

History sheets

- Extensive questionnaire
  - Send to clients when confirming appointment
  - Targeted questions for each husbandry topic

History sheets

- Digital photos
  - EXTREMELY useful

Elements of husbandry

- Enclosure
- Temperature
- Humidity
- Lighting
  - UVB
- Nutrition
- “Wild cards”

Enclosure

- Size
  - Appropriate for species and age
  - In general
    - Juveniles- smaller enclosure to allow for access to food and monitoring
    - Adults- room to stimulate normal behaviors
      - Lizards- 2-3 times the length of the total length
      - Snakes- need long enough enclosure to completely stretch out
      - Tortoises- as big as possible to stimulate proper movement/home range
      - Aquatic turtles- Proper dock to completely dry out, enough water to be completely vertical in the water column

Enclosure

- Cage materials
  - Glass
    - Standard aquariums
    - Poor ventilation, often limited sizes
  - Plastic
    - Small containers, lightweight
    - Good for small species or raising young in temporary enclosure

Enclosure

- Cage materials
  - Mesh
    - High levels of ventilation
      - Chameleons
    - Can tear, difficult to maintain humidity
  - Wood
    - Properly sealed to be moisture resistant
    - Difficult to completely disinfect

Enclosure

- Substrate
  - Appropriate for species and size
- Varying options
  - Sand
  - Dirt
  - Carpet
  - Paper towels
  - Cloth
  - Tile
  - Crushed walnuts
  - Wood shavings
  - Wood chips
  - Aspen
  - Coconut coir
  - Straw
  - Sphagnum moss
  - Alfalfa meal

Substrate

- Considerations
  - Species and appropriate habitat
  - Ease of cleaning
    - Quarantine vs vivarium set up
    - How absorbent is the material?
      - Growth of bacteria and mold
  - Readily available

Substrate

- A note on impactions…
  - Sand/crushed walnuts
    - Easily ingested by some species (especially leopard geckos)
    - Impactions
      - More likely caused by dehydration in addition to foreign material in GI
        - Common with any husbandry deficits
    - Not inherently inappropriate for some species, but not worth the risk in most species

Substrate

- When in doubt- paper towels
  - Most common species can tolerate paper substrates
  - Ease of cleaning
  - Shred for burrowing species

Temperature

- Preferred optimal temperature zone (POTZ)
- Temperature as a range
  - Mimic natural environments
  - Cooler at night, varying degrees

Temperature

- Daytime temperatures
  - Gradient
  - Basking site
  - “Cool end”

Temperature

- Evening temperatures
  - Cooler
  - Less of a gradient, generally
- Supplemental heat at night
  - Heat emitters
  - Under the tank heat pads
  - NO heat rocks
  - Red or purple lights?

Temperature

- Night temperatures
  - Most often ignored by owners
  - All lights go off at night and temp plummets
  - Common source of husbandry errors

Temperature

- Water temperature for aquatic or semi aquatics species
  - Use of aquarium heater
    - Protect from animal biting wires/breaking casing

Humidity

- Overall humidity
  - Needs to be measured via hygrometer
- Dictated by species and natural history
  - Desert- 10-25%
  - Intermediate- 35-60%
  - Rain forest 75-90%

Humidity

- Microclimates
  - Contained areas of increased humidity without having constantly high humidity in enclosure
    - Leopard geckos
    - Ball pythons
    - Uromastyx

Humidity

- Providing humidity hut
  - Tupperware container with a hole cut for entrance
    - Opaque Tupperware best for security
  - Lining floor/walls with moist moss/paper towels
  - Place on warm area of enclosure

Lighting

- Photoperiod
  - Time of light vs darkness
  - Required for all species
  - Varying photoperiod can prepare for breeding, hibernation, or brumation

Lighting

- UVB light
  - Getting it right
    - Type of bulb
    - Position in enclosure
    - Photoperiod
  - "Life" of bulb
    - Stops producing UV light after 6-8 month
    - Replace bulbs every 6 months for optimal levels
      - UV meter

UVB lighting

- Distance from reptile
- Filtered through glass or screen?
  - Glass eliminates 90% of UVB
  - Screens filter 15% of UVB

UVB lighting

- No real substitute for natural sunlight
  - Supervised, protected outside time with owner
  - Watch for birds of prey or other predators (Dogs/cats)

UVB lighting

- What about snakes?
  - Providing UV light to corn snakes increases circulating Vit D levels
    - Clinically important?
- What about nocturnal species?
  - Many gecko species have increased UVB receptors in skin
  - Active at dusk and dawn
    - Short period of exposure with increased response
  - Providing low level UVB?

Nutrition

- What kind of food?
  - Quality of food
- How often?
- How offered?
- Water sources

Nutrition

- Varying types
  - Herbivores
  - Insectivores
  - Carnivores
  - Omnivores
  - Specialized diets

Herbivores

- Varied diet dependent on species
- Higher components of carbohydrates and fiber in diet, less protein and fat
- Check on natural history
  - Iguanas- leafy green vegetation
  - Tortoises- lowland scrub and weeds, grasses
- Prepared diets?
  - In small amounts, can round out a varied diet

Insectivores

- Large number of lizards
- More protein and fats in diet
- Varied diets!

Insectivores

- Food readily available
  - Crickets
    - High fat, poor nutrition unless properly gut loaded
      - Feed crickets a high calcium food 18-24 hours prior to feeding out
  - Mealworms
  - Superworms
  - Dubia roaches
    - Likely more balanced diet than crickets
  - Hornworms
  - Phoenix worms
    - High calcium, lower phosphorus

Carnivores

- Snakes, larger lizards
- Whole prey items or varied diets ideal
- Frozen thawed vs live feeding

Omnivores

- Select species
  - Bearded dragons
  - Some skinks
  - Box turtles
  - Water turtles
- May be dependent on age
  - Bearded dragons- Insectivores becoming herbivorous
  - Usually predominantly one or the other

Omnivores

- Often can be difficult to get them on plant material
  - Water turtles
- Offering varied diet when young

Specialized diets

- Horned lizards
  - Ants
- Egg eating snakes
  - Eggs of appropriate size for age

Supplements

- Supplements do not make up for a poor base diet!

Supplements

- Calcium
  - No phosphorous
  - Every feeding or every other feeding
  - Calcium carbonate preferred

Supplements

- Vitamin A
  - Retinol
    - Preformed vitamin A
  - Carotenoids
    - Beta carotene
  - Combination supplements?

Supplements

- Vitamin D_3
  - Often found in combination with calcium
  - Lizards/turtles
    - Of questionable oral efficacy in most species
    - Synthesized internally by proper UVB levels
  - Snakes
    - Obtained through eating whole prey diets

Water

- Proper water quality
  - Dechlorinated water is best
    - Especially for small or sensitive species
      - A must for amphibians

Water

- Availability of water
  - Desert species
    - Shallow bowls
    - Offering water several times a week vs maintaining bowl in enclosure
    - Forced bathing for some species
      - Bearded dragons
      - Some tortoises

Water

- Availability of water
  - Temperate/Tropical species
    - Water always available
    - Appropriate size water source for species
      - Iguanas- large enough to fully submerge
      - Green water dragons- swimming space

Water

- Aquatic turtles
  - Treat them more like fish
    - Proper filtration
      - Canister filters
    - Proper water quality
    - Partial water changes every 2 weeks at a minimum
      - More frequent as needed

Wild cards

- Handling time
  - Handling = time away from heat and light

Wild cards

- Reproductive status
  - Previous egg laying
    - Normal vs abnormal for species
  - Ovariectomy?
    - Aquatic turtles
    - Lizards with chronic egg laying or any concerns for dystocia

Wild cards

- Hibernation
  - Not recommended in general cases
  - May be necessary for stimulating breeding
  - Owner needs to know extensively what they are doing

Resources

- Dr. Google
  - How do we feel when our clients use google?

Resources

- More reputable sources
  - ARAV care sheets
  - Reptiles magazine
    - Online care sheets
    - Some rare exceptions
  - Anapsid.org
  - Chelonia.org

- Even with reputable sources, read the entire article prior to handing to client to make sure recommendations make sense

Resources

- Local resources
  - Herpetology groups
  - Local breeders
    - Good breeders may be helpful

Resources

- Keeping your own reptile
  - Experience goes a very long way
  - Most clients excited to hear their doctor has a herp

Summary

- History sheets are essential- ask the right questions to get the right answers
- Know your basic needs for reptiles in general, and apply them to various species based on natural history
- Familiarize yourself with common species for your area
- Get familiar with sources for uncommon species