

ZOOLOGY 101 SECTION 14 LECTURE NOTES

Reptiles

Phylum Chordata

Subphylum Vertebrata (Craniata)

Class Reptilia: snakes, lizards, alligators and turtles

~ 7000 species

- Not a valid taxon, paraphyletic grouping

Characteristics of the reptiles:

- Horny epidermal scales, skin with few glands
- Paired limbs with five digits (usually)
- Skull with one occipital condyle
- Four chambered heart
- Paired kidneys
- No gills
- Ectothermic
- Fertilization internal
- !!Eggs with calcareous or leathery shell; extra-embryonic membranes (amnion, chorion, allantois)!!

Improvements over amphibians:

- Tough dry skin
- Shelled eggs with membranes
- Reptilian jaw
- Copulatory organs for internal fertilization
- More efficient circulatory system
- Better lungs
- Water conservation
- Better body support (except limbless reptiles)

- More advanced nervous system

Subclass Anapsida: Anapsid Reptiles

Order Testudines: turtles

1. Body shell; dorsal carapace, ventral plastron
2. Breath contracting flank/shoulder muscles
3. Lack teeth
4. Most are mute, good senses of smell and vision
5. Nest temperature determines sex for some (lack sex hormones)
6. Slow, grow large, long lifespan

Subclass Diapsida: Diapsid Reptiles

Order Squamata: lizards and snakes

1. 95% of known living reptiles
2. Kinetic skull: skull with movable joints

Lizards

- Terrestrial, aquatic, arboreal, aerial
- Varied body forms
- Movable eyelids
- Keen day vision
- External ear
- Most live in hot, arid regions
- Water retention: skin glandless, semisolid urine
- !!Behavioral Thermoregulation!!

Snakes

- Entirely limbless, lack pectoral and pelvic bones (residual in some)
- Extreme elongation of the body
- Unhingeable jaw
- Undulatory movement of body
- No movable eyelids
- No external ear
- Most have poor vision
- Totally deaf, are sensitive to vibrations in ground
- Main sense in most snakes is chemical
 - Poorly developed olfactory sense
 - **Jacobson's Organs** = chemosensory organs located in roof of mouth and on the forked tongue
 - **Pit Organs** (in pit vipers) = heat sensitive organs between nostrils and eyes, can detect variations in temperature smaller than 0.003°C
- Fangs: modified teeth for secreting venom, two types
 - Neurotoxic
 - Hemorrhagic
- Most snakes are oviparous, some are however ovoviviparous and viviparous

Order Sphenodonta: the Tuatara

1. Single living genus
2. Extremely endangered
3. Found only on North Island of New Zealand

Order Crocodylia: crocodiles and alligators

1. Kin to birds
2. Powerful jaws
3. Secondary palate (a trait also found only in mammals): implications?
4. Oviparous
5. For all species nest incubation temperature determines sex