

Phylum Chordata

Subphylum Vertebrata

CLASS REPTILIA (6,500 spp - 250 turtles, 3,850 lizards, 2,400 snakes, 22 crocs)

Ectothermic (behavioral thermoregulation)

Epidermal scales (few glands in skin)

Limbs paired, usually w/ 5 toes (pentadactyl)

Skull with one occipital condyl (amphibians have 2)

Ribs w/ sternum - complete thoracic basket (incomplete in amphibians)

3-chambered heart (4 chambers in crocs)

Lungs - no gills

Metanephric kidney (uric acid)

Internal fertilization

Amniotic egg (leathery shell)

Living Orders

Order Chelonia (turtles) Anaspid skull type

Order Sphenodonta (tuatara, Sphenodon) Primitive diaspid skull type

Order Squamata

Suborder Serpentes (snakes)

Suborder Sauria (lizards)

Primitive diaspid skull type

Snakes derived from lizards

Order Crocodylia (crocodiles, alligators & caimen)

Advanced diaspid skull type, teeth in sockets

Class Reptilia

Subclass ANAPSIDA

Order Captorhinida (extinct)

Subclass Testudinata

Order Chelonia (turtles)

Subclass Diapsida

Infraclass Lepidosauriomorpha

Superorder Lepidosauria (teeth not in sockets, pineal opening)

Order Sphenodonta (Tuatara)

Order Squamata (lizards & snakes)

Superorder Sauropterygia

Order Plesiosauria (marine, extinct)

Infraclass Ichthyopterygia

Order Ichthyosauria (marine, extinct)

Infraclass Archosauromorpha

Superorder Archosauria (teeth in sockets, no pineal opening, bipedal pelvis)

Order Crocodylia (crocodylians)

Order Saurischia (extinct dinosaurs birds)

Order Onithischia (extinct dinosaurs)

Order Pterosauria (aerial, extinct)

Subclass Synapsida

Order Pelycosauria (extinct, primitive)

Order Therapsida (extinct, advanced mammals)

Snakes were initially lizards, entered a fossorial habitat, re-emerged. Some evidence:

- 1) legless lizards in special habitats (ability to reduce limbs for sand swimming & thick, dense habitats);
- 2) some snakes remain in fossorial habitats (blind snakes);
- 3) some snakes (boiids) have vestigial pelvis & limbs;
- 4) snake eyes re-invented - cones derived from rods, lens accommodated by displacement;
- 5) snake ears not re-invented - no ear drum, quadrate bone of jaw articulates w/ inner ear.

Snakes have a great reliance on smell

Sensory

Lizards

Snakes

SIGHT

SMELL

SMELL

SIGHT

HEARING

HEARING

Jacobson's Organ

However, limblessness a problem for eating -- how would feed if limbless?