

Vertebrates

Tetrapods

Class Reptilia (Reptiles)

Reptile evolution:

- Mesozoic Era was 'Age of Reptiles'
- Mass extinction at end of Cretaceous
- Birds, crocodilians, and dinosaurs most closely related

See Figs. 18.1 and 18.2 in text

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Vertebrates

Tetrapods

Class Reptilia (Reptiles)

Reptiles classified by Fenestration

-Number of temporal fenestrae (openings in skull behind eye)

1. Anapsid = no openings
 - Turtles only living anapsids
2. Synapsid = one opening
 - Extinct mammal-like reptiles
3. Diapsid = two openings
 - Most modern reptiles

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Vertebrates

Tetrapods

Class Reptilia (Reptiles)

Defining traits of living reptiles:

1. Tough, scaly skin
 - Overlapping keratinized scales
 - Protect body and preserve water
2. Amniotic egg
 - 3 protective membranes
 - Support, gas and waste exchange
 - Removed dependence on water

See Figs. 18.3 and 18.4 in text

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Tetrapods

Class Reptilia (Reptiles)

Defining traits of living reptiles:

3. Jaws designed for power
 - Larger muscles
 - Cranial kinesis in snakes and lizards
4. Internal fertilization
 - copulation
5. 3-chambered heart
 - Similar to amphibians

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Class Reptilia (Reptiles)

Defining traits of living reptiles:

6. Lungs with greater surface area
 - No cutaneous respiration
 - Enlarge thoracic cavity to breathe
7. Improved limb design and support
 - Although legs still positioned outwardly

See Fig. 18.5 in text

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Vertebrates

Tetrapods

Class Reptilia (Reptiles)

Modern reptiles

- Turtles
- Snakes and Lizards
- Crocodiles and Alligators
- About 7000 species
- Turtles are anapsids; all other reptiles are diapsids

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Vertebrates

Modern Reptiles

Turtles

- First appear in Triassic, little change since
- About 250 species
- Shell consists of dorsal carapace and ventral plastron **See Fig. 18.6 in text**
- No teeth, but horny plates instead **See Fig. 18.7 in text**
- Lung breathing and uptake of oxygen in water at pharynx and cloaca
- Shelled eggs are buried
- Environmental sex determination

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Vertebrates

Modern Reptiles

Snakes and Lizards

- Majority of living reptiles, about 95%
- Evolution of viviparity in this group
- Varying degrees of cranial kinesis

See Figs. 18.9 and 18.16 in text

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Vertebrates

Modern Reptiles

Snakes and Lizards

- About 3300 lizard species
- Most with 4 limbs, but several legless
- Tail autotomy
- External ears and movable eyelids
- *Anolis carolinensis* and skinks most common locally

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Vertebrates

Modern Reptiles
Snakes and Lizards

- About 2300 snake species
- No limbs or girdles
- Extreme elongation and displacement of visceral organs
- Vomeronasal organs for odor reception
- No external ear; transparent scale over eye

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Vertebrates

Modern Reptiles
Snakes and Lizards

- Many feed using venom or constriction
- Pit vipers with heat sensing organ
- Fangs are modified teeth that are hollow or grooved
- Venom of some highly toxic

See Figs. 18.19 and 18.21 in text

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Vertebrates

Modern Reptiles
Crocodiles and Alligators

- Share common ancestry with dinosaurs and modern birds
- Active predators with powerful jaw closing muscles
- Evolved secondary palate similar to mammals
- Have 4-chambered heart like birds and mammals
- Lay eggs on land which are guarded by female
- Larger species dangerous to humans

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