

Vertebrates

Tetrapods

Class Aves (Birds)

Defining traits and their function:

2. Light, strong skeleton

- Bones contain air cavities with struts for strength
- Some kinesis in jaws
- Rigid vertebral column with keel on sternum
- Forelimb bones fused

See Figs. 19.5 and 19.6 in text

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Vertebrates

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Defining traits and their function:

3. Powerful flight muscles

- Large pectoralis muscle for wing downstroke
- Supracoracoideus for upstroke
- Tendons provide strong grip
- Complex muscles in neck

See Figs. 19.7 and 19.8 in text

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Vertebrates

Tetrapods

Class Aves (Birds)

Defining traits and their function:

4. Feeding and beak morphology

- Many carnivores, but some feed only on nectar
- Beak morphology strongly tied to diet
- Very high consumption rates
- Crop for food storage and gizzard for grinding

See Fig. 19.9 in text

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Defining traits and their function:

5. Efficient circulation and respiration

- 4-chambered heart
- Fast heartrate
- Lungs modified for efficient air flow
- Air sacs supply lungs with air constantly

See Fig. 19.10 in text

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Defining traits and their function:

6. Nervous and sensory organs

- Well developed divisions of brain
- Good hearing and excellent vision
- High number of cones on retina
- Monocular gives wide field of view
- Binocular eyes in hunters for better depth perception

See Fig. 19.12 in text

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Defining traits and their function:

7. Reproduction

- About half of all birds migrate
- Photoperiod acts as trigger
- Internal fertilization
- Most birds are monogamous
- Nest building and parental care are typical
- Altricial or Precocial young

See Figs. 19.17 and 19.18 in text

See Figs. 19.20-19.24 in text

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Defining traits and their function:

8. Population dynamics

- Unregulated hunting and habitat loss caused extinction of some

See Figs. 19.25 and 19.26 in text

- Today, regulated hunting has contributed to recovery

- Recent sharp declines in songbird populations due to forest fragmentation and tropical deforestation

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