

□ **Outline**

□ *Why study non-human primates?*

□ *General primate traits: what is a primate?*

□ *3 evolutionary explanations for "primate-ness"*

□ *Survey of 4 groups of primates*

- *Prosimians*
- *New world monkeys*
- *Old world monkeys*
- *Hominoids*

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□ *Why study non-human primates?*

- Primates share many homologous traits in morphology, physiology, development, and behavior
- Similarities due to descent help us understand the deeper evolutionary roots of human morphology and human nature
- Studying diversity in living primates helps us to understand how selection shapes morphology and behavior in different environmental conditions

□ *General Primate Traits: What is a primate?*

1. Erect/upright posture
2. Five digits on hands and feet
  - i. flexible digits
  - ii. nails instead of claws
  - iii. opposable thumb/big toe
  - iv. tactile pads on finger tips
3. Retention of clavicle (collarbone); mobile front limbs
4. Generalized heterodont (different forms) dentition; (teeth equation)
5. Reduced emphasis on sense of smell; reduced snout, most primates lack a rhinarium
6. Binocular color vision; fully-enclosed eye orbits

7. Primate "life history" traits → small litters/ few offspring per pregnancy, prolonged period of infancy & dependency, long lifespan for body size, heavily dependent on learned behavior, most live in relatively large social groups

▯ The evolution of primate adaptations

- 3 hypothesis:
  - o arboreal hypothesis
    - basic primate traits were selected to fit an adaptive niche in the trees
  - o visual predator hypothesis
    - early primates adapted to forest undergrowth where they exploited insects and small prey that required stealth and dexterity
  - o fruit flower eating hypothesis
    - basic primate traits were favored by selection to better harvest flowering plants and fruit

▯ Survey of Non-human primates

- Geographic distribution of non-human primates
  - o Usually reside in tropical areas

▯ 4 groups of primates

- Prosimians
  - o Includes: lemurs, tarsiers, lorises, aye-eyes, indris
    - Tarsiers eat insects mostly, but also birds, bats, and snakes
    - Prosimian locomotion: vertical clinging and leaping
  - o Confined to Madagascar, tropical Africa and Asia
  - o Prosimians retain the greatest number of primitive (i.e. ancestral) traits of all primates
- New world monkeys (anthropoid)
- Old world monkeys (anthropoid)
- Hominoids (apes and humans) (anthropoid)