# EVOLUTION AND DIVERSITY OF THE FACIAL MORPHOLOGY BETWEEN EXTANT STREPSIRRHINES AND HAPLORRHINES

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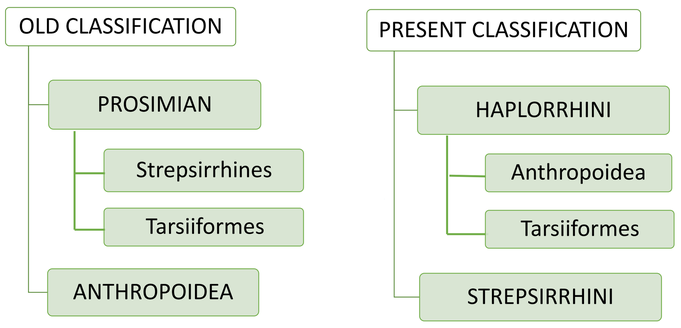
## INTRODUCTION

There are about 300 species of living primates, subdivided between strepsirrhines and haplorhines (Figure 1). But this classification has changed throughout the years:




**- Strepsirrhines** have got at least three specialized features: a **long nasolacrimal duct** that makes an unusual dental tooth comb with **reduced upper incisors**, the **laterally flaring talus**, and the **grooming claw** on the second digit of their feet. Also, they posses **rhinarium** and **vibrissae** on the snout.

**- Haplorhines** are a large group of primates. They are called this way because they **don't have** neither **rhinarium** nor **vibrissae** on the snout. All of them have **uterus** with just **one chamber.**

**- Tarsiers** retain primitive characteristics such as **grooming claws** and an **unfused mandibular symphysis.** They share characteristics with Anthropoidea, such as lacking **rhinarium, partition of postorbital septum**

## PRIMATES' PHYLOGENY

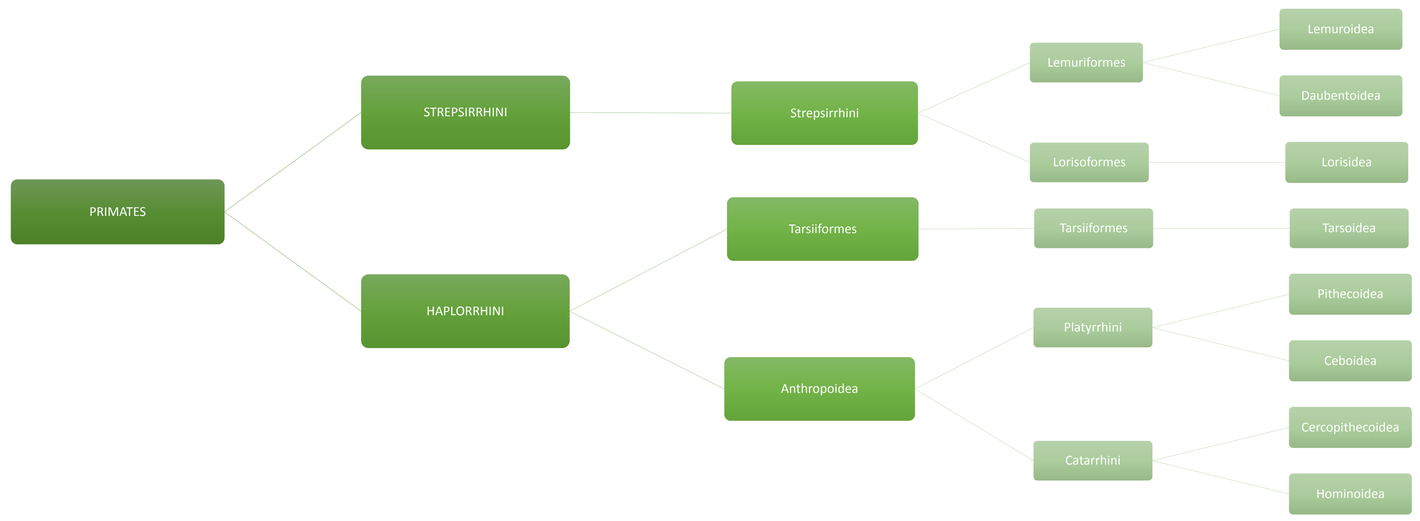



*Figure 1.* Phylogenetic tree of primate order. from Haplorhini and Strepsirrhini semiorders to families.

## OBJETIVES

- Review of the evolution of facial characters in living primates.
- Explain the evolution of the morphological adaptations of the face in primates.
- Compare strepsirrhines and haplorrhines facial planes features.

## DIVERSITY IN FACIAL PLANE FEATURES

# STREPSIRRHINI

### CRANIAL DIVERSITY

↓ DIVERSITY

### PINNAE

- Large
- Narrow
- Membranous
- Movable

**NOCTURNAL**

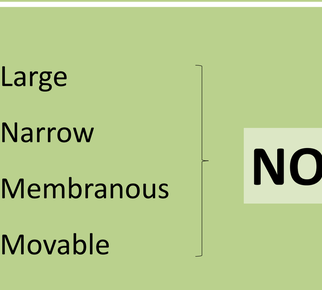
Haplorrhini outer ear have got more diversity in pinna width than in pinna height

FUNCTIONS

- Locate insect **preys**
- Approaching **predators**
- **Vocal signals** emitted by individual of their specie

### SNOUT

The skin of the face has many **primitive characteristics:**



- Discret sets of **vibrissae**
- **Rhinarium**
  - Hairless, moist patch of skin around the nostrils and occupying a portion of the lip.

### OCULAR ORBITS

Nocturnal primates have the **largest eyes** relative to skull size

Relatively **broad distance** between both orbits.

**ENHANCE VISION SENSIVITY**

### EYE MORPHOLOGY

**Large corneas** relative to eyes size

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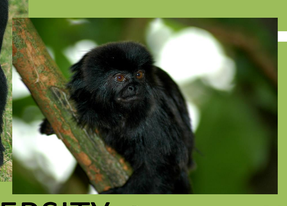
# HAPLORHINI



### CRANIAL DIVERSITY

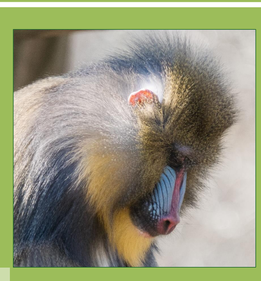
↑ DIVERSITY → Range of body sizes: 110g to 170 kg

- enhance environmental mapping
- dietary changes
- shifts in the visual system
- changes in social structure

↑ Body mass ↑ Brain size ↑ Cranial size

### PINNAE

- Small
- Slightly movable
- Hidden under fur's head
- More symmetrical



**DIURNAL**

### SNOUT

**Attenuated** snout, situated in a more **midfacial position**.

Most of haplorhines **lack facial vibrissae**, and all of them **lack facial rhinarium.**

### OCULAR ORBITS

↑Body size ↓ Orbit size ↓ Eyeball diameter

**"Forward facing"** orbits → **DIURNALITY**

**Small diurnal anthropoids** have larger eyes than similarly sized mammals, reflecting their **enhance visual acuity.**

Tarsier (Haplorrhini)

Aotus is the only **NOCTURNAL** anthropoid gender

### EYE MORPHOLOGY

ANTHROPOIDS → Small corneas → **HIGH VISUAL ACUITY**

TARSIERS → Large corneas → **SECONDARILY NOCTURNAL**