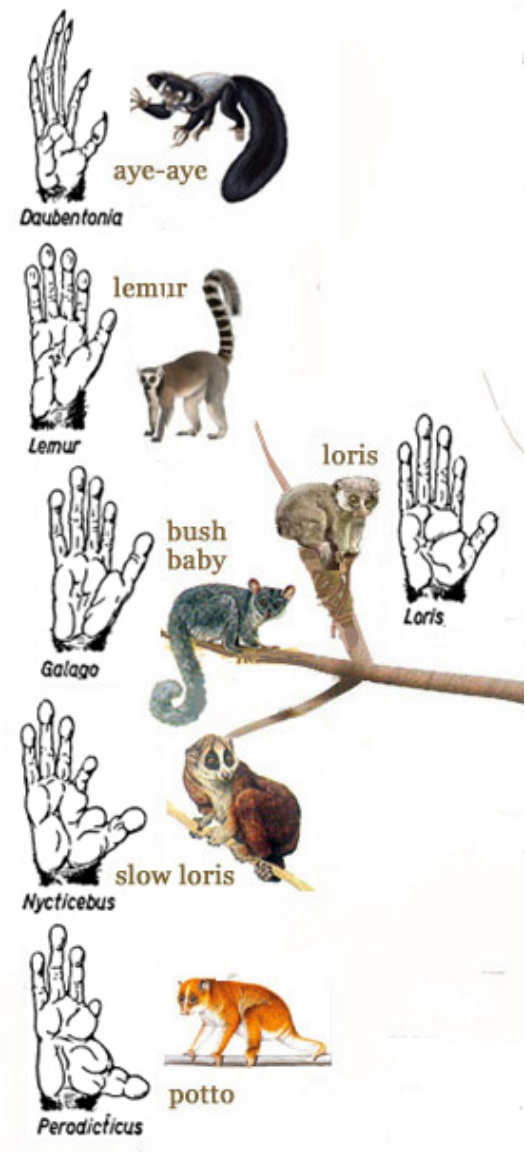
The World of Primates

From mouse lemurs to gorillas, the Primates are an extremely diverse and successful Order of mammals. There is no single feature that makes an animal a primate, but rather a suite of characteristics that together make primates unmistakable. The Primate Family Tree has many branches. Here, you'll meet some of the major taxonomic groups and the adaptations they share.



Prosimians

Not a monkey OR an ape: Prosimians are the most primitive of the primates. Primitive, means, ancestral, which in turn means that they exhibit characteristics similar to the common ancestor of the primates---a tree shrew like creature that lived during the Jurassic period. The Prosimians, or "pre-monkeys," as their name means, include animals like lemurs, lorises, and tarsiers (although the taxonomic status of this particular primate is a subject of scientific debate). The prosimians are the ancestors to monkeys and apes and they have a very different set of adaptations and way of life than the anthropoid primates.

Nocturnal and sensitive: In contrast to the diurnal (day active) monkeys and apes, prosimians are mostly nocturnal. They have large eyes and sensitive nocturnal vision, complex tactile hairs, large and independently movable ears and a strong sense of smell.

Specialized and tropical: Prosimians are usually very specialized to their environment and have a variety of social systems, but many species remain solitary to avoid the attention of nocturnal predators and to be effective predators themselves (they hunt and eat mostly insect food). They do exhibit the hallmark Primate

characteristic of grasping hands and feet, and are like monkeys and apes in this respect.

They tend to be restricted to inhabiting only tropical woodlands, although on the island of Madagascar, where all of the lemur species are found, they occupy a more diverse range of habitats, probably due to the lack of competition with other primate species there.


Bush baby


Sifaka


Indri


Loris

Prosimians have:

1. A well developed sense of smell, and a more prominent snout
2. Partial binocular vision
3. Nocturnal vision
4. Some claws
5. Developed manual dexterity
6. No social groups (except for lemurs due to independent evolution & geographic isolation on Madagascar; and tarsiers, which live in family groups)

Monkeys

The most variation: Monkeys have the most variation among the Primates and there are many kinds of monkeys. Monkeys themselves are divided into two large categories: *Old World Monkeys* and *New World Monkeys.* Old World monkeys live in Africa and Asia, and New World Monkeys live in Central and South America. The differences between these two groups is not just geographical. They also differ in their anatomy and behavior.

New World Monkeys (The Plattyrhines): These monkeys live in the neotropical forests of Central and South America. They range dramatically in size---some are quite tiny, like the 6 inch pygmy marmoset, and some are larger, like the howler monkeys who can grow up to 3 feet in length. There are two major groups of New World Monkeys. One includes the more primitive, small-bodied marmosets and tamarins (who resemble their prosimian ancestors in many features) and the larger group of monkeys which include the capuchins, owl monkeys, titi monkeys, spider monkeys, woolly monkeys, and many others.

Capuchin monkeys

Golden Tamarin

Howler monkeys

Characteristics of New World Monkeys:

1. Widely spaced, outward facing nostrils
2. Small to medium body size
3. Prehensile (grasping) tails
4. No sitting pads on their bottoms
5. No cheek pouches
6. Three premolar teeth
7. Primarily frugivorous diet
8. Primarily arboreal

Old World Monkeys (The Catarrhines): The monkeys of Africa and Asia, are known as the Old World Monkeys and make up the family *Cercopithecinae*. They differ from New World monkeys in a variety of ways: they are larger in size, exhibit more sexual dimorphism, their tails are not able to grasp, they have four fewer teeth, and their nostrils are narrow and point downward. They also occupy a more diverse range of habitats from arid savanna to tropical swamps to snowy mountains.

Old World monkeys themselves are divided into two sub-families: the more generalist cheek-pouched monkeys, or *Cercopithecines*, and the specialist leaf-eating monkeys, or *Colobines*.


Black & White Colobus


Macaque


Vervet monkey


Hanuman Langur

Characteristics of Old World Monkeys

1. Narrow, downward pointing nostrils
2. Rough patches of skin on their bottoms that form sitting pads, known as ischial callosities
3. Non-grasping tails
4. More pronounced sexual dimorphism
5. Larger body size
6. Diverse range of habitats

Ape versus Monkey

Can you tell the difference between an ape and a monkey? Many people call all primates monkeys, when in fact apes and monkeys are two kinds of animals under the classification of primate. They may look similar, but when you start to learn more about them, it becomes apparent there are many differences that distinguish an ape from a monkey.

What is the difference between monkeys and apes?

There are many differences between monkeys and apes, but here are some basics that are useful to remember. There are only a small number of types of apes, while there are over a hundred types of monkeys. The list of characteristics below focuses on apes.

1. Apes are usually larger and heavier than monkeys.
2. Apes do not have a tail.

3. Apes have a more upright body posture than monkeys, and use bipedal locomotion (upright walking) more comfortably and with greater frequency than monkeys.
4. Apes have longer arms than legs.
5. Apes have a broad chest, and different shoulder anatomy than monkeys, giving them a wider range of motion, and the ability to suspend their body from beneath a branch.
6. Apes have a larger brain to body size ratio compared with other animals.
7. Apes only live in Africa and Asia (whereas some monkeys are found in the Americas).

There are a few exceptions to these rules; for example, there are some monkeys without tails (such as some species of macaques) there are some large bodied monkeys (such as baboons or howler monkeys), and there are some small bodied apes (like the gibbons and the siamangs). Overall, the list above features general characteristics that distinguish apes and monkeys.

Apes

As you can see from the list above, humans share many features in common with apes. Technically, humans, as primates, are classified within the "Great Ape" or *Pongidae* family due to this similarity in anatomy and behavior, just as we are classified with other types of mammals due to our anatomical adaptations---all of which, are determined by genetics. From a genetic perspective then, we are most similar to the other primates in the Great Ape family. Chimpanzees are our closest genetic relatives (99% genetically identical) followed by Gorillas and finally the Orangutans, all of which are shown below. As a group, the Great Ape family (including humans) are also set apart from other apes and primates in that they are able to:

1. Make and use a variety of tools for different purposes and from different materials
2. USE language (a system of symbols)
3. Lead complex social lives
4. Solve problems


Chimpanzee

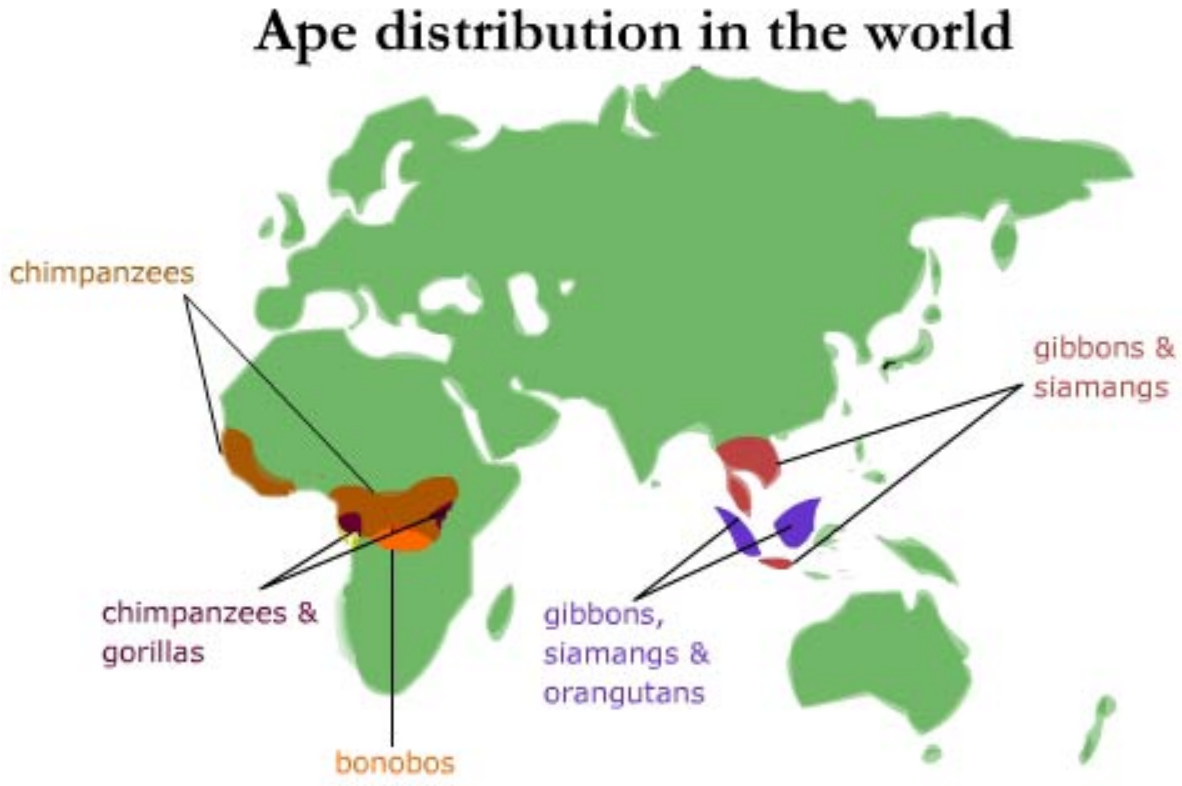

Bonobo


Gorilla


Orangutan

Small-bodied Apes

There a few other apes in addition to the great apes, and they are known as "the lesser apes" (lesser not because they are less important, but rather, because they depart from the general ape pattern that defines the majority of apes). This is the *Hylobatidae* family which consists of a variety of species of gibbons and the siamang. These apes are different both physically and socially from the great apes. They are smaller in size and move almost exclusively by brachiation. Also, unlike the complex social groups formed by chimps, bonobos and gorillas, gibbons stay in bonded pair groups with their dependent offspring. Gibbons are known for their loud whooping and wailing songs that can be heard through the forests of Southeast Asia.



The Endangered and the *Dangerous*

Sadly, a great many species of primates are critically endangered including chimpanzees, mountain gorillas, orangutans, tamarins, and many others. There are lots of factors contributing to the decline in these populations including climate change, but the most serious threat to the non-human primates is HUMAN primates!

The destruction of primate habitat from logging, farming, and development has taken a huge toll on many species. Because primates tend to be highly territorial, the loss of their homes usually translates into the loss of the animals as they can't simply move into another species' territory without fear of violence or death as the resources within that territory will be aggressively defended by the established group.

Many primate species are hunted for bushmeat, while others are poached, or taken illegally from their habitats, to sale on the black market for various purposes.

And, finally, it is precisely their genetic, anatomical and behavioral similarities that make them "ideal" candidates for biomedical research where drug experimentation, the testing of cosmetic products, and cognitive experimentation subject these beautiful, highly intelligent primates to horrendous conditions, and a life in a cage.

Clearly, humans are the most dangerous of all primates.