

All About Gorillas

A Resource for Conservation Educators

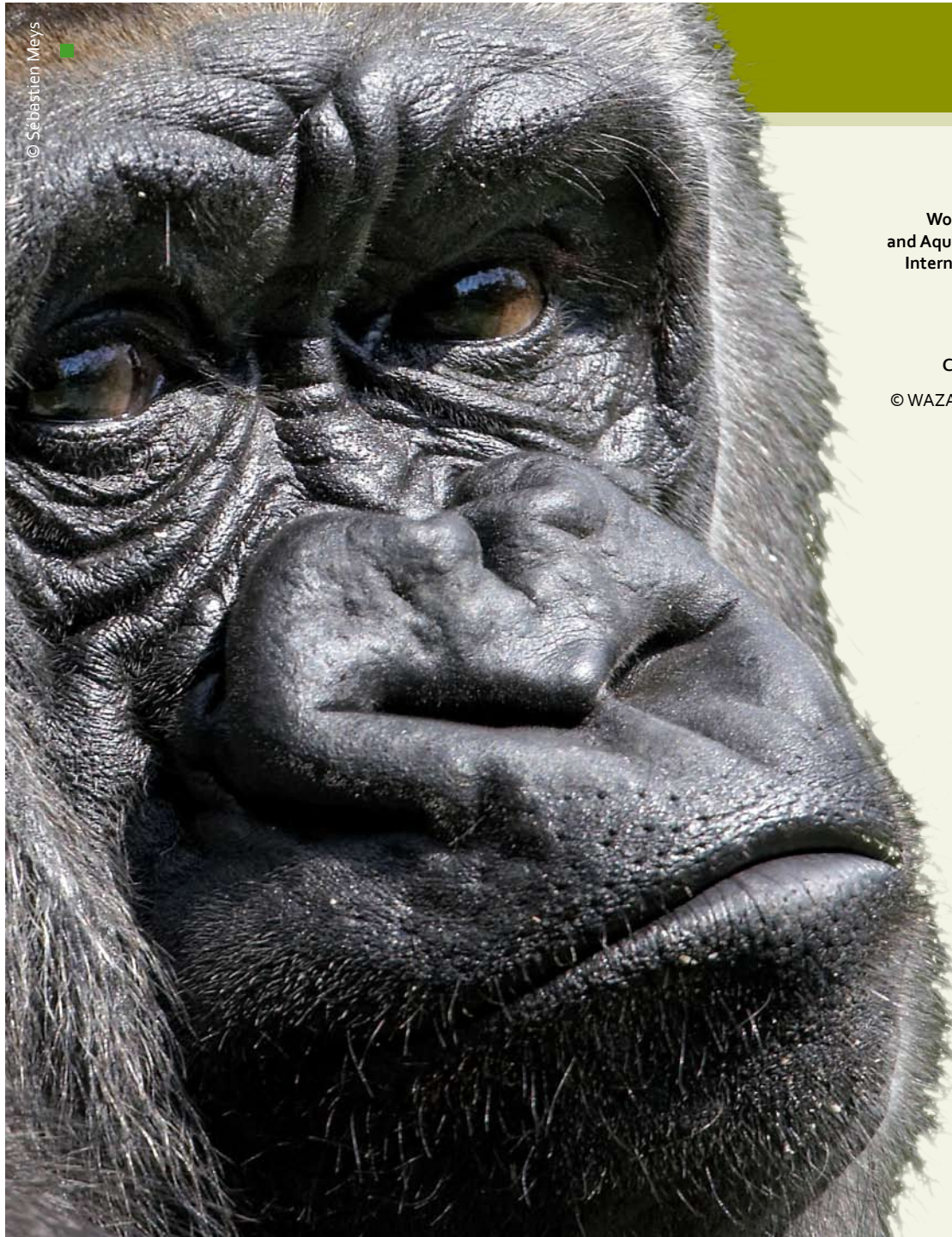


World Association of
Zoos and Aquariums
WAZA | *United for
Conservation*



International Zoo
Educators Association





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**All about Gorillas.
A Resource for
Conservation Educators**

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Authors:
Florence Perroux,
Zoo de la Palmyre, France
florence.p@zoo-palmyre.fr
Anne Sofie Meilvang,
Givskud Zoo, Denmark,
asm@givskudzoo.dk
Shasta R. Bray, Cincinnati Zoo
& Botanical Garden, USA,
Shasta.Bray@Cincinnati-zoo.org

Proof Reading:
Shasta R. Bray,
Cincinnati Zoo, USA
Bill Street, Busch Gardens, USA
Gerald Dick, WAZA, Switzerland

Coordinated by
Silvia Geser, IZE Central Office,
ize.centraloffice@izea.net

Design:
Michal Stránský, Czechia,
michal@sky.cz

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WAZA Executive Office
Lindenrain 3
3012 Bern
Switzerland

Tel +41 31 300 20 30
Fax +41 31 300 20 31
secretariat@waza.org
www.waza.org

IZE Central Office
Lindenrain 3
3012 Bern
Switzerland

Tel +41 31 300 20 35
Fax +41 31 300 20 31
ize.centraloffice@izea.net
www.izea.net

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Forewords

United for Conservation!

Nobody can save the world's biodiversity alone, and if we can, we can only achieve it together. Therefore partnerships and joint efforts are essential in order to bring together different approaches and skills. WAZA and CMS have joined forces and together support species conservation and the increase of public awareness on migratory species. It is therefore with great pleasure to present this gorilla resource manual for education and awareness purposes as a result of collaboration of many partners within the international zoo community, united under the WAZA and IZE umbrella.

This manual is a contribution to the endeavours to save all four gorilla subspecies – highlighted by the gorilla agreement under CMS and the related action plans as well as the Year of the Gorilla 2009. As one can only protect what is known, it is hoped that increasing knowledge about gorillas will in fact contribute to the survival of wild gorillas!

Gerald Dick
Executive Director,
World Association
of Zoos and Aquariums
(WAZA)



The protection of biodiversity is crucial to the well being of people and to ensuring a healthy planet for generations to come. Gorillas, the gentle giants of the forest, are one of human's closest relatives, and failure to stop their current decline would be a bad sign for the future of humankind itself.

The Year of the Gorilla and other projects for long-term gorilla protection aim to conserve not only the gorilla, but also its tropical rainforest habitat. Gorillas are the 'gardeners of the forest' and must be saved if our children are to benefit from the forests and their unique natural resources tomorrow. Through provision of a healthy climate, fresh air, clean water and many other ecosystem-services, these forests are a central pillar of a 'functioning' planet. The African range states have shown their commitment to saving the gorilla by concluding an Agreement under the auspices of the UNEP Convention on Migratory Species covering all four gorilla sub-species and adopting urgent projects to ensure their survival. Supporting them in their endeavour is a noble cause. This fun and educational publication will tell you more about gorillas, their important role and the way they live their lives. Enjoy!

Robert Hepworth
Executive Secretary, Convention
on the Conservation of Migratory
Species of Wild Animals (UNEP/CMS)





2009 Year of the Gorilla

The **Convention on Migratory Species of Wild Animals (CMS)**, also known as the **Bonn Convention**, the **UNEP/UNESCO Great Ape Survival Partnership (GRASP)**, and the **World Association of Zoos and Aquariums (WAZA)** have joined hands to declare 2009 the **Year of the Gorilla (YoG)**.

Why focus on gorillas?

Gorillas are very threatened in the wild. They suffer from habitat destruction through logging, mining, production of charcoal and expanding agriculture, from poaching and bushmeat trade, from the effects of armed conflicts, and from diseases like Ebola. Three of the four subspecies are listed as "Critically Endangered" on the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species.

According to scientists, gorillas are the third closest relatives of humans after chimpanzees and bonobos. Humans and gorillas share a common ancestor, and only 1.4% of human genes differ from those of gorillas. Letting them disappear would be a huge loss of information about the evolution of modern humans.



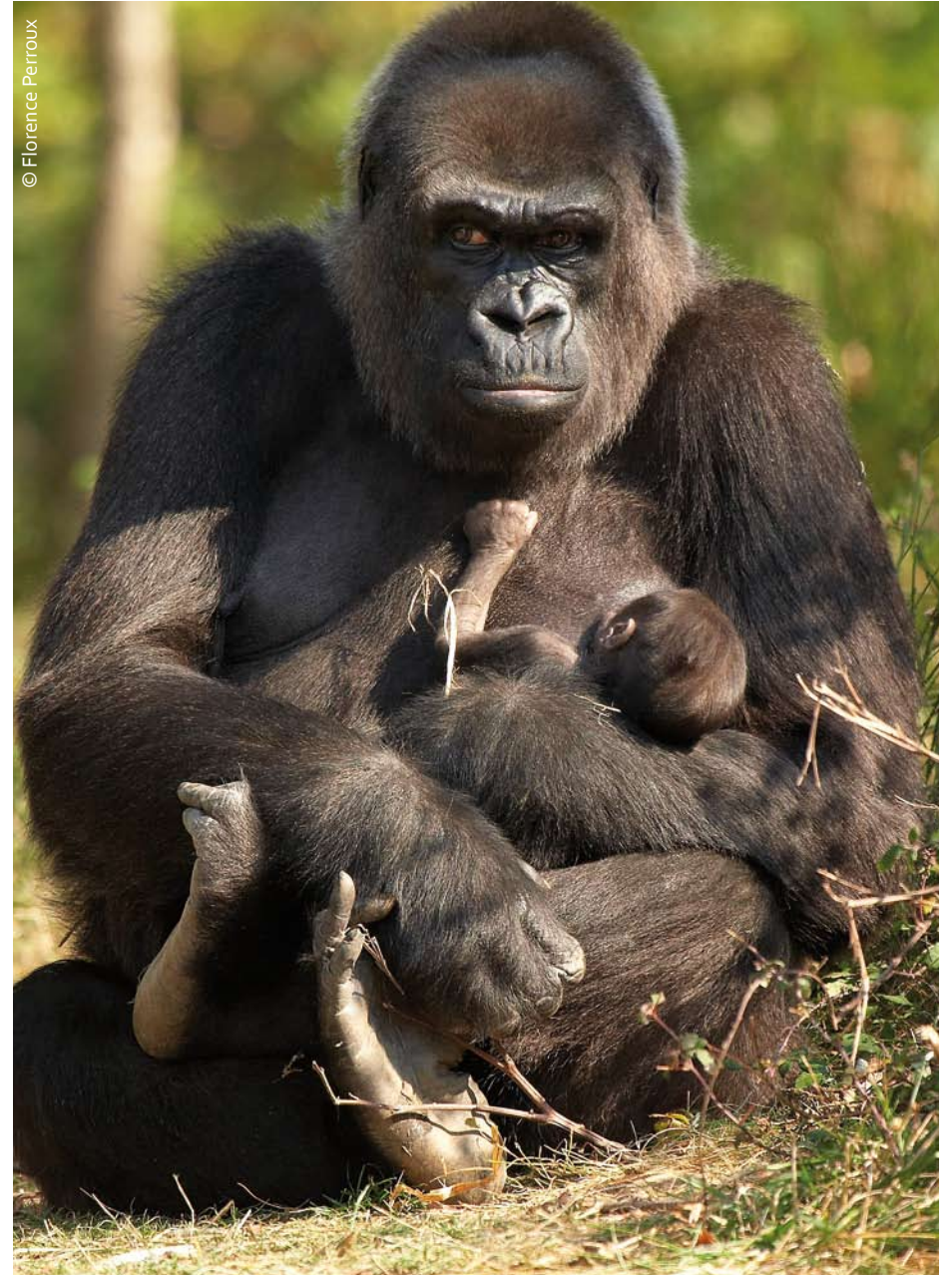
What is the purpose of a gorilla manual?

The following contents should help you to better understand gorillas and find answers to many questions about them:

- What do the different species look like?
- Where do they live?
- How many gorillas are there in the wild?
- What are their habits?
- Why are they so threatened?
- Why do they need to be protected?
- How are we conserving them?

You will also learn how you can act to help save them. Gorillas need you!

...Letting them disappear would be a huge loss for understanding the evolution of modern humans...



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Authors

Florence Perroux,
Zoo de la Palmyre, France
Anne Sofie Meilvang,
Givskud Zoo, Denmark
Shasta R. Bray, Cincinnati Zoo
& Botanical Garden, USA

Organisations

**UNEP/UNESCO Great Apes
Survival Project (GRASP):**
www.unep.org/grasp
**Dian Fossey Gorilla Fund
International:** www.gorillafund.org
Wildlife Conservation Society:
www.wcs.org
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www.zooantwerpen.be
La vallée des singes, France:
www.la-vallee-des-singes.fr

Photographers

Florence Perroux, Zoo de la Palmyre
Sébastien Meys, France
Dr. Christian R. Schmidt, Switzerland
Thomas Jermann, Zoo Basel
Arend de Haas, LWC/ACF
Aaron Nicholas, WCS
Ian Redmond, GRASP

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Gorillas need us!

What's happening?

These magnificent great apes impress people with their imposing stature and dark look.

People might think they're aggressive, but they're not! Gorillas are gentle, herbivorous giants, using intimidation tactics for only one purpose – protecting their family.

Despite their shy and quiet nature, gorillas face numerous threats throughout their range, as do many other primate species. Their numbers have dramatically collapsed during the last few decades and today they only survive thanks to international conservation programs.

Gorillas need us, including you, to be protected.

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© Aaron Nicholas, WCS

What is a Gorilla?

Difference between monkeys and apes

Monkeys and gorillas are primates. They look similar as they...

- have large brains, compared to their body size
- have binocular and color vision
- have opposable thumbs
- usually live in forests
- both eat fruits, leaves, and even sometimes insects and meat

Gorillas differ from monkeys as they...

- are larger and heavier
- do not have tails
- have more developed brains
- have a longer life span
- breed more slowly, not reaching adulthood before 10 years old for females and 15 years old for males, and having longer birth intervals (infants highly depend on their mother for several years)

Gorillas belong to the ape family. Apes are divided into...

- **lesser apes** (gibbons and siamangs in Asia)
- **great apes** (gorillas, chimpanzees, bonobos in Africa and orangutans in Borneo and Sumatra)
- **humans** (all over the world!)

Great apes are known for their outstanding intelligence, which allows them to...

- use tools (extract termites from mounds with blades of grass or sticks, open nuts with stone "hammers")
- solve problems
- recognize themselves in a mirror
- express a full range of emotions (fear, joy, love, jealousy, shame...)
- form alliances to strengthen their positions or move higher up in the hierarchy

ACTIVITY!

Read the texts below and try to connect them to the right species.

1) Who am I? With 200 kilograms (441 lb) for 1,70 m (5.6 ft) height, I am the largest of all primates. Most of my diet is composed of leaves, roots, and fruits. Every evening, I build a nest on the ground for sleeping. I defend my family from any threat by chestbeating, roaring, and sometimes by charging.

2) Who am I? I am one of the smallest primates on Earth. I don't weigh more than 600 g (1.3 lb). My tail is very long and I have strong claws. I eat fruits, leaves, and insects. I usually give birth to twins. I keep jumping from one branch to another, foraging for food and exploring my territory.

3) Who am I? I belong to the ape family. I live in large groups. I eat fruits and leaves but meat as well. During the night, I sleep in a nest built in trees and made of branches and leaves. I can be very noisy and sometimes aggressive: fights and displays are common between group members.

chimpanzee



© Silvia Geiser

gorilla



golden lion tamarin



Solution: It is easy, isn't it? No. 1) is gorilla, 2) tamarin, 3) chimpanzee.

What is a Gorilla?

Gorilla species and subspecies

Are there many gorillas in the wild and where do they live?

There are 2 different gorilla species:

- the **Western Gorilla** (*Gorilla gorilla*) of western and central Africa, and
- the **Eastern Gorilla** (*Gorilla beringei*) of Uganda, Democratic Republic of Congo, and western Rwanda.

Each species is divided into 2 subspecies.

The western gorilla includes:

- the **Western Lowland Gorilla** (*Gorilla gorilla gorilla*), and
- the **Cross River Gorilla** (*Gorilla gorilla diehli*)

The eastern gorilla includes:

- the **Eastern Lowland Gorilla** (*Gorilla beringei graueri*), and
- the **Mountain Gorilla of the Virungas** (*Gorilla beringei beringei*).

All the subspecies are endangered or critically endangered, according to the International Union for Conservation of Nature's Red list of Threatened Species.

The Western Lowland Gorillas are the most numerous with 200,000 individuals surviving in the wild.

This is the only gorilla subspecies kept in zoos, except the 2 female Eastern Lowland Gorillas kept in Antwerp zoo in Belgium.

About 250 to 280 Cross River gorillas are thought to live in the border between Nigeria and Cameroon. They are classified as one of the world's 25 most endangered primates and we know very little about their habits.

Until recent years, 17,000 Eastern Lowland Gorillas were living in the eastern part of Democratic Republic of Congo. Now there are probably less than 4,000 remaining, as many of them were killed during the civil war.

About 720 mountain gorillas inhabit the Virunga mountains. They are very well-known thanks to Dian Fossey, an American researcher who studied them in the wild for many years.

Do you know Dian Fossey's famous book *Gorillas in the Mist*? A movie about her life in the Virungas, featuring Sigourney Weaver, was made in 1989.

Cross River Gorilla
Western Lowland Gorilla
Eastern Lowland Gorilla
Mountain Gorilla

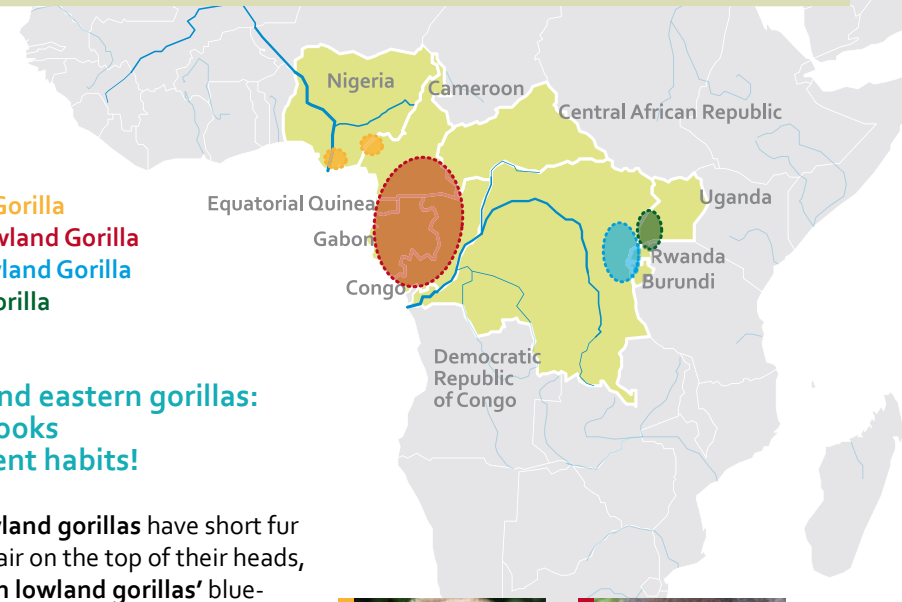
Western and eastern gorillas: different looks and different habits!

Western lowland gorillas have short fur and brown hair on the top of their heads, while **eastern lowland gorillas'** blue-black fur is silky and long.

Western Gorillas live in tropical lowland forests while **Eastern** gorillas inhabit montane rainforests. **Mountain Gorillas** can even be found at elevations as high as 4,000 meters!

Eastern Lowland Gorillas mostly eat leaves and plants, while **Western Lowland Gorillas** prefer fruits, especially during the rainy season.

They all have one thing in common: they are all threatened in the wild by forest destruction, habitat fragmentation, hunting, and diseases.



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Arend de Haas



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© Christian R. Schmidt

What is a Gorilla?

Western lowland gorilla fact sheet

Order: Primates
 Family: Hominidae
 Genus: Gorilla
 Species: *Gorilla gorilla gorilla*
 Height: male 1,75 m (5.7 ft)
 female 1,40 m (4.6 ft)
 Weight: male 180–230 kg
 (397–507 lb)
 female 70–100 kg
 (154–220 lb)
 Life span: between 30 and 40 years
 in the wild; up to 50 years
 in zoos
 Sexual maturity:
 male – 15 years
 female – 8 years
 Gestation: about 8,5 months
 Number of young: 1
 Weigh at birth: 2 kg (4.4 lb)
 Frequency of births:
 every 3 or 4 years
 Habitat: tropical forests of western
 and central Africa
 Diet: herbivorous (fruits,
 leaves, seeds),
 occasionally insects
 Threats: habitat loss and
 fragmentation (logging,
 mining, land conversion
 for agriculture and grazing
 animals), poaching for
 bushmeat or illegal pet
 trade, war and political
 unrest, diseases like ebola

Not so scary

With their imposing physical appearance, male gorillas are very impressive! People may think they're strongly aggressive, but they're not! These gentle giants are shy and quiet animals that use intimidation for only one purpose – protecting their family.

A united troop

An adult male gorilla is called a silverback because the hair on his back turns silver-grey as he matures. The silverback is the leader and the protector of his family group, which is composed of several adult females and their offspring, some juvenile males (called black backs), and juvenile females. In a threatening situation, he will beat his chest, produce shrill vocalizations, throw vegetation, and finally charge at the intruder. He also cares for the young while females forage for food.

A strange way of walking

Gorillas most often walk quadrupedally (four-footed) with limited bipedal (two-footed) movements. When moving on their four feet, they "knuckle-walk", meaning that they walk on their knuckles rather than their palms.

A bed in the forest

Gorillas are active only during the day. Each evening they build a nest by gathering branches around and under their bodies. Nests can be constructed low in the trees or at ground level. Infants sleep in their mother's nest until they are about 3 years of age but they can start practicing nest building as young as 8 months. Gorillas defecate in or next to their nest and the size of the dung can help assess the age of the animal (the larger is the dung, the older is the gorilla). Counting nests and measuring dung can therefore provide information on the number of gorillas in a troop and the age of each individual. It is a commonly used census method by researchers.

Mother and baby

Immediately after its birth, the baby gorilla is able to cling to its mother's front with a very powerful grip from both its hands and feet. During the first 6 months, the infant is in almost constant contact with his mother, suckling and sleeping in her arms. Young gorillas start exploring their environment around 3 months of age. They start eating some vegetation as well. Between 6 to 7 months, they start climbing on their mothers' backs and traveling short distances from them. Infants will be weaned around 3 years old.



© Sébastien Meys

What is a Gorilla? Gorilla identification

Fingerprints?

Noseprints!

Gorillas have unique fingerprints as do humans. When we study them in the wild, however, it is easier to distinguish them by their noses. Gorilla noses differ in shape, and you can recognise them by looking at their noses.



Mike



Yaoundé



Ybana



Bongo

© Sébastien Meys

ACTIVITY!

Who is who?

Pretend you are a gorilla researcher, studying them in the wild. See if you can match each nose to the right gorilla.

Look at the height and width of the nose and the form and the length between the nostrils. Maybe you can also find some scars and wrinkles.



Solution: Mike = 1 | Yaoundé = 2 | Ybana = 3 | Bongo = 4

Physical adaptations Powerful and well-adapted body

Shape

Gorillas have longer arms than legs. Arm muscles are bigger, which allows them to break branches and plants.

An adult gorilla's upper body strength is 6 times or more powerful than that of an adult human!

Hands and feet

Gorillas' sturdy fingers help support their body weight when knuckle-walking.

Thumb and big toe oppose other digits, enabling gorillas to grasp and manipulate objects. *Gorillas have nails and not claws!*

Head

Gorillas have massive heads with a high sagittal crest. The head supports the large temporal muscles needed to grind hard plants.

Gorillas have a protuberant forehead overhanging the eyes. This distinctive shape helps protect their eyes.

Ears

Hearing helps gorillas locate one another and detect danger.

As their visibility is restricted by rainforests, dense vegetation, hearing is very important.

Eyes

Gorillas have good eyesight, which is used for finding food and detecting movements.

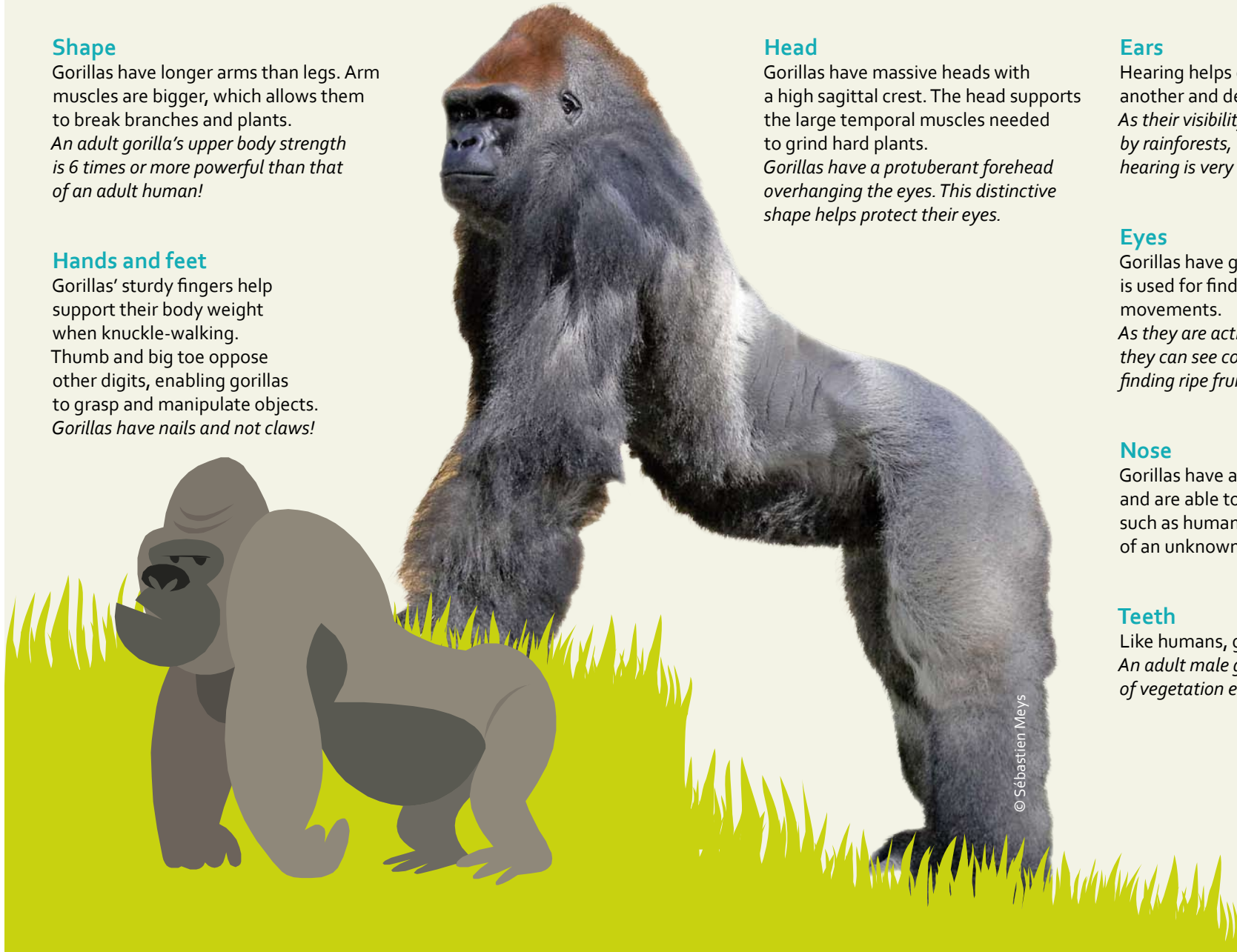
As they are active only during daytime, they can see color, which is very useful for finding ripe fruits in treetops!

Nose

Gorillas have a good sense of smell and are able to detect strong odors such as human sweat or the musk of an unknown gorilla.

Teeth

Like humans, gorillas have 32 teeth. *An adult male gorilla can eat 20 kg of vegetation each day!*



Physical adaptations

An herbivorous way of life

Gorillas are primarily plant-eaters. A wild gorilla diet consists of mainly **leaves, shoots, and fruits**. Occasionally, they eat **grubs, insects, and eggs**.

The body of a gorilla is adapted to a vegetarian life.

Gorilla's mouth

Gorillas have large teeth with sharp canines. These canines are used for defense as well as breaking tough vegetation.

They have large facial muscles for chewing tough vegetation, which are attached on top of the skull at the sagittal crest.

Their molars have complicated patterns of cusps and ridges to facilitate chewing.

Gorilla's digestive system

Gorilla's have large, round stomachs that allow them to eat and store vegetative food.

Their intestines are much longer than ours, to better break down all the fibres of the food they eat.



skull from a male and female gorilla
© Florence Perroux



© Florence Perroux

Physical adaptations Get a grip!

All primates have bodies adapted to a climbing way of life, yet their **hands and feet** have been **modified depending on their different lifestyles**.

All apes have relatively longer fingers and a smaller thumb than humans. Apes who move around in trees by swinging under branches with a hand-over-hand motion, such as siamangs, gibbons, and orangutans, have developed long, strong fingers that act like hooks for hanging and swinging. Their thumbs, however, are not well-developed, possibly because it hinders movement. In contrast, chimpanzees and gorillas, have thumbs that are well-developed and agile. They allow for a precise grasp as the thumb and fingers are opposed to each other. The hands of humans, not used any longer for climbing, have developed into perfect "grasping instruments".

Apes use hands and feet not only for moving, but for many other things. It's as if they have four hands, as their feet have long little toes and a thumb-like agile big toe. This big toe is much shorter than the other toes, and can actively grasp things. In humans, the feet have lost their ability to grasp in adaptation to a walking upright manner. Our feet are well-adapted to bear the whole body weight whereas in other apes the body weight is borne by all four limbs.

Ape species

Gibbons and siamangs: Long arms, slender long hands, a light, slender body, smallest and most arboreal of the apes, spending most of its time in trees.

Orangutan: Long arms, slender long hands, heavier body than gibbons, males are quite big and heavy, and spend more time on the ground, especially when moving from tree to tree.

Chimpanzees: Live in forests and savannahs, spend a lot of time on the ground, use tools to get food.

Bonobos: Similar to chimpanzees, but smaller.

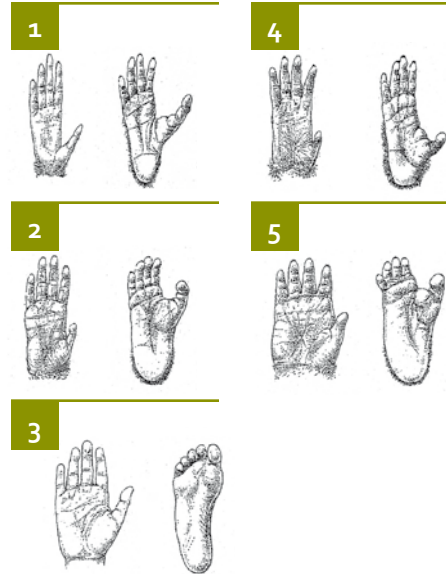
Gorillas: stout and muscular body, live on the ground, use tools to get food.

Humans: you know what we look like and how we move...

ACTIVITY!

Who is who?

Which of the following hands and feet belong to the **gibbon, orangutan, chimpanzee, gorilla, and human**? How are their hands and feet adapted to their lifestyles?



1.
2.
3.
4.
5.

Thumbs Up!

Thanks to opposable thumbs, primates can grasp objects better than other animals, which allows them to easily perform tasks that would be hard or impossible otherwise. What would your life be like without an opposable thumb?

- Try writing your name or drawing a picture without using your thumb.
- How about buttoning your shirt or tying your shoes?
- What else would be tough to do without thumbs?

Solution: 1 = gibbon | 2 = chimpanzee | 3 = human | 4 = orangutan | 5 = gorilla
 by courtesy of Zoo Zürich, Switzerland

Gorilla family

A strong family unit

Gorillas live in family groups. Group size can vary from 2 to 25 members. The average group number is 9 individuals. The gorilla group has a home range between 4 and 25 km². The group is very important for the gorillas. Meet the various group members here:

The boss

There is only one adult male in the group. He is the leader and is called the **silverback**.

The silverback has exclusive breeding rights to the females and is the father of all the youngsters in the group. It is his duty to protect the group and to decide where and when to move next.

The harem

There are several **adult females** in the family. The females follow the silverback and care for the young by grooming, feeding, and carrying them. The harem's support for the silverback is crucial for his enduring reign, as solitary males sometimes challenge the existing order.

The youngsters

Gorilla **infants** are very small and fragile when they are born. They only weigh about 2 kg! The **young** gorillas stay close to their mother for about 5 years. The youngsters spend a great deal of the day **playing**. They play with each other to learn how to be a gorilla. The **young females** leave their natal group when they become sexually mature.

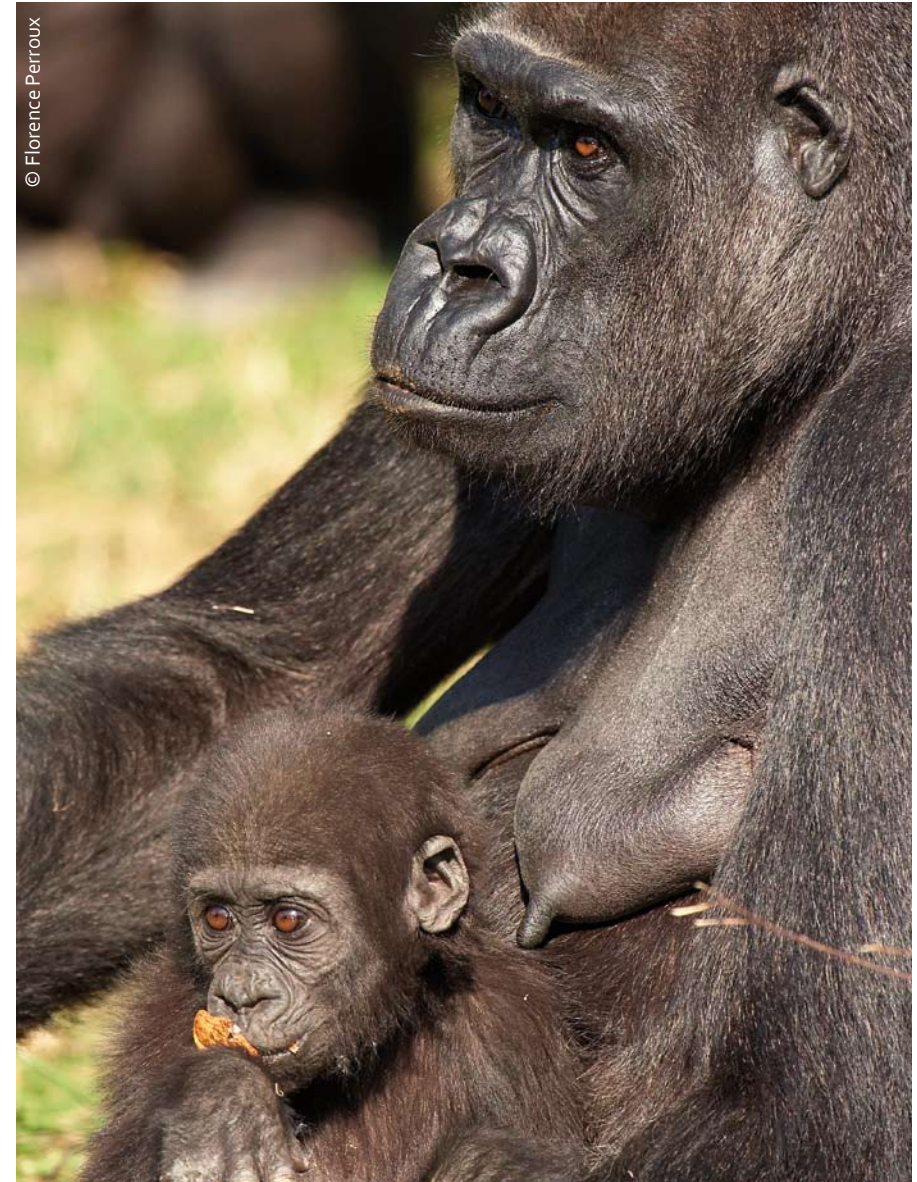
The blackbacks

Young gorilla males are called **blackbacks**. Blackbacks are offspring of the silverback. They will stay in the group until they mature at around 10 years. At that time, they will leave the group. They will then either stay alone for a while or in a **multimales** group before getting their first females and creating their own family.

Helping each other

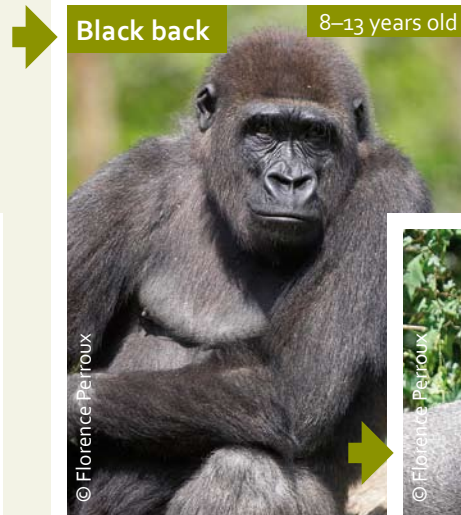
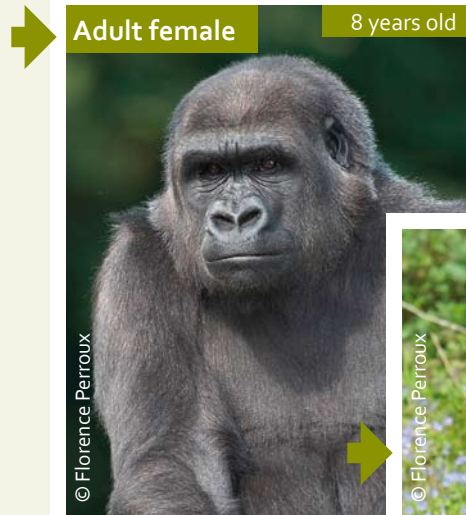
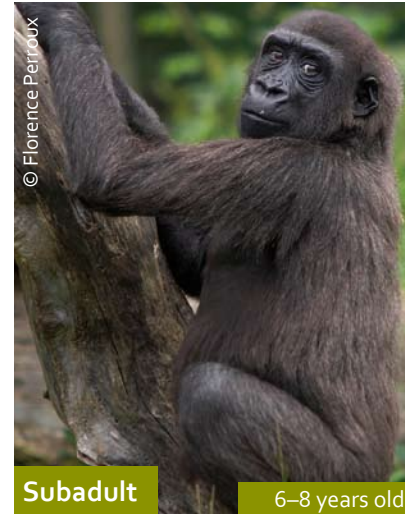
The group members **help** each other. They warn each other if there is any danger around. Female gorillas with infants get help from other females. The silverback **protects** and takes care of the youngsters.

Life is not only **safer** for the gorillas if they live in a group, it also gives them **company** and **playmates**.



© Florence Perroux

Gorilla family From birth till adolescence



Gorilla family Do gorillas have friends?



Be a behavior scientist and study gorillas in the zoo!

People are a social bunch, and spend a lot of time around other people. Do you think gorillas like to hang out with each other, too?

Let's make a prediction!

Do you think that gorillas spend most of their time alone or with other gorillas?

Time to find out!

Pick a gorilla to observe for 15 minutes. Every minute, record whether the gorilla is within one gorilla arm's length of another gorilla or not.

min.	Within one gorilla's arm length of another gorilla	More than one gorilla's arm length away from any other gorilla
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

What did you find?

How many times was the gorilla near another gorilla? ⋮.....

Divide that number by 15 (the total number of minutes of the observation period) and multiply it by 100 to calculate the percentage of time the gorilla spent with another gorilla.

⋮.....

How many times was the gorilla alone? ⋮.....

Divide that number by 15 (the total number of minutes of the observation period) and multiply it by 100 to calculate the percentage of time the gorilla spent alone.

⋮.....

Did the gorilla spend more time hanging out with a friend or alone?

⋮.....

Is that what you thought would happen?

⋮.....

Why do you think gorillas are like that?

⋮.....

What other questions about the gorillas could you investigate?

⋮.....

Gorilla behavior Very busy day!

ZOO-ACTIVITY!

How does a gorilla spend its time?

In the wild, gorillas wake up at sunset and start eating.

They spend approximately half the day slowly eating on their way through the rainforest. They rarely drink water as their herbivorous diet contains plenty of water.

The group moves about 400–1,000 meters per day.

At midday, gorillas build a nest and take a rest. During this rest-period the young gorillas play with each other.

After the rest, feeding and foraging activities resume.

Gorillas spend about 14 hours feeding and foraging, and about 10 hours resting every day.



At the end of the day, gorillas build sleeping nests on the ground or in the trees for the night. A new nest is built each night, because they travel to different locations during the foraging. The daily construction of new nests also helps prevent parasites that may nest in the bedding.

The nest is made from branches and material from other plants. A mother and her infant will stay in the same nest.

In order to make their daily activity cycle as true as that of the gorillas in the wild, zoos often hop the gorillas, food into small pieces and put them in many different places throughout the enclosure. That is called activity feeding!

You as a gorilla?

How do you spend your day? Are you as busy as gorillas?

Time	Activity
8 am	
10 am	
12 pm	
2 pm	
4 pm	
6 pm	
8 pm	
10 pm	

Compare your life to a gorilla. How many minutes do you spend eating every day?

⋮
.....

Pretend you are a sleepy gorilla: Build your own nest from some tree-branches!

Gorilla behavior

Where do the gorillas hang out?

ZOO-ACTIVITY!

Where's your favorite place at home to hang out? Under a tree? On the couch? At the kitchen table? In your bedroom? Do you think the gorillas have a favorite spot in their exhibit?

Let's Make a Prediction!

Where do you think the gorillas like to hang out? Do they like to be in open areas or near a wall or other structure? Do they like to be on the ground or up high on top of a rock or other structure? Do they like to be near the front of the exhibit or prefer to hang out in the back? What are your predictions?

Time to Find Out!

Choose a gorilla to observe for 15 minutes. Every 60 seconds, mark the boxes that describe where it is hanging out.

min.	In open area	Near wall or structure	On the ground	On top of a structure	At front of exhibit	At back of exhibit
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

What did you find?

How many times was the gorilla:

In open area?

Near wall or structure?

On the ground?

On top of a structure?

At front of exhibit?

At back of exhibit?

Did the gorilla spend more time in open area or near wall or structure?

Did the gorilla spend more time on the ground or on top of a structure?

Did the gorilla spend more time at the front or the back of the exhibit?

Is that what you thought would happen?
.....

Why do you think the gorilla prefers to spend its time in those locations?
.....

What other preferences might the gorillas have?
.....

Gorilla behavior

Gorillas are very busy

ACTIVITY!

What are they doing?

Match the the following behavior to each drawing.
playing | chest beating | eating | caring for baby | sleeping | resting |
knuckle-walking | climbing | grooming



.....



.....



.....



.....



.....



.....



.....



.....



.....

Gorilla behavior

Gorilla communication

An amazing resonance chamber!

Gorillas can employ various sounds to communicate between them: soft grunts, purrs, rumbles, coughs, barks, grumbles, chest beats, and so on. Each sound means something special. Thanks to an impressive chest, which sounds like a drum, silverbacks can produce very loud and strange noises. However, gorillas generally are very quiet animals, unlike chimpanzees.

I'm happy!

How does a gorilla express his contentment (often when eating a favorite food)? He **purrs** almost like a cat!

I am in a bad mood!

When a gorilla is upset, he might **cough** or **bark**. It sounds like a human warning another by saying "uh, uh, ahhh!"

I'm afraid!

Gorillas can give **high-pitched yells**. This means that they might be angry, frightened by something, or suffering from pain. Baby gorillas may **scream** or **whimper** if left alone by their mother or if they're feeling scared.

Let's play!

A gorilla can **laugh** when playing. The noise sounds like a soft human "hah-hah-hah", with a quick intake of air blowing in and out – almost like very fast breathing instead of laughing!

Watch out!

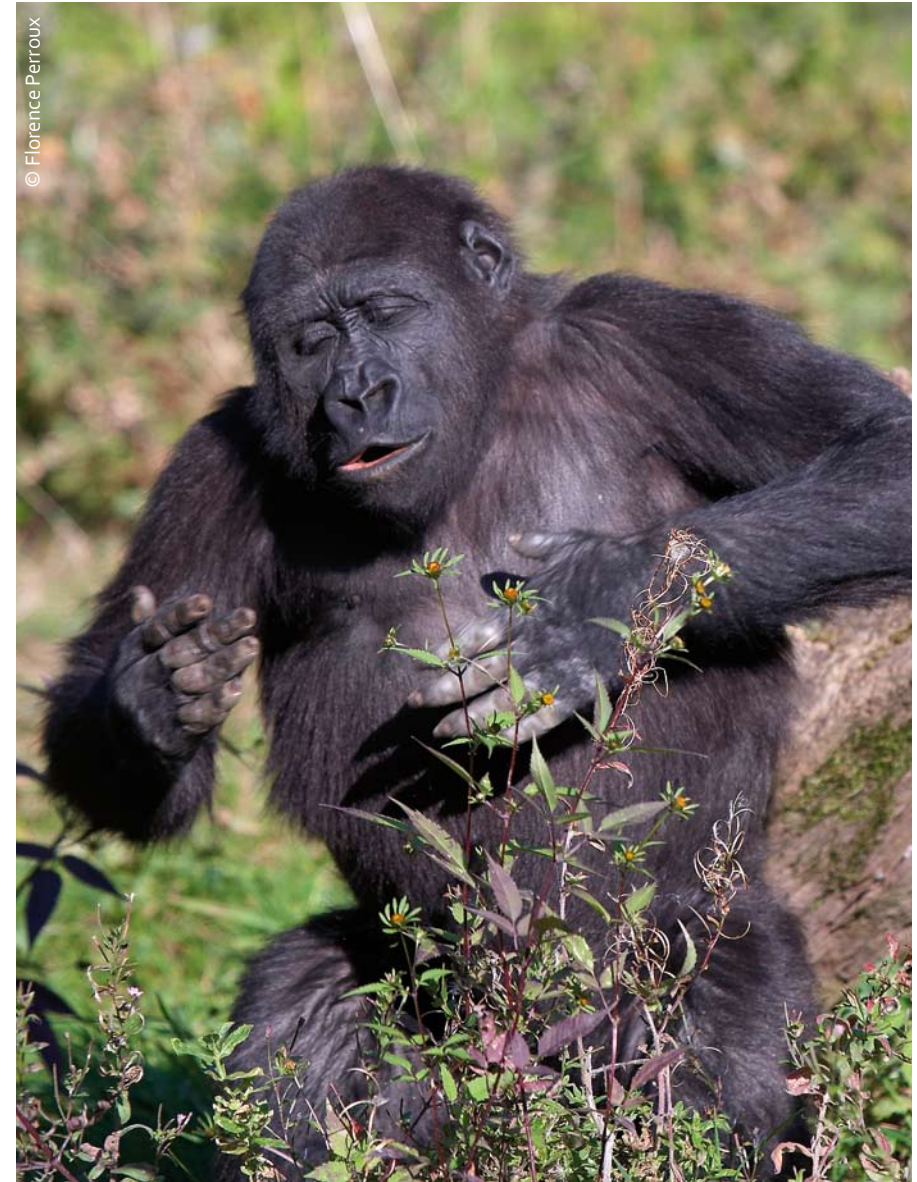
Chest beats have several meanings. From a gorilla feeling good on a sunny day, to a gorilla intimidating, to a gorilla warning someone that he's there and watching. Baby gorillas learn to beat their chests and juveniles often chest beat when they play.

Gorillas also have very expressive faces and postures

Friendly wrestle or chase often result in a **wide-open mouth or smile**, indicating that the gorilla is playing, not fighting!

A gorilla **lying flat** in front of a silverback is that he's adopting a submissive position.

Pursed lips and **standing upright** indicate tension and annoyance.



© Florence Perroux

Gorilla behavior

Face It!

Gorillas, like people, use facial expressions to communicate with each other. Take turns making faces that express an emotion and try to guess which emotion that is with your friends.

Some emotions you could try to express might be: happy, sad, angry, surprised, or confused.

Describe your experiences here:

ACTIVITY!



Gorilla conservation

Man is gorilla's worst enemy

© Sébastien Meys



Gorilla for dinner

One of the major threats to wild gorillas is poaching for their meat and body parts. Meat from gorillas and other wildlife is called bushmeat (It is translated from french term for meat from wild-life – “viande de brousse”). Gorilla meat is considered a delicacy. Skulls and other gorilla body parts are sold as souvenirs or used as amulets.

Did you know?

When the adult gorillas are killed by poachers, the young gorillas are often sold as pets.

No forest – No gorillas

Another problem for the gorilla is the destruction of the forest through deforestation, fire, or mining. The forest is disturbed by logging companies harvesting timber and it is modified for agriculture purposes. This causes habitat loss and fragmentation. Fragmented habitats limit breeding opportunities, reduce food resources, and increase human conflicts with wildlife.

Did you know?

There are only about 720 mountain gorillas left in the wild.

Too close to humans

A further threat facing the gorillas is diseases-due to the close contact with humans. Many diseases that infect humans may also infect other primates. Many gorillas have died of Ebola virus transferred by humans.

Did you know?

Gorillas and humans are so closely related, that they can infect each other with diseases.

Loss of limb or life

Snares set for other animals are also a danger for gorillas. Their hands or feet can be caught in the loop, which can cause the loss of a limb or the life of the gorilla.

Living in a war zone

Unfortunately, the gorillas' forested home also provides retreats for armed factions during time of war and political unrest. This adversely affects gorillas and other animal populations by reducing the number of areas they may safely inhabit.

Few natural enemies

Gorillas have few enemies. The only natural ones being humans and very rarely leopards.

ACTIVITY!

YES or NO?

Coltan Mining

An area of forest is being destroyed by mining for coltan and diamonds. Coltan ore is the source of tantalum – an essential coating for components of cell phones. Money from coltan and diamond mining helps finance the civil war in the Democratic Republic of Congo (DRC).

Can the gorillas survive in this area?

.....

Logging for timber

A logging company has clear cut an area for its hardwood trees and sold them to buyers outside the country.

Can the gorillas remain here?

.....

Agriculture

An area has been converted to fields to grow food for the local community.

Will the gorillas need to find a new home somewhere else?

.....

Conservation Actions

An area of forest has been saved from destruction by conservation organizations working with the local community to develop sustainable honey farms outside park boundaries. This project serves as an important source of income and prevents the need to burn down trees to harvest honey from hives.

Can the gorillas stay in this area?

.....

War and Political Unrest

An area has been involved in civil unrest for several years. This has resulted in direct damage to the forest as well as the poaching of many animal, including gorillas, for bushmeat.

Can this forest continue to provide safe homes for gorillas?

.....



Logging camp, northern Congo

Gorilla conservation

Saving the gorilla

How are we saving gorillas

- Gorillas are legally protected in countries where they live.
- An international treaty called CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna) regulates trade in threatened species, including gorillas. Gorillas are listed in Appendix 1, which strictly prohibits their trade.
- The International Union for Conservation of Nature (IUCN) is an international organization that supports the conservation of wild living resources. The IUCN Red List has classified all subspecies of gorillas as endangered or critically endangered.
- Ecotourism helps protecting wild gorillas thanks to the money brought by tourists who visit the animals in national parks. Money is used for monitoring gorillas, paying park guards, establishing education programs, building schools and clinics, and more.

How can you help?

Join a gorilla protection organization!

Spread the word – tell your friends about the need for gorilla conservation!

Recycle and/or reuse wood products, including paper, to help save trees and forested environments.

Also recycle electronics to reduce mining for coltan, a metallic ore used in cell phones and laptops. Mining is a great threat to the gorilla's habitat!

Avoid buying furniture and floors made of wood from the rainforest.

Support companies that use certified wood, indicated by the Forest Stewardship Council's logo!
www.fsc.org



Gorilla conservation

Protecting gorillas by recycling cell phones!

What a strange idea!

Can I really help protect gorillas by recycling my cell phone?

Cell phone technology uses columbite-tantalite ore, also called coltan. Once refined, coltan becomes metallic tantalum, a heat resistant powder that can hold a high electrical charge. These properties make it a vital element in creating capacitors, the electronic elements that control flow inside miniature circuit boards. Tantalum capacitors are used in almost all cell phones, laptops, pagers, and other electronic devices.

Coltan is mainly found in the rainforests of central Africa where gorillas and many other endangered animals live. The mining, often illegal, destroys wildlife habitats and widely contributes to the decline in gorillas populations, as bands of natives mining this ore also hunt animals for food. Money from coltan and diamond mining also helps to finance civil wars in Africa.

That is why reducing the demand for coltan should help save gorillas and their habitat.

How can you help?

Recycle your cell phone by:

- donating it to the zoo next to your home, or
- returning it to a store that is obligated to take them back.

Another solution is to **keep your cell phone as long as possible!** The less you change it, the less coltan is needed!



Gorilla conservation

Start a Cell Phone Recycling program



photo by courtesy of Cincinnati Zoo & Botanical Garden, USA

Michelle Rodenberg and Melissa Antons, two science teachers at **St. Bartholomew Consolidated School (SBCS)**, heard about the cell phone recycling program at the Cincinnati Zoo from a colleague. Both teachers were also advisors to Student Council. The science teachers encouraged Student Council to initiate a campaign to recycle cell phones, cell phone batteries, and chargers. SBCS's Student Council made a commitment to support the zoo's effort. Student Council also hopes to raise awareness about the importance of protecting gorilla habitat through the recycling effort.

A flier was sent to everyone in the school community explaining the importance of recycling cell phones and the impact recycling can have on preserving gorilla habitat. A cell phone collection box was placed in the school foyer. SBCS's mission is to educate, recycle, and preserve habitat.

www.eco-cell.com

- *"I put my old cell phone in the box so the materials did not go to waste in sitting in my closet or landfill."*
Megan Williams, 8th grade
- *"I personally have not donated a cell phone to this program, but I think it is a great way for our school to Go Green!"*
Alex Lohmann, 8th grade
- *"I think it is great that our school is getting involved in the world community by trying to save the habitat of endangered species by recycling our old cell phones."*
Sarah Pierce



Gorilla conservation

No one loved gorillas more...

You cannot talk about gorilla-research without mentioning Dian Fossey.

Dian Fossey was an American zoologist, who devoted her life to protecting and studying the mountain gorillas of Africa.

Her work has been very important to our understanding and knowledge of gorillas.

She visited Africa for the first time in 1963, and returned in 1966 where she began a long time study of the mountain gorillas in Democratic Republic of Congo and Rwanda.

In 1977, Dian established the Karisoke Research Center in the Virunga Mountains.

When Dian's favorite gorilla, Digit, was killed by poachers in 1978, she created The Digit Fund to raise money for anti-poaching patrols. The fund still exists today, but is renamed The Dian Fossey Fund International.

Dian was murdered by an unknown attacker in her cabin at the Karisoke Research Center in 1985. The killer was never found, but many people believe that she was killed by poachers.

Dian is buried next to Digit and on her gravestone is written: "No one loved gorillas more..."



© Dian Fossey Gorilla Fund International

Dian evolved a very close relationship to the gorillas. She learned to imitate their vocalizations and behavior, and thereby gained their trust.

Did you know?

Dian Fossey's life was portrayed in a movie called **Gorillas in the Mist – the Story of Dian Fossey**.

Gorilla conservation

Ape Awareness Days

Ideas to inspire you

Have an **Ape Awareness Days** event at your zoo. Here are some ideas:

- Schedule special keeper talks and ape enrichment activities.
- Let visitors help create enrichment items, for example, filling puzzle feeders or making paper mache piñatas.
- Use biofacts, such as gorilla hand and foot casts, to interpret.
- Hold a cell phone recycling campaign.
- Write gorilla-grams to send to politicians in support of gorilla conservation.



© Thomas Jermann, Zoo Basel

APE AWARENESS DAY!

Games

1.

Which of these primates doesn't belong to the ape family?

- gorilla
- siamang
- orangutan
- macaque
- chimpanzee
- bonobo
- gibbon

macaque

2.

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
14	15	16	17	18	19	20	21	22	23	24	25	26

Replace each number by the corresponding letter and find the secret words that will give you information about gorillas!

- A gorilla is the 12|1|18|7|5|19|20 of all primates.
- A gorilla is a 8|5|18|2|9|22|15|18|5.
- The dominant male is called the 19|9|12|22|5|18|2|1|3|11.
- Gorillas live in 1|6|18|9|3|1.

A gorilla is the LARGEST of all primates.
A gorilla is a HERBIVORE.
The dominant male is called the SILVERBACK.
Gorillas live in AFRICA.

3.

Find eight primate names that are hidden in the grid.

C	H	I	M	P	A	N	Z	E	E
O	R	U	P	B	O	I	F	J	X
L	G	K	H	Q	N	R	U	T	S
O	O	R	A	N	G	U	T	A	N
B	R	C	S	D	X	M	V	M	E
U	I	U	I	J	E	T	N	A	W
S	L	E	M	U	R	M	Q	R	B
Z	L	H	O	Z	F	S	A	I	L
M	A	C	A	Q	U	E	B	N	A
U	F	X	V	B	A	B	O	O	N

chimpanzee | orangutan | lemur | macaque
baboon | colobus | gorilla | tamarin

Games

4.

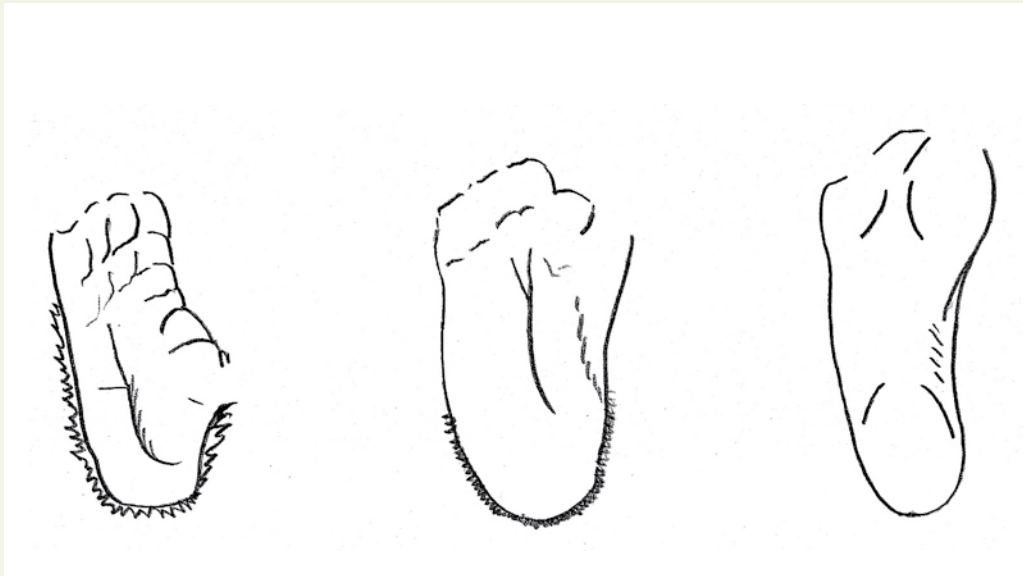
Connect the dots in numerical order to reveal the picture.



Do you need help? Find solution on page 33.

5.

Draw in the missing toes!



Orangutan

Gorilla

Human

Do you need help? Find solution on page 33.

by courtesy of Zoo Zürich, Switzerland

Resources and Reference List

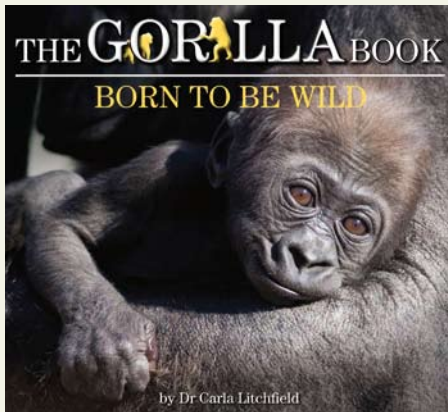
Zoos exhibiting gorillas that provided information for the manual:

In North America

- Bronx Zoo, USA: www.bronxzoo.com
- Denver Zoo, USA: www.denverzoo.org
- Atlanta Zoo, USA: www.zooatlanta.org
- Cincinnati Zoo & Botanical Garden, USA: www.cincinnati-zoo.org

In Europe

- Givskud Zoo, Denmark: www.givskudzoo.dk
- La Palmyre Zoo, France: www.zoo-palmyre.fr
- Loro Parque (Canary Islands), Spain: www.loroparque.com
- Rotterdam Zoo, The Netherlands: www.rotterdamzoo.nl
- Zoo Zürich, Switzerland: www.zoo.ch



Year of the Gorilla

- Year of the Gorilla: www.yog2009.org
- Convention on Migratory Species: www.cms.int
- Great Apes Survival Project (GRASP): www.unep.org/GRASP

Books

- Dian Fossey, **Gorillas in the Mist**. ISBN: 978-0618083602
- George B. Schaller, **The Year of the Gorilla**. ISBN: 9780226736488
- Dr. Carla Litchfield, **The Gorilla Book: Born To Be Wild**, ISBN: 978-1-74203-088-3
- Martin Harvey & Letitia Farris-Tous-saint: **Gorillas – the Gentle Giants**. ISBN 978-1-901268-35-5

About gorillas

- Berggorilla: www.berggorilla.org/english/frame.html
- Animal Diversity Web: <http://animaldiversity.ummz.umich.edu/site/index.html>
- The Gorilla Foundation: www.koko.org/kidsclub
- Gorilla Haven: www.gorilla-haven.org

Zoo associations

- World Association of Zoos and Aquariums: www.waza.org
- International Zoo Educators Association: www.izea.net
- European Association of Zoos and Aquaria: www.eaza.net
- Association of Zoos and Aquariums (United States): www.aza.org

Conservation

- The Gorilla Organization: www.gorillas.org
- The Bwindi-impenetrable Great Ape Project: www.rcf.usc.edu/~stanford/bigape.html
- IUCN Red List: www.iucnredlist.org
- The IUCN Primate Specialist Group: www.primates-g.org
- Wildlife Conservation Society (WCS): www.wcs.org
- WCS Congo: www.wcs-congo.org
- Pan African Sanctuary Alliance: www.pasaprimates.org
- Jane Goodall Institute: www.janegoodall.org
- World Wide Fund For Nature (WWF): www.panda.org

Bushmeat

- Bushmeat Crisis Task Force: www.bushmeat.org/portal/server.pt
www.bushmeat-campaign.net
www.bushmeat-kampagne.de

Pictures

- Arkive: www.arkive.org

Mountain Gorillas

- The Dian Fossey Gorilla Fund: www.gorillafund.org
- The Mountain Gorilla Veterinary Project: www.mgvp.org
- International Gorilla Conservation Programme: www.mountaingorillas.org
- Mountain Gorilla Conservation Fund: www.saveagorilla.org
- World Wildlife Fund (WWF): www.worldwildlife.org/species/finder/mountaingorilla/mountaingorillas.html

Great apes

- Great Ape Project: www.greatapeproject.org
- Ape Alliance: www.4apes.com

Participating Zoos in the 2009 Year of the Gorilla

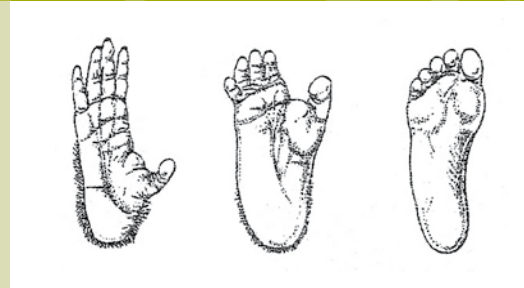
	Country	Institution
1	Austria	Zoo Schmiding
2	Australia	Royal Melbourne Zoological Gardens, Parkville
3	Australia	Zoological Parks Board of NSW, Taronga Zoo
4	Belgium	Royal Zoological Society of Antwerp
5	Brazil	Belo Horizonte Zoo, Minas Gerais
6	Cameroon	Limbe Wildlife Centre
7	Canada	Calgary Zoo
8	Canada	Toronto Zoo, Scarborough
9	Canada	Granby Zoo
10	Switzerland	Zoo Basel
11	Switzerland	Zoo Zürich
12	China	Beijing Zoo
13	China	Shanghai Zoo
14	Czech Republic	Zoological Garden Dvůr Králové nad Labem
15	Czech Republic	Zoological Garden Prague
16	Czech Republic	Zoo & Chateau Zlín-Lešná
17	Germany	Zoo Duisburg
18	Germany	Zoo Frankfurt
19	Germany	Zoo Hannover
20	Germany	Tiergarten Heidelberg
21	Germany	Zoologischer Garten Köln
22	Germany	Zoo Leipzig
23	Germany	Allwetterzoo Münster
24	Germany	Tiergarten Nürnberg
25	Germany	Wilhelma Zool-Bot Garten, Stuttgart
26	Germany	Zoologischer Garten Wuppertal
27	Germany	Zoo Rostock

	Country	Institution
28	Germany	Zoologischer Garten Berlin
29	Germany	Münchener Tierpark Hellabrunn
30	Germany	Zoologischer Garten Saarbrücken
31	Denmark	Givskud Zoo
32	France	Zooparc de Beauval
33	France	Parc Zoologique de la Palmyre
34	France	La vallée des singes
35	France	Touroparc en Beaujoulais
36	Hungary	Budapest Zoo & Botanical Garden
37	Indonesia	The Schmutzer Primate Centre, Ragunan Zoo, Jakarta
38	India	Mysore Zoo, Karnataka
39	Ireland	Zool Soc of Ireland, Dublin Zoo
40	Israel	Zoological center Tel-Aviv-Ramat-Gan
41	Japan	Fukuoka Zoo, Chuo-ku
42	Japan	Hamamatsu Municipal Zoo, Shizuoka
43	Japan	Hitachi Kamine Zoo, Ibaraki
44	Japan	Kobe Oji Zoo, Hyogo
45	Japan	Kyoto Municipal Zoo, Sakyo-ku
46	Japan	Nagoya Higashiyama Zoo, Chikusa-ku
47	Japan	Ueno Zoo, Taito-Ku, Tokyo
48	Japan	Chiba Zoo, Wakaba-ku
49	South Korea	Seoul Grand Park Zoo
50	Mexico	Chapultepec Zoo, Mexico City
51	Mexico	Guadalajara Zoo, Jalisco
52	The Netherlands	Artis, Royal Zoo Amsterdam
53	The Netherlands	Apenheul Primate Park
54	The Netherlands	Stichting Koninklijke Rotterdamse Diergaarde

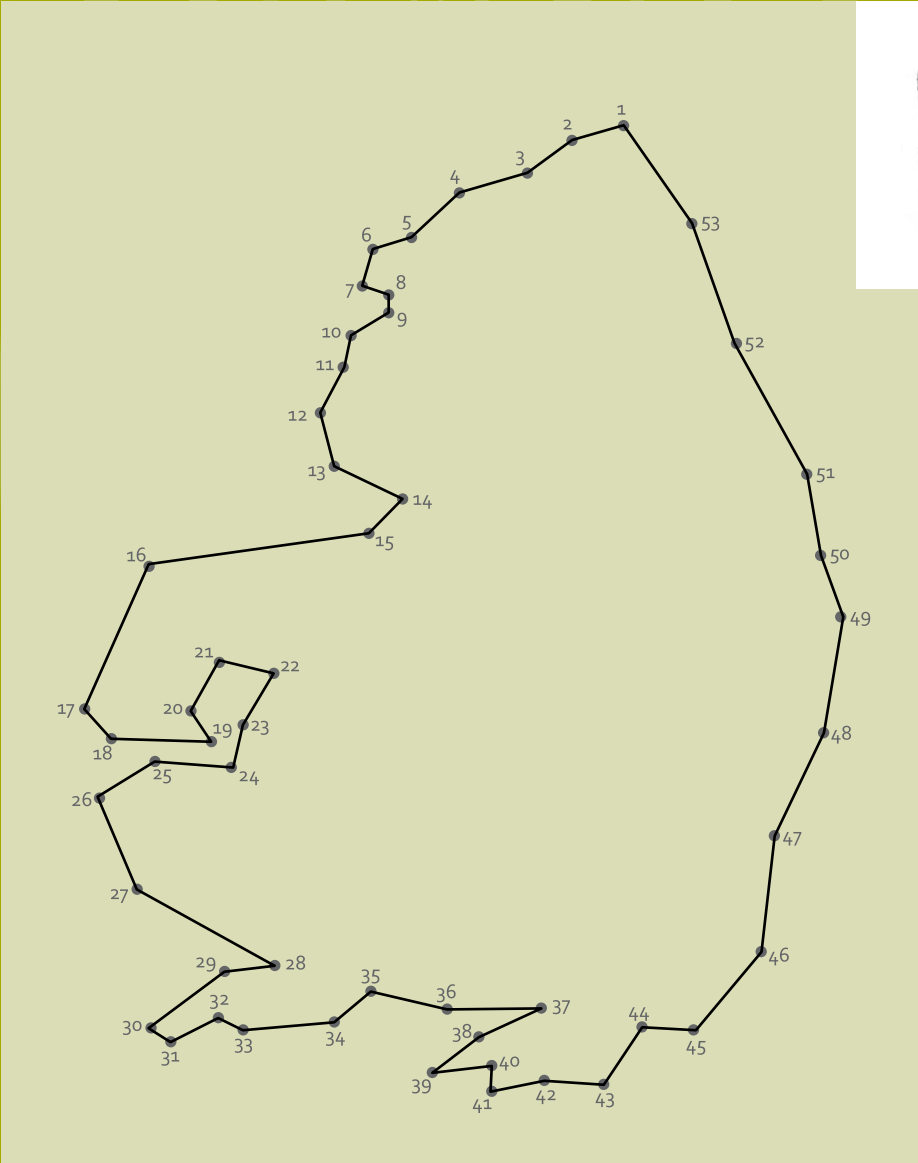
Participating Zoos in the 2009 Year of the Gorilla

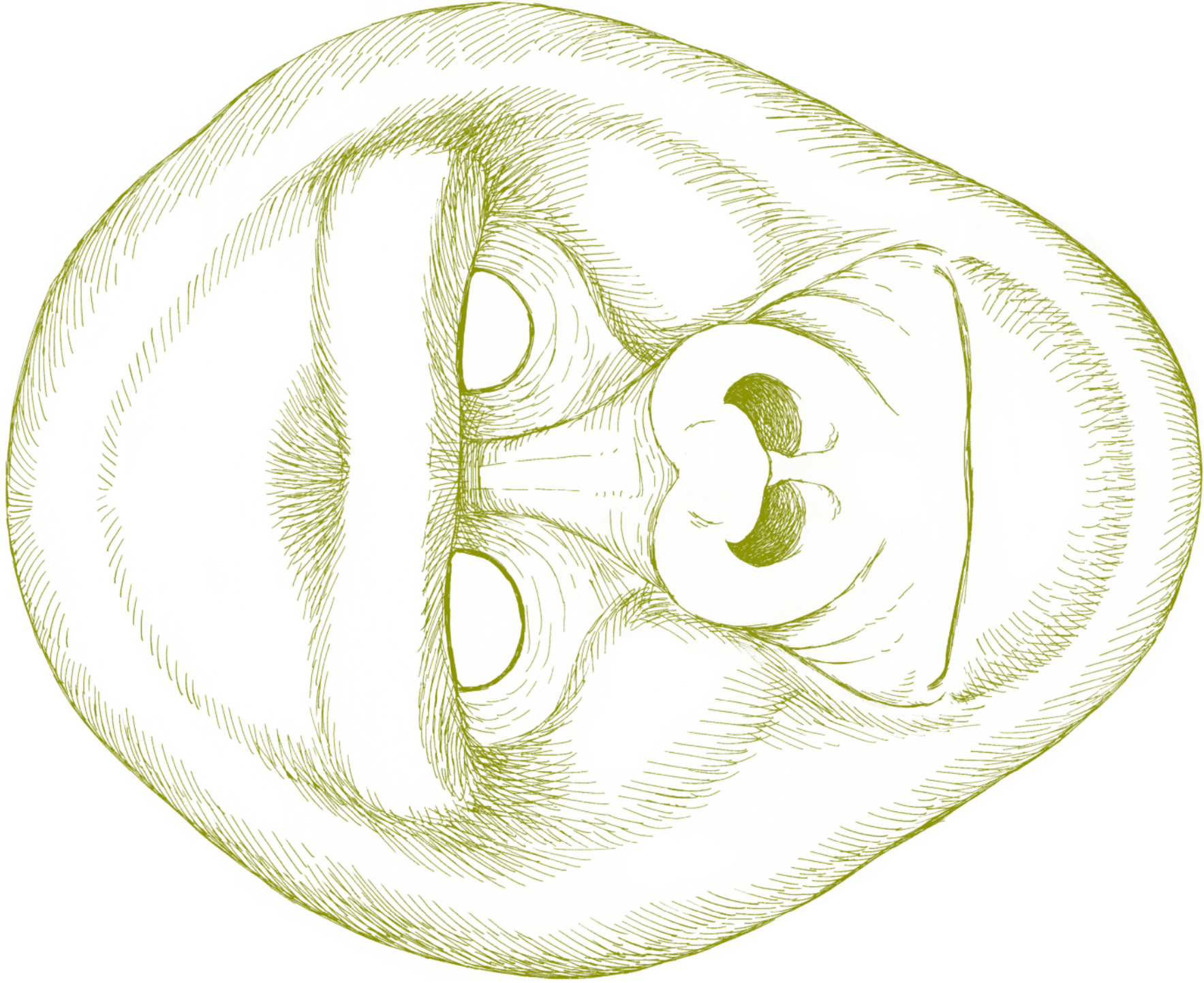
	Country	Institution
55	Portugal	Jardim Zoologico e de Aclimacao em Portug
56	Poland	Opole Zoo
57	South Africa	Johannesburg Zoological Gardens
58	South Africa	National Zoological Gardens, Pretoria
59	Russia	Moscow Zoo
60	Russia	Rostov Zoo, Rostov on Don
61	Sweden	Kolmardens Djurpark
62	Spain	Zoo Barcelona
63	Spain	Parque de la Naturaleza de Cabárceno, Obregón
64	Spain	Loro Parque, S.A. Puerto de la Cruz, Tenerife
65	Spain	Bioparc Valencia
66	United Arab Emirates	Al Ain Zoo
67	United Kingdom	Paignton zoo
68	United Kingdom	City of Belfast Zoological Gardens
69	United Kingdom	Clifton and West of England Zool Soc
70	United Kingdom	Durrell Wildlife Conservation Trust, Jersey
71	United Kingdom	Zoological Society London
72	United Kingdom	Twycross Zoo, East Midland Zool Soc
73	United Kingdom	Blackpool Zoopark
74	United Kingdom	Chessington World of Adventures
75	United States of America	North Carolina Zoological Park
76	United States of America	Audubon Zoo, New Orleans
77	United States of America	Birmingham Zoo
78	United States of America	Gladys Porter Zoo, Brownsville
79	United States of America	Lincoln Park Zoo, Chicago, IL

	Country	Institution
80	United States of America	Cincinnati Zoo & Botanical Gardens
81	United States of America	Wildlife Conservation Society, NY
82	United States of America	Bronx Zoo, NY
83	United States of America	Zoo Atlanta
84	United States of America	Dian Fossey Gorilla Fund Int,c/o Zoo Atlanta
85	United States of America	San Diego Zoo, CA
86	United States of America	Santa Barbara Zoo, CA
87	United States of America	Cheyenne Mountain Zoo, Colorado Springs, CO
88	United States of America	Denver Zoo, CO
89	United States of America	National Zoological Park, Smithson.WashDC
90	United States of America	Jacksonville Zoo, FL
91	United States of America	Disney's Animal Kingdom, Lake Buena Vista, FL
92	United States of America	Miami Metro Zoo, FL
93	United States of America	Busch Gardens, Tampa, FL
94	United States of America	Brookfield Zoo, IL, Chicago Zoological Society
95	United States of America	Topeka Zoo, KS
96	United States of America	Sedgwick County Zoo, Wichita, KS
97	United States of America	St Paul's Como Zoo, MN
98	United States of America	St Louis Zoo, MO
99	United States of America	Omaha's Henry Doorly Zoo, NE
100	United States of America	Columbus Zoo, Powell, OH
101	United States of America	Toledo Zoo, OH
102	United States of America	Woodland Park Zoo, Seattle, WA
103	United States of America	Milwaukee County Zoo, WI
104	United States of America	Gorilla Haven
105	United States of America	The Buffalo Zoo, NY
106	United States of America	Cleveland Metroparks, OH



Solution for page 29





Print, cut out, color, and wear this gorilla as a mask. You just need paper, scissors, coloring, and an elastic string.