

## actionbioscience.org lesson

To accompany the article from Population Action International:

“**Relative Scarcity: Apes on the Edge**” (Feb. 2000)

<http://www.actionbioscience.org/biodiversity/pai.html>

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### Great Apes: Getting to Know the Family (Apr. 2002)

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Educator’s section: *p. 1-2*

Student handout 1: *p. 3*

Student handout 2: *p. 4*

Student handout 3: *p. 5*

#### Grades & Levels:

- **Handout 1:** middle school
- **Handout 2:** high school (general)
- **Handout 3:** high school (advanced/AP)

#### Time Recommendations:

- minimum 2 class periods
- additional time depends on whether research is conducted in or out of class, and whether or not the final product includes an oral presentation

#### NSES (USA) Content Standards, 9-12:

- NSES 1.1. Unifying Concepts & Processes: systems, order & organization
- NSES 1.4. Unifying Concepts & Processes: evolution & equilibrium
- NSES 4.4. Life Science: interdependence of organisms
- NSES 7.2. Science in Personal & Social Perspectives: population growth
- NSES 7.5. Science in Personal & Social Perspectives: natural & human-induced hazards

#### NSES (USA) Content standards, 5-8:

- NSES 1. Unifying Concepts & Processes
- NSES 4. Life Science
- NSES 7. Science in Personal & Social Perspectives

*Note:* View the NSES content standards on this site to choose other curricular applications for additional activities at

<http://www.actionbioscience.org/educators/correlationcharts.html>

#### Learning Objectives: Students will ...

- learn about the species and subspecies of great apes
- become aware of the link between ape extinction and humans
- understand the habitats, lives, and threats of each subspecies
- consider proactive solutions to the problem

#### Key Words Include:

bonobo, bushmeat, chimpanzee, endangered/vulnerable/extinct species, gorilla, great apes, *hominidae*, orangutan, population, primates, species, subspecies

## Preparation

### Article Discussion:

- Distribute copies of the article “Relative Scarcity: Apes on the Edge” to students, or have them download the article from <http://www.actionbioscience.org/biodiversity/pai.html>.
- Do the same for the student handout that you select. **Part A of each handout lists questions about the article** -- questions in handouts 1 and 2 offer multiple-choice answers; questions in handout 3 require written answers.
- Assign the article as homework reading and ask students to complete Part A of handout (article questions) and look up definitions for key words.
- In class, review and discuss student answers to questions and ask them to define key words.

### Student Handouts 1, 2 or 3:

- Part B of each student handout provides a list of projects that require research.
- Review the projects listed in Part B with students and indicate which projects should be performed individually, in pairs, or teams. Assign a due date for the projects.
- Completed projects can simply be displayed or presented to the class.

### Useful Links:

Refer to the links provided in the “Educator Resources” section at the end of the article. There you will find links to sites that provide information about great apes. These links can serve as a starting point for students’ research.

# Apes: Getting to Know the Family

## Student Handout 1

### A. Questions about the article

Read the article “Relative Scarcity: Apes on the Edge” at <http://www.actionbioscience.org/biodiversity/pai.html>. Choose the correct answer to each question.

1. In the past century, the population of chimpanzees, bonobos and gorillas:  
a) declined by a quarter      b) declined by half      c) became extinct
2. Over a similar period, the orangutan’s population slipped between:  
a) 10 and 20 percent      b) 20 and 30 percent      c) 20 and 50 percent
3. The estimated number of chimpanzees in the wild is well below:  
a) 100,000      b) 200,000      c) 300,000
4. Of the great ape species, the only one listed as vulnerable instead of endangered is the:  
a) gorilla      b) bonobo      c) orangutan
5. Human DNA and the DNA of chimpanzees and bonobos are identical by more than:  
a) 98%      b) 78%      c) 58%

### Article key words: Provide the definitions

bonobo, bushmeat, chimpanzee, endangered/vulnerable/extinct species, gorilla, great apes, *hominidae*, orangutan, population, primates, species, subspecies

### B. Projects

#### 1. Great Apes Poster or Campaign

##### a. Poster:

- Research one of the vulnerable or endangered subspecies of great apes.
- Create a poster about it, which includes a picture and information about habitat, size, habits, food, life span, and family groups.
- Be sure to include the scientific name and population size from the article.

##### b. Campaign

- Explain why this great ape is vulnerable or endangered. Think of one thing humans can do to improve the situation for this great ape.
- Propose a campaign to save the great ape. Your proposal can be presented as a flyer, a feature for a school newspaper, or a poster.

#### 2. Graphing

Convert the information in the article into a graph or chart that illustrates the size of the population of each great ape subspecies. Provide captions that highlight key points.

# Apes: Getting to Know the Family

## Student Handout 2

### A. Questions about the article

Read the article “Relative Scarcity: Apes on the Edge” at <http://www.actionbioscience.org/biodiversity/pai.html>. Choose the correct answer to each question.

- 1) In the past century, the population of chimpanzees, bonobos and gorillas:  
a) declined by a quarter      b) declined by half      c) became extinct
- 2) Over a similar period, the orangutan’s population slipped between:  
a) 10 and 20 percent      b) 20 and 30 percent      c) 20 and 50 percent
- 3) The estimated number of chimpanzees in the wild is well below:  
a) 100,000      b) 200,000      c) 300,000
- 4) Of the great ape species, the only one listed as vulnerable instead of endangered is the:  
a) gorilla      b) bonobo      c) orangutan
- 5) Human DNA and the DNA of chimpanzees and bonobos are identical by more than:  
a) 98%      b) 78%      c) 58%

### Article key words: Provide the definitions

bonobo, bushmeat, chimpanzee, endangered/vulnerable/extinct species, gorilla, great apes, *hominidae*, orangutan, population, primates, species, subspecies

### B. Projects

#### 1. Save the Great Apes Campaign

- Research one of the vulnerable or endangered subspecies of great apes. Your research should result in: pictures and information about habitat, size, habits, food, life span, and family groups.
- Use the information you gather to create an informative poster about your subspecies. Be sure to include the scientific name and population size from the article.
- Work out a proposal for a conservation campaign for this subspecies.
- Prepare a presentation about your subspecies for your class.

#### 2. The Great Apes Family

What characterizes the great apes in general? Write an essay that describes:

- the family characteristics
- the similarities and differences between subspecies
- the general differences between the great apes and other primates

#### 3. Smart Apes

Imagine that you are a research scientist about to conduct intelligence tests on chimps. Design tests to find out how smart they are based on research on their abilities. Write a report that includes:

- drawings and/or descriptions of your tests
- a summary of what each test is designed to assess

# Apes: Getting to Know the Family

## Student Handout 3

### A. Questions about the article

Read the article “Relative Scarcity: Apes on the Edge” at <http://www.actionbioscience.org/biodiversity/pai.html>. Complete the following statements:

1. In the past century, population numbers of chimpanzees, bonobos and gorillas declined by:
2. Over a similar period, the orangutan’s population slipped between:
3. The estimated number of chimpanzees in the wild is well below:
4. Of the great ape species, the only one listed as vulnerable instead of endangered is the:
5. Human DNA and the DNA of chimpanzees and bonobos are identical by more than:

### Article key words: Provide the definitions

bonobo, bushmeat, chimpanzee, endangered/vulnerable/extinct species, gorilla, great apes, *hominidae*, orangutan, population, primates, species, subspecies

### B. Projects

#### 1. Save the Great Apes Campaign

- Research one of the subspecies of great apes, including habitat and social behavior.
- Use the information you gather to create an informative newsletter.
- Include a proposal for a campaign to protect the subspecies in the newsletter.

#### 2. Primates with Special Skills

Write an essay that explains the special abilities of great apes. Include information about:

- the function of an opposable thumb and its benefits
- stereoscopic vision and its advantages
- social behavior and its advantages

#### 3. Great Apes Geography

Create a map that shows the geographical distribution of the great apes. Add informative text that describes the habitat of each population.

#### 4. Ecosystem Simulation

- Create a computer simulation or other illustration of an ideal ecosystem for one great ape subspecies.
- Then alter the environment and imagine what happens.
- Write a summary statement about the environmental impact of the alteration on the subspecies.