Name _____ Date _____

Big Cats Article Answer Key

Read the article, "Big Cats' Big Problem," aloud as a class. Then answer the questions in Parts One and Two. Be prepared to discuss your responses as a class.

"Big Cats' Big Problem"

Dr. Stuart Pimm teaches conservation ecology at Duke University in North Carolina and is a member of the committee for National Geographic's Big Cats Initiative. The Big Cats Initiative is a project aimed at halting the decline of big cats in the world. Dr. Pimm and his students are directly involved in the big cats research. They are attempting to identify dwindling lion and cheetah habitats in Africa.

During the summer of 2010, Dr. Stuart Pimm traveled to the remote Tete Province in Mozambique to see if the region could become a wildlife corridor. The corridor would connect the lion populations of Mozambique with the lion populations of Zambia. Pimm discovered that the land had been cleared for crops. The discovery was a revelation. He began to realize that satellite images didn't accurately depict what was happening over a lot of Africa. The images came from Landsat, a satellite that circles the Earth 14 times per day. Pimm and his students are finding that areas once considered prime big cat habitat are changing rapidly. They are being converted to cropland by Africa's human population. Pimm's group uses new technology to zoom in on Africa's savannas. One such technology is Google Earth. Dr. Pimm's team has produced maps of Africa that are very different from satellite images produced in the past. They found that across a large area of Africa, the savannas have been converted to small fields. These fields are used to grow crops. It's hard to see those habitat changes on satellite imagery from Landsat. However, imagery from Google Earth helps them to see much more detail. Pimm believes the decreasing wildlife habitat results from human and lion populations trying to settle in the same environment. If there are too many humans taking up all the food and space, then there can't be any lions.

Mapping the habitat for lions and cheetahs within Africa is only one aspect of Pimm's work for the Big Cats Initiative. He also travels to the continent to meet with scientists and conservationists who are funded by the program. Most of these grant recipients are attempting to reverse the decline of lion and cheetah populations. Anne Kent Taylor is working to reinforce bomas. Bomas are traditional livestock enclosures that are usually made from thorny bushes. Lions are often able to break through bomas and attack the cattle inside. This causes the local human population to retaliate by killing the lions. Taylor realized that if the lions are unable to penetrate the bomas and dine on the cattle, the human population is more tolerant of the predators. Taylor and her team of conservationists have been reinforcing bomas with chain-link fences. The metal fences are much more resistant to lion attacks. Pimm supports Taylor's work. He feels that the new fences will greatly reduce the number of lions killed by humans trying to protect their livestock.

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Big Cats Article Answer Key, continued

Pimm also studies the range of African lions. The lions need more land to patrol than is offered by the preserved land throughout the continent. Pimm says that the national parks in Africa are big, but they are not always big enough for the lion. Lions take up a vast amount of space. They eat meat. They need an enormous amount of food. Unless they have enough space and food, they will not have healthy populations. Parks don't have fences. Wildlife species, including herbivores such as gazelles as well as lions, forage in adjacent lands. This is good for the health of the lions, but it can lead to problems with the neighboring human population. To discover what is happening inside and along the borders of Africa's national parks, Pimm wants to use crowdsourcing. Crowdsourcing is a new technique that enlists the public to assist with a task. Volunteers would monitor a national park and its surrounding region using Google Earth. They would note any major changes that occur on the land. Involving the public in monitoring what is happening could really help address declining big cat populations. Crowdsourcing in national parks can help determine whether park boundaries are being respected or whether national parks are being destroyed by outside threats.

Part 1: Work individually to answer the comprehension questions below. Be prepared to discuss your responses as a class.

1. Who is Dr. Stuart Pimm? Dr. Stuart Pimm is a researcher and teacher of conservation ecology at Duke University in North Carolina. He is also a member of the committee for National Geographic's Big Cats Initiative.

2. What is the Big Cats Initiative? The Big Cats Initiative is a project aimed at halting the decline of big cats in the world.

3. What two types of big cats does Dr. Pimm's research focus on? Dr. Pimm's research focuses on lions and cheetahs.

4. What is Landsat? Landsat is an American satellite that circles the Earth around 14 times a day.

5. How have technologies like Google Earth enhanced our knowledge about big cat population decline and other problems? Satellite imaginary obtained by Landsat did not provide enough information. Newer technologies like Google Earth provide images with more detail allowing researchers to identify problems like the conversion of habitat into cropland.

6. What are bomas? Bomas are traditional livestock enclosures.

7. What is crowdsourcing? Crowdsourcing is a new technique that enlists the public to assist with a task.

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Part 2: Work with a partner to identify three different problems related to declining big cat populations in Africa. Identify solutions that researchers and conservationists are using to address those three problems. List the three problems and their corresponding solutions below. Be prepared to discuss your responses as a class.

Problem #1: Satellite (Landsat) images do not accurately depict the land cover/habitat across Africa.

Solution #1: Researchers can use more accurate aerial photographs with Google Earth technology.

Problem #2: Lions enter bomas (traditional livestock enclosures) and kill livestock. This is often followed by humans retaliating and killing the big cats.

Solution #2: Reinforce bomas with chain-link fences to make them more resistant to lion attacks.

Problem #3: African lions have wide ranges and need more preserved land to provide them with enough space and food.

Solution #3: Use crowdsourcing by enlisting the public to help monitor national parks and the region surrounding parks' borders. Crowdsourcing in national parks can help us determine whether park boundaries are being respected or whether national parks are being destroyed by outside threats.

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