



POWELL CENTER FOR
ECONOMIC LITERACY

Lesson Plan

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Hunting the Elephants out of Extinction

Time Required

1-2 Class Periods

Grade Level and Subject

High School; Earth Science

Keystone Principles

Principle #3: All Choices Have Consequences.

Principle #4: Economic Systems Influence Choices.

Principle #5: Incentives produce “predictable” responses.

Economic Concepts

Tragedy of the Commons – *a parable that illustrates why common resources (resources belonging to a group as a whole, with no one individual uniquely responsible) get used more than is desirable from the standpoint of society as a whole.*

Incentives – *a benefit offered to induce people to behave in certain ways.*

Property rights – *the legal entitlement accruing to the individual or organization owning a specific physical item, such as land, building, car, furniture, or equipment.*

Voluntary National Content Standards in Economics

Content Standards 4, 16

Overview

Students are often puzzled over the continued decline of the animal populations that we profess to value and want to preserve. Most students are moved by the plight of lions and tigers and bears—and elephants. Unfortunately, we often allow—or even encourage—students to explain the threat of extinction as a result of "bad" people engaged in evil, ignorant, or thoughtless pursuits. Besides leaving students feeling fearful and powerless, this explanation deprives them of an appreciation of how societies can formulate the rules of the game in such a way as to effectively encourage behaviors that benefit society as a whole. By contrast, an understanding of incentives, the tragedy of the commons, and property rights gives students a powerful tool for analyzing and addressing everyday problems that matter to them.

Objectives

- Students recognize that the assignment of property rights creates incentives for the preservation of endangered species and that those incentives are missing in programs and policies that treat endangered species as common property.
- Students practice distinguishing useful information from that which, while true and/or interesting, offers little insight into the problem being studied.

Materials and Handouts

- [Handout 1](#) -- The Mystery of the Disappearing Elephants
- [Handout 2](#) -- Mystery Clues
- Run off enough sets of clues—each set on a different colored paper—for each discussion group. Cut sets of clues into strips, one clue per strip. Alternately, copy the clues onto sets of colored index cards, one clue per card. (Clue sets can then be collected and used again.)

Teaching Activity

Initiate a class discussion about the issue of endangered species. Ask students to share their knowledge about the various species that are currently threatened or endangered and about efforts, programs, and policies that have been adopted in efforts to prevent extinction. (This discussion may be enhanced by reference to newspaper reports or literature from advocacy groups dedicated to protecting endangered species.)

End the large-group discussion by proposing that individual incentives in the presence of a common resource can result in socially inefficient outcomes. Where this is the case, government intervention (specifically, the introduction of property rights) can improve the economic performance of society.

Explain that student discussion groups will be responsible for solving a mystery from a set of clues that you will provide. Divide the class into two or three discussion groups. Provide each with a copy of the mystery ([Handout 1](#)) and a set of clues ([Handout 2](#)). (*Withhold the extra clue for now.*)

Read the mystery to the class. Then distribute the clue strips among the group members so that each member has at least one clue. Give these directions to the students:

1. Select a group member to re-read the mystery to the group.
2. Share clues, proceeding in a round-robin fashion.
3. All the clue strips contain true or accurate information. Each group's task is to decide which clues help to solve the mystery. (Note: While all the clues may be true, all may not be relevant. Students should make that determination.)
4. Be prepared to explain your solution and your clue selection.

Monitor the group discussions. If groups are having trouble, offer the extra clue. If groups reach a firm conclusion quickly, ask them to determine whether the extra clue supports or undermines their conclusion.

Reconvene the class. Ask a spokesperson from each group to report on the group's solution to the mystery. Discuss the solutions, using these follow-up questions:

1. *Who "owns" the elephants in Kenya and Zambia?* Everyone owns them—which is the same as no one owning them.
2. *Who bears the costs of keeping the elephants alive?* The villagers whose crops are destroyed and whose water supplies are used by the elephants.
3. *Who reaps the benefits of keeping the elephants alive?* The tourists who come to see the elephants, the governments that may receive tax revenue or public relations benefits, and the firms in the tourist industry.
4. *In what way is the situation of the elephants in Zambia and Kenya an example of the tragedy of the commons?* Because no one owns the elephants (and could therefore benefit from ownership), no one has an incentive to preserve them

and to figure out a way to make a profit from their existence.

5. *Why don't the villagers in Zambia and Kenya help stop the poaching?*

They have no incentive to do so. Elephants are a burden—a cost that is actually reduced by poaching.

6. *Why do the poachers continue to hunt elephants, knowing that they could be killed by ranger patrols?* The soaring black-market price created by the CITES ban gives them an incentive to accept the risk of being shot by patrols.

7. *In economic terms, what is distinctive about the relationship of the villagers to elephants in South Africa, Botswana, and Zimbabwe?* The villagers in these countries have been promised some property rights to elephants when the herds become large enough to harvest. The villagers are given the right to "sell" an elephant to a hunter. This drastically changes their behavior: They now have an incentive to protect the elephants.

Post on the board or overhead each group's list of necessary clues. If there are differences among the clue lists, tell the class that they must reach a consensus. Moderate a class discussion in which group members challenge the clue lists of other groups and support their own list until a consensus is reached. If there is an initial consensus on the list of necessary clues, challenge the class to convince you that the mystery could not be solved without all the clues on their consensus list.

As students discuss the importance of the clues, encourage them to make their economic reasoning explicit by using the appropriate economic terminology. Since they have already identified the effects of the incentives and private property on people's use of common resources, they must justify their inclusion of the clues by showing how they illustrate these concepts.

Clues 2, 8, and 10, while true, do nothing to help solve the problem. Clues 1, 3, 4, 7, 9, 12, and 13 offer relevant information that helps us to understand the specifics of the situation. But students who truly understand the implications of common ownership vs. private property can effectively argue that only clues 5, 6, and 11 are absolutely necessary to solve the mystery.

Here's an optional extension to this lesson: Assign individuals, pairs, or small groups of students to use their understanding of incentives and property rights to devise a plan for protecting another endangered species. (Animals that migrate or that have much larger habitat ranges—whales, birds, etc.—present greater challenges.)

HANDOUT 1

The Mystery of the Disappearing Elephants

It is estimated that, because of poaching, the African elephant population has been reduced in recent years by as much as two-thirds in Kenya and three-fourths in Zambia.

During the same period, however, elephant populations in South Africa, Botswana, and Zimbabwe have been growing. What might explain the success of South Africa, Botswana, and Zimbabwe in protecting the elephants?



Killing of Bull Elephants Sparks Outrage

Three of Kenya park's 10 'elder statesmen' wandered to Tanzania

ASSOCIATED PRESS

WASHINGTON - The killing of three bull elephants that wandered out of a Kenyan game park into Tanzania has outraged both animal preservationists and safari hunters.

Both sides profess love for the magnificently tusked beasts.

The elephants, apparently legally killed by German and American big-game hunters holding licenses issued by Tanzania, were well-known among wildlife groups and came from herds watched closely by renowned elephant researcher Cynthia Moss.

The dead animals were among only 10 older bull elephants in Kenya's Amboseli National Park, said Moss who had photographed and named the latest elephant killed, Sleepy. He and the two others, as RGB and M10, each had lived for more than 40 years.

"From a personal point of view, I am devastated," Moss said in a message to the Washington-based African Wildlife Foundation, which



confirmed the three killings Friday. One bull was killed in August, another in October and the latest Dec. 5, wildlife officials said.

Moss, who has written books about elephants in Kenya and has lectured around the world, said the bulls were accustomed to being around people. Maasai tribal members told her the hunters shot from vehicles, which would be illegal.

"It is about as dangerous and difficult as shooting your neighbor's cocker spaniel," Moss said.

Big-game hunter John Jackson, a New Orleans lawyer who says he

has spent \$500,000 hunting elephants in Africa, agreed it would be outrageous if the elephants were gunned down from vehicles. But he said it is highly unlikely that they were.

"I can't even imagine a hunter that would hunt one of the big bulls from a vehicle," Jackson said, describing the thrill of stalking an elephant with 80-pound tusks over several days. "It's considered one of the greatest hunts in the entire world," he said, adding that about 75 percent of foreign hunters in Africa are Americans.

Jackson, president-elect of the million-member Safari Club International, described bull elephants as potentially destructive, murderous beasts that have passed their breeding years. "The animal is highly esteemed. We love and respect the animal in a way a non-hunter cannot understand," he said, citing conservation programs sponsored by hunters.

Bill Morrill, head of the safari club's conservation programs, said the fact that the animals left the park might indicate overpopulation.

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Handout 2
Mystery Clues

(Cut into strips. Use different colored paper for each group.)

1. The trophy fee paid by a hunter for an African elephant averages about \$7,500, varying somewhat from nation to nation. In addition, government estimates indicate that the average big-game hunter spends about \$1,000 per day during an elephant hunt.
2. African elephants have larger ears than Asian elephants; both males and females have Ivory tusks. Only male Asian elephants have tusks.
3. CITES – the Convention on International Trade in Endangered Species of World Flora and Fauna – has 106 member nations. In 1989, CITES members voted to add ivory to the list of goods banned in international trade. The governments of South Africa, Botswana, Namibia, and Zimbabwe have protested the ivory ban.
4. One year after CITES added black rhino horn to the list of goods banned in international trade, the black-market price for a black rhino horn rose to \$80,000.
5. In an interview, a Kenyan villager compared elephants to “huge gray rats,” noting that they eat enormous quantities of food, have a tendency to trample gardens and destroy crops, and drink precious water supplies. In Kenya and Zambia, villagers tend to at least ignore, if not encourage, the activities of ivory poachers.
6. Kenya and Zambia have huge game parks, where elephants are a national resource and hunting is prohibited. The Kenyan government has created special ranger patrols, trained them in guerrilla warfare, and ordered them to shoot suspected poachers on sight. Nonetheless, the elephant population in Kenya fell from 140,000 to 20,000 in a period of about 10 years.
7. In South Africa, Zimbabwe and Botswana, poachers are routinely reported and have even been killed by villagers intent on protecting the elephants. In Zimbabwe’s Zambezi Valley, villages organize “village wildlife committees,” and appoint “animal reporters” who monitor wildlife movements and report poachers, even when the animals destroy crops.
8. Unlike foreign big-game hunters, African villagers sometimes eat elephant meat.
9. American big-game hunter and lawyer John Jackson estimates that he has spent \$500,000 hunting elephants in Africa. Jackson speaks with respect of the majestic animals, describing the “thrill of stalking an elephant with 80-pound tusks.” American hunters make up 75 percent of the foreign hunters in Africa.
10. The United States participates in the CITES international trade ban on ivory.

11. Under a Zimbabwean program known as CAMPFIRE (Communal Area Management Program for Indigenous Resources), the government issues hunting permits for elephants and other game animals to the local villages. The number of permits issued depends on the size and health of animal herds in a particular area. The villagers may, if they choose, sell the hunting permits. Botswana and South Africa have similar programs.
12. In Botswana, the elephant herd grew from 20,000 to 50,000 during a 10-year period despite an increase in the number of hunting permits issued by the government.
13. Many African villagers live at a subsistence level, at which even small changes in income have significant impacts. In one recent example, a distribution of \$13 to each of 574 households was adequate to feed each family through a full year of drought.

Extra Clue (To be distributed only if students are having difficulty)

14. Since 1993, 12 local districts, representing 400,000 people, earned \$1,516,693 from hunting fees and \$97,732 from tourism through the CAMPFIRE program.