

INTRODUCTION

Vulture populations are predicted to decline by 70 - 90% in the next half century. If nothing drastic is done soon, future generations might not know what a vulture looks like in the wild. There are a number of threats, but the most pressing of them all is poisoning. Vultures die by the hundreds even thousands every year from unintentional poisoning by farmers and pastoralists that seek to protect their livestock from predators, or the intentional poisoning by poachers that believe vultures will give away their position to game rangers. The second most urgent threat is the trade of vulture parts for belief-based use. Traditional healers believe that vultures give people the ability to see into the future.

Other threats that have less of an impact; but still pose a threat to their survival; is collision with and electrocution by powerlines; collision with wind turbines; drowning in farm dams; habitat destruction disturbance at nesting sites and the loss of suitable nesting trees; cultivation; egg and chick theft by humans; decline in food source; and the increasing pressure on vulture habitat by the growing human population.

Vultures eat about 70% of all carrion biomass and, without them, more carcasses will be left to rot, there will be an increase in rats, feral dogs, flies and bacteria, all of which spread disease. Soil and water sources will become contaminated and people and livestock will be at risk of diseases such as cholera, rabies, anthrax, botulism and salmonella.

We need vultures for a balanced ecosystem and for our own survival.

AIM AND PURPOSE OF LESSON

The aim of this Lesson Plan is to introduce students to the numerous threats that face vultures in southern Africa. Additionally, students will be given the opportunity to come up with their own solutions to the problem.

DURATION OF LESSON

60 minutes

TARGET AGE OF LESSON PLAN

Ages 9 to 12 or Grade 3 to 6

MATERIALS NEEDED

The teacher will need:

1. Lesson Plan 1 – Threats to Vultures
2. A computer with internet connection to view the suggested videos.

3. Video 1: The African Vulture Crisis by Wild Lens (3:07 min)
<https://vimeo.com/wildlens/africanvulturecrisis>
4. Video 2: Vultures: Photographing the Antiheroes of Our Ecosystems (3:22 min)
<http://video.nationalgeographic.com/video/exposure/160107-exposure-vultures?source=relatedvideo>
5. Video 3: Saving Namibia's Endangered Vultures – Earth Touch (6 min)
<https://youtu.be/wHqiw-z2ga4>
6. OPTIONAL – projector and sound system to watch the videos.
7. Answer Sheets 1 – 3 in Appendix A (downloadable from the BirdLife South Africa website <http://www.birdlife.org.za/documents/bird-of-the-year>)

The Students will need:

1. Fact Sheet 3 - Threats to Vultures (downloadable from the BirdLife South Africa website <http://www.birdlife.org.za/documents/bird-of-the-year>)
2. Questionnaires 1 – 3 in Appendix B (downloadable from the BirdLife South Africa website <http://www.birdlife.org.za/documents/bird-of-the-year>)
3. Pen and paper
4. OPTIONAL: Vultures Gauntlet board game (downloadable from the BirdLife South Africa website <http://www.birdlife.org.za/documents/bird-of-the-year>)
5. OPTIONAL: Dice and game board place holders (you can use coloured stones as well)

OBJECTIVES AND OUTPUTS:

The students will:

- Discuss what they know of vultures with the teachers and the rest of the class.
- Watch the three short videos about the threats to vultures.
- Discuss in groups what they've learned from the videos.
- OPTIONAL: Or students will play Vulture Gauntlet.
- Discuss the remaining threats using the Fact Sheet 3 - Threats to Vultures.
- Report back to the teacher in their allocated groups.
- Have a class discussion about possible solutions to the threats.
- Have a better understanding of the threats to vultures and why vultures are a vital part of the ecosystem.
- Be able to think of possible solutions to the problems facing vultures.

VOCABULARY

Adaptation: a body part or feature or a behaviour that helps a living thing survive and function better in its environment.

Carcass: the body of a dead animal.

Carrion: the decaying flesh of dead animals.

Contaminated: to make something dirty, polluted or impure.

Cultivation: farming of livestock or edible plants.

Disturbance: the interruption of a settled and peaceful condition.

Ecosystem: a biological community of interacting organisms and their physical environment.

Environment: the natural world, as a whole or in a particular area.

Habitat: the natural home or environment of an animal, plant, or other organism.

High voltage power lines: cables suspended on poles carrying very strong electricity to our cities and homes.

Pesticides: a substance used for destroying insects or other organisms harmful to plants or to animals. An example of a pesticide is Strychnine.

Poachers: a person who hunts or catches game or fish illegally. In this case they kill the animal for the ivory or horns.

Population: particular group or type of people or animals.

Scavenger: an animal that feeds on dead plant material, trash, or dead animals (carrion).

Threat: a thing likely to cause damage or danger

Unsustainable: not able to be maintained at the current rate or level.

Urban Sprawl: the uncontrolled growth of urban areas (cities and towns).

Wind Turbines: a turbine with blades rotated by the wind to make electricity.

PROCEDURE

1. [Duration 5 min] Begin the lesson with an entry task where students must think and discuss what they know about vultures. Ask the following questions to the whole class and give them a few opportunities to raise their hands and answer the questions:
 - a. Do they believe vultures are important?
 - b. Do they like vultures? Why?
 - c. What do they think kill vultures?
 - d. Have they ever seen a vulture? Where and how many were there?
2. [Duration 4 min] Set up the projector / TV / Computer and watch the first video: The African Vulture Crisis by Wild Lens (3:07 min). Ask them to focus on the following questions:
 - a. What is the main threat to vultures?
 - b. Who is doing the research and what did they find?
 - c. What is happening to the vultures and what other animals are affected?
 - d. Try to remember the details of what you are seeing, reading and hearing.
3. [Duration 5 min] Divide the students into three small discussion groups and allow them 5 minutes to discuss what they have learned and remembered from the video. Let them write down what they remembered and discussed.
4. [Duration 4:30 min] Watch the second video: Vultures: Photographing the Antiheroes of Our Ecosystems (3:22 min). Ask them to focus on the following questions:
 - a. Try to identify the vultures in the video (they can use Fact sheet 2 - Vultures of southern Africa or a bird guide as aid).
 - b. What is your favourite part of the video?
 - c. What is the worst part of the video for you?
 - d. How does the video make you feel?
 - e. What is the second threat mentioned in this video?
 - f. Try to remember the details of what you are seeing, reading and hearing.
5. [Duration 5 min] Divide the students into the same small discussion groups and allow them 5 minutes to discuss what they have learned and remembered from the video. Let them write down what they remembered and discussed.
6. [Duration 7 min] Watch the third video: Saving Namibia's Endangered Vultures – Earth Touch (6 min). Ask them to focus on the following questions:
 - a. Why are vultures so special? what are their special adaptations?

- b. What are the people in the video trying to do? Can you remember the name of the organisation?
 - c. What is the third big threat to vultures?
 - d. What are the people in the video doing that is unique and effective in saving the vultures?
 - e. Try to remember the details of what you are seeing, reading and hearing.
7. [Duration 5 min] Divide the students into the same small discussion groups and allow them 5 minutes to discuss what they have learned and remembered from the video. Let them write down what they remembered and discussed.
8. [Duration 15 min] Students will now have 5 minutes to report back in their groups to the class and the teacher. They can use the notes they made during group discussions to help them remember what they have learned. To make this less time consuming, assign only one video to each group to report back on. Use Answer Sheet 1, 2 and 3 to guide the discussion.
 - a. OPTIONAL: Use Answer Sheet 1, 2 and 3 instead to ask the students specific questions based on the videos. Or hand out Questionnaires 1, 2 and 3 and give them 10 minutes to answer the questions.
9. [Duration 5 min] Divide the students into the same small groups and give them the Fact Sheet 3 - Threats to Vultures. Allow them 5 minutes to discuss the remaining threats not mentioned in the videos.
10. [Duration 5 min] Lastly, allow the students to go back to their seats and end the lesson with a few questions to the whole class to help them think about the future:
 - a. Do they think vultures can be saved?
 - b. What do they think are the possible solutions to the vulture crisis based on the threats to them?
 - c. What do they think they can do to help the vultures?
11. OPTIONAL ACTIVITY
Students can play Vulture Gauntlet.

APPENDIX A

ANSWER SHEET 1: THE AFRICAN VULTURE CRISIS BY WILD LENS

1. What is the number one threat to vultures in Africa?

Mainly accidental poisoning. Often predators like lion, hyena and jackals kill the livestock of pastoralists. The pastoralists will then poison the carcass to kill the predators. Unfortunately, vultures also die from this.

2. What was The Peregrine Fund's findings after they did multiple transects to determine how vultures are doing in Masai Mara?

They found a 50-60 % decline in the last 30 years.

3. How many vultures can be killed in one poisoning event?

One poisoning event can kill a 100 vultures and perhaps one lion.

4. Do only vultures in the immediate area get affected?

No, vultures come from very far away to feed and die at the carcass.

5. How many vultures died at one cow carcass? Can you remember what else was killed and how many?

A single poisoned cow carcass killed: 187 vultures; 14 eagles, 5 hyenas and 4 jackals.

6. Why are people doing it?

Out of frustration with the animals they live with.

ANSWER SHEET 2: PHOTOGRAPHING THE ANTIHEROES OF OUR ECOSYSTEMS

1. What type of vulture do you think appears in the video?

White-backed vulture

2. What is so frightening about the deaths of the vultures?

They are the fastest declining birds in history. They consume more meat than all the other scavengers and predators put together. They are the key to a healthy ecosystem.

3. Why is there such a high demand for vulture parts in the bush meat market?

Vulture brains and vulture parts are used by traditional healers because they believe it gives them the ability to see into the future.

4. Name a few of the other animals found at the market?

Elephants, pangolins, honey badgers, leopards, lions, black mambas

5. What was your favourite part of the video

6. Do you feel sad for the vultures? Why?

ANSWER SHEET 3: SAVING NAMIBIA'S ENDANGERED VULTURES – EARTH TOUCH

1. Where is the video taken?

(Namibia)

2. Why are vultures indispensable to the environment?

They are the garbage disposal service of nature. They eat the dead animals. They do not hunt but scavenge.

3. What is the name of the rehabilitation center started by Maria Diekman?

The Rare and Endangered Species Trust (or REST).

4. How are vultures adapted to find and eat carcasses?

They have very good eyesight to spot carcasses from miles away.

They are Immune to diseases like, Anthrax, Botulism and Rabies.

Their bills can tear and rip at flesh and bone.

Lack of feather on their head allows them to get stuck into their meal without having to preen and groom themselves afterwards.

5. Do vultures need to eat every day?

They only need to eat every couple of days. They are fed organs, bones, meat and even the occasional bacteria.

6. At dinner time there is a definite pecking order among the different species. Which one do you think is the most dominant?

The Lappet-faced vulture

7. What is Maria's goal?

To rehabilitate and release the vultures as soon as possible.

8. What is the major threat (other than collision and electrocution with powerlines and accidental poisoning)?

Another casualty of the poaching crisis facing southern Africa's wildlife. Poachers lace the elephant carcass with poison because they know vultures circle the elephants. We lose 500 to a 1000 vultures with every elephant carcass.

9. How does Maria help the vultures?

Her team tracks the vultures with satellite devices. If the bird stops too long, they go and find the bird. Timing and quick response is key to saving them after a poisoning.

10. Can vultures recover quickly from the current decline if it is stopped?

No, they are long-lived animals and they breed slowly – populations will take a long time to recover.

APPENDIX B

QUESTIONNAIRE 1: THE AFRICAN VULTURE CRISIS BY WILD LENS

1. What is the number one threat to vultures in Africa?
2. What was The Peregrine Fund's findings after they did multiple transects to determine how vultures are doing in Masai Mara?
3. How many vultures can be killed in one poisoning event?
4. Do only vultures in the immediate area get affected?
5. How many vultures died at one cow carcass? Can you remember what else was killed and how many?
6. Why are people doing it?

QUESTIONNAIRE 2: PHOTOGRAPHING THE ANTIHEROES OF OUR ECOSYSTEMS

1. What type of vulture do you think appears in the video?
2. What is so frightening about the deaths of the vultures?
3. Why is there such a high demand for vulture parts in the bush meat market?
4. Name a few of the other animals found at the market?
5. What was your favourite part of the video
6. Do you feel sad for the vultures? Why?

QUESTIONNAIRE 3: SAVING NAMIBIA'S ENDANGERED VULTURES – EARTH TOUCH

1. Where is the video taken?
2. Why are vultures indispensable to the environment?
3. What is the name of the rehabilitation center started by Maria Diekman?
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7. What is Maria's goal?
8. What is the major threat (other than collision and electrocution with powerlines and accidental poisoning)?
9. How does Maria help the vultures?
10. Can vultures recover quickly from the current decline if it is stopped?