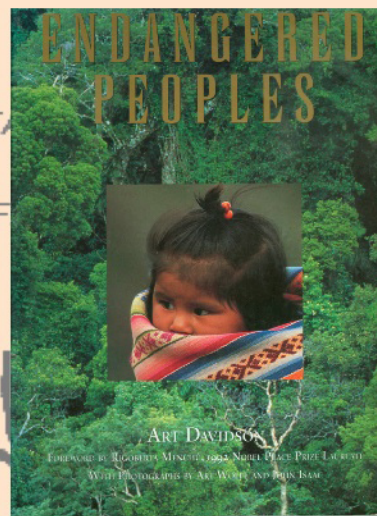
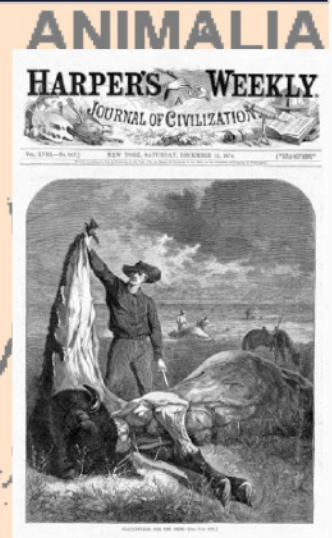


MEDIA CONSTRUCTION OF THE ENVIRONMENT: ENDANGERED SPECIES



PROJECT
LOOK SHARP

 **ITHACA COLLEGE**

Media Construction of the Environment: ENDANGERED SPECIES

by
Sox Sperry



www.projectlooksharp.org

Providing materials, training and support to help teachers prepare students
for life in today's media-saturated world.



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Mission Statement

Project Look Sharp is a not-for-profit, mission driven initiative committed to providing teachers with the training and materials they need to integrate media literacy, critical thinking and 21st century learning into the curriculum.

Project Look Sharp provides staff development workshops and consulting.

Please Consider Donating

All our curriculum kits are available **free** of charge on our web site. Please contact *Project Look Sharp* to make a donation.

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About The Environment Kit Series

The series includes:

CHEMICALS IN THE ENVIRONMENT
RESOURCE DEPLETION
ENDANGERED SPECIES

Each kit includes:

Introduction-Overview of the Kit, 5 lesson plans and teacher's guides, student worksheets, 40+ PowerPoint slides, 8 video clips, 8 print student readings, assessments and sources.

All materials can be accessed for free on our website and are also available through mobile non-Internet based versions viewed on a digital media device. Digital devices include a master PDF as well as all specified media within lesson folders purchased from the Ithaca College Bookstore.

Access the bookstore through our website.

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Media Construction of the Environment

Endangered Species

By **Sox Sperry**

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OVERVIEW OF THE KIT

Endangered Species

Overview, Objectives, Pedagogy and Practice

Overview

This kit provides teachers, college faculty and other educators with the materials needed to engage students in a dynamic and constructivist process of learning how endangered species have been perceived by the people in the United States and how the U.S. media has constructed that public perception. The subject areas covered include biology, ecology, environmental sciences, zoology and history of science. The kit contains five lessons including a slide history and four case studies.

This is one of a series of four curriculum kits that collectively examine the way various media have represented human interactions with the natural world. One kit, *Media Construction of Global Warming*, explores media interpretation of the scientific basis for climate change. The other three, *Media Construction of the Environment: Chemicals in the Environment*, *Endangered Species*, and *Resource Depletion* explore the media interpretation of the social basis of these concerns.

Objectives:

- To teach core information and vocabulary about the history of endangered species
- To teach students to understand historical and scientific perspective as communicated through various media.

- To train students in visual literacy and media literacy skills, especially the ability to identify persuasion in marketing ideas and consumption.
- To engage all students, but particularly those disengaged from traditional school work, in complex critical thinking and the development of reading, listening and visual decoding skills and attitudes that support life-long democratic citizenship.

Learning Standards:

This kit addresses specific standards from the following:

National Science Education Standards (NSES):

- *Science in Personal and Social Perspectives:* personal and community health, environmental quality, natural and human-induced hazards, science and technology in local national and global challenges.
- *History and Nature of Science:* science as human endeavor, nature of scientific knowledge, historical perspectives.
- *Science as Inquiry:* Understandings about scientific inquiry.
- *Life Science:* Interdependence of organisms, behavior of organisms.
- *Science and Technology: Evidence, models and explanation..*

National Council for the Social Studies (NCSS):

- *Culture*: Knowing how belief systems, such as those related to human and environmental health, influence other parts of the culture.
- *Time, Continuity, and Change*: Knowing what things were like in the past and how things change and develop. Drawing on their knowledge of history to make informed choices and decisions in the present.
- *People, Places and Environments*: Knowing why things are located where they are. How places and environments change and what implications these changes have for people.
- *Individual Development and Identity*: Knowing how personal identity is shaped by one's culture, by groups, and by institutional influences.
- *Individuals, Groups, and Institutions*: Knowing how institutions are formed, what controls and influences them, how they control and influence individuals and culture, and how institutions can be maintained or changed.

National Council of Teachers of English (NCTE):

- applying a wide range of strategies to comprehend, interpret, evaluate, and appreciate print and non-print texts.
- applying knowledge of media techniques, figurative language, and genre to critique and discuss print and non-print texts.

This kit also addresses many of the core learning skills that have been identified as essential skills for the **21st Century Literacy**, specifically:

--Information and media literacy skills: analyzing, accessing, managing, integrating, and evaluating information in a variety of forms and media.

--Critical thinking and systems thinking: exercising sound reasoning in understanding and making complex choices, understanding the connections, conflict and change among systems.

Finally, the activities foster group discussion skills, and can be easily linked to related lessons in other disciplines such as art, economics or multicultural studies.

Access Materials: Slides, Video and Print

All materials for this kit are available for free at www.projectlooksharp.org. This includes the PowerPoint slide show, video clips, and all print materials (PDF). Educators will need access to a computer and digital projector or large monitor so that the class can identify key details in each slide. Teachers may want to print and review the lesson and make copies of student histories and assessments prior to instruction.

Educators may purchase a mobile non-Internet based version of the curriculum kit on a digital media device from the Ithaca College Bookstore. Devices include the master PDF of the kit and all specified media within lesson folders. Check the Project Look Sharp website for more information.

OVERVIEW OF THE KIT

How to Use these Materials

LESSON #1: HISTORY SLIDES

This lesson consists of 48 slides organized into three parts.

- a. This lesson consists of 48 slides organized into three parts. The first section of 17 slides is arranged into thematic chapters overlapping in chronological order: **Before** (17th century and before), **Frontier** (16th - 19th centuries), **Progress** (19th - early 20th century) and **Consequences** (late 19th century - present).
- b. The second section, **Connections, Conflict, Change** includes 23 slides representing diverse perceptions about endangered species. These slides, many from websites, present contemporary views on issues including habitat destruction and fragmentation, labor versus environmentalist struggles, the endangered species act, invasive species, corporate and activist advertising, hunting, and the use of “endangered species” as a metaphor. The **Connections, Conflict, Change** chapter is designed to draw on information and understandings from the previous chapters in order to develop a more holistic and nuanced overview of contemporary media constructions of endangered species in the 21st century.
- c. The last section of 8 slides includes sets of **Paired Image Comparisons**, which provides an opportunity for teachers to explore divergent representations of concepts relating to endangered species protection.

The lesson begins with the students reading the 4-page handout, **Student Reading – Endangered Species**, that gives key knowledge and vocabulary

for “decoding” the slides. It may be given for homework or read in class. Each slide presents one or two documents that range from oil paintings, magazine advertisements and book covers to DVD jackets, editorial cartoons and web pages. The teacher introduces each slide/document with brief background information adapted to reflect the knowledge, level and subject area of the class. As each slide/document is projected the teacher asks document-based probe questions that require students to apply core knowledge while analyzing the scientific, historical and media context in which the document was created. The teacher follows the decoding by adding additional information on the topic or document and open-ended discussion questions.

This interactive decoding process is detailed in the **Teacher Guide** that includes a one-page lesson for each of the slides. Each slide lesson begins with **Background Information** that students may need in order to answer the probe questions and should be communicated to the class before decoding each slide. Probe **Questions** ask students to apply their knowledge of resources and media in each slide. **Possible Answers** are included as model evidence-based responses that address key historical and media visual literacy concepts and information. However, there is rarely one right answer to any of these interpretative questions, and the teacher should encourage multiple readings and a diversity of responses as long as students present evidence to back up their interpretations. It is important that students recognize that all people do not interpret media messages in the same way. It is also important to encourage students to begin to ask their own media literacy questions, especially as they become more familiar with this form of critical analysis.

LESSON #1 CONTINUED

The teacher's guide includes **Additional Information** that adds information from the source document, including text from websites that may be too small to read when projected or additional historical details that the teacher may choose to share during or after the decoding. **Further Questions** prompt students to move beyond text-based analysis to discuss issues, make personal connections, do follow-up research or take social action. **Connections** link each slide to related topics in this and other kits with abbreviated references to specific slides and lessons.

Presenter Notes in the PowerPoint View Menu allows the teacher to view the current, previous and subsequent slides and includes a timer. This view also shows the **Background Information**, **Questions** and **Further Questions** for each slide.

LESSONS #2-5: CASE STUDIES

This kit includes two video lessons, human/animal relations and rainforest diversity, each of which includes four short video clips for decoding. The video case study lessons, like the history slide lesson, have the teacher lead a whole class through decoding of each document. The two text-based article reviews, the *Northern Rockies Gray Wolf* and *Frogs and Atrazine*, ask students to analyze four 2-page articles. The text-based case studies have students work as individuals or in groups and report out to the whole class. These text-based lessons may work better with more independent students. Each case study lesson includes a one-page **Lesson Plan** and detailed **Teacher Guide**.

ASSESSMENT

The assessment asks each student to demonstrate his or her knowledge gained from the lesson and his or her critical thinking and media literacy skills through document-based analysis. The Media Construction of the Environment: Endangered Species kit assessment, *Changing Public Attitudes Toward the Wolf*, includes a student handout with images from six documents, a document-based essay question and a page of short-answer (scaffolding) questions. The teacher may choose to use only the short answer questions with the image handout, or only the essay question and images, or both.

LEVEL, TIME AND COVERAGE

Although the readings and questions were designed for upper-level high school and college classes, these materials can be used effectively with a wide range of students by editing the slides and questions and providing additional background information. The time it takes to deliver these lessons will vary depending upon the knowledge of the students, the experience of the teacher with this form and these materials, the amount of additional information delivered and further questions asked, and how many of the documents the teacher uses. Although teachers may need to edit the number of documents used, they should avoid the temptation to sacrifice student interaction for content coverage. The power of the lessons emerge when students actively apply their knowledge, identify evidence, articulate their interpretations, analyze authorship and point of view, and discuss meaningful issues. If a teacher does not have the time to do all of the lessons, he/she should edit the number of slides, videos or readings rather than cover all of the documents in a lecture format.

OVERVIEW OF THE KIT

Media Construction of the Environment Kit Series

The kits in this three-part series explore a wide variety of media in the United States with a broad chronological and topical sweep. Indigenous media forms prior to European contact with Native American peoples included petroglyphs, pottery and basketry. These media provided means for indigenous artisans to transmit ancestral knowledge and ritual forms concerning human interaction with their natural world relations – animals, plants and minerals.

In the early 19th century, media forms included etchings and paintings created by painters and illustrators. These artists were often hired by wealthy patrons, often kings or presidents, to represent their interests in distant corners of their dominion. In the late 19th century, with the expansion of the market economy, the first public relations experts began to create posters and fliers to sell the wares of their sponsors. Advertisements for a new McCormick's reaper and Black Death insecticide and fertilizer were created in this way. In this same period social critics began to publish their own individual challenges to prevailing views regarding people and the environment. Henry David Thoreau's *Walden* and the *Harper's Weekly* cover, "Slaughtered for the Hide" are examples of such early environmental advocacy.

By the mid-20th century, public relations firms were hired by multinational corporate clients to manage public perception and to help create new markets for their products. Magazine ads for DuPont, for example, heralded "Better Things For Better Living Through Chemistry" and encouraged consumers to

buy new products such as nylons and antifreeze that were not previously available and thus not necessities just a decade before. In a similar way, large governmental projects such as Hoover Dam were advertised on government report covers as "modern engineering triumphs." By the end of the 20th century, as global corporations became even larger, the capacity to spread their message grew accordingly. In-house corporate marketing departments in coordination with industry councils created multi-year advertising campaigns to increase market share, to self-define as "green" and to defend themselves against critics.

With the advent of the modern environmental movement in the 1970s, new questions came from an awakened public as to the impact of scientific and technological progress. These questions were initially posed in writings by individuals such as Rachel Carson and Jacques Yves Cousteau and then brought to the wider public in such visual forms as posters, editorial cartoons and satirical spins on corporate advertising. By the 1980s, environmentalism had such public approval that major corporations now use this popular environmental interest to sell their own products. Thus *Time* magazine's editors could prepare a cover story on the toxic poisoning of the nation while relying on advertising revenue from some of the very corporations that were polluting.

Media Construction of the Environment Kit Series continued

In the 21st century, new media had advanced to the point where individuals and small groups advanced their own point of view to attack or support corporate or government positions. The Internet and digital technologies allowed advocacy journalism to thrive in the blogosphere. Environmental activist groups like Students for Bhopal and Greenpeace created their own media forms as did their critics, groups like the American Chemistry Council and the Committee For a Constructive Tomorrow.

The proliferation of media forms and sources raises concurrent issues of concern: Can an advocate for a particular point of view also be objective? Is knowledge of the financial sponsorship of a group or individual essential in determining credibility of their media message? When corporations, the government and activist groups all use appeals to “planet stewardship” to further their disparate goals does the phrase itself lose its currency?

“As we peer into society's future, we -- you and I, and our government -- must avoid the impulse to live only for today, plundering, for our own ease and convenience, the precious resources of tomorrow. We cannot mortgage the material assets of our grandchildren without risking the loss also of their political and spiritual heritage. We want democracy to survive for all generations to come, not to become the insolvent phantom of tomorrow.”

– President Dwight Eisenhower
Farewell Address

OVERVIEW OF THE KIT

Media Literacy and Democratic Citizenship

The founders of the United States articulated the need for a literate citizenship as core to the development of a deep and enduring democracy. We live in an age when the most influential messages about pressing social issues and events are delivered through mass media, such as television, magazines and the Internet. Most students use the Internet as their primary source of information, yet few have any formal training in assessing the credibility of information in Web sites. It is essential to the success of our democracy that young people consciously and consistently analyze and evaluate media messages. They need to be taught to seek out current, accurate, and credible sources of information; they need to understand the influence of media messages on their understanding of the world; and they need training in identifying and using various techniques for communicating messages in different media forms. Without these critical skills, we risk losing the diversity and freedom of thought that underpins a culture of true democracy.

Collective Reading of Media Messages

This curriculum is based on the classroom practice of collective reading, in which the teacher leads the class through the process of decoding images, sounds and text as a way of developing a range of critical thinking skills while teaching core knowledge. This constructivist approach encourages the development of moral reasoning as students clarify their own interpretations, listen to the analysis of their peers, and discuss ethical issues. Decoding of the documents in this curriculum will help train students to distinguish fact from opinion, analyze point of view and identify bias, interpret historical

documents, and use evidence to back up a thesis. The classroom decoding process is particularly effective in involving students who rarely share their opinions about print-based material, including students with reading disabilities, visual learners, and students for whom English is a second language. The teacher should consider calling on students or going around the room to ensure participation by all students in the collective reading process.

Encouraging Multiple Readings

Although the Teacher Guides for each lesson include possible answers to the probe questions, the teacher should encourage multiple readings and a diversity of responses for most of the questions posed in the teacher guide. It is important that students give evidence in the document to explain their conclusions. Occasionally a question has only one right answer (e.g. "Who created this video?"), and students should learn to distinguish between objective and subjective questions. The suggested answers given in the scripts are intended to reflect typical responses that address key historical and media literacy concepts and information. However, it is important that students recognize that all people do not interpret media messages the same way. Depending upon each reader's background, including life experience, age, gender, race, culture, or political views, he or she may have very different interpretations of a particular text. The collective reading experience provides the opportunity to explore these differences and discuss the important concept that readers interpret messages through their own lenses.

Reading Bias

A major theme of these materials is the recognition that all media messages come from a particular point of view and have a bias that reflects the intent and perspective of the producer and sponsor. With these materials, teachers can train students to recognize bias and point of view. The teacher should encourage students to ask critical questions about any media messages encountered inside or outside the classroom using the *Key Questions To Ask When Analyzing Media Messages* found at www.projectlooksharp.org.

Bias in this Curriculum and in the Classroom

This series of lessons, like all media, also has a point of view and a bias. As teachers use the lessons, they may identify opinionated language, selective facts, missing information, and many other subjective decisions that went into constructing this view of history. The same questions the curriculum applies to other documents can be applied to this media construction: Who produced this curriculum for what purpose and what is its bias? Teachers and students could and should be asking critical questions about the editorial choices that went into constructing these lessons. For instance, why did we choose to focus on certain topics (e.g., environmental justice, green marketing and GMOs), but not others (e.g., risk/benefit analysis, the precautionary principle and chemical body burden)? And, what is your evidence for these conclusions? When using these materials teachers will make their own decisions of what to include and to edit, what questions to use and what issues to avoid. All of these decisions, both by the creators and users of the curriculum, will influence the view of history that students receive. Teachers should encourage students to thoughtfully analyze and discuss the stories, the perspectives, and the biases celebrated and criticized within our own classrooms. Those skills and practices are core to an educated democratic citizenship.

Additional Resources

For more information about media decoding download these documents from the project Look Sharp website:

- Key Questions to ask when analyzing media messages
- Tips for Media Decoding
- Core Principles for media literacy education

Fair Use of Media Documents

The classroom critique of political and cultural documents (e.g., paintings, TV news clips, excerpts from films, web pages) is essential to the development of core literacy skills in our media saturated democracy. To enable educators to fulfill the mission of teaching these core civic objectives, Project Look Sharp has created media literacy integration kits using a variety of different media documents for critical analysis in the classroom. The documents in this curriculum are presented for the purpose of direct critique and solely to be used in an educational setting.

For more information about fair use in Media Literacy Education, go to the Media Education Lab at Temple University at www.mediaeducationlab.com.

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LESSON PLAN

Slide Show: History of Endangered Species



PowerPoint Slide Show

Lesson Objectives:

- Students will understand how U.S. views of endangered species have changed over time.
- Students will apply knowledge about endangered species to the decoding of diverse media representations.
- Students will learn critical thinking, information literacy and media literacy skills including understanding bias, point of view, sourcing, credibility, and key questions to ask when analyzing any media message.

Vocabulary:

Frontier: petroglyph, Hudson Bay Company, beaver pelts, whaling, Melville, wilderness

Progress: *American Progress*, slaughter of the bison, passenger pigeons, Charles Wilson Peale, Buffalo Bill

Consequence: Jacques Cousteau, Greenpeace, overfishing, tropical rainforests

Connections E. O. Wilson, ecosystems, UNEP, palm oil, Spotted Owls, Endangered Species Act, timber industry, regulation, non-native invasive species, environmentally responsible, greenwash, mountain gorillas, bushmeat, conservationist's responsibility, hunting, animal welfare, Gray Wolf, ranching, eagles, DDT, Rachel Carson, *Silent Spring*, Indigenous Peoples

Media

PowerPoint includes: petroglyph, deerskin robe, map, illustration, etching, drawing, paintings, advertisements, posters, web pages, blogs, news article, DVD jacket, cartoons, and covers of magazines, books and a report.

Materials Needed:

- PowerPoint slide show: *Endangered Species* (access online or via Lesson 1 digital media folder)
- Four-page Student Reading: *Endangered Species*
- Teacher's guide: Lesson 1: *Endangered Species*

Time

50 Minutes to 2 hours depending upon how quickly the teacher moves through the slides

Lesson Procedures:

1. Introduce the lesson: explain that the class will learn the history of how endangered species have been presented in popular culture through analyzing media documents.
2. Distribute *Student Reading* to be done in class or for homework.
3. Project the slides and lead the student decoding. For each slide present *Background Information* followed by *Questions* from the *Teacher Guide*. The guide includes *Possible Answers* and *Evidence* to model student application of key knowledge through evidence-based analysis. Add *Additional Information* and *Further Questions* where appropriate. For more information on leading a decoding lesson see the *Kit Introduction*.
4. Use the *Final Assessment* to assess student learning.

Media Construction of Endangered Species

The worst thing that can happen—will happen—is not energy depletion, economic collapse, limited nuclear war, or conquest by a totalitarian government. As terrible as these catastrophes would be for us, they can be repaired within a few generations. The one process ongoing in the 1980s that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us.

E.O. Wilson

Protecting the extraordinary diversity of life on earth will likely require us to change our patterns of consumption as well as our lifestyles. What sacrifices are we willing to make to protect the biodiversity of our planet? Are we willing to use less palm oil, a main ingredient in many supermarket items, in order to protect threatened orangutan habitat? Can the endangered Florida panther coexist with the freeways and development of southern Florida? Can the gray wolf live side by side with the sheep and cattle ranches of the western mountain states? Can we find creative solutions that sustain natural ecosystems and species while maintaining our modern consumer lifestyle? Our response to similar questions may determine the fate of countless species.

Media Literacy and Critical Thinking

We may answer many of these questions based on the information, ideas and impressions we receive through the media. The media give us messages about life on our planet. Often these messages are contradictory. A TV documentary about saving the remaining orangutans in Indonesia is likely to be interrupted by advertisements for products made with palm oil, a leading threat to orangutan habitat.

Our ability to understand and to question media messages will allow us to make informed decisions about such essential choices as where we will live, what we will eat and how we will choose to participate in our society.

This lesson will help you to develop critical thinking skills through asking key questions about all media messages. You will practice analyzing many different representations including contemporary media documents that present conflicting perspectives. You will also examine historical documents and identify ways in which popular views of the animal world have changed over time. We will begin this study by exploring ancient media messages.



What message about human/bear relations did this ancient Mimbres potter choose to inscribe?

Before - Commonwealth

How do we know about the relationships between native ancestors of this continent and the animals and plants that shared their world? We can look to the early media forms that they left behind for clues, to petroglyphs and pottery, baskets and clothing. And we can listen to the stories of their living descendants to know about the cosmology that placed people in strongly reciprocal relations with the other beings with which they shared the earth.

1670	1872	1888	1903
Hudson Bay Co. opens transatlantic fur trade	Gast paints "American Progress" celebrating U.S. conquest over Native Americans and wildlife	Buffalo Bill Cody's autobiography, <i>Story of the Wild West</i>	President Theodore Roosevelt establishes the first National Wildlife Refuge in Florida

Conquering a Frontier

Infinite Enemies - Boundless Opportunities

Early European maps of the “New World” show foreign flags on unfamiliar coastlines with giant sea monsters breathing fire in the coastal waters. This combination of the opportunity for expansion and profit mixed with the fear of the unknown shaped the early reports of the wilderness that was the Americas.

The settling of the frontier in 18th century North America meant finding new opportunities to make a profit while pushing back the “trade barriers” of the time. This included cutting the forest and waging war on the original inhabitants - human, plant and animal. The Hudson Bay Company traded blankets and other European-made items to Native Americans in exchange for beaver, wolf and mink pelts. This early example of globalized trade between Europe and the New World had multiple consequences for the people and ecosystems at both ends. As European markets developed for beaver hats, entire species were wiped out from their previous ranges causing ecosystem transformation on a local, regional and finally continental level.

The visual media of the 19th century, newspaper etchings and dime novel drawings, rarely depicted these ecological changes. More often they showed heroic men combating fierce predators and lethal enemies – Davy Crockett in the claws of a grizzly or Buffalo Bill Cody in hand-to-hand combat with a pack of wolves.

Animals were not just for fighting; they were for market, too. Whale blubber, bear skins and bird feathers all became sources of profit in the early years of the new nation. But danger still accompanied those who sought to make a living from the bounties of the wilderness. In 1820, the whaling ship *Essex* encountered a sperm whale

that turned the tables and rammed its pursuers, sinking the ship. This highly unusual example of prey fighting back against humans was made into an etching, published in a newspaper and seen by the young sailor Herman Melville. He turned the story of industry amidst danger into *Moby Dick*, a classic of American literature.

Progress: Westbound Markets

The endless march westward of the United States in the mid-19th century provided opportunities for an ever-growing population of new citizens and corporations to expand and to settle. The U.S. government made the commitment and its military brought the power to continue to expand ever further toward the Pacific. Indian people, wildlife and entire living ecosystems - forest, prairie, rivers, estuaries - fell to the search for new markets and new real estate. Once the territory had been “secured” then the Pony Express mail service, Western Union telegraph and Northern Pacific Railroad opened the path for the new nation’s expansion.



How might different people have interpreted this image differently when it was published in 1871?

One of the myths that drove the expansion was that of endless space and limitless resource. Another was the power of technology to drive

1905	1914	1940	1962	1966
American Bison Society formed to protect last remaining buffalo	Extinction of the passenger pigeon and Carolina Parakeet	Bald Eagle Protection Act	Rachel Carson's book <i>Silent Spring</i> identifies DDT as threat to bird life	TV series <i>The Undersea World of Jacques</i> premiers

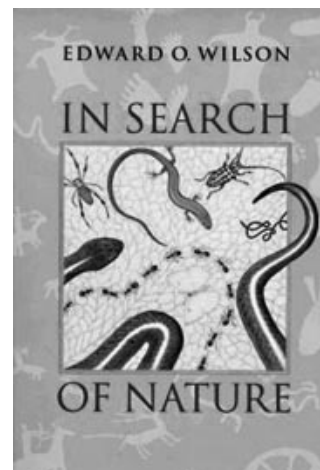
progress. Together these ideas pushed some animal species to the brink of extinction and beyond. The Passenger Pigeon was once the most common bird in North America. In the early 19th century, flocks of over a billion birds would darken a mid-day sky. The idea that these animals were a limited resource was simply inconceivable to most Americans. With telegraphed reports hunters tracked the flocks, gathering pigeon meat for market. On September 1, 1914, "Martha", the world's last remaining Passenger Pigeon died in captivity in Cincinnati, Ohio.

Consequence: The Next Extinction

There were those who resisted this unchecked attack on nature. The first organized movements for wildlife protection beyond the ongoing Native American resistance began in the late 19th century. Women like Sarah Orne Jewett and Olive Thorne Miller wrote pamphlets and spoke out against the slaughter of birds to harvest feathers for women's hats. And as the buffalo herds began to vanish artists and writers for *Harper's Weekly* began to urge an end to the killing. The buffalo were eventually saved from eradication by the American Bison Society, which was organized in 1905 with Teddy Roosevelt as its first president. The society brought a small breeding herd to the Bronx Zoo from the estimated 1,000 survivors of an original population estimated at 60 million. This small herd formed the gene pool for the remarkable recovery of the species (Woflson).

By the mid-20th century, an expanding conservation movement was seeking ways to protect different endangered species including the largest creatures on the planet. In the 1960s, the books and films of oceanographer, Jacques Cousteau, highlighted concerns for marine mammals with increased pollution of the oceans.

In 1970 cetologist Roger Payne released the recording, "Songs of the Humpback Whale." It became the best-selling natural history recording of all-time. Partly as a result of these and other education efforts an international "Save the Whale" campaign began. Groups like Greenpeace and the Sea Shepherd Conservation Society were created to undertake direct action protests, sailing in small boats to thwart large whaling vessels and calling for an end to international whaling. In 1982, the International Whaling Commission finally decided to initiate an international ban on commercial whaling.



Why did the designer choose to portray insects and lizards on the cover of a book about the complex nature of animals and people?

Connections, Conflict, Change

At the beginning of the 21st century we have a much more nuanced way of understanding how living systems interact, thanks to the work of scientists like E.O. Wilson, and Jacques Yves Cousteau. We can see the complex interdependence when one species is removed from an ecosystem or another added.

One of the landmark initiatives of the 21st century in assessing biodiversity was the Millennium Ecosystem Assessment (MA). Its website describes its work to assess the consequences

1972	1973	1975	1990	1995
Greenpeace founded, begins direct action to stop whaling	(CITES) The Convention on International Trade in Endangered Species	International ban on whaling	Northern Spotted Owl listed as threatened species	Grey Wolves are reintroduced to Yellowstone Park

of ecosystem change for human well-being. From 2001 to 2005, the MA involved the work of more than 1,360 experts worldwide. Their findings provide a state-of-the-art scientific appraisal of the condition and trends in the world's ecosystems and the services they provide, as well as the scientific basis for action to conserve and use them sustainably." The report concludes that habitat loss is "the main driver of species loss in terrestrial ecosystems" (Ecosystem 14) and lists other causes for biodiversity loss as climate change, invasive alien species, overexploitation, and pollution.

Invasive species are an inevitable consequence of global trade and are a special concern in island habitats. Entire species of ground nesting birds in Hawaii and other islands have fallen prey to feral cats, pigs, rats, mongoose and tree snakes, all brought to the islands on board ship. Frequently commercial interests conflict with ecological patterns when people try to control the spread of alien species. Should tanker ships be prevented from entering the Great Lakes in order to slow the spread of the zebra mussel that wreaks havoc with the local fauna?

Hunting is another cause of species endangerment and one that pits powerful and compelling interests against one another. Will the global fish population soon fall to levels of no-return with the capacity of the fishing industry driftnets to empty the oceans of all marine life they encounter? Will CITES, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, be able to successfully negotiate ongoing global agreements during hard economic times when trophy hunters offer much-needed income to countries of the global south? How does a ban on the hunting of wild animals

in sub-Saharan Africa impact people who have to rely on bushmeat to feed their children? In this century everything is interconnected and we know it. As Jane Goodall said during the 2002 World Summit on Sustainable Development in Johannesburg: "We can't leave people in abject poverty, so we need to raise the standard of living for 80% of the world's people, while bringing it down considerably for the 20% who are destroying our natural resources" (Summit).



Which of these messages do you trust and why?

Many different perspectives on these questions will be found in our media. Scientists, environmental groups, government agencies, and corporations, all weigh in, often with conflicting views. The magazine *Biodiversity* puts the spotted owl on its cover to herald its status as a "flagship species" in the old growth forests of the Pacific Northwest while *Weekly World News* shows the owl as a symbol of the loss of timber-industry jobs. Which construction do you trust and why? Are you moved toward action or resignation as you read these different messages? How do you seek the truth as you analyze and evaluate these media constructions about endangered species?

1995	2005	2007	2008	2008
Logging industry begins Sustainable Forestry Initiative	UN Millenium Ecosystem Report shows habitat lost greatest threat to species	UN report - <i>Last Stand of the Orangutan</i>	Rocky Mountain Wolf removed from the endangered species list	President Bush asks Congress to open the Arctic National Wildlife Preserve to drilling

TEACHER GUIDE

SLIDE #2: *Nine Mile Canyon, c. 1000* petroglyph

BACKGROUND INFORMATION

This rock carving, or petroglyph, is located in a site called Nine-Mile Canyon in north central Utah. It is thought to have been created more than 1000 years ago by members of the Fremont Indian culture. Similar petroglyphs were created by ancient artisans using stone chisels to carve intricate images across North America. A petroglyph is a form of media since it is a form of communication that travels across time in its ability to convey meaning.

→ Project the document

QUESTION

Who made this? Do you think it represents the perspective of all people who lived at the time it was first made?

POSSIBLE ANSWER

It was made by unnamed artists who added meaning to the original work across many centuries. Although it is likely that humans of one thousand years ago had similar viewpoints regarding relations with the natural world, it is also likely that different indigenous individuals, families, clans and nations had very different and particular ways of understanding and representing these relations.

QUESTION

How did the artist represent human/animal relations in this petroglyph?

POSSIBLE ANSWER

The human and animal world are part of an interconnected whole.

EVIDENCE

The unified nature of the image, people and animals represented in the same style suggests inter-connection as does the content message of humans subsisting via hunting.

SLIDE #2



***Nine Mile Canyon,
c. 1000 petroglyph***

ADDITIONAL INFO

There has been significant scientific debate as to whether indigenous people played a role in the extinction of post-ice age great mammals such as the mammoth and the saber-tooth cat. It is known that small groups of hunters were able to successfully hunt and kill large prey by means of stone weapons and collective hunting strategy such as driving buffalo herds over cliffs.

Richard Moe, president of the National Trust for Historic Preservation, spoke in 2006 at the Antiquities Act Symposium on the need to preserve petroglyphs and other unprotected sites on public land:

Consider...a place called Nine Mile Canyon in Utah. It has been called 'the world's longest art gallery' because it includes an incredible array of rock art – as many as 10,000 petroglyphs and pictographs...I've seen it, and I'm convinced that if anyplace is a prime candidate for national monument designation, Nine Mile Canyon is – but it hasn't been designated. In fact, the place has little formal protection of any kind – and as a result, it is threatened by unregulated visitation, increased recreational use and vandalism. Even more alarming, proposed oil and gas development could bring hundreds of new wells to the canyon and the surrounding area, along with miles of pipeline, compressor stations, new roads and greatly increased truck traffic. This kind of development could turn the world's longest art gallery into the world's most culturally-significant industrial zone. (Moe)

FURTHER QUESTIONS

How might this petroglyph have been interpreted differently over time by different people?

CONNECTIONS

MCES slides 3, 4, 7, 40, 41, 50
(indigenous perspectives)

TEACHER GUIDE

SLIDE #3: *Powhatan's Mantle*, 1609 deerskin**BACKGROUND INFORMATION**

This object known as Powhatan's Mantle is made of four pieces of sewn deerskin decorated with sea shells. It is named for Powhatan, a primary chief of the Powhatan people of coastal Virginia at the time before and during the founding of Jamestown. Powhatan was the father of Pocahontas.

The authors of the book *Powhatan's Mantle* suggest the mantle may have served a ceremonial purpose rather than being an article of clothing. They further suggest that the animal on the right probably represents a white tailed deer and the one on the left a mountain lion (Waselkov 455). The 34 circles may represent the villages under Powhatan's authority (Waselkov 455-57).

→ Project the document

QUESTION

How do the materials from which Powhatan's Mantle is made inform its meaning?

POSSIBLE ANSWER

The fact that it is made of deerskin and seashells suggests that the meaning may have to do with human relations with the natural world.

QUESTION

What is the message about human/animal relations in this piece?

POSSIBLE ANSWER

Humans occupy a central position in the circle of species with animal relations nearby.

EVIDENCE

Human centrality is represented by the human figure's location in the middle flanked by the animal figures. Circular species relations are suggested by the 34 circles and the circular design of the three human and animal figures.

SLIDE #3

***Powhatan's Mantle*
1609 deerskin**

ADDITIONAL INFO

This object is housed in the collection of the Ashmolean Museum of Art and Archaeology at Oxford Museum.

There can be many interpretations of the symbolic nature of Powhatan's Mantle. It may be viewed as an example of the organic cosmology of Native American people in which animals were seen to have standing with humans in a world that included nature and spirit intersecting. In this view, human beings saw themselves as having a strong sense of reciprocity with other living beings and with the earth itself.

FURTHER QUESTIONS

What is my interpretation of this? Do I see humans as dominant in this representation or as interdependent with animals? What do I learn about myself from my interpretation?

CONNECTIONS

MCES slides 2, 4, 7, 40, 41, 50
(indigenous perspectives)

TEACHER GUIDE

SLIDE #4: *La Virgenia Pars*, 1585 map**BACKGROUND INFORMATION**

In his *Notes on the State of Virginia*, Thomas Jefferson references Queen Elizabeth's instructions to her explorer, Sir Humphrey Gilbert, "for the inhabiting and planting of our people in America" (Jefferson, chapter 23). Gilbert's brother, Sir Walter Raleigh, subsequently led expeditions toward that end. One of his companions on these voyages was artist and naturalist John White who drew this map of coastal Virginia, named by Raleigh in honor of "the virgin Queen." The red emblem at the center top is Raleigh's coat of arms.

→ Project the document

QUESTION

How does the historical period in which this map was made help to shape the images chosen? Give evidence to support your conclusion.

POSSIBLE ANSWER

In the 16th century, the era of exploration, the oceans surrounding the New World are an exotic mystery filled with potential danger. The land is claimed by Raleigh for the queen as her "virgin" territory.

EVIDENCE

The sea creatures appear dangerous by being portrayed as larger than the ships with mouths open and leaping out of the water as though to threaten or devour the sailors. The emblem represents the royal seal.

QUESTION

Would a 19th century map have used similar iconography?

QUESTION

Who might benefit from this map and who might be harmed by it?

SLIDE #4

***La Virgenia Pars*,
1585 map**

ADDITIONAL INFO

The European invasion and conquest of the Americas mixed fear of the unknown natural world with a quest for acquisition and profit. In his *A Discourse of the Invention of Ships, Anchors, Compass, & Co*, Sir Walter Raleigh writes, "Whosoever commands the sea, commands the trade; whosoever commands the trade of the world, commands the riches of the world, and consequently the world itself" (Respectfully Quoted). This conviction was the basis for Europeans' willingness to face the enormous dangers implicit in crossing the Atlantic in the 16th and 17th centuries as the monarchs of Europe sought to gain control of this endless frontier of enemies and opportunities.

FURTHER QUESTIONS

In what way do contemporary maps reflect danger, opportunity and mystery?

CONNECTIONS

MCES slides 4, 6, 15, 46 (whaling) 4, 6, 12, 36, 44 (fear)

TEACHER GUIDE

SLIDE #5: *Beaver Trapping, 1743* diagram**BACKGROUND INFORMATION**

In 1670, British King Charles II granted a charter to “a Company of Adventurers of England” to become “the true...Lords and Proprietors” of all of Hudson Bay (Maxwell 351). As a result of this royal declaration the newly formed corporation, the Hudson Bay Company claimed a huge area comprising nearly 40% of the Canadian landmass. The Hudson Bay Company made enormous profits from the trade in animal skins, particularly beaver pelts. This diagram was drawn by Hudson Bay trader James Isham. The men are Cree Indian trappers who worked for the Hudson Bay Company.

→ Project the document

QUESTION

Who is the target audience for this illustration and why might the Hudson Bay Company have paid James Isham to make it?

POSSIBLE ANSWER

The target audience would be Hudson Bay Company workers. It would have been a means to train fur trappers to become more efficient in the business of acquiring beaver pelts.

QUESTION

What does this illustration suggest regarding how the Hudson Bay Company dealt with Indian resistance to the company's presence on traditional native hunting land?

POSSIBLE ANSWER

It hired native hunters as trappers, in the hopes of buying off those Indian people employed in the fur trade.

EVIDENCE

Indigenous people's resentment at having their land appropriated by a foreign power might have been tempered by offerings of European guns, pipes, and clothing as portrayed.

SLIDE #5



***Beaver Trapping,
1743* diagram**

FURTHER QUESTIONS

How do contemporary corporations deal with indigenous peoples and their land when cutting or harvesting the rainforest?

ADDITIONAL INFO

The Hudson Bay Company' relationship with Indian communities provides an early example of international commerce between North America and Europe. Native American trappers and traders offered animal skins in exchange for mass-produced items such as blankets made on European mechanized looms. In this way the handmade crafts of native peoples began to be replaced by a dependence on cheap European substitute items. As the fur trade increased it became increasingly difficult for Indian peoples to provide meat for their own communities. This led to intertribal conflict due to increased competition among tribes for scarce resources and poaching on one another's traditional hunting lands. Collective subsistence hunting for buffalo and bison gave way to commercial individual hunting for small game.

In November 1743, the Hudson Bay Company sold the skins of 26,750 beaver, 14,730 martens and 1,267 wolves (Wilcove 25). Entire populations of otter, mink, marten and beaver were decimated to provide hats and cloaks for wealthy European consumers and profits for the Hudson Bay Company. The beaver became endangered over much of its original range creating a profound ecosystem transformation as beaver dams fell part, causing ponds to dry up and changing wetland habitat on which many other species depended.

CONNECTIONS

MCES slides 4, 6, 15, 46 (whaling)
4, 6, 12, 36, 44 (fear)

TEACHER GUIDE

SLIDE #6: *Wreck of the Whale Ship Essex, 19th century etching*

BACKGROUND INFORMATION

In the early 18th century, commercial whaling became one of the first industries to make profit from the sale of animal parts. Small boats were launched from large whaling ships to harpoon sperm whales that provided lamp oil, lipstick and meat. In 1820, a sperm whale attacked the whale ship *Essex*, ramming its bow and causing it to sink. This rare instance of a whale turning the tables on its attackers was recorded by a survivor of the wreck, Owen Chase, in his book *The Narrative of the Whale Ship Essex*. Herman Melville used this account as a foundation for his classic work, *Moby Dick*. This period etching was created by an anonymous artist.

→ Project the document

QUESTION

Why might Melville have chosen this incident as the basis for his novel about fear, death and the unknown?

POSSIBLE ANSWER

The *Essex* wreck had been reported by a survivor and had thus become a public event encouraging familiarity and curiosity among potential readers. The whale and the act of whaling become a symbol for fear, death and the unknown.

EVIDENCE

It is likely that whalers often experienced fear as they entered small boats on a vast ocean in pursuit of giant prey. Death was often present for whalers in the form of dead whales and occasional human deaths in their work. The ocean, the whale and the uncertain pursuit are all examples of mystery present for whalers in the 19th century.

QUESTION

How might different people interpret this message differently?

SLIDE #6



Wreck of the Whale Ship Essex, 19th century etching

FURTHER QUESTIONS

Discuss the impact of media reports about a single incident, recorded by Chase and Melville, on the way people viewed human/nature interactions at the time.

ADDITIONAL INFO

For centuries prior to the European invasion Native American people of the Pacific Northwest had hunted whales. The Makah and Nootka hunted whales for sustenance, using the meat and skin for food, the sinew for rope, the intestines for containers and the oil for lamps. They recorded their efforts in media such as basketry and ivory carvings.

Twenty-one years after the sinking of the *Essex*, a young sailor, Herman Melville, read the book while on board another sailing ship. He later wrote, "The reading of this wondrous story upon the landless sea, and so close to the very latitude of the shipwreck had a surprising effect on me" (Stackpole 687).

About 15 species of whales have been hunted during the years of commercial whaling that led in the twentieth to giant factory ships which could process the whales in the middle of the ocean. Whale populations plummeted as a result and by 1946 an International Whaling Commission was established to set quotas to limit the worldwide whale harvest. These restrictions countered the previous paradigm that suggested that whales were part of a limitless resource available implicitly for human need and corporate profit.

CONNECTIONS

MCES slides 4, 6, 15, 46 (whaling) 4, 6, 12, 36, 44 (fear)

TEACHER GUIDE

SLIDE #7: *Highways and Byeways of the Forest*, 1836 drawing

BACKGROUND INFORMATION

In the early 19th century, stage coaches were a primary means of inland travel for settlers of the frontier territories of the Northwest Ohio and Indiana. Artists like George Catlin and John James Audubon recorded the native peoples and wildlife in oil paintings and sketchbooks which years later would end up in museums as media documents of the time as well as art objects. George Tattersall was a well known sports artist from England who made an “Album of Western Sketches” on a visit to the United States and Canada in 1836.

→ Project the document

QUESTION

What does this image suggest about the nature of people’s relationship to wilderness and wildlife in the early nineteenth century?

POSSIBLE ANSWER

People saw nature as a pathway to settlement and as raw materials for the development of civilization in the wilderness.

EVIDENCE

The stagecoach laden with luggage represents the pathway and the bridge made with recently cut lumber represents the raw materials.

QUESTION

When this image was made do you think it was intended to give a positive or a negative message? Why?

SLIDE #7



Highways and Byeways of the Forest, 1836 drawing

ADDITIONAL INFO

Habitat loss and fragmentation is a primary cause of wildlife endangerment. With the introduction of roads to a forested area, whether in 19th century Ohio or 21st century Malaysia, plant and animal species are put at risk. Beyond the trees themselves that are cut to make the road the completed “highways and byeways” provide a route for new human settlers and the alien species that they introduce to further threaten native species.

Media reports of the time within books like *Moby Dick* and James Fenimore Cooper’s *The Pioneers* helped to shape perceptions about how people should interact with the natural world. In his book *First Along the River: A Brief History of the U.S. Environmental Movement* Benjamin Kline argues that nineteenth century authors Ralph Waldo Emerson and Henry David Thoreau and artist George Catlin “marked a growing awareness among Americans that the unchecked assault on nature was destroying a part of the American character that could not easily be replaced.” (Kline 35)

This pen and ink drawing is part of a collection of similar sketches from British artist George Tattersall labeled “Album of Western Sketches.” Its full title is “Highways and Byeways of the Forest, a Scene on “the Road.” These sketches are held in the collection of the Museum of Fine Arts in Boston. Tattersall visited the United States in 1836 when western New York was still considered a frontier. His titles for the subjects in the album include “Log Cabin, on Banks of the St. Lawrence,” “Life in the Woods, a Scene near Lake Ontario,” “Wild Turkey Hunting” and “The Hunted Buffalo.”

FURTHER QUESTIONS

After reading the additional text how would you describe the point of view of the author and the magazine editors?

CONNECTIONS

MCES slides 9, 13, 41, 44 (buffalo)
slides 5, 9, 10, 16, 32, 33, 44 (market hunting)

TEACHER GUIDE

SLIDE #8: *American Progress*, 1872 oil painting**BACKGROUND INFORMATION**

Brooklyn artist John Gast was commissioned to create this painting by the publisher of a travel guide. Color reproductions of this painting were sent as a bonus to those who bought the guide with this encouragement from the engraver, George Croffut: "What home, from the miner's humble cabin to the stately marble mansion of the capitalist, should be without this Great National Picture, which illustrates in the most artistic manner all the gigantic results of American Brains and Hands! Who would not have such a beautiful token to remind them of the country's grandeur and enterprise which have caused the mighty wilderness to blossom like the rose!!!" (Croffut).

→ Project the document

QUESTION

What are the symbols representing the theme of American Progress and what do they imply for other living beings on the path west?

POSSIBLE ANSWER

Symbols of progress include the railroad, covered wagon, stagecoach, plow, split rail fence, log cabin, teams of oxen and horses, the "goddess of progress" with school book and telegraph wire in hand, settlers with gun and pick axe, ships, city and suspension bridge in background. The message suggests that technological progress and settlement of the west is inevitable and divinely sanctioned. Native peoples and animals are destined to retreat before the welcome advance of civilization.

EVIDENCE

Inevitability is represented by the vast array of vehicles and people all moving westward. Divine sanction is represented by the westward movement of the goddess clothed in white, coming from light into darkness and guiding the way west. The destined retreat is represented by the animals and native peoples looking over their shoulders and moving into darkness.

SLIDE #8

***American Progress*
1872 oil painting**

ADDITIONAL INFO

More from engraver Croffut's explanatory text:

This rich and wonderful country--the progress of which at the present time, is the wonder of the old world -- was until recently, inhabited exclusively by the lurking savage and wild beasts of prey...In the foreground, the central and principal figure, a beautiful and charming female, is floating westward through the air bearing on her forehead the "Star of Empire." On the right of the picture is a city, steamships, manufactories, schools and churches over which beams of light are streaming and filling the air--indicative of civilization. The general tone of the picture on the left declares darkness, waste and confusion...Fleeing from "Progress" are Indians, buffaloes, wild horses, bears, and other game, moving Westward, ever Westward, the Indians with their squaws, papooses, and "pony lodges," turn their despairing faces forward, as they flee the wondrous vision. The "Star" is too much for them. (Croffut)

FURTHER QUESTIONS

If you were alive when this was painted in 1872, what kinds of actions might you take in response to this message?

CONNECTIONS

MCES slides 2, 3, 4, 40, 41, 50 (indigenous perspectives) MCES slides 7, 8, 20, 21, 22, 23, 26, 47 (habitat destruction)

TEACHER GUIDE

SLIDE #9: *Slaughtered for the Hide, 1874* magazine cover

BACKGROUND INFORMATION

This illustration entitled “Slaughtered for the Hide” appeared in the Dec. 12, 1874 issue of the popular magazine, *Harper’s Weekly*. The accompanying article begins: “Our front-page illustration represents a party of professional hunters, numbering six or eight, who have come upon a large herd of buffaloes...The hunters kill as many as they can, until the survivors at last take fright and gallop off. Then the ‘stripping’ begins. The hides are taken off with great skill and wonderful quickness, loaded on a wagon, as shown in the background of the picture, and carried to the hunters’ camp” (Slaughtered).

→ Project the document

QUESTION

Can you guess the point of view of the artist and cover designer regarding the slaughter of the bison?

POSSIBLE ANSWER

This is a subjective question. It might be that the artist and designer wanted to call attention to the cruelty of the slaughter. It might also be that they wanted to convey the reality of the bison killing as journalists reporting on the realities of western commercial ventures.

QUESTION

Can you guess the point of view of the author of the text regarding the slaughter of the bison?

POSSIBLE ANSWER

Again it is a subjective interpretation though the adjectives in last sentence – “with great skill and wonderful quickness” – suggest an honoring of the hunters’ prowess.

SLIDE #9



***Slaughtered for the Hide,*
1874 magazine cover**

FURTHER QUESTIONS

After reading the additional text how would you describe the point of view of the author and the magazine editors?

ADDITIONAL INFO

More text from the original article:

The vast plains west of the Missouri River are covered with the decaying bones of thousands of slain buffaloes. Most of them have been slaughtered for the hide by professional hunters, while many have fallen victims to the sportsmen's rage for killing merely for the sake of killing. These people take neither hide nor flesh, but leave the whole carcass to decay and furnish food for the natural scavengers of the plains...Our artists spoke with the hunters on the plains who boasted of having killed two thousand head of buffalo apiece in one season. At this rate of slaughter, the buffalo must soon become extinct. Already there is a sensible diminution of the great herds on the plains, and from many places where they were once numerous they have disappeared altogether. Some of the railroads running far out into the prairies have regular trains for parties of amateur hunters, who fire upon their victims from the car windows. Thousands of buffalo were killed in this manner, besides other kinds of wild game, and their carcasses left to decay on the ground along the line of the railroad. The indiscriminate slaughter of the buffalo has brought many evils in its train. Among other bad consequences it has been the direct occasion of many Indian wars. Deprived of one of their chief means of subsistence through the agency of white men, the tribes naturally take revenge by making raids on white settlements and carrying off stock, if they do not murder the settlers. (Slaughtered).

CONNECTIONS

MCES slides 9, 13, 41, 44 (buffalo) slides 5, 9, 10, 16, 32, 33, 44 (market hunting)

TEACHER GUIDE

SLIDE #10: *Passenger Pigeon Shoot, 19th century etching*

BACKGROUND INFORMATION

Passenger pigeons are thought to have been the most abundant bird on earth at one time. Naturalist John James Audubon wrote about one enormous flock he saw on the banks of the Ohio River in 1813 as reported by the Web site, WildBirds.org: "The air was literally filled with them; and the 'light of noonday was obscured as by an eclipse...' Audubon estimated the number of pigeons passing overhead (in a flock one mile wide) for three hours...as 1,115,136,000...The people were all armed, and the banks of the river were crowded with men and boys incessantly shooting at the Pigeons, which flew lower as they passed the river. For a week or more the people fed on no other flesh than Pigeons" (Extinction). Giant flocks of passenger pigeons also posed a real danger to farmers' survival as one giant flock had the capacity to destroy an entire year's crop in a single day.

→ Project the document

QUESTION

What values concerning the human harvest of wildlife are implicit in this image?

POSSIBLE ANSWER

Humans have the right and capacity to harvest this limitless resource.

EVIDENCE

Humans have the right and capacity to harvest this limitless resource.

QUESTION

How might a similar image of hunters shooting birds today be interpreted?

SLIDE #10



***Passenger Pigeon
Shoot,
19th century etching***

FURTHER QUESTIONS

What other finite resources have been considered infinite?

CONNECTIONS

MCES slides 10, 14, 22, 23, 37 (birds)
slides 5, 9, 10, 16, 32, 33, 44 (market hunting)

ADDITIONAL INFO

From Paul Ehrlich, David S. Dobkin, and Darryl Wheye's article "The Passenger Pigeon":

Market hunters prospered, devising a wide variety of techniques for slaughtering the pigeons and collecting their succulent squabs. Adults were baited with alcohol-soaked grain (which made them drunk and easy to catch), and suffocated by fires of grass or sulfur that were lit below their nests. To attract their brethren, captive pigeons with their eyes sewn shut, were set up as decoys on small perches called stools (which is the origin of the term stool pigeon for one who betrays colleagues). Squabs were knocked from nests with long poles, trees were chopped down or were set on fire to make the squabs jump from nests.

Laws intended to protect the pigeons did not help. In 1886, an editor's note in *Forest and Stream* said:

When the birds appear all the male inhabitants of the neighborhood leave their customary occupations as farmers, bark-peelers, oil-scouts, wildcatters, and tavern loafers, and join in the work of capturing and marketing the game. The Pennsylvania law very plainly forbids the destruction of the pigeons on their nesting grounds, but no one pays any attention to the law, and the nesting birds have been killed by thousands and tens of thousands." As railroads penetrated the upper Middle West after the Civil War, many millions of pigeons were shipped to cities along the Atlantic seaboard, since, by then, clearing of oak and beech forests and hunting had already exterminated the birds on the East Coast. (Ehrlich)

TEACHER GUIDE

SLIDE #11: *The Artist in his Museum*, 1822 oil painting

BACKGROUND INFORMATION

The artist Charles Wilson Peale, represented in this self-portrait, became famous for painting scenes of the American Revolution. He was also interested in science, teaching and collecting. His collections of stuffed animals and birds and of dinosaur and mastodon bones became the basis for the first natural science museum in the United States, the Philadelphia Museum. By 1820, Peale had put on display more than 100,000 objects, including 269 paintings, 1,894 birds, 250 quadrupeds, 650 fish, more than 1,000 shells and 313 books in the library. (Papers)

This portrait was commissioned by the trustees of the newly incorporated Philadelphia Museum when Peale was 81 years old.

→ Project the document

QUESTION

What is the message about human animal relations in this painting?

POSSIBLE ANSWER

Humans completely dominate the animal world to the point of organizing display and observation of animal remains. The presenters of these animal specimens take pride in such displays and are worthy of respect.

EVIDENCE

Dominance is represented by the display of symbolically powerful animals such as the bald eagle and the mastodon and by the figure of the wild turkey, prostrate as though bowing to the artist. Pride is displayed in the artist's lifting of the drape and the open hand inviting the public to see what he has created.

QUESTION

**Who might benefit from this message?
Who might be harmed by it?**

SLIDE #11



***The Artist in his Museum*,
1822 oil painting**

ADDITIONAL INFO

From the National Portrait Gallery:

In 1794, with his museum absorbing most of his time and energy, Peale formally retired as a professional artist, painting portraits only for relatives, friends, and his museum. In 1801, Peale, with the assistance of the American Philosophical Society and his friend, President Thomas Jefferson, organized an expedition to upstate New York to exhume the bones of an American mastodon, an important event in the history of American science. Assisted by his son Rembrandt, Peale mounted the skeleton in his museum. It was an immediate sensation and became a huge popular attraction and a scientific achievement recognized by both American and European scientists. The mastodon exhibit was a spectacular example of what Peale accomplished with his museum: a synthesis of serious science, popular appeal, and democratic access within the context of a private proprietary institution" (Papers).

From the Smithsonian archives: "Caught in hard economic times and a growing schism between scientific natural history on the one hand and showmanship represented by P.T. Barnum on the other, the Museum went out of existence through sale of its collections in the 1850s. (Philadelphia)

FURTHER QUESTIONS

What natural history collections exist close to your home and school and how do they inform your understanding of human and animal relations?

CONNECTIONS

MCES slides 11, 14, 34 (collecting)

TEACHER GUIDE

SLIDE #12: *Buffalo Bill Weekly*, 1914 magazine cover

BACKGROUND INFORMATION

The Library of Congress holds an extensive collection of a media form called Dime Novels. Their Web page introduces the form: “In 1860 a publishing phenomenon appeared that would provide Americans a wealth of popular fiction in a regular series at a fixed, inexpensive price. Early dime novels, first printed in orange wrapper papers, were patriotic, often nationalistic tales of encounters between Indians and backwoods settlers” (“Dime Novels”). This issue of a 1914 dime novel from the series *The New Buffalo Bill Weekly* includes an image of a horse, an animal introduced by Spanish conquistadores in the early 16th century and not native to North America.

→ Project the document

QUESTION

How might media forms like the *New Buffalo Bill Weekly* have impacted public perception of westward settlement?

POSSIBLE ANSWER

Young boys and adolescent males living at a distance from the Far West

EVIDENCE

The images of two men fighting “secret foes” on the frontier would appeal to a nineteenth century ethic of heroic manhood. The mystery, illusion and appeal of “Far West Life” would be strongest for those who were distant from frontier reality and hardship.

QUESTION

How would this audience view the contemporary representation of the wolf as “our brother” by groups like WolfWeb.com?

POSSIBLE ANSWER

They would see this as insane. Wolves are man’s enemies and should be killed.

EVIDENCE

The hero Buffalo Bill is fighting for his life against the attacking foes, a pack of wolves.

SLIDE #12



***Buffalo Bill Weekly*,
1914 magazine cover**

ADDITIONAL INFO

The editors of WolfWeb.com want “to collect as much information about wolves as we can (so that)...you might take away with you a new understanding of our brother, The Wolf!” Their Web page on “Wiping Out Wolves” offers this:

When European settlers came to North America in the 1500s and 1600s, they found wolves inhabiting the deep forests and wide plains of the continent. Here there might have been room for both human and animal predators to live their separate lives in peace. Instead, North America became the scene of the human race's most successful killing campaign against the wolf. Inspired by the traditional European hatred of the wolf, the early settlers attacked the wolf using pits, traps, and poison. Bounties - cash rewards given by authorities to anyone who brought in the hide or some other part of a dead wolf helped things along. The American war against the wolf did not really get under way until the 1800s, when people began to move onto the great plains in the center of the country. Here there were enormous herds of buffalo, which served as a food supply for Indian tribes and for large numbers of wolves. All three of these - Indian, buffalo and the wolf were doomed to be brought almost to the point of extinction by ‘civilization’. (“Wiping Out Wolves”)

FURTHER QUESTIONS

How might media forms like the New Buffalo Bill Weekly have impacted public perception of westward settlement?

CONNECTIONS

MCES slides 12, 35, 36 (wolves) and case study L3 (northern rocky mountain wolf) 4, 6, 12, 36, 44 (fear)

TEACHER GUIDE

SLIDE #13: *Buffalo Land*, 1872 book illustration**BACKGROUND INFORMATION**

This illustration appears in a book entitled *Buffalo Land: An Authentic Account of the Discoveries, Adventures, And Mishaps Of A Scientific And Sporting Party in the Wild West*. The title page reports that the volume includes: “graphic descriptions of the country; the red man, savage and civilized; hunting the buffalo, antelope, elk and wild turkey, etc. etc. replete with information, wit and humor by W. E. Webb of Topeka, Kansas.”

→ Project the document

QUESTION

What is the purpose of this illustration?

POSSIBLE

To draw attention to the excessive and cruel slaughter of the buffalo and appeal to readers for laws to protect the buffalo.

EVIDENCE

The phrase “wanton destruction” and the captions “for pleasure...tongues... excitement...whiskey” suggest that the slaughter is wasteful and capricious. The phrase “hi the poor bison” suggest that the artist has sympathy for the plight of the buffalo. The bottom caption “suggestive of a game law” urges legislative controls for buffalo hunting.

QUESTION

Is this fact or opinion? How do you know?**SLIDE #13**

***Buffalo Land*,
1872 book illustration**

FURTHER QUESTIONS

What wildlife has become a symbol of the preservation movement today?

CONNECTIONS

MCES slides 9, 13, 41, 44 (buffalo)

ADDITIONAL INFO

From Buffalo Land:

Let this slaughter continue for ten years, and the bison of the American continent will become extinct. The number of valuable robes and pounds of meat which would thus be lost to us and posterity will run too far into the millions to be easily calculated. All over the plains, lying in disgusting masses of putrefaction along valley and hill, are strewn immense carcasses of wantonly slain buffalo. They line the Kansas Pacific Railroad for two hundred miles...By law, as stringent in its provisions as possible, no man should be suffered to pull trigger on a buffalo, unless he will make practical use of the robe and the meat. What would be thought of a hunter, in any of the Western States, who shot quails and chickens and left them where they fell? Every citizen, whether sportsman or not, would join in outcry against him. (Webb)

President Theodore Roosevelt was among those calling for protection of the buffalo, commenting, "The extermination of the buffalo has been a veritable tragedy of the animal world." With encouragement from the Wildlife Conservation Society, Roosevelt supported the creation of the American Bison Society (ABS) with a mission of "the permanent preservation and increase of the American bison." The ABS launched a national campaign to create reserves, stock them with bison from the Bronx Zoo, and educate the public about the bison's endangered status ("American Bison Society").

In the late 19th century, both the buffalo and the Indian became icons of the deliberate destruction of nature and culture in the west. The 1913 "Indian Head" or "Buffalo" nickel portrayed images of bison and Native American at once both tragic heroes and ideological pawns in conservationist arguments for resource protection as bounty for future generations.

TEACHER GUIDE

SLIDE #14: *Passenger Pigeon Memorial, 2004* web page

BACKGROUND INFORMATION

The text reads: "A National Historic Landmark, the last remaining Japanese pagoda-style building that was one of the Zoo's early bird aviaries, built in 1875, has been preserved as the Passenger Pigeon Memorial. The exhibit pays tribute to Martha, the last known passenger pigeon who died at the Zoo in 1914. Once the most numerous bird on Earth, the passenger pigeon was hunted into extinction. The last captive Carolina parakeet, Incas, also died at the Zoo, in 1918, and is commemorated here. The exhibit serves as a reminder to all of the tragedy of extinction and pleas with visitors to consider how their actions affect wildlife" ("Passenger Pigeon Memorial").

→ Project the document

QUESTION

Reflect on the previous image of the 19th century passenger pigeon shoot. What values concerning the human harvest of wildlife are implicit in this webpage?

POSSIBLE ANSWER

Humans should take care to act in ways that preserve wildlife.

EVIDENCE

The fact that the zoo saw fit to create a memorial to the last passenger pigeon in a building and a webpage suggests an interest in highlighting human agency in species preservation. The phrases "pays tribute to," "the tragedy of extinction" and "consider how their actions affect wildlife" all suggest encouragement for preservation.

QUESTION

Who might benefit from this message? Who might be harmed?

SLIDE #14



Passenger Pigeon Memorial, 2004 web page

FURTHER QUESTIONS

What memorial would you choose for a species rendered extinct by humans?

ADDITIONAL INFO

From the *Encyclopedia Smithsonian*:

The passenger pigeon's technique of survival had been based on mass tactics...When a flock of (enormous) size established itself in an area, the number of local animal predators (such as wolves, foxes, weasels, and hawks) was so small compared to the total number of birds that little damage could be inflicted on the flock as a whole. This colonial way of life became very dangerous when man became a predator on the flocks. When the birds were massed together, especially at a nesting site, it was easy for man to slaughter them in such huge numbers that there were not enough birds left to successfully reproduce the species.

The interests of civilization, with its forest clearing and farming, were diametrically opposed to the interests of the birds which needed the huge forests to survive. The passenger pigeons could not adapt themselves to existing in small flocks. When their interests clashed with the interests of man, civilization prevailed. The wanton slaughter of the birds only sped up the process of extinction. The converting of forests to farmland would have eventually doomed the passenger pigeon. The one valuable result of the extinction of the passenger pigeon was that it aroused public interest in the need for strong conservation laws. Because these laws were put into effect, we have saved many other species of our migratory birds and wildlife.

CONNECTIONS

MCES slides 10, 14, 22, 23, 37 (birds)
slides 11, 14, 34 (collecting)

TEACHER GUIDE

SLIDE #15: *Iceland Resumes Commercial Whaling, 2006 web page*

BACKGROUND INFORMATION

During the 1960s, French oceanographer Jacques Cousteau's *Under Seas World* television series played an important role in raising consciousness of the threats to marine species and the oceans as a result of human activities. In the 1970s, a movement arose to "save the whale" in response to the whaling industry's depletion of many whale species. Activist groups like Greenpeace and the Sea Shepherd Society mounted direct action campaigns to force countries to end commercial whaling. In 1986, the International Whaling Commission imposed an international ban on commercial whaling.

→ Project the document

QUESTION

Who runs this Web site, and when and why did they post this page?

POSSIBLE ANSWER

The organization Greenpeace USA created this Web page was posted on Nov. 1, 2006 to alert viewers to the threat posed by Iceland's resumption of whaling and to recruit new members to their cause.

EVIDENCE

Greenpeace USA logo appears on the top banner and the date appears beneath the headline. The threat is underscored by noting that claims about a sustainable hunt for endangered fin whales are untrue and that an Icelandic whale processing factory is going back in service. The image of the dead whale also suggests a threat.

QUESTION

Why do you think the editors of this page chose to use this image and to lead the story with a sentence about the success of the Icelandic whale watching industry?

SLIDE #15



Iceland Resumes Commercial Whaling, 2006 web page

FURTHER QUESTIONS

How would you mount an awareness campaign about endangered Antarctic krill, the microscopic crustacean on which whales and other marine mammals feed?

ADDITIONAL INFO

Greenpeace describes their work on their homepage:

Our committed activists and supporters have come together to ban commercial whaling, convince the world's leaders to stop nuclear testing, protect Antarctica, and so much more. Today, we have grown from a small group of dedicated activists to an international organization with offices in more than 30 countries. But our spirit and our mission remain the same. Our fight to save the planet has grown more serious – the threat of global warming, destruction of ancient forests, deterioration of our oceans, and the threat of a nuclear disaster loom large. Greenpeace is actively working to address these and other threats.

In his book, *The Future of Life*, zoologist Edward O. Wilson reflects on “the delusion that destroyed the whaling industry” as an example of the relationship between human enterprise and species conservation:

As harvesting and processing techniques were improved, the annual catch of whales rose, and the industry flourished. But the whale populations declined in equal measure until they were depleted. Several species, including the blue whale, the largest animal species in the history of Earth, came close to extinction. Whereupon most whaling was called to a halt. Extend that argument to falling ground water, drying rivers, and shrinking per-capita arable land, and you get the picture. (Wilson 26)

CONNECTIONS

MCES slides 4, 6, 15, 46 (whaling)

TEACHER GUIDE

SLIDE #16: *Study Sees Global Collapse of Fish Species*, 2006 web page

BACKGROUND INFORMATION

Text of the article: "If fishing around the world continues at its present pace, more and more species will vanish, marine ecosystems will unravel and there will be "global collapse" of all species currently fished, possibly as soon as mid-century, fisheries experts and ecologists are predicting. The scientists, who report their findings today in the journal *Science*, say it is not too late to turn the situation around. As long as marine ecosystems are still biologically diverse, they can recover quickly once over fishing and other threats are reduced, the researchers say.

But improvements must come quickly, said Boris Worm of Dalhousie University in Nova Scotia, who led the work. Otherwise, he said, "we are seeing the bottom of the barrel." "When humans get into trouble they are quick to change their ways," he continued. "We still have rhinos and tigers and elephants because we saw a clear trend that was going down and we changed it. We have to do the same in the oceans."

→ Project the document

SLIDE #16

QUESTION

Who paid for this message?

POSSIBLE ANSWER

The advertisers who support this publication including Dunkin' Donuts and the Discovery Channel.

EVIDENCE

Advertisers buy space on the NYTimes.com Web page just as they do in the pages of the New York Times. Primary advertisers receive a highly visible place on the page in return for their payment to the media source in which they advertise.

QUESTION

Why might the webpage designers have chosen to fill one quarter of their leading space with a graph rather than a photo or more text?



***Study Sees Global Collapse of Fish Species*, 2006 web page**

ADDITIONAL INFO

The results of the study referenced in this webpage were published in the journal *Science* in an article entitled "Impacts of Biodiversity Loss on Ocean Ecosystem Services." The summary paragraph from that article:

Human-dominated marine ecosystems are experiencing accelerating loss of populations and species, with largely unknown consequences. We analyzed local experiments, long-term regional time series, and global fisheries data to test how biodiversity loss affects marine ecosystem services across temporal and spatial scales. Overall, rates of resource collapse increased and recovery potential, stability, and water quality decreased exponentially with declining diversity. Restoration of biodiversity, in contrast, increased productivity fourfold and decreased variability by 21%, on average. We conclude that marine biodiversity loss is increasingly impairing the ocean's capacity to provide food, maintain water quality, and recover from perturbations. Yet available data suggest that at this point, these trends are still reversible. ("Impacts")

FURTHER QUESTIONS

How does the viewing of fisheries as commodities impact human relations to fish?

CONNECTIONS

MCES slides 5, 9, 10, 16, 32, 33, 44 (market hunting) MCES 16, MCRD 16 and Resource Depletion case study L4 (fisheries)

TEACHER GUIDE

SLIDE #17: *Tropical Rainforest, 2000* book cover

BACKGROUND INFORMATION

Tropical rainforests make up only about 7% of the land surface of the earth and yet contain more than half of all the earth's species (Becher 11). The rainforests provide ecosystem services to humans in countless ways, from the pharmacological value of specific plants to the regulation of the atmosphere and climate. They are also among the ecosystems which are most threatened by human interference. According to the Food and Agriculture Organization of the United Nations, the worldwide rate of rainforest clear cutting has been about one percent per year, removing an area half the size of Florida from the world's tropical rainforests annually (Wilson 60).

→ Project the document

QUESTION

According to this book cover, why should anyone care about the survival of the tropical rainforest?

POSSIBLE ANSWER

Tropical rainforests are homes to endangered people, plants and animals. Famous people urge support for its survival. We can have an impact on whether the rainforest will survive.

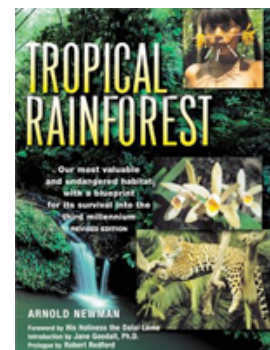
EVIDENCE

The images suggest rainforests are home to people, plants and animals. The foreword, introduction and prologue were written by a famous religious figure, scientist and actor. The subtitle "with a blueprint for its survival" suggests the rainforest can yet be saved.

QUESTION

How credible are the suggestions that the tropical rainforest is at risk and that it can be saved? How do you know?

SLIDE #17



***Tropical Rainforest,*
2000 book cover**

ADDITIONAL INFO

From the Joint Statement on Tropical Rainforest Countries' Leaders Meeting in New York on 24 September 2007:

While reaffirming and upholding the principle of common but differentiated responsibilities and the sovereign rights of countries over their natural resources, we recognize the primary responsibility of industrialized nations for the current atmospheric interference leading to global warming and its consequences, including the resulting mitigation and adaptation challenges. We note with concern the recent findings of the Intergovernmental Panel on Climate Change (IPCC) which indicate that forests may be among the main victims of climate change resulting in dire impacts on the environment, ecosystems and the livelihoods, particularly of those populations that depend directly on forests.

Noting that all types of forests, including tropical forests, play a crucial role in maintaining ecological balance as sinks, sources and reservoirs of greenhouse gases, we emphasize that the tropical rainforests within our countries, which comprise about half the world's tropical rainforests, serve as sources of livelihood and repositories of the cultural heritage of vast numbers of people, while the ecosystems of these rainforests serve as habitat for diverse biological species and as storehouses of genetic resources for food, medicine and various goods and services that can help sustain present and future generations of humankind. ("Joint Statement")

FURTHER QUESTIONS

What actions are people in your community taking to preserve threatened habitat?

CONNECTIONS

MCES slides 17, 18, 20, 21, 22, 23, 33, 40 (rainforest) slides 17, 19, 24 (biodiversity) case study L4 (rainforest biodiversity) MCRD slides 8, 9, 10, 18, 34, 35, 36, 44 (forests)

TEACHER GUIDE

SLIDE #18: *Priorities*, 2006 Web page**BACKGROUND INFORMATION**

The blog Evhead “is the personal site of Evan Williams. It has been up since 1996, in blog form since 1999. I am the founder of Obvious Corp., a San Francisco-based Web product development company, and co-founder of Twitter. I used to be the co-founder and CEO of Pyra Labs, makers of Blogger, which is now part of Google, where I worked most of 2003-04” (Williams).

This posting shows four covers from international editions of *Newsweek* magazine for the week of Oct. 8, 2006.

→ Project the document

QUESTION

What is the blogger’s perspective as to why the U.S. cover story was different than that of Europe, Asia and Latin America?

POSSIBLE ANSWER

He suggests with irony that sex scandals are more important (or sell more magazines) than the impact of global warming or a rainforest frog’s extinction.

EVIDENCE

The comment “We have much more important Washington sex scandals to discuss,” referring to the sex scandal involving Congressman Mark Foley highlighted in the U.S. edition cover.

QUESTION

What are some other reasons that *Newsweek* might have chosen not to run the frog cover in the United States edition?

POSSIBLE ANSWER

This is a subjective question. Answers might include that the extinction of a tiny frog in a distant country might be of less interest than U.S. politics or that editors might not have wanted to highlight the potential consequences of climate change on their cover.

SLIDE #18

***Priorities*
2006 web page**

ADDITIONAL INFO

From the *Newsweek* article by Mac Margolis:

Why the Frogs Are Dying: Climate change is no longer merely a matter of numbers from a computer model. With startling swiftness, it is reordering the natural world." The article concerns the extinction of the harlequin frog of Costa Rica's Monteverde cloud forest. "The trouble at Monteverde only heightened a mystery that had scientists stumped for years: why do whole species of wildlife disappear in apparently pristine parks and nature preserves? There had been no shortage of theories to explain the demise of the harlequins, from acid rain to an overdose of ultraviolet rays. By the late nineties, attention shifted to the chytrid fungus outbreaks, which many amphibian experts concluded were the smoking gun. But (ecologist J. Alan) Pounds wasn't satisfied. After all, it wasn't just harlequins, but all kinds of amphibians that were dying. And if the chytrid disease was killing the frogs, what was behind the deadly outbreak? In time, Pounds learned that the fungus flourished in the wet season and turned lethal in warm (17 to 25 degrees Celsius) weather – exactly the conditions that climate change was bringing to the cloud forest. More important, he found that 80% of the extinctions followed unusually warm years. 'The disease was the bullet killing the frogs, but climate was pulling the trigger,' says Pounds. 'Alter the climate and you alter the disease dynamic'. (Margolis)

FURTHER QUESTIONS

What are your sources for international perspectives on world news?

CONNECTIONS

MCES slides 17, 18, 20, 21, 22, 23, 33, 40 (rainforest) case study L5 (frog population crash)

TEACHER GUIDE

SLIDE #19: *The Future of Life*, 2002 book cover**BACKGROUND INFORMATION**

This book by entomologist and author E. O. Wilson includes the following passage: “It is not so difficult to love nonhuman life, if gifted with knowledge about it. The capacity, even the proneness to do so, may well be one of the human instincts. The phenomenon has been called ‘biophilia,’ defined as the innate tendency to focus upon life and lifelike forms and in some instances to affiliate with them emotionally. Human beings are thrilled by the prospect of unknown creatures, whether in the deep sea, the unbroken forest, or remote mountains. We are riveted by the idea of life on other planets. Dinosaurs are our icons of vanished biodiversity. More people visit zoos in the United States than attend professional sports events” (Wilson 134). The cover artist is Isabella Kirkland.

→ Project the document

QUESTION

What is the artist’s and cover designer’s message about biodiversity and survival?

POSSIBLE ANSWER

Biodiversity connects all. Awareness of this will be our path to survival.

EVIDENCE

What techniques do they use to communicate this message?

QUESTION

The complex interweaving in the drawing invites the viewer in for a closer look to see that the whole is made up of discrete parts. The boxes help us to see the individual life forms contained within the overall bouquet of life. The colorful image of flowers and wildlife is positive. Coupled with the title, “The Future of Life,” the suggestion is that biodiversity and future survival go hand in hand.

SLIDE #19

***The Future of Life*,
2002 book cover**

ADDITIONAL INFO

More from *The Future of Life*:

Each species – American eagle, Sumatran rhinoceros, flat-spined three-toothed land snail, furbish lousewort, and on down the roster of ten million or more still with us - is a masterpiece. The craftsman who assembled them was natural selection, acting upon mutations and recombinations of genes, through a vast number of steps over a long period of time. Each species, when examined closely, offers an endless bounty of knowledge and scientific pleasure. The number of genes prescribing a eukaryotic life form such as a Douglas fir or a human being runs into the tens of thousands. The nucleotide pairs composing them – in other words, the genetic letters that encode the life-giving enzymes – vary among species from 1 billion to 10 billion. If the DNA helices in one cell of a mouse, a typical animal species, were placed end on end and magically enlarged to have the same width as wrapping string, they would extend for over nine hundred kilometers, with about four thousand nucleotide pairs packed into every meter. Measured in bits of pure information, the genome of a cell is comparable to all editions of the Encyclopedia Britannica published since its inception in 1768. (Wilson 131).

FURTHER QUESTIONS

What other life forms are central to your survival in the area where you live?

CONNECTIONS

MCES slides 17, 19, 24 (biodiversity)

TEACHER GUIDE

SLIDE #20: *The Last Stand of the Orangutan*, 2007 report cover

BACKGROUND INFORMATION

Between 2001 and 2005, more than 1,360 experts worldwide participated in the Millennium Ecosystem Assessment in an effort to determine the consequences of ecosystem change for human well-being (Millennium). The report concludes that habitat loss is “the main driver of species loss in terrestrial ecosystems” (Ecosystem 14). The report lists other causes for biodiversity loss as climate change, invasive alien species, overexploitation and pollution.

This report, *The Last Stand of the Orangutan*, was released in February 2007 by UNEP, the United Nations Environment Programme World Conservation Monitoring Centre. According to the UNEP report palm oil is an inexpensive vegetable oil found in one in ten supermarket products (Last Stand 28).

→ Project the document

QUESTION

What techniques have the designers of this report cover used to emphasize the urgency of the threat to orangutan populations?

POSSIBLE ANSWER

The choice of words for the title: “Last Stand” and “State of Emergency” suggest that the orangutan is immediately at risk. The images of the burning forest and the caged ape add urgency to the message of crisis.

QUESTION

How credible is this message?

POSSIBLE ANSWER

The fact that the report comes from a United Nations agency lends credibility. One would have to search the text for citations and read the supporting study results in order to draw an informed conclusion as to credibility.

SLIDE #20



***The Last Stand of the Orangutan*, 2007 report cover**

FURTHER QUESTIONS

What is my interpretation of this document and what do I learn about myself from my reaction?

ADDITIONAL INFO

More from “The Last Stand”:

Orangutans are native to Indonesia and Malaysia. Their survival is seriously endangered by illegal logging, forest fires including those associated with the rapid spread of oil palm plantations, illegal hunting and trade. In the last few years, timber companies have increasingly entered the last strongholds of orangutans in Indonesia: the national parks...If current logging trends continue, most of Indonesia's national parks are likely to be severely damaged within the next decade, because they are amongst the last areas to hold valuable timber in commercially viable amounts. The situation is now acute for both the Bornean orangutan and Sumatran orangutan.

Large areas of Indonesian and Malaysian forest have been converted to oil palm plantations, in which multinational networks are also implicated. The cheap vegetable oil is becoming increasingly popular, because, despite being high in saturated fats, it is an alternative to trans fats, which are more closely associated with heart disease, and increasingly being banned in Western countries. It is stable at high temperatures, making it very popular with food manufacturers...There is also an increasing market for vegetable oil as a renewable fuel. (28)

CONNECTIONS

MCES slides 7, 8, 20, 21, 22, 23, 26, 47 (habitat destruction) MCES slides 17, 18, 20, 21, 22, 23, 33, 40 (rainforest) case study L4 (orangutan and palm oil)

TEACHER GUIDE

SLIDE #21: *Our Soap Helps Save Lives*, 2008 web page

BACKGROUND INFORMATION

According to its About Us Web page: “The Body Shop International is a global manufacturer and retailer of naturally inspired, ethically produced beauty and cosmetics products...We are part of the L'Oréal family.”

Body Shop's parent company, L'Oréal, states its mission as: “The right to be beautiful day after day: L'Oréal strives to make this a reality within the reach of every woman and every man. This ambition is reflected in a brand portfolio unequalled anywhere in the world. Since its creation in 1909, the group has always considered this mission of prime importance.”

→ Project the document

QUESTION

Who made this and for what purpose?

POSSIBLE ANSWER

The Body Shop Company and its owner, L'Oreal, made this webpage to encourage consumers to buy its products.

EVIDENCE

L'Oreal and The Body Shop are global companies seeking to extend their “brand portfolio” to “every woman and every man.”

QUESTION

This slide and the previous one both focus on orangutans and palm oil. How does this message differ from that of the previous slide?

POSSIBLE ANSWER

This message highlights the message that palm oil can be grown in a sustainable manner, consistent with orangutan preservation in the effort to encourage consumers to buy Body Shop products. The image of the baby orangutan encourages warm feelings rather than the sadness or fear inspired by the images from the previous slide.

SLIDE #21



Our Soap Helps Save Lives
2008 Web page

FURTHER QUESTIONS

What connections do you have to orangutan survival or to palm oil farming?

ADDITIONAL INFO

This slide and the previous one highlight different perspectives on corporate actions as they impact wildlife protection. The previous slide of UNEP's "The Last Stand" report suggests corporations like palm oil agribusiness are contributing to the threat to orangutans by cutting forests to grow market crops. Some environmentalists argue that short-term profit for corporations always trumps a long-term investment in biodiversity. The Body Shop argues it can help to protect wildlife by buying its materials from producers that adhere to carefully managed agricultural practices.

More from Body Shop's "Our Soap Helps Save Lives" Web page:

What is The Body Shop doing? Since we became aware of the issue, we have worked tirelessly to help the workers, communities and animals affected. We are now committed to converting all our soaps to use only sustainable palm oil. Our efforts have been recognized and supported by Friends of the Earth and we are a leading figure on the global Roundtable on Sustainable Palm Oil, which is endorsed by Oxfam and the World Wildlife Fund...We acknowledge that there is still a lot of work to be done, but together we're already making a difference. 'We applaud the pioneering role The Body Shop has taken in helping formulate strong palm oil production standards.' - Matthias Diemer, Palm Oil Expert, WWF Switzerland.

CONNECTIONS

MCEs slides 7, 8, 20, 21, 22, 23, 26, 47 (habitat destruction) slides 21, 29, 30 (corporate advertising) slides 17, 18, 20, 21, 22, 23, 33, 40 (rainforest) case study L4 (orangutan and palm oil)

TEACHER GUIDE

SLIDE #22: *Northern Spotted Owl*, 2006 magazine cover

BACKGROUND INFORMATION

The cover article is based on a study by F. M. Moola & S. Yezerinac, "Conservation status and threats to species associated with old growth forests within the range of the Northern Spotted Owl in British Columbia, Canada." It begins: "Northern Spotted Owls live in old-growth and late-successional coniferous and mixed-coniferous forests from California to British Columbia. Populations have been declining for over 30 years and the species is legally listed as endangered in both the USA and Canada. The primary cause of endangerment is the loss of old-growth forest habitat necessary for foraging, nesting and dispersal behaviors, though disease, predation and competition may also be secondarily operating (Yezerinac3).

→ Project the document

QUESTION

What do you think might be the position of the editors of *Biodiversity* regarding the Endangered Species Act? Is this position explicit or implied?

POSSIBLE ANSWER

They are likely to be supporters of the Endangered Species Act by implication.

EVIDENCE

The magazine title and the top banner words "conservation" and "sustainability" coupled with the highlighting of the endangered spotted owl imply support for the Endangered Species Act without explicitly endorsing it.

QUESTION

How do the designers of this magazine cover represent the spotted owl's role in the ecosystem of the temperate rainforests of the Pacific Northwest?

POSSIBLE ANSWER

They portray the owl as having a central role in maintaining ecosystem vitality in the rainforest.

The subtitle "Flagship Species in Old Growth Forests" and the owl's central presence in the cover image of rainforest highlight the owl's central position.

SLIDE #22



***Northern Spotted Owl*,
2006 magazine cover**

ADDITIONAL INFO

From the Abstract preceding this article:

The threats to these species (in British Colombia old growth forests) are varied, but timber harvesting and its indirect effects (e.g., road building, forest fragmentation) make up the majority. Although recovery planning for Spotted Owls has the potential to impact many other species at risk, we argue that the Spotted Owl is not a good Indicator, Keystone or Umbrella species, and that even as a Flagship species it may be insufficient. So we outline a new flagship fleet concept, nominate its members and summarize how it relates to conservation reserve planning. (Yezerinac 3)

FURTHER QUESTIONS

After reading the additional information which summarizes the results of this study, discuss the differences between the authors' conclusions and the cover message.

CONNECTIONS

MCES slides 7, 8, 20, 21, 22, 23, 26, 47 (habitat destruction) slides 22, 23, 24, 25, 37 (endangered species act) MCRD slides 8, 9, 10, 18, 34, 35, 36, 44 (forests)

TEACHER GUIDE

SLIDE #23: *Who Gives a Hoot*, 1990 news article**BACKGROUND INFORMATION**

This image from *Weekly World News* was published on Aug. 21, 1990. It refers to the controversy over regulations to restrict logging in old growth forests of the Pacific Northwest as a means to protect the northern spotted owl, which was listed as a threatened species by the Fish and Wildlife Service in June 1990.

Weekly World News was a supermarket tabloid newspaper published by American Media. At its peak in the 1980s, it had a circulation of one million readers. Circulation eventually fell to under 90,000 and it was discontinued as a print newspaper in 2007 (Carlson).

→ Project the document

QUESTION

How do the designers of this image represent environmentalists' role in the timber industry of the Pacific Northwest?

POSSIBLE ANSWER

Environmentalists care more about owls than about workers.

EVIDENCE

The words "who gives a hoot" and "silly birdwatchers are putting our lumberjacks out of work" give this message, as do the paired images of iconic lumberjack Paul Bunyan looking down on the owl.

QUESTION

Is this message credible? How do you know?

SLIDE #23

***Who Gives a Hoot*
1990 news article**

ADDITIONAL INFO

From UC Davis Dept. of Wildlife, Fish and Conservation Biology professor Peter Moyle's essay, "Conflicts in Conservation":

Any plan to protect the spotted owl must set aside large areas of contiguous old-growth forest; not surprisingly, the forest products industry opposes any such plan. Its argument against this particular plan is threefold: (1) sequestering this much timber to protect the owl will cost billions of dollars and eliminate thousands of jobs, (2) the spotted owl does not require as much old-growth as most scientists believe, and (3) owl populations can be maintained or even increased through proper management without withdrawing so much forest from commercial use. An acre of old-growth timber was worth approximately \$4000 in 1985. Simple mathematics shows that protecting 2000 acres per nesting pair and providing for 2000 pairs withdraws \$16 billion in timber from harvesting. If this 'asset' is taken away, industry experts predict that over 12,000 jobs will be lost...

'Conservationists' arguments and rebuttals are simple and supported by strong scientific evidence. The basic argument is that most credible scientific research suggests that the spotted owl will go extinct unless logging operations in old-growth forests are severely curtailed. According to the National Forest Management Act, the Forest Service must prevent any indicator species for going extinct without regard to cost. Thus the required action, reserving large areas of suitable habitat, must be taken. Scientific evidence suggests that there is currently not enough old-growth forest left even to support present owl populations (Moyle 9.2.4).

FURTHER QUESTIONS

After reading the excerpt from Professor Peter Moyle's essay in additional information, discuss the role of activism and objectivity in academic discourse.

CONNECTIONS

MCES slides 7, 8, 20, 21, 22, 23, 26, 47 (habitat destruction) slides 22, 23, 24, 25, 37 (endangered species act) MCRD slides 8, 9, 10, 18, 34, 35, 36, 44 (forests)

TEACHER GUIDE

SLIDE #24: *Endangered Species Act, 1993* cartoon**BACKGROUND INFORMATION**

This cartoon by Steve Greenberg first appeared in the *Seattle Post-Intelligencer* on March 8, 1993. The cartoonist claims that it is “one of my most popular cartoons ever, reprinted and exhibited several times.” He notes that when he drew this cartoon “development interests were starting to build their opposition to the continuance of the Endangered Species Act (ESA), and hoped to get it reduced or repealed” (Greenberg).

The Endangered Species Act was signed into law in 1973 by President Nixon who said at the time: “Nothing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed.” ESA “provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend” (ESA).

→ Project the document

SLIDE #24

QUESTION

What is the perspective of this cartoonist, Steve Greenberg, on the impact of efforts to extend the endangered species act?

POSSIBLE ANSWER

He sees the timber industry, both loggers and management, as opposed to extending the act and all wildlife in favor.

EVIDENCE

The forearms clothed in work shirt and suit jacket and hoisting chainsaws represent the industry interests and the array of fish, bird and mammal limbs represent all wildlife.

QUESTION

What conflicting values are implied in this cartoon?

POSSIBLE ANSWER

The value of profits from the cutting and sale of timber versus the value of biodiversity



***Endangered Species Act, 1993* cartoon**

ADDITIONAL INFO

The Endangered Species Act (ESA) is administered jointly by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA). From the NMFS webpage on the ESA:

The ESA replaced the Endangered Species Conservation Act of 1969; it has been amended several times. A “species” is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future...There are approximately 1,880 species listed under the ESA. Of these species, approximately 1,310 are found in part or entirely in the U.S. and its waters; the remainder are foreign species. Programs under the ESA. The ESA provides for different programs to conserve endangered and threatened species: Listing, Critical Habitat, Recovery, Cooperation with States, Interagency Consultation, International Cooperation, Enforcement of the ESA and Permits & Habitat Conservation Plan. (NOAA)

FURTHER QUESTIONS

What wildlife in your region has been protected by the Endangered Species Act? How can you find out if you don’t know?

CONNECTIONS

MCES slides 17, 19, 24 (biodiversity)
slides 22, 23, 24, 25, 37 (endangered species act) MCRD slides 8, 9, 10, 18, 34, 35, 36, 44 (forests)

TEACHER GUIDE

SLIDE #25: *There's Still Time*, 1997 book cover**BACKGROUND INFORMATION**

This book was named one of the outstanding science trade books for children for 1998 by the National Science Teachers Association and the Children's Book Council. In their listing they describe *There's Still Time*: "This well-written book discusses and illustrates the successes of the Endangered Species Act of 1973 and the work that remains. From the well-known bald eagle to the lesser-known Louisiana pearl shell mussel, the author explores the recovery of 19 plants and animals through informative text and amazing photographs" (Outstanding). Bruce Babbitt was Secretary of the Interior for President Clinton.

→ Project the document

QUESTION

Book covers are advertisements meant to sell the product rather than to summarize the contents. Who are the target audiences for this cover? Give evidence to support your conclusion.

POSSIBLE ANSWER

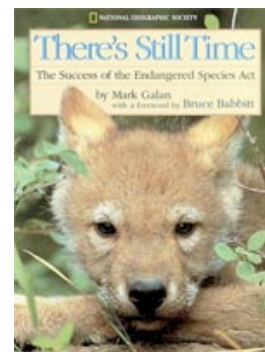
Target audiences are likely to be young children, parents, teachers and librarians.

EVIDENCE

Children as a target audience is indicated by the appeal of the full cover photo of the small animal and the readability of the brief main title in large colorful letters. Parents, teacher and librarians as a target audience is indicated by the respected publisher listing at the top, National Geographic Society, and by the endorsement of the sitting Secretary of the Interior at the time the book was published.

QUESTION

Given that a majority of endangered species are not furry mammals, why might the editor have chosen this cover photograph to convey this message?

SLIDE #25

***There's Still Time*,
1997 book cover**

FURTHER QUESTIONS

How might you design a children's book cover on the same topic, which could communicate the reality that most endangered species are not furry mammals?

ADDITIONAL INFO

From the forward to *There's Still Time* by Bruce Babbitt:

When youngsters at a Los Angeles 'Eco-Expo' were asked to answer the basic question: 'Why save endangered species?' Gabriel replied, 'Because God gave us the animals.' Travis and Gina wrote, "Because we love them." Another child answered, "Because they are a part of our life. If we didn't have them, it would not be a complete world." Now, in my lifetime I have heard many, many political, agricultural, scientific, medical and ecological reasons for saving endangered species. They give thousands of reasons why species are useful to humans. None of these reasons move me like the children's. For the children are putting in plain words a complex notion that has been lost or forgotten by many. The children's answers express the moral and spiritual belief that there may be a higher purpose inherent in creation, demanding our respect and our stewardship, quite apart from whether a particular species is or ever will be of material use to people. Their answers remind us of important values. Why should we save endangered species? Let us answer this question with one voice, the voice of a child who replied: 'Because we can'. (Galan)

CONNECTIONS

MCES slides 22, 23, 24, 25, 37
(endangered species act)

TEACHER GUIDE

SLIDE #26: *Forest Landowners Association, 2005 Web page*

BACKGROUND INFORMATION

Text: “We believe the conservation of species and ecosystems is important to society. However, the current Endangered Species Act (ESA) listing process has dramatized the enormous power of the ESA to affect landowners, workers, industry, and regional economies in ways never intended by the statute's authors. This law provides federal agencies sweeping powers for removing productive forestlands from economic uses by declaring land essential for the habitat of threatened/endangered species. The law does not provide public interest or economic tests for recovery plans and does not require a consensus of scientific opinion to determine the status of species or even a deliberate process for ensuring such an outcome. Agency regulation has consistently expanded these powers under which federal agencies can "take" private land for habitat conservation” (Endangered).

→ Project the document

QUESTION

Who sponsored and paid for this Web page? Give evidence to support your answer.

POSSIBLE ANSWER

The Forest Landowners Association (FLA) sponsored it. Advertising revenue from BASF and membership fees probably helped to pay for the page.

EVIDENCE

The FLA name and logo appear on the top banner indicating sponsorship. The financing for the page is not made explicit. The BASF chemical company advertisement, prominently displayed, and the membership button and the call to “Join FLA today!” suggest that advertising and membership fees most likely helped to finance this page.

QUESTION

Who might own large areas of forest land and why would they be interested in the endangered species act?

SLIDE #26



Forest Landowners Association, 2005 Web page

ADDITIONAL INFO

From the FLA home page:

Created in 1941, the Forest Landowners Association is a proactive, progressive and hard hitting grassroots organization of timberland owners – large and small – who own and operate more than 28 million acres of timberland in 47 states. It is only organization created for the specific purpose of speaking for timberland owners at local, regional and national levels. Our Mission: To support, through advocacy, education, and information, forest landowners' responsible management of their private property" (Who).

The early corporate sponsors of the 2007 Forest Landowners Association annual conference are listed in the FLA Fast Facts newsletter: "ArborGen, LLC is a global leader in the research, development, and commercialization of applications in genetic and new technology that will improve forest sustainability and productivity. Georgia-Pacific is one of the world's leading manufacturers and marketers of tissue, packaging, paper, pulp, building products, and related chemicals. (Annual)

FURTHER QUESTIONS

How might you uncover the sources of financial support for an organization?

CONNECTIONS

Slides 22, 23, 24, 25, 37 (endangered species act) slides 7, 8, 20, 21, 22, 23, 47 (habitat destruction) MCRD slides 8, 9, 10, 18, 34, 35, 36, 44 (forests)

TEACHER GUIDE

SLIDE #27: *Invasive Species*, 2008 Web page**BACKGROUND INFORMATION**

The Millennium Ecosystem Assessment Report lists invasive species as a major threat to native species, especially in freshwater habitats: “The homogenization of biodiversity—that is, the spread of invasive alien species around the world...represents a loss of biodiversity at a global scale (since once-distinct groups of species in different parts of the world become more similar) even though the diversity of species in particular regions may actually increase because of the arrival of new species” (Millennium 2).

→ Project the document

QUESTION

Why was this Web page made and who paid for it?

POSSIBLE ANSWER

It was made to educate people who use Lake George about the potential dangers of invasive species to native species and to urge people to become active in protecting their watershed. It was paid for by New York state taxpayers.

EVIDENCE

The page title “Invasive Species Information Page,” the sidebars, “Lakeshore Protection” and “Invasive Species Prevention” and the images of invasive species concern the dangers. The line, “Become informed and take action! Be a part of the solution” invites action for protection. The labeling of the Lake George Park Commission as a public safety agency, the NY state seal on the bottom banner, the email address suffix and the New York state logo at the top indicate that the page is paid for by a state agency.

QUESTION

Who might benefit from this message? Who might be harmed?

SLIDE #27

***Invasive Species*,
2008 Web page**

FURTHER QUESTIONS

What are some of the common invasive species in your area and what are people doing to deal with the problem?

ADDITIONAL INFO

More from the Millennium Report:

The costs resulting from ecosystem 'surprises' can be very high. The United States, for example, spends hundreds of millions of dollars each year controlling alien species that were initially rare and of little consequence but eventually became invasive" (ibid 6). "The spread of invasive alien species and disease organisms has increased because of increased trade and travel, including tourism. Increased risk of biotic exchange is an inevitable effect of globalization. While increasingly there are measures to control some of the pathways of invasive species—for example, through quarantine measures and new rules on the disposal of ballast water in shipping—several pathways are not adequately regulated, particularly with regard to introductions into freshwater systems" (ibid 8). "Invasive alien species have been a major cause of extinction, especially on islands and in freshwater habitats, and they continue to be a problem in many areas. In freshwater habitats, the introduction of alien species is the second leading cause of species extinction, and on islands it is the main cause of extinction over the past 20 years, along with habitat destruction. Awareness about the importance of stemming the tide of invasive alien species is increasing, but effective implementation of preventative measures is lacking. (ibid 53)

CONNECTIONS

MCES slides 27, 28 (invasive species)

TEACHER GUIDE

SLIDE #28: *Invasive Species Cookbook*, 2006 book cover

BACKGROUND INFORMATION

From the publisher's Web page: "If you can't beat 'em, eat 'em. One of the least publicized ecological crises facing us today is the introduction and spread of non-native invasive species. The working definition of an invasive is any non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health, and that out-compete native species for the resources necessary to exist. Unbeknownst to most of us, the 30,000 non-indigenous, human-introduced invasives that have become established in the United States are responsible for the decline of more than 40 percent of the plants and animals presently listed as threatened or endangered here, and that cost us an estimated \$123 billion per year in economic losses."

→ Project the document

QUESTION

Why was this book cover made and who paid for it?

POSSIBLE ANSWER

It was made to promote the sale of the book by the publisher.

EVIDENCE

Book covers are advertisements, as are magazine covers and the front pages of newspapers. The goal is to get a potential consumer to pick up and buy the product.

QUESTION

What techniques does the designer of this cover use to encourage potential readers to purchase this book?

POSSIBLE ANSWER

Humor because the creatures are clustered in the pan and seem to be headed for the exit up the pan handle, except for the eel. Curiosity because of the unusual collection of mammals, crustaceans, amphibians, mollusks, fish and plants under the label of "invasive species."

SLIDE #28



***Invasive Species Cookbook*, 2006 book cover**

FURTHER QUESTIONS

If you were to design a campaign to deal with the problem of invasive species in your area what steps would you take?

ADDITIONAL INFO

More from the publisher:

Starlings invade bluebird boxes, Kudzu is choking out entire forests in the Southeast, flying thirty pound Asian carp are injuring boaters on the Mississippi and competing with native fish, and bullfrogs in the Northwest are busy consuming native amphibians and the Pacific pond turtle. Giant Gambian pouched rats the size of cats are now permanent residents of the Florida Keys, and Burmese pythons prowl the Everglades. We combat them with whatever means we have at our disposal, but what hasn't been discussed, until now, is their edibility.

The power of the human alimentary tract to act as the final resting place for non-human life-forms is not to be underestimated. Even formerly abundant species such as the passenger pigeon were rendered extinct at least in part to satisfy the bellies of humans, and the bush meat crisis facing the tropics has lead to the extinction of species such as the Alagoas currawong in northeastern Brazil and the Miss Waldron's red colobus monkey in Ghana and the Cote d'Ivoire. The Chinese are busily loading the world's turtles into the cooking pot... Perhaps it's time to put all of those grumbling stomachs and gnashing teeth to work in a way that benefits, rather than hinders, biodiversity conservation.

CONNECTIONS

MCES slides 27, 28 (invasive species)

TEACHER GUIDE

SLIDE #29: *Welcoming a New Dawn*, 1996 magazine advertisement

BACKGROUND INFORMATION

David Soblin of the J. Walter Thompson ad agency created Chevron's "People Do" ad campaign. He noted "Chevron is far and away considered the most environmentally responsible oil company...We felt that what people most wanted oil companies to do is be environmentally responsible" (Helvarg).

The Chevron Corporation which paid for this ad defines itself on its Web page: "Chevron is one of the largest integrated energy companies in the world...We conduct business in approximately 180 countries, and are engaged in every aspect of the oil and natural gas industry, including exploration and production, refining, marketing and transportation, chemicals manufacturing and sales, geothermal and power generation" (Company).

This ad ran in the November 1996 issues of *Discover* and *Harper's* magazines.

→ Project the document

QUESTION

What techniques does the designer of this ad use to encourage people to connect Chevron with environmental protection?

POSSIBLE ANSWER

Environmental protection is suggested by the image of a mother bird and chick, a pair of stilts and one taking off into a rainbow covered dawn. Chevron associates itself with this message in the sidebar with the accentuated text: "Welcoming a new dawn," "People do" and the Chevron logo. The ad text does not indicate specific actions on the part of the company to protect the stilt but merely expresses its interest and symbolic support.

QUESTION

Who might benefit from this advertisement and who might be harmed?

SLIDE #29



***Welcoming a New Dawn*,
1996 magazine ad**

ADDITIONAL INFO

The non-profit organization EnviroWatch describes its mission as, "to assist you in putting an end to environmental injustice by way of investigating and exposing environmental degradation, habitat destruction, poaching, clear cutting, pollution, animal cruelty, and government waste and abuse" (EnviroWatch). In its Web page, the Chevron New Dawn campaign EnviroWatch portrayed the "Welcoming a new dawn" ad next to photos taken at the Chevron Oil Refinery on Oahu showing oil filled holding ponds and baby stilts covered with oil.

The EnviroWatch text read:

The evidence clearly showed that Hawaiian Stilts and other species of migratory birds were being attracted to the ponds, which had oil and other chemicals on the surface. Some of the stilts were observed with oil on them yet the Fish & Wildlife Service was eager to initiate a "work out" while developing a cozy relationship. Unfortunately FWS personnel also banded a number of the birds with incorrect leg bands which resulted in the stilt's legs being cut off by the bands. Question, if the "work out" is the solution why did Chevron use an artist's rendition to show the ponds instead of photos of the real life situation? (Chevron's)

FURTHER QUESTIONS

The Chevron ad and the EnviroWatch Web page make conflicting claims. How credible is each source? How could you research their assertions?

CONNECTIONS

MCES slides 21, 29, 30, 49 (corporate advertising)

TEACHER GUIDE

SLIDE #30: *People Do*, 1988 magazine mock ad**BACKGROUND INFORMATION**

Chevron media relations representative Jim Hendon speaking about the long-running “People Do” ad campaign: “Certainly we wanted to correct public misperceptions, If corporations don't tell their story, you can't expect the public to know what companies are doing or not doing...We tried to find out [through polling] if the ads changed the general public perception of Chevron. What we've learned is that in the areas where we've run the ads, the company tends to lead other oil companies in environmental reputation.” The “People Do” ads won an Effie Award in 1990 for “proven effectiveness in influencing the public” (Letto).

This mock ad was produced by Processed World. Their Web site says, “since 1981, Processed World has been taking riffs on technology, work, daily life, and the media. The result is an irreverent and urgent record of change and liberatory politics” (Processed).

→ Project the document

QUESTION

What techniques does the designer of this ad use to encourage people to connect Chevron with green wash advertising?

POSSIBLE ANSWER

A shadow profile of an executive-type on the phone coupled with the phrase “multi-national oil companies who are among the worst polluters on the planet” suggests ordering an advertising campaign to mislead the public.

QUESTION

Is this fact, opinion or something else?

SLIDE #30

***People Do*,
1988 magazine mock
ad**

ADDITIONAL INFO

Much of late 20th century environmentalism is a critique of consumption and consumerism. This ad fits clearly within this context. In 2000 Asmara Pelupessy, Multi Ethnic, Program Coordinator for the International Child Resource Institute, posted an article on AlterNet entitled "Green Screen" concerning "Green washing – the corporate tactic of hiding destructive environmental records behind eco-friendly rhetoric and ad campaigns." She wrote:

Chevron's 'People Do' advertisements, running since 1985, are a textbook example of a successful green washing campaign. Polls which Chevron conducted in California two years after the start of the campaign showed that Chevron was the oil company which people trusted the most to protect the environment. Among those who viewed the ads, sales increased by 10 percent, while among the environmentally concerned target audience, sales jumped by 22 percent...According to EPA data, in the last 30 years Chevron has been fined millions of dollars for plant explosions, illegal air pollution, improper hazardous waste disposal and needlessly exposing minority neighborhoods to dangerous chemicals and waste. In 1997 Chevron was slapped with a \$1.2 million fine for operating off the California coast without the required pollution prevention features. This was one of the largest fines levied on any oil company since 1970, when Chevron was fined for a similar offense. People do care about the earth, but Chevron has clearly demonstrated that it does not. (Pelupessy)

FURTHER QUESTIONS

How can you research the intentions and perspectives of the creators of web pages or advertisements?

CONNECTIONS

Slides 21, 29, 3, 49 (corporate advertising)

TEACHER GUIDE

SLIDE #31: *Slaughter in the Jungle*, 2007 magazine cover

BACKGROUND INFORMATION

From the cover article by Sharon Begley entitled “Cry of the Wild”: “Park rangers don't know who killed the four mountain gorillas found shot to death in Virunga (Congo), but it was the seventh killing of the critically endangered primates in two months. Authorities doubt the killers are poachers, since the gorillas' bodies were left behind and an infant—who could bring thousands of dollars from a collector—was found clinging to its dead mother in one of the earlier murders. The brutality and senselessness of the crime had conservation experts concerned that the most dangerous animal in the world had found yet another excuse to slaughter the creatures with whom we share the planet” (Begley).

→ Project the document

QUESTION

In the story inside the magazine, there are two images of a huge adult male silverback gorilla that had been killed by poachers. Why might *Newsweek's* editors have chosen this image for the cover instead of the others? State the reasons for your opinion.

POSSIBLE ANSWER

This image has more customer appeal than the others.

EVIDENCE

Since a magazine cover is meant to be an appeal to buy the magazine it must draw people in. The eye contact view with an expressive and cuddly face is more likely to cause readers to want to look further than would an image of cruelty and death.

QUESTION

Compare the message behind the cover photo with that of the headline text for the articles.

SLIDE #31



*Slaughter in the
Jungle*
2007 magazine cover

FURTHER QUESTIONS

What is my interpretation of this image and what do I learn about myself from my response?

ADDITIONAL INFO

More from the article:

Back when the Amazon was aflame and the forests of Southeast Asia were being systematically clear-cut, biologists were clear about what posed the greatest threat to the world's wildlife, and it wasn't men with guns. For decades, the chief threat was habitat destruction. Whether it was from impoverished locals burning a forest to raise cattle or a multinational denuding a tree-covered Malaysian hillside, wildlife was dying because species were being driven from their homes. Yes, poachers killed tigers and other trophy animals—as they had since before Theodore Roosevelt—and subsistence hunters took monkeys for bush meat to put on their tables, but they were not a primary danger. That has changed. 'Hunting, especially in Central and West Africa, is much more serious than we imagined,' says Russell Mittermeier, president of Conservation International. 'It's huge,' with the result that hunting now constitutes the pre-eminent threat to some species. That threat has been escalating over the past decade largely because the opening of forests to logging and mining means that roads connect once impenetrable places to towns. 'It's easier to get to where the wildlife is and then to have access to markets,' says conservation biologist Elizabeth Bennett of the Wildlife Conservation Society. Economic forces are also at play. Thanks to globalization, meat, fur, skins and other animal parts 'are sold on an increasingly massive scale across the world,' she says. (Begley)

CONNECTIONS

MCES slides 31, 32 (bushmeat)

TEACHER GUIDE

SLIDE #32: *Bushmeat*, 2007 web page

BACKGROUND INFORMATION

The solcomhouse mission is “to provide the people of the world housing that is in sync and in harmony with the environment” (Goals).

Text: “In Africa, forest is often referred to as 'the bush', thus wildlife and the meat derived from it is referred to as 'bushmeat.' What is the Crisis? Commercial, illegal and unsustainable hunting for the meat of wild animals is causing widespread local extinctions in Asia and West Africa. It is a crisis because of rapid expansion to countries and species which were previously not at risk, largely due to an increase in commercial logging, with an infrastructure of roads and trucks that links forests and hunters to cities and consumers.” (Continued below.)

→ Project the document

QUESTION

Compare the solcomhouse web page with the *Newsweek* cover you just saw. What different choices did the designer of this Web page make to convey their message?

POSSIBLE ANSWER

The solcomhouse designer chose to use a direct and shocking approach rather than *Newsweek*'s much softer approach.

EVIDENCE

The images of dead monkeys and gorillas and the heading “Bushmeat Gorillas are being Exterminated” are jarring and provide a much stronger message than the image and wording on the *Newsweek* cover.

QUESTION

What information is included here that was left out of *Newsweek*?

SLIDE #32



***Bushmeat*
2007 Web page**

FURTHER QUESTIONS

Discuss the contention that conservation failures are due to human crises.

ADDITIONAL INFO

Text:

The failure of conservation in great ape range countries is due to primarily to human crises -- poverty, illness, war, commercial greed, political corruption, lawlessness. There is one cause of failure that is the conservationist's responsibility -- incompetence. The leaders of the conservation movement come from fields and disciplines that don't address the causes of the wildlife crisis. Conservation in the face of poverty, illness, war, etc., demands experts in human welfare and health, peacekeeping and conflict resolution, crime prevention and law enforcement, commercial contract negotiation and compliance assurance, food production, political ethics and morality, financial transparency, spiritual renewal, etc, etc -- all these are human factors domains. Business, applied social science, organization development, law and medicine, cultural ethics, politics and finance, theology and religion -- these are the fields that must carry on the major part of the conservation effort from now on. (Anthony L. Rose, Ph.D. / The Biosynergy Institute; Antioch University Southern California)

More gorillas and other endangered species seem sure to die at the hands of poachers - further casualties of Congo's brutal and seemingly never-ending civil war. Even in so called 'protected area' of Africa poaching is rampant. The future and fate of these great creatures is in the balance. The obliteration and annihilation looks inevitable without immediate intervention. (Bushmeat)

CONNECTIONS

MCES slides 5, 9, 10, 16, 32, 33, 44 (market hunting) MCES slides 31, 32 (bushmeat)

TEACHER GUIDE

SLIDE #33: *Golden Takin*, 2008 web page**BACKGROUND INFORMATION**

Four Star Hunting Adventures' home page defines its purpose as to offer "the ultimate in quality world-wide hunting opportunities whether it's the challenge of a Marco Polo Sheep hunt in Asia, your dream hunt for the Big 5 in Africa, the fast pace of a bird hunt in South America or pursuing the Whitetail Deer in North America. Whichever is your preferred method of hunting; rifle, shotgun, muzzleloader or archery, Four Star Adventures represents the best outfitters and offers the highest quality hunts all tailor made to fit your individual tastes and budget." (Slide text is transcribed below.)

→ Project the document

QUESTION

Why was this Web page made and who paid for it?

POSSIBLE ANSWER

It was made and paid for by the owners of Four Star Hunting Adventure to solicit clients.

EVIDENCE

The solicitation for "your immediate inquiry", the listing of the hunt cost and the images of hunters with their trophies identify this as a sales pitch for the company.

QUESTION

Who is the target audience for this message and how do you know?

SLIDE #33

***Golden Takin*,
2008 web page**

FURTHER QUESTIONS

Discuss the ethical concerns relating to hunting for rare species.

CONNECTIONS

MCES slides 5, 9, 10, 16, 32, 33, 44
(market hunting)

ADDITIONAL INFO

Slide text:

The Takin (TAH-KIN) is one of the least-known and strangest-looking of all hoofed animals with horns. Takins hide in the fog-bound forests of China's central mountains, where pandas and golden monkeys roam. The elusive and odd-looking Takin remains a mystery to science. What we do know is the Takin is not related to Bison, Buffalo or Cattle, despite its ox-like build. Some think it related to the American mountain goat, and possibly the last of a line of forest muskoxen. The Takin's horns point up instead of down like the Arctic muskox. Altogether there are four sub-species of Takins in China and we offer two of them for sports hunting at present, the Shaanxi Gold Takin and the Sichuan Gold Takin. Hopefully the other two sub-species will be open in the foreseeable future. Takins retreat to high altitude – near 10,000 feet – during summer, descending to the valleys in winter to find food. Sometimes, they attack the local villagers, killing two or three people every year. Accordingly, Chinese wildlife authorities issue about five hunting permits every year in order to raise funds for their conservation. So your immediate inquiry with us regarding available openings is imperative.

According to the Web site zipcodezoo.org:

Although takins are not currently considered an endangered species, increased human activities in the takins' natural range are having a negative effect on their populations. There are less than 5,000 Sichuan takins and about 1,200 Shensi takins left in the wild... Deforestation caused by logging and agricultural expansion is reducing, or eliminating altogether, habitat required by takins during their seasonal migrations. Poaching is also having a dramatic effect on their numbers. Local native peoples hunt takins for their highly prized meat, which is contributing to their decline. In recognition of the threatened condition of the takin in the wild, the International Union for Conservation of Nature and Natural Resources (IUCN) currently classifies the status of the subspecies Sichuan takin as indeterminate, and the subspecies Shensi (Golden) takin as rare. (Golden)

TEACHER GUIDE

SLIDE #34: *What are You Really Bringing Back with You?* 2007 poster

BACKGROUND INFORMATION

The International Fund for Animal Welfare (IFAW) is a non-governmental organization (NGO) based in London which “works to improve the welfare of wild and domestic animals throughout the world by reducing commercial exploitation of animals, protecting wildlife habitats and assisting animals in distress. IFAW seeks to motivate the public to prevent cruelty to animals and to promote animal welfare and conservation policies that advance the well-being of both animals and people.” This image is from a cover of a pamphlet that begins: “A Deadly Trade: What does your holiday have to do with some of the world's rarest animals? Very little, you may think. Yet up to 20 per cent of the world’s animal and plant species could die out by 2030 – partly because of rampant poaching to meet the demand for tourist trinkets” (IFAW).

→ Project the document

QUESTION

What techniques did the designer use to convey the message?

POSSIBLE ANSWER

Challenging words and a shocking image.

EVIDENCE

The text challenges the reader to “think twice” about what they are “really bringing back” and the image of the animals on the luggage carousel is unexpected and jarring. This image, like the “People Do” mock ad from Processed World, is an attempt to use irony as a means to expose the ways in which materialism and consumerism threaten the effort to protect endangered species.

QUESTION

How might a Four Star Adventures hunter react to this pamphlet?

QUESTION

How might an IFAW supporter react to the previous webpage?

SLIDE #34



WHAT ARE YOU REALLY BRINGING BACK WITH YOU?

Help protect endangered species.
Think twice before you buy souvenirs.

IFAW
www.ifaw.org

What are You Really Bringing Back with You?
2007 poster

FURTHER QUESTIONS

Are there endangered animal souvenirs in your home? How would you know?

ADDITIONAL INFO

More from the pamphlet:

The Convention on International Trade in Endangered Species (CITES) is an international agreement between more than 165 governments. It aims to protect endangered species of wild plants and animals from over-exploitation by international trade.

Species on CITES Appendix I are seriously threatened with extinction, and have the highest level of protection. Any commercial trade in these species or their parts is prohibited. Among more than 800 species listed on Appendix I are most populations of elephants (ivory), tigers (skins, bones) and turtles (tortoiseshell). More than 30,000 species are on Appendix II. These species, including African lions, hard corals and cobras are not believed to be currently threatened with extinction – but could become so.

Appendix II aims to only allow international trade in such species where it does not harm the species or individual populations. Export permits are required in order to bring products made from such species back from abroad. Remember: it is often hard to tell the difference between endangered and non-endangered species once they have been processed into souvenirs. And whether the final article is legal or not, the production of such items causes suffering to individual animals and reduces wild populations. (IFAW)

CONNECTIONS

MCES slides 11, 14, 34 (collecting)

TEACHER GUIDE

SLIDE #35: *Wolf Mountain Sanctuary, 2007* web page

BACKGROUND INFORMATION

In 2007, the state of Wyoming asked the federal government for permission to proceed with a Gray Wolf Management Plan that would allow for managed hunting of the gray wolf, which had been listed as an endangered species. This Web page was created by Wolf Mountain Sanctuary, “a non-profit, educational organization dedicated to the preservation, protection and proper management of wolves in the wild and in captivity. Our purpose and ultimate goal is to save these great noble animals from extinction” (Home).

→ Project the document

SLIDE #35

QUESTION

What is the position of the editors of Wolfmounatin.com regarding the protection of wolves and what wording and design choices make this position clear upon first reading?

POSSIBLE ANSWER

They support wolf protection measures.

EVIDENCE

The banner and title logo are clear in suggesting the need for sanctuary for wolves. The lead with the words “Urgent Action” with three exclamation marks. “THE GUNS ARE LOADED” in caps and in red stress the urgency of the message.

QUESTION

What is left out of this message that might be important to know?



***Wolf Mountain
Sanctuary
2007 web page***

FURTHER QUESTIONS

How can you determine the credibility of conflicting claims regarding threats to the wolf from people and threats to elk by wolves?

CONNECTIONS

MCES slides 12, 35, 36 (wolves) and case study L3 (northern rocky mountain wolf)

ADDITIONAL INFO

From the Wyoming Game and Fish Department notice on the decision:

The U.S. Fish and Wildlife Service has approved Wyoming's Gray Wolf Management Plan, calling it an "adequate regulatory mechanism" that meets the requirements of the Endangered Species Act. 'The Fish and Wildlife Service's acceptance of Wyoming's wolf plan is an encouraging sign that wolves in our state will soon be removed from the Endangered Species List, and that Wyoming will be able to manage wolves on its own terms,' said Wyoming Governor Dave Freudenthal. "It has been a long and difficult road, and in our discussions we have achieved compromise on issues like the dual classification and the state's ability to manage wolves in relation to their impact on elk and deer'. (Wyomings)

From a letter posted on the Wolf Mountain Web page by Frances Beinecke, President of the Natural Resources Defense Council Action Fund:

The Bush Administration's 'License to Kill' plan would allow Wyoming and Idaho to gun down nearly 600 wolves – while they're still on the endangered species list. Why the rush to kill wolves? So that hunters can have the ease of finding elk in the same places and in the same numbers that they've grown used to. Wolves are being blamed for those few cases where elk herds have shrunk, even though these declines were caused by drought, shrinking habitat and human hunters – not just wolves. Put simply, wolves will be exterminated like vermin for doing what they are supposed to do: maintain a healthy ecosystem by preying on elk. Wyoming wants to "control" and kill as many wolves as the federal government will allow. And the state is prepared to spend a scandalous amount of taxpayer money -- more than \$2 million a year – to get the deed done...Wyoming and Idaho are both planning to use aerial gunning – as well as baiting and trapping – to exterminate wolves. Taken together, their plans could drive northern Rocky Mountain gray wolves back to the brink of extinction.

TEACHER GUIDE

SLIDE #36: *Wolf Crossing*, 2007 web page

BACKGROUND INFORMATION

Slide text: "She wasn't born to a normal pack, no not AF 924, she was born in a den in Catron County during the spring of 2005. This wolf was born at the height of a spate of cattle killing that was occurring on what is now known to the locals as the Catron County Killing Fields. Her mother was the famous AF 511, or the Brunhilda wolf, an animal best known as Fish and Wildlife Services cover girl for their wolf recovery publications. For those who don't know, Brunhilda was a Frankish queen who was known for her love for of torturing her prisoners. The name itself means ready for battle." (Continued below.)

→ Project the document

QUESTION

What is the position of the editors of Wolf Crossing.org regarding the reintroduction of wolves and what wording and design choices make this position ambiguous upon first reading?

POSSIBLE ANSWER

They are opposed to wolf reintroduction. The lead banner and title logo are non-committal as are the top lists on the left and right beneath Wolf Education and About Wolf Crossing.

EVIDENCE

The title "Wolf Kills Cows, Wolf Bites Human, Wolf Goes to Town, Wolf Released to Kill Again" and the highlighted "ready for battle" suggests their opposition.

QUESTION

Discuss the role of citizen action in challenging federal policy.

QUESTION

Discuss the role of fear in determining opinion about wolf policy.

SLIDE #36



***Wolf Crossing*
2007 Web page**

FURTHER QUESTIONS

How can you determine who owns or sponsors a blog?

ADDITIONAL INFO

Text continued:

Perhaps the US Fish and Wildlife Service (FWS) chose the name wisely knowing something that most rural folks don't. AF 511 lived up to her name and after several years of releases and cattle depredations that had nearly ruined several ranches, she was finally slated for permanent removal from the wild. She and her pups including f-924 were finally taken out the summer of 2005. AF 511 died in captivity about a month after removal from the wild, during what was called, a routine veterinary examination most likely she overheated and died during capture for that exam although there isn't a clear reason stated. There is a lot of murky water associated with the Mexican wolf program management. (Wolf kills)

Wolf Crossing is a blog concerned with the examination of the wolf reintroduction program and wolf education. From the section entitled "Report a Wolf Sighting, Kill, Attack or Interaction with Wolf Personnel":

This information is voluntary and assists in tracking what is occurring with the wolf reintroduction program. If an incident happened in the past but you can fill in the data on the report, we would appreciate the information and pictures. The type of information collected is what you observed, location, information to describe the wolf and/or tracks, information to describe the interaction with the wolf and the incident description. If this report is a wolf kill or attack then detailed information about the animal will be collected. The more detailed the information you provide, the better we can track incidents and more accurately report to our state and national representatives. (Wolf Report)

CONNECTIONS

MCES slides 12, 35, 36 (wolves) 4, 6, 12, 36, 44 (fear) and case study L3 (rocky mountain wolf)

TEACHER GUIDE

SLIDE #37: *Saving Our Symbol*, 2007 web page**BACKGROUND INFORMATION**

Slide text: "At their lowest point, only 420 nesting pairs of bald eagle could be found in the continental United States. Now, that number exceeds 6,000, and the once-endangered bald eagle has come soaring back. Poaching and habitat loss hit eagles hard. Then came DDT, a pesticide once widely used in agriculture. DDT got into our waters, and worked its way up the food chain. A steady diet of DDT-contaminated fish caused bald eagles to lay eggs with shells so thin they cracked before hatching. The eagle population plummeted. Rachel Carson's book, *Silent Spring*, outlined the dangers of DDT. In 1962, Rachel Carson, a former U.S. Fish and Wildlife Service (USFWS) scientist and writer, published *Silent Spring*, outlining the dangers of DDT."

→ Project the document

SLIDE #37

QUESTION

What messages are conveyed here about human responsibility for bald eagle population swings?

POSSIBLE ANSWER

People are responsible for both the reduction and the rise in bald eagle populations.

EVIDENCE

The text "Hunting and habitat loss hit eagles hard...DDT contaminated fish" and the image of the crop duster all point to human responsibility for the decline. The images of Rachel Carson and *Silent Spring* along with the text "Sound the alarm" suggest human intervention to ban DDT and thus help eagle populations recover.

QUESTION

Why was this page made and who was it made for? How do you know?



***Saving Our Symbol*
2007 Web page**

FURTHER QUESTIONS

What conservation success stories have occurred in your area?

ADDITIONAL INFO

Additional text from this web page:

With the perils of DDT outlined in Silent Spring and other studies, the U.S. Environmental Protection Agency banned the use of DDT in the United States. Bald eagles were among the first animals declared endangered under what would become the Endangered Species Act. Under the Act, the USFWS began to work on a recovery plan—a strategy to save the species. Clean water and protected habitat are critical for healthy bald eagle populations. Some particularly important nesting areas became National Wildlife Refuges—staging areas for the species’ recovery.

In addition, people began to clean up our waterways. The Clean Water Act and other efforts helped provide bald eagles—and people—with a cleaner, healthier environment. Today, there are more than 6,000 breeding pairs of bald eagles in the continental United States. The recovery has been so complete, that bald eagles were among the first animals to be upgraded from “endangered” to ‘threatened.’ The USFWS will continually monitor bald eagle populations to make sure they continue to thrive.

Friends of the National Zoo (FONZ) is the dedicated partner of the National Zoological Park. FONZ provides exciting and enriching experiences to connect people with wildlife. Together with the Zoo, FONZ is building a society committed to restoring an endangered natural world. (All About)

CONNECTIONS

Slides 22, 23, 24, 25, 37 (endangered species act) MCC Case Studies 2 & 3 (Rachel Carson & DDT)

TEACHER GUIDE

SLIDE #38: *Endangered Species*, 2004 DVD cover**BACKGROUND INFORMATION**

This DVD was directed by Robert Nixon and concerns the work of the Earth Conservation Corps (ECC). Antoine Woods, a member of ECC, describes the intent for the video: "We are striving to return our nation's bird, the bald eagle, to our Nation's Capitol. If the eagles survive maybe we can too. We began filming this documentary in 1992 to show people our America. Endangered Species is our story" (Plot Summary).

EEC's 2006 annual report notes: "In 2006, Paramount Pictures and MTV Films signed agreements with Earth Conservation Corps and 7 pioneer Corps members...to create a major motion picture based on and the community service of the Corps documented in "Endangered Species" (Earth 16).

→ Project the document

QUESTION

What information is implied on this DVD cover regarding the particular work of the Earth Conservation Corps?

POSSIBLE ANSWER

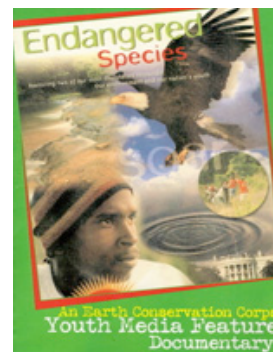
It implies work on water quality, litter cleanup, bald eagle protection and governmental intervention.

EVIDENCE

Water quality is implied in the images of the riverbank and the water ripples; litter cleanup is implied in the circular image of the work crew; bald eagle protection is implied in the image of the bald eagle and the words "restoring two of our most threatened resources" and governmental intervention is implied in the image of the White House.

QUESTION

What kinds of actions might one take in response to this DVD?

SLIDE #38

***Endangered Species*,
2004 DVD cover**

FURTHER QUESTIONS

How might different people understand this message differently?

ADDITIONAL INFO

From the ECC home page:

The Earth Conservation Corps is a nonprofit organization founded in 1989 as a White House domestic policy initiative. The Earth Conservation Corps provides hands-on education, environmental training, professional experience, and leadership skills for disadvantaged young people between the ages of 17-25 years old. As corps members improve their own lives, they rebuild the environmental, social, and economic health of their communities. Mission: To empower our endangered youth to reclaim the Anacostia River, their communities, and their lives. Our Outcomes: In 2005 Corps members completed 54,500 hours of service, providing school standards-based environmental education and service opportunities to 4,987 youth and adults. The Environmental Leadership Program of the Earth Conservation Corps is dedicated to fostering an understanding and experience of natural and man made environments. We work with a network of schools and community groups throughout the Anacostia watershed to raise awareness of local, national and global environmental realities and inspire caring citizens to act as responsible caretakers of the earth.

From engaging creative and non-traditional environmental education activities that meet education learning standards to flying live birds of prey into schools and communities we bring you closer to the importance of healthy ecosystems. (About)

CONNECTIONS

MCES 37, 38, 39, 40 (endangered species metaphor)

TEACHER GUIDE

SLIDE #39: *Endangered Species*, 2004 Cobra cartoon

BACKGROUND INFORMATION

On his home page, the cartoonist Cobra defines himself as a “freelance cartoonist, illustrator and cultural commentator.” On his About page, he says he “has three great passions: writing, drawing and singing...After years of trudging through the retail industry wastelands, Cobra has re-emerged by using the Internet to inject the world with editorial cartoons, graphics and entertaining features...Cobra is also a songwriter and lead singer of the Indie-rock band Omega Train” (Home).

→ Project the document

QUESTION

Is this message fact, opinion or something else?

POSSIBLE ANSWER

This is opinion.

EVIDENCE

An editorial cartoon is always an expression of the cartoonist’s opinion though it may contain facts within its message. The spotted owl and koala bear may have been listed as endangered species at the time of this cartoon, though we don’t know this for sure. The representation of the African American male as an endangered species is a controversial one as noted below.

QUESTION

How might different people interpret this differently?

SLIDE #39



Endangered Species
2004 Cobra cartoon

FURTHER QUESTIONS

What do you learn about yourself from your interpretation of this cartoon?

CONNECTIONS

MCES 37, 38, 39, 40 (endangered species metaphor)

ADDITIONAL INFO

There has been much intellectual debate about the use of the metaphor “endangered species” in reference to African American men. Jewelle Taylor Gibbs begins her essay “Young Black Males in America: Endangered, Embittered, and Embattled”:

An endangered species is, according to Webster, “a class of individuals having common attributes and designated by a common name...[which is] in danger or peril of probable harm or loss.” This description applies in a metaphorical sense to the current status of young black males in contemporary American society. They have been miseducated by the educational system, mishandled by the criminal justice system, mislabeled by the mental health system and mistreated by the social welfare system. All the major institutions of American society have failed to respond appropriately and effectively to their multiple needs and problems. As a result, they have become – in an unenviable and unconscionable sense – rejects of our affluent society and misfits in their own communities. (Gibbs 1-2)

In her essay, “The Promises of Monsters,” Donna Haraway writes about:

the painful current U.S. discourse on African American men as an ‘endangered species.’ Built into that awful metaphor is a relentless history of animalization and political infantilization. Like other ‘endangered species’ such people cannot speak for themselves but must be spoken for. They must be represented. Who speaks for the African-American man as ‘an endangered species’? Note also how the metaphor applied to black men justifies anti-feminist and misogynistic rhetoric about and policy toward black women. They actually become one of the forces, if not the chief threat, endangering African American men. (Haraway 27)

TEACHER GUIDE

SLIDE #40: *Endangered Peoples*, 2003 book cover

BACKGROUND INFORMATION

From the last chapter of this book, *Learning to Live Together*: “When I began writing this book several years ago, I thought that 1993, the Year of the World’s Indigenous Peoples, might become a turning point in the struggle of these groups to survive. But for all the good intentions of the United Nations, its member states have made little more than token gestures towards the rights and needs of indigenous peoples. Far from assuring the cultural survival of these peoples, we are just beginning to understand the extent of the problem.

By some estimates, about two hundred thousand indigenous people a year are being killed. This is many more times than the number of U.S. troops killed in Vietnam, casualties that sent a generation of Americans into shock” (Davidson 194).

→ Project the document

QUESTION

What is the message of this book cover regarding endangered species?

POSSIBLE ANSWER

Indigenous peoples are themselves endangered. Their survival is connected to the survival of the natural world.

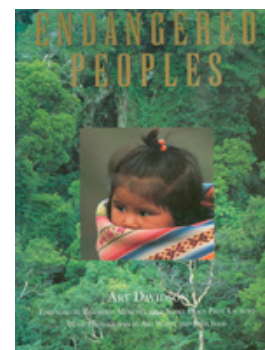
EVIDENCE

The portrait of the child tucked away from the world and looking into the distance, coupled with the title, suggest that indigenous people are themselves endangered. The placement of the portrait and title superimposed over an image of a living green forest suggests that the forest and the people are linked, through risk as well as in survival.

QUESTION

What techniques does the cover designer use to sell the book?

SLIDE #40



***Endangered Peoples*,
2003 book cover**

FURTHER QUESTIONS

How might you find out more about the number of cultures and languages at risk since this book was first published?

ADDITIONAL INFO

More from the author:

By some estimates, about two hundred thousand indigenous people a year are being killed. This is many more times than the number of U. S. troops killed in Vietnam, casualties that sent a generation of Americans into shock. And the slaughter goes on year after year. Linguists now predict that fewer than half the world's 6,000 languages will survive our children's generation. In the coming century, 90% of humankind's languages are likely to disappear. Perhaps the most astonishing thing about this unprecedented loss of humanity is that so few people seem to notice. In North America, for example, 51 languages have become extinct in just the last thirty years. But who can name even one of them? Who knows who these people were? (Davidson 194)

From a book review by Harold Fruchtbaum, in UN Chronicle:

While the number of the world's indigenous people may be between 200 million and 250 million, some estimate that 200,000 are killed yearly. Approximately 90% of humankind's 6,000 languages will probably vanish in the next century... This exquisite book enlarges our understanding by allowing indigenous people to speak about their lives, ideas and commitment to self-determination. (Fruchtbaum)

CONNECTIONS

MCES slides 2, 3, 4, 7, 41, 50
(indigenous perspectives) MCES 37, 38,
39, 40 (endangered species metaphor)

TEACHER GUIDE

SLIDE #41: *Initiatives: Buffalo*, 2007 web page**BACKGROUND INFORMATION**

Text: "...With the teaching of our way of life from the time of being, the First People were the Buffalo People, our ancestors which came from the sacred Black Hills, the heart of everything that is...I humbly ask all nations to respect our way of life, because in our prophecies, if there is no buffalo then life as we know it will cease to exist..." (Chief Arvol Looking Horse, 19th Generation Keeper of the Sacred White Buffalo Calf Pipe).

→ Project the document

QUESTION

What values regarding human/buffalo relations are communicated?

POSSIBLE ANSWER

Maintaining healthy buffalo populations is essential to maintaining the health of the people.

EVIDENCE

The title "Honor the earth: Buffalo" and the placement of the buffalo at the center of the image with the bull looking toward the viewer suggests that buffalo are central to people's lives.

QUESTION

What does this Web page imply regarding the connection between the survival of the buffalo and the survival of life on earth?

SLIDE #41

***Initiatives: Buffalo,*
2007 Web page**

FURTHER QUESTIONS

What initiatives are you involved with honoring the earth?

CONNECTIONS

What initiatives are you involved with honoring the earth?

ADDITIONAL INFO

Text continued:

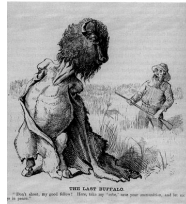
We are interested in the preservation of Pte Oyate, the buffalo nation, and in its restoration to the cultures and ecosystems of our people. Since 1998, Honor the Earth has worked diligently for Pte Oyate. We work both to oppose the renewed slaughter of the Yellowstone buffalo herd—the genetically strongest buffalo herd in the United States—and to support grassroots Native buffalo restoration initiatives.

Honor the Earth's mission is "to create awareness and support for Native environmental issues and to develop needed financial and political resources for the survival of sustainable Native communities. Honor the Earth develops these resources by using music, the arts, the media, and Indigenous wisdom to ask people to recognize our joint dependency on the Earth and be a voice for those not heard. (Mission)

Honor the Earth was created to meet the needs of a growing Native environmental movement. How could we let the public know that many of the key environmental battles being waged in North America actually emanated from Native lands and Peoples? We felt it was critical to break from our geographic and political isolation, where our struggles remained invisible or marginalized, and develop a base of allies and financing that would help support change. We wanted to raise our voices, and we wanted to leverage the support of people and groups who might not know of our communities or issues. It was a prayer and a dream, born of years of organizing work. We met Indigo Girls Amy Ray and Emily Saliers backstage at a 1992 Earth Day Rally in Massachusetts, and they offered to help by headlining a small concert tour for Native environmental issues the following year, in 1993. From that first tour, Honor the Earth has grown into a flourishing national Native environmental initiative and grant making organization. (The Beginning)

Paired Image Comparisons

Slide # 43 – *Railroad Hunting*, 1871 engraving, & *The Last Buffalo*, 1888 book illustration



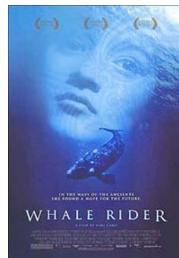
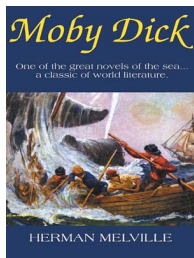
Compare messages concerning human and buffalo relations.

Slide # 44 – *Grizzly Adams*, 1874 dime novel cover, & *Davy Crockett*, 1841 almanac cover



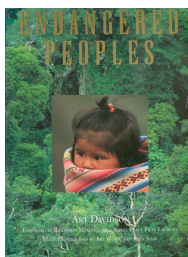
Compare messages concerning human and bear relations.

Slide # 45– *Moby Dick*, 2005 audio book cover, & *Whale Rider*, 2003 film poster



Compare implied values and ideas concerning human and whale relations.

Slide # 46 – *Endangered Peoples*, 1993 book cover, & *American Progress*, 1872 painting



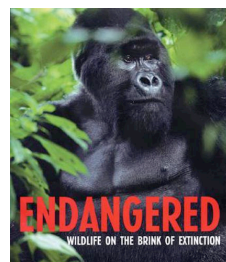
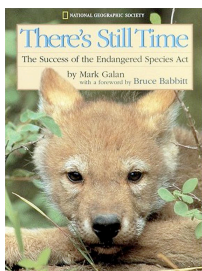
Compare messages concerning the idea of progress.

Slide # 47 – *Biodiversity*, 2006 magazine cover, & *Who Gives a Hoot*, 1990 tabloid cover



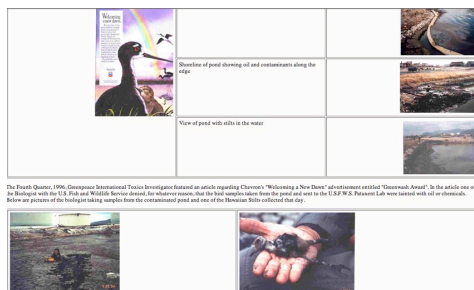
How might the technical choices of each artist convey different ideas about the spotted owl?

Slide # 48 – *There's Still Time*, 1997 book cover, & *Endangered*, 2006 book cover



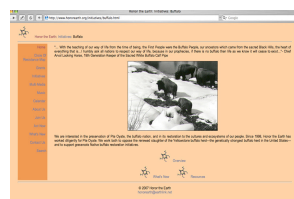
How do titles and cover designs portray different messages concerning endangered species?

Slide # 49 – *EnviroWatch*, 1997 Web page



Compare this EnviroWatch Web page with the Chevron ad. Why did one choose photos and the other an artist's drawing?

Slide # 50 - *Nine Mile canyon*, ancient petroglyph, & *Honor the Earth*, 2007 Web page



Compare messages concerning human and animal relations.

Lesson #2: Case Study— Human/Animal Relations (Video Clips)

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Student Worksheet.....	111
Video Clips	
(Access online or via Lesson 2 digital media folder)	

Earth and the American Dream

America's Endangered Species: Don't Say Goodbye

Saving Species

Keeping the Earth: Religious and Scientific Perspectives on the Environment

LESSON PLAN



Video Clips

Case Study: Human/Animal Relations

Lesson Objectives:

- Students will review perspectives on human and animal relations.
- Students will reflect on their own beliefs about their relationship to wildlife.
- Students will recognize the power of words, images and sound to influence a target audience.
- Students will analyze diverse storytelling techniques to convey messages.

Vocabulary:

LA Conservation Corps, Green Belt Movement, Friends of the Earth, biodiversity, ecosystem services, stewardship, National Religious Partnership for the Environment

Media



Earth and the American Dream, HBO, 1993 (3:00)



America's Endangered Species: Don't Say Good-bye, National Geographic Special, 1997 (3:03)



Saving Species, Planet Earth, 2007 (3:26)



Keeping the Earth: Religious and Scientific Perspectives on the Environment, Union of Concerned Scientists, 1996 (2:51)

Materials Needed:

- Teacher Guide: *Human/Animal Relations*
- Four video clips (access online or via Lesson 2 digital media folder)
- One-page Lesson #2 Case Study Student Worksheet

Time

50 Minutes

Lesson Procedures:

1. Present *Lesson Introduction* to the class
2. Distribute *Student Worksheet* for logging the clips
3. Play the video clips while students log their answers
4. Lead students through a decoding of the video clips using *Media Sample Questions & Answers Teacher's Guide*
5. Discuss the power of words, images and sound to communicate messages about values using *Further Questions*

TEACHER GUIDE

Case Study: Human/Animal Relations

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

Ever since the first humans stood upright on the plains of Africa people and animals have shared the earth. Human and animal relations conjure up many pairs of descriptors – predator and prey, master and pet, farmer and livestock, domestic and wild, anthropocentric and ecocentric and on and on. This case study is an opportunity to view different approaches to the human expressions of these relations as portrayed by four different filmmakers. Their lenses mix religious, scientific, activist, lyrical and personal views. As you view these clips please remember that the brief excerpts are not meant to show the full story as told in the much longer works from which they are taken.

3. Distribute student worksheets. Have students work individually or in pairs to log each film.
4. Read aloud the brief introductory excerpt before playing each film clip.
5. Play the film clip.
6. Have students write their answers on their worksheet after the showing of the clip.
7. Lead a discussion of the clips using the suggested teacher answers below as a guide.



***Earth and the American Dream*, HBO, 1993**

Film 1 Introduction

This excerpt is from the 1993 film *Earth and the American Dream*, which was directed by Bill Couturie and produced by HBO. The distributor describes the film as telling “America's story from the environment's point of view. From the arrival of Columbus to the simple wilderness living of the 16th and 17th centuries, through the agrarian lifestyle of the 18th century, the changes from the Industrial Revolution, to the 20th century when most of the planet's resources have been depleted – this film examines the North American landscape and all the wildlife destruction, deforestation, soil depletion and pollution that have been wrought to make the American Dream come true.”

Media Sample Questions & Answers

1.) What messages concerning human relations with wildlife are implied in this clip?

Possible Answer: The U.S. government and military sought to exterminate the buffalo in order to destroy the Native American people whose material and spiritual survival were tied to the buffalo.

2.) What techniques do the filmmakers use to convey their message? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: By choosing three different sources and voices for the background narrative the filmmakers underscore the different perspectives brought by a U.S. president (Roosevelt), a sympathetic U.S. artist (Catlin) and a Kiowa chief (Santana). The slow pans of the buffalo remains and the massacred bodies of Native Americans accompanied by the mournful strings make clear that the filmmaker views the extermination of the buffalo and the Indian as a tragedy.

The image of the Native American man crouching by the buffalo skull and Santana's words in Kiowa and English, “I love the land and the buffalo and will not part with it,” emphasize the close relations between the Indian people and the buffalo.

3.) Who might benefit from this message and who might be harmed? Explain why.

Possible Answer: Those who lobby for the protection of Native American peoples and buffalo might benefit from this film by showing it as a way to educate others about their mission and to persuade others to join their cause. This particular excerpt could also serve to further damaging stereotypes about Indian people, suggesting that they were a tragic historical footnote deserving pity rather than a vibrant ongoing people who continue to resist efforts to destroy their cultures.

4.) What is my interpretation of this message and what do I learn about myself from my reaction?

Possible Answer: The answer to this will vary from person to person. Students may or may not want to elaborate on their answers to this.



***America's Endangered Species: Don't Say Good-bye,* National Geographic Special, 1997**

Film 2 Introduction

This excerpt is from a 1997 *National Geographic Special* airing on NBC entitled "America's Endangered Species – Don't Say Goodbye." It follows photographers Susan Middleton and David Liitschwager as they document species of endangered plants and animals. Their book, *Witness: Endangered Species of North America*, chronicles their ongoing search. The film was nominated for two Emmy Awards in 1997.

Media Sample Questions & Answers

1.) What messages concerning human relations with wildlife are implied in this clip?

Possible Answer: Some people have no contact with wildlife at all. For other people relations with wildlife bring mystery, service, opportunity and privilege. For wildlife humans can bring habitat destruction or preservation.

2.) What techniques do the filmmakers use to convey their message? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: Habitat destruction and lack of human contact with wildlife are demonstrated by images of Arthur walking along city streets and railroad tracks devoid of wildlife with a voice over of Arthur naming many wild creatures absent from his neighborhood. Mystery is implied by the young man's expression of curiosity at the caterpillar and by Arthur's explanation of the caterpillar's metamorphosis into a moth. Wildlife preservation and human service is conveyed by the voice over explaining Arthur's work with the LA Conservation Corps, Arthur's explanation of the group's intent to "help...save an endangered species" and images and explanation of his work to care for hatchlings. Opportunity is conveyed in the story of Arthur's chance to overcome his past challenges by his work with butterfly preservation. Privilege is conveyed by the explanation that Arthur is one of "just three people who are permitted to gather the butterfly" and his affirmation that "I love my work."

3.) What techniques do the Who might benefit from this message and who might be harmed? Explain why.

Possible Answer: National Geographic might benefit by selling this product to television stations or DVD production companies and by attracting new members to its organization. Arthur Bonner and the LA Conservation Corps might benefit from public celebration of their accomplishments. Arthur might be harmed if people judged him for the revelations regarding his past. The butterfly population might be supported by increased attention and funding for the preservation program. The butterfly might also be harmed if more people came looking for it following this program, disturbing its fragile habitat.

4.) What is my interpretation of this message and what do I learn about myself from my reaction?

Possible Answer: The answer to this will vary.



Saving Species, Planet Earth, 2007

Film 3 Introduction

This excerpt is from an episode entitled “Saving Species” from the acclaimed BBC TV series, *Planet Earth*. The DVD set of the series was distributed by Warner Home Video. This episode is described in the set in this way: “Many of the animals featured in *Planet Earth* are endangered so do we face an extinction crisis? ‘Saving Species’ asks the experts if there really is a problem, looks at the reasons behind the declining numbers of particular animals and questions how we choose which species we want to conserve.”

Media Sample Questions & Answers

1.) What messages concerning human relations with wildlife are implied in this clip?

Possible Answer: Humans need biodiversity for current and future bio-system services. Humans are responsible as stewards for wildlife. Humans cannot know why other species share the planet and should be humble in our ignorance.

2.) What techniques do the filmmakers use to convey their message? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: The film makers chose well-respected experts to convey these messages in interviews: Professor Wangari Maathai – We are a small part of an enormous and incomprehensible system and we want and for future generations we need to conserve other species; Friends of the Earth Executive Director Tony Juniper – We need food medicines and industrial applications from within the natural world; Professor Robert May – Potential gene pool discoveries and ecosystem services benefit humans and we are responsible as stewards; Professor E.O. Wilson – Humankind derives free ecosystem services in the amount of 30 trillion dollars from air and water purification and pollination. Visuals communicate this interconnection with interlaced images of complexity including forest, zebra and wildebeest, molecules, birds in mud nests, snow geese flocks over estuary, waterfall over flight with rainbow, fish schools around coral.

3.) Who might benefit from this message and who might be harmed? Explain why.

Possible Answer: The producers of the program, the BBC, might profit from the sale of the program. Conservationists seeking to raise awareness of the importance of biodiversity might benefit as might the wildlife and ecosystems thereby protected. Harmed might be interests that might want to harvest the wild for personal gain or profit.

4.) What is my interpretation of this message and what do I learn about myself from my reaction?

Possible Answer: Answers will vary.



Keeping the Earth: Religious and Scientific Perspectives on the Environment, Union of Concerned Scientists, 1996

Film 4 Introduction

This final excerpt is from “Keeping the Earth: Religious and Scientific Perspectives on the Environment,” a documentary produced for the Union of Concerned Scientists (UCS). From the UCS “About Us” Web page: “The Union of Concerned Scientists is the leading science-based non-profit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions and to secure responsible changes in government policy, corporate practices, and consumer choices.”

Media Sample Questions & Answers

1.) What messages concerning human relations with wildlife are implied in this clip?

Possible Answer: Humans are hesitant to embrace interconnection with wild creatures but are grateful for and needing of such connections when they are offered. Faith communities should open to all life.

2.) What techniques do the filmmakers use to convey their message? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: Uncertain facial expressions among some in the congregation speak to hesitancy, as do the words of Paul Gorman – “uncertainty, suspicion, doubt.” Gratitude and desire for connection are represented by people reaching out to touch and upwards to praise in the presence of the animals moving down the knave. The sacred music can be heard also as an expression of appreciation and longing. Paul Gorman in a voice-over says “people wept (and)...experienced a moment of reconciliation...the challenge for churches and synagogues to open their doors (and) let life in.”

3.) Who might benefit from this message and who might be harmed? Explain why.

Possible Answer: The Union for Concerned Scientists who produced this video might benefit from increased interest in and support for their work among viewers who are moved by this message. The animal participants in the procession might be harmed if disturbed by large crowds and enclosed spaces.

4.) What is my interpretation of this message and what do I learn about myself from my reaction?

Possible Answer: Answers will vary.

» After you have decoded the films, lead a discussion about the power of words, images, and sound to communicate messages about values.

FURTHER QUESTIONS

- » Who were the target audiences for each clip?
- » Discuss the difference between an overt message and an implicit message.
- » Discuss how stereotyping is revealed in the selection of settings for these films: 19th century west, streets of Los Angeles, cathedral in New York.
- » What kind of actions might you take in response to these film clips?
- » How might different people interpret these messages in very different ways?
- » Are these messages fact, opinion or something else?

CONNECTIONS

See lesson 1 PowerPoint slides #2, 3, 11, 19, 24, 34, 41, (interspecies relations)



Lesson #2 Case Study Student Worksheet

NAME _____ DATE _____

Read over the questions below before watching the short video clips. You may want to take notes as you view the clips. You will then be given time to write your answers after viewing the clips.

Title of Film: _____

1. What messages concerning human relations with wildlife are implied in this clip?
2. What techniques do the film makers use to convey their message? Consider choices in scripting, visuals, audio background and voice-over in your answer.
3. Who might benefit from this message and who might be harmed? Explain why.
4. What is my interpretation of this message and what do I learn about myself from my reaction?

Lesson #3: Case Study— Northern Rockies Gray Wolf (Print Documents)

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LESSON PLAN



Printed Document

Case Study: Northern Rockies Gray Wolf

Lesson Objectives:

- Students will analyze writings on the removal of the Northern Rocky Mountain gray wolf from the endangered species list from an environmental group fact sheet, an article from a conservative web site, a government press release and an educational organization news report.
- Students will study and present different views on government intervention to protect endangered species.
- Students will evaluate and discuss how organizational mission informs reporting on wildlife issues.
- Students will evaluate and discuss the media representation of the Endangered Species Act

Vocabulary:

Endangered Species Act, U. S. Fish and Wildlife Service, delisting, killing rule, chronic wasting disease, recovery plan, management plan. Wyoming Game and Fish trophy game animals, predatory animals, breeding pair, recovered population

Media

Handouts with excerpts from four opinion/analysis articles from the Natural Resource Defense Council, the Cybercast News Service, the U. S. Department of Fish and Wildlife and National Geographic News

Materials Needed:

- Teacher's guide: Northern Rockies Gray Wolf Case Study
- Two-page student reading #1: "Protecting Wolves in the American West"
- Two-page student reading #2: "Rancher Violates Endangered Species Act by Killing Wolf to Save Cattle"
- Two-page student reading #3: "Wyoming's Wolf Plan Offers 'Adequate Regulatory Mechanism'"
- Two-page student reading #4: "N. Rockies Gray Wolf Removed From Endangered List"
- One-page Lesson #3 Case Study Student Worksheet

Time

50 Minutes

Lesson Procedures:

1. Present *Background Information* to the class.
2. Divide the class into four groups and distribute the Student Reading Handout, one article per group.
3. Use the *Teacher Answer Sheet* Teacher Guide to help facilitate the four presentations.
4. Help students to articulate and evaluate their own thinking about how perspectives on government intervention to solve problems have shaped arguments about the Endangered Species Act and how the mission statement of the sponsor organization may shape its reporting.

TEACHER GUIDE



Printed Document

Case Study: Northern Rockies Gray Wolf

1. Organize and make copies for the class activities.
2. Provide background information

Background Information

Read or ask students to summarize the Background Reading, "The Gray Wolf in the United States."

3. Introduce lesson.

Lesson Information

This lesson explores the removal of the Northern Rocky Mountain gray wolf from the endangered species list as seen from a variety of perspectives. You will read excerpts from four different articles on the subject from these sources: a Natural Resources Defense Council Fact Sheet, an article from CNSNews.com, a U.S. Fish and Wildlife News Release and an article from *National Geographic News*. Each excerpt is followed by a brief description of the mission and/or history of the organization on whose website the article was published.

For this lesson, you will break into four groups, each with a different article to read. As your group reads the handout, look for the answers to four basic questions: 1) Does the author take a position on the success of the Endangered Species Act as a means to protect Northern Rockies Gray Wolf populations? 2) What is the author's perspective on the government's role in protecting the wolf? 3) What sources does the author cite? 4) In what way does the mission statement or history of the supporting organization shape its reporting?

Also, note any passages in the article that illustrate those points. You will then present your document to the entire class with each student sharing a different answer. After all four groups have presented, we will discuss your reactions to the various perspectives presented.

4. Distribute among the four groups one student reading and one student worksheet.
5. Give students time to complete the assignment. Review the possible answers using the Teacher Answer Sheet.
6. Bring the class back together for the presentations.
7. Ask each group to report their author's analysis and conclusions, question by question – using excerpts from the text to illustrate their points.

Teacher Answer Sheet

Questions, Possible Answers & Evidence

1.) Does the author take a position on the success of the Endangered Species Act as a means to protect Northern Rockies Gray Wolf populations? If so, what do they conclude?

Possible Answers

Doc. 1: Natural Resources Defense Council (NRDC) – The Endangered Species Act (ESA) has helped wolf populations to rebound and is at risk due to government proposals to delist the wolf.

Doc. 2: CNSNews.com (CNS) – The Endangered Species Act has been harmful to the wolf and other wildlife and a hindrance to people who support its goals.

Doc. 3: Wyoming Game and Fish (WGF) – The ESA has succeeded in helping to reestablish the wolf population and ESA protection is no longer needed for the wolf.

Doc 4: *National Geographic News* (NGN) – The Endangered Species Act has been a success in preventing extinction, though some environmentalists oppose delisting the wolf.

Evidence

Doc. 1: NRDC – It's a wildlife success story. The Bush Administration's proposal (to delist) gives the states a free pass to kill hundreds of gray wolves, just when wolves are making good progress toward recovery.

Doc. 2: CNS – The act is doing more harm than good. The feds clamping down on Lang will have a chilling effect on the conservation of the wolf and other endangered species. "If one had deliberately tried to write a law that would do enormous harm to wildlife, it would be hard to top the ESA."

Doc. 3: WGF – The 2007 Plan will provide adequate regulatory mechanisms for conserving a recovered wolf population in Wyoming after delisting and meets the requirements of the Endangered Species Act. It is an encouraging sign that wolves in our state will soon be removed from the Endangered Species List.

Doc 4: NGN – The purpose of having the Endangered Species Act is to prevent extinction. That goal has essentially been achieved, so it's a success story. The darkest days are in the past for the wolves of the Rockies. Delisting is very alarming for some conservation groups.

Teacher Answer Sheet

Questions, Possible Answers & Evidence

2.) What is the author's perspective on the government's role in protecting the wolf?

Possible Answers

Doc. 1: NRDC – Federal and state governments should be active in working to strengthen the ESA.

Doc. 2: CNS – The government should rewrite the ESA to protect people as well as animals and to make its provisions clear to all.

Doc. 3: WGF – States should assume responsibility for managing wolf populations.

Doc 4: NGN – Federal, state and Native American tribal governments are committed to continued protection for the wolf.

Evidence

Doc. 1: NRDC – Officials at the state and federal level must do more to protect this valuable top-level predator. States must establish rational, scientifically based wolf management plans and programs that maintain wolf populations at appropriate numbers and ensure their long-term health.

Doc. 2: CNS – Quoting the author of the report “Bad for Species, Bad for People: What's Wrong With the Endangered Species Act and How to Fix It”: “The law is ‘vaguely worded,’ which leads to ‘misunderstandings’ over its provisions.”

Doc. 3: The Wyoming Game and Fish Department is fully prepared to assume management of wolves in Wyoming, and we are committed to ensuring a recovered population while managing this species in a way that makes sense for people who live and work in wolf country.”

Doc 4: NGN – The delisting means state officials and Native American tribes will soon manage their own wolf populations. Montana, Idaho, and Wyoming are currently developing plans for sporting hunts to control the newly recovered populations. USFWS is dedicated to preserving this population.

Teacher Answer Sheet

Questions, Possible Answers & Evidence

3.) What sources does the author cite?

Possible Answers

Doc. 1: NRDC – Unnamed independent biologists, scientists and researchers.

Doc. 2: CNS – A conservative analyst, a California entrepreneur, a Montana ranch owner and an official with the Fish and Wildlife Service.

Doc. 3: WGF – A representative from the U.S. Fish and Wildlife Service and Wyoming's governor and director of Game and Fish.

Doc 4: NGN – Government officials, a scientist and an educator.

Evidence

Doc. 1: NRDC - Independent biologists agree that 2,000 to 3,000 wolves are needed in the Northern Rockies. Researchers found that wolves were changing ecosystem dynamics. A 2006 study in Yellowstone. A recent genetics study. Biologists... Geneticists have said that several thousand wolves are needed to maintain the long-term health of Northern Rockies wolves.

Doc. 2: CNS - Brian Seasholes, an adjunct scholar with the conservative National Center for Policy Analysis. Roger Lang is a California entrepreneur who owns the 18,000-acre Sun Ranch. Ed Bangs, wolf recovery coordinator of the Northern Rocky Mountains for the U.S. Fish and Wildlife Service.

Doc. 3: WGF - In a letter yesterday from U.S. Fish and Wildlife Service Director Dale Hall to Wyoming Game and Fish Department Director Terry Cleveland... Wyoming Governor Dave Freudenthal.

Doc 4: NGN - Lynn Scarlett, Deputy Secretary of the Interior. Ed Bangs, the USFWS wolf recovery coordinator in Helena, Montana. David Mech is a senior research scientist for the U.S. Geological Survey and chair of the World Conservation Union's Wolf Specialist Group. Jess Edberg of the education nonprofit International Wolf Center in Ely, Minnesota.

Teacher Answer Sheet

Questions, Possible Answers & Evidence

4.) In what way does the mission statement or history of the sponsoring organization shape its reporting?

Possible Answers

Doc. 1: NRDC – As an activist environmental organization NRDC presents information to support its intent of protecting the wolf by urging further protections above and beyond those protections already in place.

Doc. 2: CNS – As a news source dedicated to counteracting what it sees as a liberal bias, CNS seeks out conservative commentators.

Doc. 3: The history of Wyoming Game and Fish as a department with roots in citizens' actions to preserve wildlife for hunting and fishing suggests that its interest is in positions that uphold state rather than federal responsibility for managing fish and game.

Doc 4: NGN – As an organization devoted to education rather than an action National Geographic News seeks to present “both sides” of the story by acknowledging environmentalists' concerns. It may also want to highlight the success in keeping with its mission of inspiration.

Evidence

Doc. 1: NRDC – The Natural Resources Defense Council's purpose is to safeguard the Earth. We work to...defend endangered places. We strive to protect nature.

Doc. 2: CNS – A news source for individuals, news organizations and broadcasters who put a higher premium on balance than spin and seek news that's ignored or under-reported as a result of media bias by omission. Studies by the Media Research Center, the parent organization of CNSNews.com, clearly demonstrate a liberal bias in many news outlets.

Doc. 3: WGF – The positions of State Fish Warden (1890) and State Game Warden (1899) were established to protect Wyoming's wildlife from dangers of over harvesting. These positions were dedicated to the replenishment of the wildlife in the area. The Game and Fish Commission was established to provide citizen oversight to the Wyoming Game and Fish Department.

Doc 4: NGN - National Geographic's Mission Programs support...scientific fieldwork...promote natural and cultural conservation. Amazing stories...inspire audiences.

- » After all four groups have presented lead a discussion about how perspectives on government intervention to solve problems have shaped arguments about the Endangered Species Act and the Northern Rocky Mountain wolf.
- » Make sure that all students have an opportunity to express their agreement and disagreement with the reasoning of the various authors.

FURTHER QUESTIONS

- » **Who are the target audiences for each source? Might those audiences steer the nature of the reporting?**
- » **How are the authors' impressions shaped by their trust in government?**
- » **How can you distinguish between fact and opinion in an article about the ESA and the wolf?**
- » **How can you select the widest range of information sources? Why might this be helpful as you discuss the endangered species act with others?**

CONNECTIONS

See lesson 1 PowerPoint slides #12, 35, 36 (wolf) and 22-25 (ESA)

BACKGROUND READING

THE GRAY WOLF IN THE UNITED STATES

The gray wolf and the United States have had an up and down relationship over the past 200 years. For millennia, Native Americans and wolves had coexisted as top predators in the ecosystems they shared. Many tribes included wolf clans as part of their familial structure, marking the close relations between people and wolves. European relations with wolves, however, were based in a market economy that recognized the profit from selling wolf skins and the threat of predation from raising livestock in their areas where wolves were plentiful.

In his essay "Wasty Ways," Alan Taylor points out that prior to the 19th century, much of New England was covered by dense forests which "sheltered numerous carnivorous mammals... (that) threatened the domesticated livestock and plants introduced by the settlers (who) had to fight an often losing battle to defend orchards, poultry, and livestock from marauding bears and wolves" (Taylor 107). By the mid-1600s, New England farmers used bounties, poisons and special hunts to rid the area of wolves. The media of the time encouraged the elimination of wolves by publishing mostly fictional stories of wolf attacks on people and of the heroic efforts of wolf hunters to destroy this dangerous enemy. Taylor points out that stories played an important role in helping settlers endure the hardships of the frontier, "especially (those stories which) honored those who destroyed wolves, panthers, and bears...Accounts of battles with wild carnivores were second only to tales of heroism in fighting Indians" (ibid 112). By the early decades of the 20th century, the gray wolf had been exterminated from the east and greatly reduced in population elsewhere (Wilcove 21).

In 1973, President Nixon signed the Endangered Species act which "provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the

conservation of the ecosystems on which they depend" (ESA). The gray wolf was listed as an endangered species under this act for all of the contiguous 48 states except for Minnesota where they were listed as threatened.

According to the 2007 Fish and Wildlife Service gray wolf fact sheet: "The wolf's comeback nationwide is due to its listing under the Endangered Species Act, resulting in increased scientific research and protection from unregulated killing, along with reintroduction and management programs and education efforts that increased public understanding of wolf biology and behavior...In the northern Rocky Mountains, the U.S. Fish and Wildlife Service reintroduced gray wolves into Yellowstone National Park and U.S. Forest Service lands in central Idaho in 1995 and 1996. The reintroduction was successful, and the recovery goals for this population have been exceeded. By December 2006, there were about 1,100 wolves in the Yellowstone area and Idaho; in total, at least 1,240 live in the northern Rocky Mountains of Montana, Idaho, and Wyoming. Wolf recovery has been so successful that the Service has proposed removal of the gray wolf in the northern Rocky Mountains from the threatened and endangered species list" (Gray wolf).

On February 21, 2008, the Fish and Wildlife Service issued a press release which began: "The gray wolf population in the Northern Rocky Mountains is thriving and no longer requires the protection of the Endangered Species Act, Deputy Secretary of the Interior Lynn Scarlett announced today. As a result, the U.S. Fish and Wildlife Service will remove the species from the federal list of threatened and endangered species" (Interior Dept).

“Protecting Wolves in the American West,” Natural Resources Defense Council Fact Sheet

Document Excerpt #1

It's a wildlife success story: After an absence of more than 50 years, wolves were reintroduced into Yellowstone National Park and central Idaho in 1995 and 1996, and they now number roughly 1,300 individuals in the Northern Rockies. To many Americans, wolves represent wild nature that has been lost in many parts of the country. But these magnificent animals are once again at risk. The Bush Administration's proposal to remove Endangered Species Act protections—to “delist” wolves—threatens to return Northern Rocky Mountain wolves to the brink of extinction by allowing states to kill more than 60% of the current wolf population.

Wolf Delisting and the “Killing Rule”

The Bush Administration's proposal gives the states a free pass to kill hundreds of gray wolves, just when wolves are making good progress toward recovery. And another loophole would make it possible for states to kill wolves even while they are on the endangered species list: the U.S. Fish and Wildlife Service (FWS) has also proposed to revise section 10(j) of the Endangered Species Act, known as the “killing rule,” which would allow the states to eliminate wolves if they are “a major cause” of numerical or distributional changes in elk herds. The fact that drought, shrinking habitat, other predators and human hunting have been found to be the primary causes of elk herd changes becomes irrelevant under this new rule. In effect, wolves can be exterminated for doing what they are supposed to do—maintain a healthy ecosystem by preying on elk.

The federal government has failed to apply sound science to protect wolf populations. For the past five years, the federal government has been aggressively killing wolves, without solving the underlying conflicts with livestock that are prompting the slaughter of numerous wolf packs. After delisting, even more wolves will be killed. Although independent biologists agree that 2,000 to 3,000 wolves are needed in

the Northern Rockies for a healthy, viable wolf population, the Bush Administration's plan could reduce the number of wolves to as low as just 100 in each state.

Why Wolves Matter

Wolves are essential to a healthy ecosystem. Within a few years of returning wolves to Yellowstone Park, researchers found wolves were changing ecosystem dynamics. Wolves reduced coyote populations, which helped small animals, birds, and rodents become more plentiful—a boon for predators like hawks and eagles. Elk soon became naturally vigilant and moved around more frequently, which helped aspen and willow trees grow where they had been over-browsed, in turn allowing the return of beavers and riparian bird species. Wolves play other valuable roles in the interconnected Western ecosystem.

- **Elk, deer and moose benefit from wolf predation.** Wolves and prey such as elk, deer and moose have existed together for thousands of years. Wolves tend to naturally select as prey the animals easiest for them to hunt—those that are injured, sick, old or very young. In removing these animals from herds, the remaining animals are younger, stronger, and faster, making the herd more robust and healthier overall.
- **Wolves help prevent the spread of disease in ungulates.** Biologists believe the presence of wolves will prevent chronic wasting disease from wiping out large numbers of deer, as it has in southern Rockies states such as Colorado. In the Great Lakes states, chronic wasting disease in white-tailed deer has only been located in areas where wolves are not present.
- **Wolves mediate the impact of climate change on scavenging animals such as bears, coyotes, eagles, fox and many others.** As winters become milder and shorter over time, elk and deer have an easier time surviving. Animals that rely on winter-killed carcasses have had less to eat

in recent springs. Wolves can reduce the negative impact of global warming because wolf-killed carcasses provide food for scavengers.

Wolves provide substantial economic benefits. A 2006 study in Yellowstone determined tourists visiting the park to view wolves have brought \$35 million annually to the region's economy, which turns over into more than \$70 million annually for northern Rockies communities. In the Great Lakes area, wolf-related tourism provides \$3 million to the small town of Ely, Minnesota alone.

We Can Do More to Protect Wolves

Officials at the state and federal level must do more to protect this valuable top-level predator.

Stop delisting and halt adoption of the revised 10(j) rule. Wyoming's plan to classify wolves as "predators" and open them up for public killing and Idaho's demand for zero wolves in the state illustrate how vulnerable wolves will be in the absence of federal protection. States must establish rational, scientifically based wolf management plans and programs that maintain wolf populations at appropriate numbers and ensure their long-term health.

Enhance habitat protection

Increased settlement and oil and gas development continue to fragment wolf ecosystems in the Northern Rockies and the landscapes that connect them. A recent genetics study determined that Yellowstone wolves are isolated from wolves in central Idaho, largely because wolves cannot travel between the ecosystems without getting killed. Much more must be done to protect habitat within and between the ecosystems where wolves live.

Reduce wolf/livestock conflicts

States should be required to utilize existing non-lethal tools and to develop new ways to minimize conflicts. More than half the wolf packs in Idaho and Wyoming overlap grazing allotments on public lands, where the Forest Service could help reduce conflicts by improving grazing practices.

Revise recovery plan to include new information on wolf genetics and habitat needs. The federal wolf recovery plan was drafted 20 years ago when there were only a handful of wolves in the Northern Rockies. In reaction to opposition to the wolf reintroduction, the government set recovery goals low, at 100 wolves in each state. Today, after collecting data about genetic and habitat requirements, biologists have called for population viability studies and a revision of the recovery goals to reflect today's science. Geneticists have said several thousand wolves are needed to maintain the long-term health of Northern Rockies wolves.

"Protecting Wolves in the American West." Natural Resources Defense Council Fact Sheet. Jan. 2008. 23 Feb. 2008. <<http://www.nrdc.org/wildlife/animals/wolves/wolves.pdf>>

The Natural Resources Defense Council's purpose is to safeguard the Earth: its people, its plants and animals and the natural systems on which all life depends. We work to restore the integrity of the elements that sustain life -- air, land and water -- and to defend endangered natural places. We seek to establish sustainability and good stewardship of the Earth as central ethical imperatives of human society. NRDC affirms the integral place of human beings in the environment. We strive to protect nature in ways that advance the long-term welfare of present and future generations. We work to foster the fundamental right of all people to have a voice in decisions that affect their environment. We seek to break down the pattern of disproportionate environmental burdens borne by people of color and others who face social or economic inequities. Ultimately, NRDC strives to help create a new way of life for humankind, one that can be sustained indefinitely without fouling or depleting the resources that support all life on Earth.

"Mission Statement." Natural Resources Defense Council. <<http://www.nrdc.org/about/mission.asp>>

"Rancher Violates Endangered Species Act by Killing Wolf to Save Cattle"

Randy Hall
CNSNews.com

Document Excerpt #2

Oct 1, 2007 - A Montana rancher killed a wolf to protect his cattle herd, and now federal officials say he violated the Endangered Species Act. This apparently extreme instance led one conservative analyst to claim that the act is doing more harm than good, because it forces landowners to "shoot, shovel and shut up." Roger Lang is a California entrepreneur who owns the 18,000-acre Sun Ranch, south of Ennis, Mont. Over the last 10 years he has spent hundreds of thousands of dollars to help ensure that his ranch is set up and operates legally, especially in conformity with the Endangered Species Act (ESA). Lang has experimented with fences, herders, and other nonfatal means to prevent his livestock from being killed by wolves, which had virtually been wiped out in the area during the 1970s but were reintroduced by federal officials in 1994.

After five yearling heifers were killed this summer, Lang decided to become more aggressive in dealing with the pack, which numbered 13 wolves, including seven pups. "That's a lot of mouths to feed," the ranch owner, who obtained a permit to kill two adult wolves on his property, told the *Bozeman Daily Chronicle*. Instead, Lang's employees, shooting from a distance, killed a pup in July and wounded the pack's alpha female. As a result of those injuries, the female was unable to run with the pack and spent the next two weeks hovering near the rancher's cattle, seeking easy prey.

But an employee on an all-terrain vehicle (ATV) saw the wounded animal and began chasing it. After hitting the wolf several times, the employee pinned it under the vehicle, Lang said. "Once it was pinned down, it was trying to take (the employee's) leg off," Lang said. "He couldn't jump off the ATV. What would happen if the wolf escaped? He did the best he could with an awkward situation." A colleague eventually arrived and shot the animal, said Lang.

In a written statement, Lang called the pup's death "an honest mistake" and said: "I accept ultimate responsibility for this event because I set a tone that proved to be too aggressive. I also accept responsibility for any lapses in the training of my ranch team."

While Ed Bangs, wolf recovery coordinator of the Northern Rocky Mountains for the U.S. Fish and Wildlife Service, told Cybercast News Service on Friday that he couldn't comment on the specifics of the case, he did provide information regarding Section 10j of the Endangered Species Act, which Lang has been charged with violating. "When we reintroduced wolves in 1994, we passed special regulations that allowed landowners to shoot a wolf that was actually biting or grasping their livestock on their private land," Bangs said. "The idea was to provide flexibility that's not normally in the Act." Eleven years later, he said, "we liberalized those rules" to allow a farmer or a rancher and their employees or family members on their private land or their grazing allotments "to shoot any wolf they thought was in the act of attacking their livestock."

Bangs emphasized that the phrase "in the act" is defined as "chasing, molesting and harassing so that an attack is imminent. You're allowed to do that without a permit" even though "you can't trap them, you can't poison them, and you can't hunt them on your place." "We also issue shoot-on-sight permits in places that have had chronic problems" with wolves, he stated, but they aren't "freebies to hunt down wolves anywhere. The federal regulations are still in place." "In some situations, guys go beyond the spirit of the law and the rules, and they end up doing stuff they shouldn't do," Bangs added. "In those situations, they can be prosecuted."

"Bad for species, bad for people"

However, Brian Seasholes, an adjunct scholar with the conservative National Center for Policy Analysis (NCPA), told Cybercast News Service that "if someone like Roger Lang can't get along with the ESA, then maybe nobody can." The main threat to wildlife in the United States and worldwide is loss of habitat due to human activity, he said, and "the feds clamping down on Lang will have a chilling effect on the conservation of the wolf and other endangered species in Montana and other western U.S. states." "Wildlife authorities can't be everywhere, and more often than not, they aren't," added Seasholes, the author of an NCPA report entitled "Bad for Species, Bad for People: What's Wrong With the Endangered Species Act and How to Fix It." As a result, "land-owners are the ones who bear the true cost of living with wildlife."

Because farmers and ranchers tend to be "land rich and cash poor," they may decide to quietly "shoot, shovel and shut up" or, more detrimentally, "make their land inhospitable to wildlife by erecting high fences or eliminating sources of water, he stated. "That's the great tragedy of the Endangered Species Act," Seasholes added. "If one had deliberately tried to write a law that would do enormous harm to wildlife, it would be hard to top the ESA."

Back in Montana, Lang told Cybercast News Service that he regrets what happened and "totally supports" the ESA, even though he said the law is "vaguely worded," which leads to "misunderstandings" over its provisions. "The 24 wolves that were reintroduced in 1994 are now 1,200 in Wyoming, Idaho and Montana," Lang said. "If we don't manage them, there's going to be more and more conflict in which cattle will die, wolves will die, and people are going to make mistakes." "If we can play a small part in bringing the dialogue to a national, rational level, then we're delighted, even if we got our wrists slapped along the way," he added.

Hall, Randy. "Rancher Violates Endangered Species Act by Killing Wolf to Save Cattle. CNSNews.com. 1 Oct. 2007. 23 Feb. 2008.
<<http://www.cnsnews.com/ViewNation.asp?Page=/Nation/archive/200710/NAT20071001b.html>>

The Cybercast News Service was launched on June 16, 1998 as a news source for individuals, news organizations and broadcasters who put a higher premium on balance than spin and seek news that's ignored or under-reported as a result of media bias by omission. Study after study by the Media Research Center, the parent organization of CNSNews.com, clearly demonstrate a liberal bias in many news outlets – bias by commission and bias by omission – that results in a frequent double-standard in editorial decisions on what constitutes "news."

In response to these shortcomings, MRC Chairman L. Brent Bozell III founded CNSNews.com in an effort to provide an alternative news source that would cover stories that are subject to the bias of omission and report on other news subject to bias by commission. CNSNews.com endeavors to fairly present all legitimate sides of a story and debunk popular, albeit incorrect, myths about cultural and policy issues.

"History." CNSNews.com. 23 Feb. 2008.
<<http://www.cnsnews.com/corporate/history.asp>>

“Wyoming’s Wolf Plan Offers ‘Adequate Regulatory Mechanism’ to Manage Wolves, Feds Say”

Wyoming Game and Fish web site

Document Excerpt #3

CHEYENNE, Wyo. Dec. 14, 2007

The U.S. Fish and Wildlife Service (Service) has approved Wyoming’s Gray Wolf Management Plan, calling it an “adequate regulatory mechanism” that meets the requirements of the Endangered Species Act. Formal notification of the approval came in a letter yesterday from Service Director Dale Hall to Wyoming Game and Fish Department Director Terry Cleveland. In the letter, Hall wrote, “After careful review and consideration, we determined that the 2007 Plan will provide adequate regulatory mechanisms for conserving a recovered wolf population in Wyoming after delisting and meets the requirements of the Endangered Species Act.”

“The Fish and Wildlife Service’s acceptance of Wyoming’s wolf plan is an encouraging sign that wolves in our state will soon be removed from the Endangered Species List, and that Wyoming will be able to manage wolves on its own terms,” said Wyoming Governor Dave Freudenthal. “It has been a long and difficult road, and in our discussions we have achieved compromise on issues like the dual classification and the state’s ability to manage wolves in relation to their impact on elk and deer. I salute Wyoming Game and Fish Director Terry Cleveland and his staff for their hard work in developing the management plan. What remains, in terms of process, is for the feds to delist wolves by Feb. 28 of next year.”

Wyoming’s original wolf plan was rejected by the Service in 2004. With the passage of House Bill 0213 by the 2007 Wyoming Legislature, the Wyoming Game and Fish Commission had latitude to adopt a new plan that met the requirements of the Service. The plan approved yesterday was adopted by the Wyoming Game and Fish Commission on November 16, 2007. The Commission worked with the Service to make several significant changes to Wyoming’s original wolf plan and reviewed public comments before approving the plan and submitting

it to the Service. Under Wyoming’s approved plan, after delisting the Wyoming Game and Fish Department will assume management of wolves in that portion of the state where wolves will be classified as trophy game animals. In the remaining portions of the state, gray wolves will be classified as predatory animals.

The Service has determined that 15 breeding pairs of wolves will ensure Wyoming’s share of a fully recovered population. Wyoming’s plan commits the Game and Fish Department to maintaining at least seven breeding pairs of wolves in the state and primarily outside of Yellowstone and Grand Teton National Parks and the John D. Rockefeller Memorial Parkway. The remaining breeding pairs will be located primarily within Yellowstone and Grand Teton National Parks and the John D. Rockefeller Memorial Parkway.

“Approval of Wyoming’s plan is a major step forward in the recovery of wolf populations in the northern Rocky Mountains and should help clear the way for removing them from the Endangered Species List this winter,” said Cleveland. “We’re pleased that the Service has worked with us to find a compromise. Credit goes to the Governor, the Legislature, the Attorney General, and the Commission for their hard work and efforts in moving wolf delisting to this point. The Wyoming Game and Fish Department is fully prepared to assume management of wolves in Wyoming, and we are committed to ensuring a recovered population while managing this species in a way that makes sense for people who live and work in wolf country.”

To see the full text of the Service's letter approving Wyoming's wolf plan, go to the Wyoming Game and Fish web site at: USFWS 2007 Final Gray Wolf Management

Contact: Eric Keszler (307-777-4594)

"Wyoming's Wolf Plan Offers 'Adequate Regulatory Mechanism' to Manage Wolves, Feds Say." Wyoming Game and Fish. 14 Dec. 2007. 23 Feb. 2008. <http://gf.state.wy.us/downloads/htm/wolfplanapproved_1.htm>. 2008.
<<http://gf.state.wy.us/admin/aboutus/index.asp>>

The Wyoming Game and Fish Department has roots all the way back to the 1890's. This period in our history marks a major decline in the population of wild game in the state of Wyoming due to unlimited harvesting practices used by settlers. During that decade, the positions of State Fish Warden (1890) and State Game Warden (1899) were established to protect Wyoming's wildlife from dangers of over harvesting. These positions were dedicated to the replenishment of the wildlife in the area.

In 1921, the Game and Fish Commission was established to provide citizen oversight to the Wyoming Game and Fish Department. The Commission is made up of seven (7) officials, appointed by the Governor, who each represent a region in the state. One official is appointed from each region, and each region consists of approximately three (3) counties in Wyoming. The Game and Fish is funded by the traditional "user pays" philosophy. This means that there is no general fund appropriated from the State for the Game and Fish. The funding comes mainly from the annual sales of licenses to hunters and fishermen.

"History." Wyoming Game and Fish 2002. 23 Feb

"N. Rockies Gray Wolf Removed From U.S. Endangered List"

Brian Handwerk

National Geographic News

Document Excerpt #4

Gray wolves in the northern Rocky Mountains are "thriving" and no longer in need of protection under the U.S. Endangered Species Act, Lynn Scarlett, Deputy Secretary of the Interior, announced today. Wolves affected by the decision are those living in what the U.S. Fish and Wildlife Service (USFWS) defines as the northern Rockies Distinct Population Segment (DPS). This zone includes Montana, Idaho, Wyoming, the eastern thirds of Washington and Oregon, and a small area of north-central Utah. Settlers had eliminated wolves from the area before controversial reintroduction efforts began about a decade ago.

"In 1995 and '96 the Department of Interior reintroduced 66 wolves into federal lands in the region," Scarlett said. "Today the northern Rocky Mountain population totals more than 1,500 wolves." David Mech is a senior research scientist for the U.S. Geological Survey and chair of the World Conservation Union's Wolf Specialist Group. "It's great news [but] it's not a surprise, because the biological criteria for delisting was met years and years ago," Mech said.

The recovery goal was 30 breeding pairs among 300 wolves within the DPS for three consecutive years, he noted. Those criteria were met in 2002, and wolf numbers have increased every year since then. "The wolves took the opportunity that the Fish and Wildlife Service, states, and tribes gave them and ran with it," Scarlett said. "The wolves are back."

Conservation Success Story

Gray wolves first received federal protection under the Endangered Species Act in 1974. The Rocky Mountains delisting follows the removal of the western Great Lakes wolves from the endangered species list in early 2007. "Delisting the wolf is a very successful step forward in wolf management," said Jess Edberg of the education nonprofit International Wolf Center in Ely, Minnesota. "The purpose of having the Endangered

Species Act is to prevent extinction. That goal has essentially been achieved, so it's a success story. The ESA was never meant to be a perpetual protection act."

Any continental U.S. gray wolves roaming outside of the Rockies and Great Lakes regions—including a third population in the Southwest—will not be affected by the ruling and will retain their endangered status.

Any wolves that wander out of the northern Rockies DPS would also be federally protected. But Ed Bangs, the USFWS wolf recovery coordinator in Helena, Montana, said such moves are rare, and the probability of a breeding pair establishing a new population elsewhere is slim. "The northern Rocky Mountains [provide] unusually suitable habitat," he said. "There's very little suitable habitat in other places—the habitat has been so modified by human use that wolves are really going to have a tough time fitting in."

Hunter Becomes the Hunted?

The delisting means that state officials and Native American tribes will soon manage their own wolf populations to sustain numbers at a healthy level while reducing conflicts with humans. Montana, Idaho, and Wyoming have each committed to maintaining at least 15 breeding pairs and 150 wolves. Actual state management plans call for total wolf numbers of around 900 to 1,250 animals in mid-winter, Bangs said. The International Wolf Center's Edberg noted that the new management plans are sure to ignite some controversy.

"Delisting is very alarming for some conservation groups concerned about hunting and trapping laws being set," she said. "It's also [a concern] among those who feel that, without [hunting] seasons, they are not going to be able to protect their livelihood, whether it's ranching or taking tourists on an elk hunt." She feels such passions are heightened in the

West, where cultural views toward wolves differ from those in Great Lakes states such as Minnesota, where the animals were never eliminated. "In the Rockies you have a culture where wolves were eradicated and decades later were put here again," she said. "It's a process learning to deal with that large predator."

Montana, Idaho, and Wyoming are currently developing plans for sporting hunts to control the newly recovered populations, but Bangs believes those increased kills will have little impact on overall numbers. "The bottom line is right now about 26 percent of all adult-size wolves die or are killed every year," he said. "Each year we remove about 10 percent of the population due to conflicts with livestock. [Others fall victim to] illegal kills, being hit on the roads, or wolves killing wolves. "Despite that, the population has been expanding some 24 percent per year. Wolves are incredibly resilient."

Some environmentalists adamantly disagree, which means that before any actual shots are fired, legal action is a distinct possibility. Still, Edberg expressed confidence that the darkest days are in the past for the wolves of the Rockies. "USFWS is dedicated to preserving this population. It isn't just going to walk away and let a state kill all the wolves," she said. "[The wolves] are going to be monitored under a five-year plan to make sure the states do what they said they would do and ensure that the wolf population will never again be placed under the Endangered Species Act."

Handwerk, Brian. "N. Rockies Gray Wolf Removed From U.S. Endangered List." *National Geographic News*. 21 Feb. 2008

<http://news.nationalgeographic.com/news/2008/02/080221-wolf-endangered_2.html>

Since 1888, we've traveled the Earth, sharing its amazing stories with each new generation. National Geographic's Mission Programs support critical expeditions and scientific fieldwork, encourage geography education for students, promote natural and cultural conservation, and inspire audiences through new media, vibrant exhibitions, and live events. National Geographic News offers daily news reports on these topics: animals, ancient world, environment, culture, science & space and weird news.

"Our Mission in Action." *National Geographic*.

<<http://www.nationalgeographic.com/mission/index.html>>



Lesson # 3 Case Study Student Worksheet

NAME _____ DATE: _____

Read over the questions below before reading your article. For each question summarize in a sentence or two the perspective of that article's author. You may want to underline the sections of the article that are pertinent to each question in order to give examples from the text to back up your conclusion.

Title of Article: _____

1.) Does the author take a position on the success of the Endangered Species Act as a means to protect Northern Rockies Gray Wolf populations? If so, what do they conclude?

2.) What is the author's perspective on government's role in protecting the wolf?

3.) What sources does the author cite?

4.) In what way does the mission statement or history of the sponsor organization shape its reporting?

Lesson #4: Case Study— Rainforest Biodiversity (Video Clips)

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Video Clips	
(Access online or via Lesson 4 digital media folder)	

Orangutan
Living Together
Malaysian Palm Oil Council
Coming Soon: Orangutan Extinction

LESSON PLAN



Video Clip

Case Study: Rainforest Biodiversity

Lesson Objectives:

- Students will review issues related to rainforest biodiversity.
- Students will understand impacts on biodiversity from monoculture plantations that produce single crops for the global market.
- Students will recognize the power of words, images and sound to bias impressions.
- Students will analyze credibility, bias and truth in educational, corporate and citizen action film.

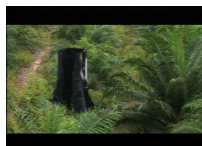
Vocabulary:

Biodiversity, tropical rainforest, palm oil plantation, monoculture, Indonesia, Borneo, Sumatra, Malaysian Palm Oil Council, Palm Oil Action, sustainable production

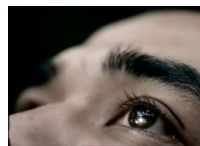
Media als in the



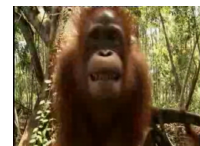
Orangutan, Sierra Club Series, 1988
(3:15)



Living Together, Planet Earth, 2007
(2:47)



Malaysian Palm Oil Council, CNN, 2007 (1:05)



Coming Soon: Orangutan Extinction, Hatchling Productions, 2007 (1:24)

Materials Needed:

- Teacher's guide: *Rainforest Biodiversity*
- Four video clips (access online or via Lesson 4 digital media folder)
- One-page Lesson #4 Case Study Student Worksheet

Time

50 minutes

Lesson Procedures:

1. Present *Lesson Introduction* to the class
2. Distribute *Student Worksheet* for logging the clips
3. Play the video clips while students log their answers
4. Lead students through a decoding of the video clips using *Media Sample Questions & Answers Teacher's Guide*
5. Discuss funding sources and credibility in films using *Further Questions*

TEACHER GUIDE



Video Clips

Case Study: Rainforest Biodiversity

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Background Information

In his book, *The Future of Life* (Slide 19) renowned biologist E. O. Wilson writes, “The headquarters of global biodiversity are the tropical rainforests. Although they cover only about 6% of the land surface, their terrestrial and aquatic habitats contain more than half the known species of organisms. They are also the leading abattoir (slaughterhouse) of extinction, shattered into fragments that are then being severely adulterated or erased one by one. Of all ecosystems, they are rivaled in rate of decline only by the temperate rainforests and tropical dry forests” (Wilson 59).

Rainforest destruction has been an issue of concern within the United Nations since the 1980s. The United Nations’ Intergovernmental Panel on Forests (IPF) has established a set of 270 proposals for action for the promotion of the management, conservation and sustainable development of all types of forests (UNFF). In 2007, the World Index of Social and Environmental Responsibility database counted the same number of organizations, 270, devoted to the preservation of tropical rainforests (Hawken 294).

The videos you will see focus on one particular case study within the vast array of concerns related to rainforest destruction, that of Indonesian palm oil plantations and their impact on biodiversity. When E. O. Wilson wrote *The Future of Life* in 2002, he warned, “eighty percent of the (Indonesian rain) forest cover has been committed to logging and replacement by oil palm and other plantations, and rapid clearing is under way” (Wilson 66). This figure has certainly risen since then.

Lesson Introduction

The videos you are about to view represent two distinct styles of filmmaking. The first two are excerpts from nature documentaries. The other two are ads made by an industry group and an activist group. As you view these clips you will be asked to contrast points of view regarding rainforest biodiversity and film making techniques that convey those viewpoints. Please remember the first two brief excerpts are not meant to show the full story as told in the much longer works from which they are taken.

3. Distribute student worksheets. Have students work individually or in pairs to log each film.
4. Read aloud the brief introductory excerpt before playing each film clip.
5. Play the film clip.
6. Have students write their answers on their worksheet after the showing of the clip.
7. Lead a discussion of the clips using the suggested teacher answers below as a guide.



Orangutan, Sierra Club Series, 1988

Film 1 Introduction

This excerpt is from the 1988 film *Orangutan* made by the Survival Anglia production company and marketed by Eastman Kodak as part of the Sierra Club Series on endangered wildlife. The video jacket describes the film: "This film, narrated by Peter Ustinov, provides a compelling account of the imperiled condition of the rare and endearing orangutan, the animal whose name means "man of the forest."

This was filmed on the island of Sumatra, next to Borneo in Indonesia.

Media Sample Questions & Answers

1.) What is the impact of palm oil plantations on rainforest diversity? Give evidence to justify your answer.

Possible Answer: The film does not mention palm oil plantations but suggests that any cutting of the rainforest is dangerous for people and wildlife. **Evidence:** The opening images and narration regarding the effect of the lumber operations on the single orangutan suggest that rainforest cutting will threaten orangutans. The later images of the hillside that has been clear-cut and the narrator's words – "natural disaster...that could drastically affect their own lives" suggest danger to people as well.

2.) What techniques do the filmmakers use to persuade or inform? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: They persuade the viewer to feel sympathy for the ape by showing the "real life drama" of the timber crew cutting the trees next to the large orangutan. The falling branch and the image of the orangutan with its hands over its head are meant to evoke impending doom and pity. The narration adds to the drama: "This magnificent animal is fighting for its very existence as more and more of his forest home is hacked away." The oboe and percussion create an unsettling background score to reinforce these impressions. The aerial shots of the extensive hillside cut juxtaposed with the following images of jungle and river show the dramatic difference between a living forest and one that has been cut.

3.) What is left out of this message that might be useful to know?

Possible Answer: There is no mention of the palm oil industry's effect on the orangutan's range, likely because this film was made before palm oil plantations became a major industry in Indonesia. There is no reference here to the "wonderful people" who are helping the ape. (Such information makes up the main part of the full video) There is no mention of how the local people and timber workers feel about the cutting of the forest.

4.) This note appears at the end of the video: "All the scenes in this pictorial essay whether actual or crated represent authenticated facts." How can you judge the credibility of the information offered?

Possible Answer: The note suggests that some of what is shown may in fact be staged. This might lead one to wonder whether the rest of the information is accurate. To judge the credibility one would have to research other sources on orangutans and rainforest depletion in Sumatra during the 1980s.



Living Together, Planet Earth, 2007

Film 2 Introduction

This excerpt is from an episode entitled “Living Together” from the BBC TV series, *Planet Earth*. The DVD set of the series was distributed by Warner Home Video which promoted the product as follows: “With an unprecedented production budget, using high definition photography and revolutionary ultra-high speed cameras, five years in the making, over 2000 days in the field, using 40 cameramen across 200 locations, *Planet Earth* is the ultimate portrait of our planet.”

Media Sample Questions & Answers

1.) What is the impact of palm oil plantations on rainforest diversity? Give evidence to justify your answer.

Possible Answer: A majority of those interviewed (three out of four) suggest that palm oil plantations dramatically reduce rainforest diversity. One interviewee suggests that rainforest depletion has been overstated.

Evidence: M.A. Sanjayan, lead scientist of the Nature Conservancy: “a monoculture reducing the rainforest to small chunks.” Huw Cordey, *Planet Earth* producer: “an oil palm plantation is the antithesis of a rainforest...reducing your diversity enormously.” James Lovelock, independent scientist: “the tropical rainforest (has) great diversity...that cannot be replaced by a single plantation of trees.” Peyton Knight, National Center for Public Policy research: “I view with a great deal of skepticism reports in how fast the rainforest is decreasing.”

2.) What techniques do the film makers use to persuade or inform? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: They choose to include three out of four speakers with a similar perspective. They intersperse the interview frames with images of tree cutting, sounds of a chainsaw and a long pan of large palm oil plantations with a background of ominous low tone orchestral sounds to visually underscore the tragedy of rainforest depletion. They include an interview in which a frowning filmmaker says that seeing the oil palm plantations “was depressing...almost brought tears to your eyes.” They use an aerial view of clouds amongst rainforest trees backed with rainforest animal sounds to highlight the role of the rainforest in the water cycle.

3.) What is left out of this message that might be useful to know?

Possible Answer: What do the people who live or work on the palm oil plantations think? What does palm oil production have to do with the likely viewer of this program in Britain or the U.S.? What are people doing to stop rainforest depletion? What are the benefits of palm oil?

4.) What actions might you take in response to this message?

Possible Answer: Answers will vary depending on individual choice and point of view.



Malaysian Palm Oil Council, CNN, 2007

Film 3 Introduction

This ad was made by the Malaysian Palm Oil Council for broadcast in the U.S. on CNN. The Advertising Standards Authority filed a complaint about this ad, alleging that “the ad misleadingly implied that palm oil plantations were as bio-diverse and sustainable as the native rainforests they replaced.” The Malaysian Palm Oil Council responded in a press release that it was “extremely disappointed with the Advertising Standards Authority’s verdict. We do not feel that the advertisements mislead in any way, and we stand by our claim that Malaysian palm oil is produced sustainably. Malaysia has numerous laws in place going back to the 1920s to ensure that we protect and nurture our natural and human resources, which we are well aware are finite and precious” (MPOC).

Media Sample Questions & Answers

1.) What is the impact of palm oil plantations on rainforest diversity? Give evidence to justify your answer.

Possible Answer: Palm oil plantations enhance biodiversity.
Evidence: Palm oil plants are shown interspersed with images of plants and animals with a voice-over: “This gift for nature, this gift for life, Malaysian palm oil... It gives life, vitamins, energy.”

2.) What techniques do the filmmakers use to persuade or inform? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: The images of the young man running through the plantation and stopping to appreciate nature put the viewer in the role of appreciating what is presented as a palm oil plantation. The soft and calming music and the images of hummingbird, water drops and forest-like surroundings add to the idea that a palm oil plantation is a good place to embrace nature.

3.) What is left out of this message that might be useful to know?

Possible Answer: What existed in this place before the plantation? Were people or animals displaced to create this plantation? How does cutting down the original forest impact the ecosystem? Who benefits from palm oil monoculture and who is harmed? What does “sustainably produced since 1917” mean? How can one know if palm oil is in a particular product and if it is sustainably produced?

4.) Why was this made and who paid for it? Explain your conclusions.

Possible Answer: This was made to sell palm oil to an international audience who has likely been exposed to information such as that presented in the previous two films. The fact that the Malaysian Palm Oil Council sponsored this ad suggests that its message will further the council’s efforts to make profits for that industry.



Coming Soon: Orangutan Extinction Hatchling Productions, 2007

Film 4 Introduction

This clip, "Coming Soon: Orangutan Extinction," was made by the Australian company, Hatchling productions, as a trailer for a film entitled, *Palm Oil: The Movie*. Palm Oil Action, the Australian group referenced at the end of the clip, states as its objectives: "Encourage importers, food manufacturers and other companies who are currently using palm oil to implement a range of positive initiatives; Urge the Australian and NZ Governments to implement policies to ensure the labeling of products containing palm oil and Encourage individuals, as consumers, to take action on this issue by raising their concerns with retailers and manufacturers who use palm oil."

Media Sample Questions & Answers

1.) What is the impact of palm oil plantations on rainforest diversity? Give evidence to justify your answer.

Possible Answer: Palm oil plantations destroy biodiversity.

Evidence: A devastated landscape is shown along with the voice over: oil companies incinerate the Indonesian forest just so you can buy fried chicken... Save the orangutans from palm oil."

2.) What techniques do the filmmakers use to persuade or inform? Consider choices in scripting, visuals, audio background and voice-over in your answer.

Possible Answer: The images of the empty landscape, the fire, the orangutan crossing the charred earth and being captured and imprisoned, hurricane damage, factory smokestacks, effluent pipes all suggest that palm oil plantations are bad. The emphatic music and keening vocals raise anxiety. The fake film titles "Palm Oil: Rated N for Nasty" and the urgent male voice over add to this effect. The images of grocery shelves and familiar products inform the viewer that palm oil may be in products he or she consumes.

3.) What is left out of this message that might be useful to know?

Possible Answer: What is sustainable production and how can one find out if a product is produced sustainably? How much of this footage, i.e. the smokestack, effluent pipe, burning forest, clear-cut landscape is from Indonesian palm oil plantations and how much from elsewhere? How do the local workers and villagers feel about the effort to curtail the production of palm oil? What is the palm oil industry's response to these charges?

4.) Why was this made and who paid for it? Explain your conclusions.

Possible Answer: This was made to incite outrage and activism among viewers to stop palm oil plantation's contribution to rainforest depletion. The concluding message to "Save the orangutans from palm oil" and "coming soon to a supermarket near you. Rated bad for you and everything else" urges the viewer to take this personally and to take action. The credits suggest that it was made by Hatchling Productions and refer viewers to the Web site - palmoilaction.org.au. It's unclear who might have paid for the production of this video.

» After you have decoded the films, lead a discussion about the power of words, images, and sound to bias impressions and about credibility, bias and truth in various forms of documentary film and advertising.

FURTHER QUESTIONS

- » **How do funding sources (corporate – BBC Warner and Malaysian Palm Oil Council vs. citizen action group – Sierra Club and Palm Oil Action) impact the filmmakers' perspectives on the topic?**
- » **Who might benefit from each film and who might be harmed?**
- » **What important information is left out of these excerpts?**
- » **What kinds of actions might one take in response to each film?**
- » **How credible are these sources?**
- » **How could you find additional information about rainforest destruction and palm oil plantations today?**
- » **How many items in your kitchen contain palm oil?**
- » **What group do you know that is working to protect endangered species?**

CONNECTIONS

See lesson 1 PowerPoint slides #20 & 21 (orangutan and palm oil)



Lesson #4 Case Study Student Worksheet

NAME _____ DATE _____

Read over the questions below before watching the short video clips. You may want to take notes as you view the clips. You will then be given time to write your answers after viewing the clips.

Title of Film: _____

- 1.) What is the impact of palm oil plantations on rainforest diversity? Give evidence to justify your answer.
- 2.) What techniques do the filmmakers use to persuade or inform? Consider choices in scripting, visuals, audio background and voice-over in your answer.
- 3.) What is left out of this message that might be useful to know?
- 4.) This note appears at the end of the video: "All the scenes in this pictorial essay whether actual or created represent authenticated facts." How can you judge the credibility of the information offered?

Lesson #5: Case Study— Frogs and Atrazine (Print Documents)

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“Atrazine Litigation Facts?”	159
“Studies Conflict on Common Herbicide Effects”	161
“Scientific Integrity”	163
Student Worksheet.....	165

LESSON PLAN

Printed Document

Case Study: Frogs and Atrazine

Lesson Objectives:

- Students will study and present different views on the science connecting frog population depletion with the use of the herbicide atrazine.
- Students will analyze on atrazine and frog decline from personal corporate Web pages and from newspaper and Internet articles.
- Students will evaluate and discuss media, government, industry and activist groups reporting on environmental decisions related to scientific research

Vocabulary:

Atrazine, Tyrone Hayes, Syngenta, endocrine disrupter, endocrinology, hermaphrodite. immune function, peer reviewed scientific studies, class action complaint, U.S. Environmental Protection Agency (EPA), maximum contamination level, Data Quality Act

Media

Handouts with excerpts from four opinion/analysis articles from Atrazinelovers.com, Tyrone Hayes' web site; Syngenta's Web page on atrazine litigation; the science section of the *New York Times* and from the Web site of the Union of Concerned Scientists.

Materials Needed:

- Teacher's guide: Frogs and Atrazine
- Two-page student reading #1: "What You Should Know About Atrazine"
- Two-page student reading #2: "Atrazine Litigation Facts"
- Two-page student reading #3: "Studies Conflict on Common Herbicide Effects on Frogs"
- Two-page student reading #4 "Scientific Integrity"
- One-page student worksheet: Lesson #5 Case Study Student Worksheet

Time

50 Minutes

Lesson Procedures:

1. Present *Background Information* to the class.
2. Divide the class into four groups and distribute the Student Reading Handouts, one article per group.
3. Use the *Teacher Answer Sheet* Teacher Guide to help facilitate the four presentations.
4. Help students to articulate and evaluate their own thinking about the roles that media, industry, government, universities and citizens play in ensuring environmental protection.

TEACHER GUIDE



Printed Document

Case Study: Frogs and Atrazine

1. Organize and make copies for the class activities.
2. Provide background information.

Background Information

Scientists have determined that frog populations have been declining worldwide since the 1980s (Wilson 54). There are many possible explanations for this decline ranging from acid rain to ultraviolet ray poisoning to fungus outbreaks resulting from global warming (Margolis). One of the possible causes for frog population crashes is the presence in the environment of persistent organic pollutants such as chemical herbicides and pesticides.

Syngenta is a major chemical company that manufactures atrazine, a chemical herbicide used by many farmers. In 1997, Syngenta hired researcher Dr. Tyrone Hayes of the University of California at Berkeley to review studies supporting the company's goal to re-register atrazine with the Environmental Protection Agency (EPA) as environmentally safe. Dr. Hayes' completed his research in 2002 finding that very low levels of atrazine produced endocrine disruption in African clawed frog tadpoles. When Syngenta failed to release these studies Hayes resigned from the review panel and published the results. The controversy became public in April 2002 when Hayes published his results. In 2006, the EPA re-registered atrazine concluding that it posed "no harm that would result to the general U.S. population, infants, children or other...consumers" (Study). In the summer of 2004, Syngenta was sued in a class action lawsuit by a water utility in Illinois that alleged that atrazine pollution made its drinking water unsafe. The case is still pending.

3. Introduce the lesson

Lesson Information

The articles you will review explore the effect of atrazine on frog populations. Remember that most of the articles you will read have footnotes citing other sources that are not included in the readings. A complete study of the issue would require a great deal more research than you are being asked to do in this lesson.

For this lesson, you will break into four groups, each with a different article to read from these sources Atrazinelovers.com, Tyrone Hayes' website; Syngenta's web page on atrazine litigation; the science section of the *New York Times* and from the Web site of the Union of Concerned Scientists.

As your group reads the handout, look for the answers to four basic questions: 1) How does atrazine use as an herbicide impact frog populations? 2) Does the author view Tyrone Hayes' arguments as credible? 3) Why was this article published and who paid for it? 4) How do the article headline and section titles influence the interpretation of information?

Also, note any passages in the article that illustrate those points. You will then present your document to the entire class with each student sharing a different answer. After all four groups have presented, we will discuss your reactions to the various perspectives presented.

4. Distribute among the four groups one student reading and one student worksheet.
5. Give students time to complete the assignment. Review the possible answers using the *Teacher Answer Sheet*.
6. Bring the class back together for the presentations.
7. Ask each group to report their author's analysis and conclusions, question by question – using excerpts from the text to illustrate their points.

Teacher Answer Sheet

Questions, Possible Answers & Evidence

1.) How does atrazine use, as an herbicide, impact frog populations?

Possible Answers

Doc. 1: Tyrone Hayes – Atrazine upsets hormone balance in frogs causing “chemical castration” and depressed immune function.

Doc. 2: Syngenta – There is no scientific proof that atrazine is harmful to frog development.

Doc. 3: *New York Times* – It is uncertain whether atrazine has a negative effect on frog populations.

Doc 4: Union of Concerned Scientists – Atrazine causes severe hormonal damage and is linked to amphibian population declines.

Evidence

Doc. 1: Tyrone Hayes – Atrazine chemically castrates and feminizes wildlife and reduces immune function in both wildlife. In ... amphibians...the decrease in testosterone results in decreased sperm counts, impaired fertility, and a reduction in masculine features. In amphibians, atrazine exposure impairs immune function and increases susceptibility to disease.

Doc. 2: Syngenta – special Scientific Advisory Panel convened by EPA concluded “there are currently insufficient data” to confirm the theory that atrazine exposure may impact frog development.

Doc. 3: *New York Times* – Indicates ambiguity with phrases like “studies conflict,” “studies raise questions,” “could help explain,” “hard to compare (studies).”

Doc 4: Union of Concerned Scientists – Atrazine has been found to cause severe hormonal damage to wildlife, including amphibians...the herbicide has been linked to declines in...various amphibians. Most notably, atrazine has been found to produce hormonally confused frogs, turning them “into bizarre creatures bearing both male and female sex organs.”

Teacher Answer Sheet

Questions, Possible Answers & Evidence

2.) Does the author view Tyrone Hayes' arguments as credible?

Possible Answers

Doc. 1: Tyrone Hayes – Hayes' arguments are credible as reported by Hayes.

Doc. 2: Syngenta – Hayes' arguments are not credible.

Doc. 3: *New York Times* – Hayes' conclusions are suspect.

Doc 4: Union of Concerned Scientists – Hayes' findings are credible and those of his critics are not.

Evidence

Doc. 1: Tyrone Hayes – Hayes' supports his conclusions by citing a "large number of studies" which he references repeatedly in footnotes: Given the many detrimental effects on wildlife and laboratory animals, the large number of studies from so many independent laboratories, and the associated effects in humans, it is not likely that the observed effects are mistakes, misinterpretations, or artifacts. As further affirmation of his studies Hayes also notes that: Atrazine has already been banned as a result of lawsuits to protect two endangered amphibians.

Doc. 2: Syngenta – The EPA, in a public address to the Minnesota Legislature in February 2005, said "Dr. Hayes claims not only has his laboratory repeated his findings many times in his experiments with thousands of frogs, but that other scientists have also replicated his results. EPA, however, has never seen either the results from any independent investigator published in peer-reviewed scientific journals, or the raw data from Dr. Hayes' additional experiments that confirm Dr. Hayes' conclusions."

Doc. 3: *New York Times* – The article quotes Hayes' extensively followed by two other scientists, Dr. Kendall and Dr. Carr, who dispute his findings. The article begins and ends with attention to the "intense debate" suggesting that Hayes' findings remain inconclusive.

Doc 4: Union of Concerned Scientists – The article referenced the EU ban on atrazine, Hayes' publication in the respected journals *Nature* and the Proceedings of the National Academy of Sciences and the findings of the Center For Biological Diversity in supporting Hayes' findings. Of Hayes' critics it quotes Hayes that industry-supported scientists produced "a number of studies that were purposely flawed and misleading, and that changed the weight of the evidence."

Teacher Answer Sheet

Questions, Possible Answers & Evidence

3.) Why was this article published and who paid for it?

Possible Answers

Doc. 1: Tyrone Hayes – Tyrone Hayes made and published this article himself to urge readers to lobby the EPA to limit atrazine use in the U.S. in order to protect endangered species.

Doc. 2: Syngenta – Someone working for Syngenta wrote this article in order to challenge what Syngenta considers to be false allegations made in lawsuits over atrazine and to discourage future lawsuits. The writer seeks to promote continued sale of atrazine.

Doc. 3: *New York Times* – The *New York Times* paid for this article which is meant to sell advertising for the newspaper.

Doc 4: Union of Concerned Scientists – The Union of Concerned Scientists published this to support Hayes' findings and to challenge the Bush administration's endorsement of industry supported scientific findings.

Evidence

Doc. 1: Tyrone Hayes – The article is published in Hayes' own website, atrazinelovers.com. He writes: it is incumbent upon us to become involved in the regulatory process regarding atrazine. We (the public) must play an active role in this regulatory decision. Amphibians are also very sensitive to endocrine disruptors and given that already more than 60% of all amphibians are in decline and a third are threatened or endangered, atrazine is of great concern.

Doc. 2: Syngenta – The bottom line: We should allow the qualified scientists at EPA—not lawyers seeking financial gain through scare tactics—to determine the regulation of agricultural products, including atrazine. Atrazine helps prevent the number one EPA-ranked cause of pollution. . It is the most popular corn herbicide in the U.S. EPA has estimated that atrazine offers U.S. corn farmers a \$28-per-acre advantage over other herbicides

Doc. 3: *New York Times* – The article was written by a *New York Times* writer for the paper, which, like most daily newspapers, makes a profit by selling space to advertisers.

Doc 4: Union of Concerned Scientists –The title immediately raises questions about government and industry collusion.

Teacher Answer Sheet

Questions, Possible Answers & Evidence

4.) How do the article headline and section titles influence the interpretation of information?

Possible Answers

Doc. 1: Tyrone Hayes – They underscore the threat posed by a very popular product.

Doc. 2: Syngenta – They equate Syngenta’s position as based in good government, science and common sense.

Doc. 3: *New York Times* – The headline invites further reading and underscores the scientific uncertainty of Hayes’ research.

Doc 4: Union of Concerned Scientists – The title immediately raises questions about government and industry collusion.

Evidence

Doc. 1: Tyrone Hayes – The popularity of atrazine is communicated in the lead title:

“What is Atrazine? And why do we love it?” The threats in other headlines are suggested in clear and strong wording: “Atrazine has detrimental ecological impacts,” “Atrazine is an endocrine disruptor that causes abnormal,” “Atrazine is a threat.”

Doc. 2: Syngenta – The headline, “This lawsuit flies in the face of good regulatory policy, good science and good common sense,” is followed by subsections with these titles repeated suggesting that any intelligent lawmaker, scientist or citizen would come to the conclusion that atrazine is safe.

Doc. 3: *New York Times* – The words “Studies conflict” would be of interest to those reading the science section since conflict always draws a crowd. The words “common herbicide” suggest this has to do with a familiar product, which might draw readers to read on in order to see if they have had contact with the herbicide in question.

Doc 4: Union of Concerned Scientists – The phrase “Scientific Integrity” suggests that this is a question worth asking. The following line squarely accuses the EPA of caving in to corporate pressure over wildlife protection.

- » After all four groups have presented lead a discussion about the roles that media, industry, government, universities and citizens play in ensuring environmental protection.
- » Make sure that all students have an opportunity to express their agreement and disagreement with the reasoning of the various authors.

FURTHER QUESTIONS

- » **Who are the target audiences for each source? Might those audiences steer the nature of the reporting?**
- » **How are the authors' impressions shaped by their trust in government and industry?**
- » **Who financed the studies cited in each article and should those funding sources be reported?**
- » **How can you distinguish between fact and opinion in an article about frogs and atrazine?**
- » **Discuss the importance of knowing when an article was published when discussing scientific studies.**
- » **How can you select the widest range of information sources? Why might this be helpful as you discuss the issue with others?**

CONNECTIONS

See lesson 1 PowerPoint slides #18 (frog extinction) and 37 (chemical threats to wildlife) and Media Construction of Endangered Species, lesson 1 slides 27 & 28 (Hayes and Syngenta)

“What You Should Know About Atrazine,”
Tyrone Hayes’ website

Document Excerpt #1

What is Atrazine? And why do we love it?

Atrazine is an herbicide (weed killer) primarily used on corn. Atrazine is the most common chemical contaminant of ground and surface water in the United States. It is a potent endocrine disruptor with ill effects in wildlife, laboratory animals and humans. Atrazine chemically castrates and feminizes wildlife and reduces immune function in both wildlife and laboratory rodents. Atrazine induces breast and prostate cancer, retards mammary development, and induces abortion in laboratory rodents. Studies in human populations and cell and tissue studies suggest that atrazine poses similar threats to humans. The peer-reviewed scientific studies to support these statements are summarized and can be viewed as you navigate this web site.

Atrazine has been denied regulatory approval by the European Union and is, thus, banned in Europe and even in Switzerland, the home of the manufacturer. Despite the environmental and public health risks, atrazine continues to be used in the US, for economic reasons. Atrazine may only increase corn yield by as little as 1.2 % (and not at all according to some studies). The agri-giant Syngenta, however, has a very powerful lobby and spent \$250,000 lobbying in Minnesota alone in 2005 to keep atrazine on the market there. With as little as 1.2 % increase in corn, a crop that we consume less than 2% of, in a world where 20% of the population will die of starvation, it is incumbent upon us to become involved in the regulatory process regarding atrazine. We (the public) must play an active role in this regulatory decision.

Atrazine has detrimental ecological impacts on plants and wildlife

After 49 years of using atrazine at or above 80 million pounds per year, many target weed species have become atrazine-resistant [1, 2]. In fact, the number of documented atrazine-resistant “super” weeds number more than 80. No other herbicide has produced such dramatic effects on the evolution of weeds.

In addition to the ecological impacts on land, recently, the National Oceanic and Atmospheric Administration (NOAA), showed that atrazine negatively affects marine phytoplankton [3, 4]. These microscopic organisms serve as food for other organisms such as clams and oysters and the effect of atrazine is likely reflected throughout marine food webs: Phytoplankton serves as food for zooplankton which is in turn food for many larval and young fish and several species of whales. Thus, atrazine’s impact on this critical member of the marine food web will have dramatic and irreversible effects on marine life including damage to commercially important shellfish and finfish populations as well as sea mammals (whales) of which many are already threatened or endangered.

Similarly, atrazine negatively affects freshwater aquatic habitats. Several studies have shown that atrazine decreases algae and other aquatic plant life [5-7]. This plant life serves as food for microorganisms and invertebrates that in turn serve as food for other organisms up the food web including fish. Further, algae, and other aquatic plants serve directly as food for larval frogs (tadpoles) and atrazine will negatively affect important sentinel species of amphibians, many of which are already declining, endangered, or threatened.

Atrazine is an endocrine disruptor that causes abnormal reproductive development and immune suppression in wildlife

Endocrinology is the study of hormones. Hormones (endocrine substances) control growth, reproduction, metabolism, development, behavior, immune function, and stress, among other functions critical for life. Hormones are also important in many disease states including diabetes and cancer. Endocrine disruptors, such as atrazine, which interfere with hormone production and/or activity, can affect any of these processes

In particular, atrazine inhibits production of testosterone (the male sex hormone) and induces estrogen production (the female sex hormone), upsetting the balance between these two hormones. This effect of atrazine has been observed and published in fish [1, 2], amphibians [3, 4], reptiles [5, 6], and mammals [7-14]. The result is chemical castration (de-masculinization) and feminization. In fish [1, 2], amphibians [3, 4, 15-20], and laboratory rodents [7, 8, 10], the decrease in testosterone results in decreased sperm counts, impaired fertility, and a reduction in masculine features. Similarly, atrazine exposure is associated with decreased sperm and reduced fertility in humans [21]. The increase in estrogen by atrazine results in feminization of males in fish, amphibians, and reptiles. "Feminized" male fish [2] and amphibians produce eggs and egg yolk [16, 18]

In laboratory rodents, atrazine-induced estrogen production and causes reproductive cancers (prostate cancer in males [22, 23] and breast cancer in females [22, 24]) to develop. In fact, female rats exposed to atrazine, will produce male offspring with prostate disease, if dams (mothers) are exposed while pregnant or suckling [23]. Atrazine also causes immune system failure in animals. This effect has been shown in amphibians and laboratory rodents. In amphibians, atrazine exposure impairs immune function and increases susceptibility to disease [25-29].

Immune cells are unable to eliminate disease pathogens [28] and exposed amphibians are more likely to succumb to viral diseases [25, 26], bacterial infections [27] and macroparasites [30, 31], including the parasites that cause limb deformities in amphibians [29]. Similarly, atrazine exposure in rodents impairs immune function [32-40] and decreases an exposed animal's ability to fight cancer [33] and other diseases. Further, atrazine exposure in rodents can lead to hypersensitivity [36], making exposed animals more susceptible to allergies. Most likely, the negative effects on immune function are due to an atrazine-induced increase in the stress hormones (corticoids). In salmon, the atrazine-induced increase in stress hormones in fresh water smolt, impairs the ability of exposed fish to return to the ocean leading to high mortality in these commercially important fish [41].

Atrazine is a threat to several endangered species

Given the many detrimental effects on wildlife and laboratory animals, the large number of studies from so many independent laboratories, and the associated effects in humans, it is not likely that the observed effects are mistakes, misinterpretations, or artifacts. In particular, given atrazine's solubility in water, aquatic animals such as fish and amphibians are at the greatest risk. Salmon and trout which are commercially important are at risk as are the economies that depend on healthy fish. Several salmon and trout species are already endangered or threatened as are other fish. Amphibians are also very sensitive to endocrine disruptors and given that already more than 60% of all amphibians are in decline and a third are threatened or endangered, atrazine is of great concern and several studies suggest that pesticides (including atrazine) may be an important factor in declines [1-7]. Atrazine has already been banned as a result of lawsuits to protect two endangered amphibians and similar cases are developing for endangered fish.

"What you should know about atrazine."
AtrazineLovers. 29 Feb 2008.
<<http://www.atrazinelovers.com/>>

“Atrazine Litigation Facts”

Syngenta Web site

Document Excerpt #2

In July and August of 2004, law firms based in Missouri and Texas filed a series of class action complaints in Madison County, Illinois, on behalf of the Holiday Shores Sanitary District, a local water utility.

These are identical “cookie cutter” suits filed against Syngenta and five other corporations that manufacture, formulate or market products containing atrazine. Growmark, a distributor of agricultural products located in Madison County, is named co-defendant in all the lawsuits—providing a basis for the suits to be brought in the county called a “judicial hellhole” by the American Tort Reform Association.

The lawsuits make a series of false allegations about atrazine, using a handful of questionable studies to justify claims that the EPA standard for atrazine in drinking water (three parts per billion) is not protective of human health. The suits seek class-action remedies and a wide variety of financial penalties including payment for the charcoal water filtering system that Holiday Shores Sanitary District has had in operation for more than a decade. Yet, Holiday Shores certifies to both the state and federal EPAs—and its customers—that its drinking water meets the stringent safety standards of these agencies.

So, Holiday Shores Sanitary District supplies residents with drinking water that meets strict federal and state safety standards. At the same time, the District is suing atrazine manufacturers on the basis that the water is unsafe, even as it continues to sell the water to its customers. Summed up, Holiday Shores Sanitary District is asking for a quality of water it acknowledges it already has.

This lawsuit flies in the face of good regulatory policy, good science and good common sense.

Regulatory policy: The US Environmental Protection Agency is responsible for evaluating possible human health and environmental effects of pesticides, and for setting and enforcing standards to guide their use. In the case of atrazine, EPA has just completed a comprehensive, science-based, 10-year safety review and recommended its continued use in agriculture.

One of the standards set by EPA is for the presence of a substance in drinking water, called a Maximum Contamination Level (MCL). EPA has set an MCL for atrazine of three parts per billion (ppb). In an abundance of caution, this MCL has a 1,000 fold safety factor—in other words, the standard is set 1,000 times higher than a level found to produce no negative effects in laboratory studies. This means that a 150-pound adult could drink 21,000 gallons of water with three ppb of atrazine a day for 70 years and still not get enough atrazine to cause adverse health effects.

State EPAs can adopt this very conservative federal EPA standard or set tougher standards of their own. Illinois and 48 other states have adopted the federal MCL for atrazine (only the state of California chose a different standard).

The Holiday Shores lawsuit ignores the long-standing drinking water standard for atrazine and makes broad, unsubstantiated health claims linked to any detectable level of the herbicide. If a jury awards damages in this case, it will set a precedent for financially-driven, local litigation to override the science-based judgment of EPA—and indeed any regulatory agency in the US.

Science: In support of its counts, the lawsuit relies upon scientific research which has not passed the litmus test of sound science: the ability to repeat results with scientific and statistical confidence. It

frequently cites a 2002 study by Dr. Tyrone Hayes that claims atrazine affects the sexual development of frogs. But in fact, EPA, in a public address to the Minnesota Legislature in February 2005, said “Dr. Hayes claims not only has his laboratory repeated his findings many times in his experiments with thousands of frogs, but that other scientists have also replicated his results. EPA, however, has never seen either the results from any independent investigator published in peer-reviewed scientific journals, or the raw data from Dr. Hayes’ additional experiments that confirm Dr. Hayes’ conclusions.”

Further, a special Scientific Advisory Panel convened by EPA concluded “there are currently insufficient data” to confirm the theory that atrazine exposure may impact frog development.

The frog studies are only a few grains of the mountain of atrazine studies EPA says it has on file: nearly 6,000. Many of these examine atrazine and its potential to cause cancer. On this issue, EPA has clearly stated atrazine is “not likely” to cause cancer (the most favorable category). The World Health Organization and the National Cancer Institute have also examined the issue and found no cancer concerns.

Common sense: Atrazine has been used safely by farmers for more than 45 years. It is the most popular corn herbicide in the U.S. and is registered for use in more than 80 countries around the world.

Atrazine helps prevent the number one EPA-ranked cause of pollution in our nation’s waterways: runoff of sediment. It does so as a vital tool in conservation tillage, a farming method used in Madison County and throughout Illinois to reduce soil erosion.

U.S. farmers prefer atrazine over other herbicides because it works better and costs less. Now found in more than 45 pre-mixes in the U.S., atrazine is the active ingredient most frequently used by manufacturers in combination herbicide products. EPA has estimated that atrazine offers U.S. corn farmers a \$28-per-acre advantage over other herbicides due to cost and yield benefits.

The bottom line: We should allow the qualified scientists at EPA—not lawyers seeking financial gain through scare tactics—to determine the regulation of agricultural products, including atrazine.

“Atrazine Litigation Facts.” Syngenta 2006. 29 Feb 2008.< <http://www.atrazinefacts.com/litigation-3.asp?v=p>>

"Studies Conflict on Common Herbicide Effects..."Carol Kaesuk Yoon, *New York Times***Document Excerpt #3**

Despite the release of a flurry of new results in what is becoming an increasingly intense debate, scientists still have not reached a consensus as to whether the nation's most commonly used herbicide is harming amphibians in the wild. The new studies raise questions about whether atrazine, used primarily for killing weeds in cornfields, is acting as an endocrine disrupter in amphibians, interfering with normal hormonal functions, and causing males to become hermaphrodites, producing eggs in their testes. Some 60 million to 70 million pounds of atrazine are applied each year in the United States, and it has been found in rivers, ponds, snowmelt and rainwater.

Scientists have taken a particular interest in the new studies because such a widespread endocrine disrupter could help explain worldwide declines of amphibians. The studies could also affect continued use of atrazine. The Environmental Protection Agency is reviewing the herbicide's environmental risks as part of the periodic reregistration process required for continued sale of such chemicals. Much of the newest research was presented yesterday at the Society of Environmental Toxicology and Chemistry in Salt Lake City.

The controversy began in April when Dr. Tyrone Hayes, an endocrinologist at the University of California at Berkeley, and colleagues published results in *The Proceedings of the National Academy of Sciences* indicating that very low concentrations of atrazine, similar to those seen in the wild, could turn males of the African clawed frog into hermaphrodites in the laboratory. Then last month in *Nature*, Dr. Hayes and colleagues published studies showing that males of the leopard frog, a native species, could also be feminized by exposure to low levels of atrazine in the laboratory. More worrisome, the researchers found that in the seven field sites from Utah to Iowa where they could detect atrazine, they also found hermaphroditic frogs. At the one site without detectable atrazine, there were no hermaphrodites.

Two industry-sponsored studies, carried out by a team that has been critical of Dr. Hayes's work, have failed to replicate the findings with the clawed frog. The work was paid for by Syngenta, a maker of atrazine. Yesterday the team also reported that it had examined wild-caught males of the clawed frog where it is native in Africa and where atrazine is widely used and found no hermaphrodites. "Validated information should be replicable," said Dr. Ronald Kendall, an environmental toxicologist at Texas Tech University and a wild-caught males of the clawed frog where it is native in Africa and where atrazine is widely used and found no hermaphrodites. "Validated information should be replicable," said Dr. Ronald Kendall, an environmental toxicologist at Texas Tech University and a leader of the industry-sponsored team.

Dr. Hayes said he was surprised by the high levels of hermaphroditism caused by sometimes minute levels of atrazine, with sometimes as many as one-third of the males affected. The effects were less severe at higher levels of the herbicide. But while that might seem counterintuitive, Dr. Hayes said it was typical for chemicals affecting hormones to have highly different, even opposite effects at increased levels.

Dr. Kendall said his team's work had been wrongly impugned as biased because of its industry financing, and he pointed out that Dr. Hayes also formerly received Syngenta financing. Dr. Hayes said his original research showing that atrazine could create hermaphroditic frogs was sponsored by Syngenta, which never published the work. The April publication in which he replicated that research was sponsored by the National Science Foundation; the *Nature* study was paid for by the W. Alton Jones Foundation, which finances environmental work, and the conservation group WWF. It remains unclear why the studies conflict.

Dr. Hayes, when interviewed, had seen only one of the Kendall team's unpublished studies. Based on the methods, Dr. Hayes said he was not surprised they had not replicated his results. He said that the researchers had raised the frogs under unhealthy conditions and that they did not properly control levels of atrazine in the frogs' water.

"Even if their animals were healthy, you can't compare them to our study," he said. But Dr. Jim Carr, comparative endocrinologist at Texas Tech and a member of Dr. Kendall's team, said that in another study team members had mimicked Dr. Hayes's experimental conditions more closely but still did not produce his results. Dr. Carr and colleagues have also criticized Dr. Hayes's omission of certain experiments considered standard. "There are not a lot of details published in the Hayes work," said Dr. Carr. "So it's hard to compare."

Yoon, Carol Kaesuk. "Studies Conflict on Common Herbicide's Effects on Frogs." New York Times. 19 Nov 2002. 29 Feb 2008.
<<http://query.nytimes.com/gst/fullpage.html?res=940DE5D91130F93AA25752C1A9649C8B63>>

“Scientific Integrity”

Union of Concerned Scientists

Document Excerpt #4**Reports and Research: Chemical Industry Pressures EPA to Protect Herbicide, not Wildlife**

Despite compiling hundreds of pages of evidence documenting the harmful effects of atrazine, a commonly used weed killer, the Environmental Protection Agency (EPA) refused to regulate the herbicide. Atrazine has been found to cause severe hormonal damage to wildlife, including amphibians, reptiles and fish. The European Union banned the herbicide because of safety concerns in October 2003, but at almost the same time, the EPA decided to re-approve atrazine for continued use in the United States.

The Washington Post reported that a petition filed with the EPA by Washington lobbyist Jim J. Tozzi provided the main rationale for the “reregistration” of atrazine with no new restrictions.¹ Tozzi, working closely with atrazine’s primary manufacturer, Syngenta Crop Protection, developed a two-pronged attack on the science that questioned atrazine’s safety. First, the petition argued that hormone disruption, even when clearly proven in scientific studies, cannot be used as a reason to restrict a chemical’s use, because the government has not yet settled on an officially sanctioned test for measuring such disruption. The EPA adopted this reasoning in their decision, stating: “The Agency’s ecological risk assessment does not suggest that endocrine disruption, or potential effects on endocrine-mediated pathways, be regarded as a regulatory endpoint at this time.”

Secondly, the petition sought to cast doubt on independent scientific studies linking atrazine to endocrine disruption, citing a little known piece of legislation called the Data Quality Act.³ The Data Quality Act, which allows stakeholders to challenge the accuracy of information used in regulatory decision-making, was actually drafted by Tozzi and slipped into a 2000 omnibus spending bill without debate or comment. The Post reported that the Act has been primarily used by industry to challenge the basis for regulations.

The ecological impact of atrazine has been widely studied. According to the Center for Biological Diversity, the herbicide has been linked to declines in sea turtles, sturgeons, mussels and various amphibians. Most notably, atrazine has been found to produce hormonally confused frogs, turning them “into bizarre creatures bearing both male and female sex organs.”

Dr. Tyrone B. Hayes of the University of California at Berkeley, originally hired by the chemical company Syngenta to review studies to help certify the herbicide for re-registration with the EPA, was at first surprised when he found that African clawed frog tadpoles were “chemically castrated” when exposed to even trace amounts of atrazine – levels one-thirtieth the amount currently permitted in US drinking water. Hayes’ findings were published in both *Nature* and the *Proceedings of the National Academy of Sciences*.

Hayes, who eventually resigned from the Syngenta review panel out of concern that his worrisome lab results were being buried, later charged that industry-supported scientists produced “a number of studies that were purposely flawed and misleading, and that changed the weight of the evidence.” The two remaining members of Syngenta’s atrazine review panel claimed that they had each tried but failed to replicate Hayes’ data. In the scientific world such a claim is an insult or worse, implying that the original experiment may have been dishonest or flawed. In this case, the two scientists had both experienced difficulties raising the frogs—many of which died before metamorphosis because of being overcrowded and underfed. One scientist reported that he had contaminated the water with too much atrazine.

In other words, the new studies did nothing to disprove Hayes' results, which have been "echoed by at least four other independent research teams in three countries." When Hayes offered to help the Syngenta panel members and the EPA repeat his experiments to see for themselves whether atrazine posed a danger, the EPA declined. Nonetheless, the failed studies served to bolster the argument that the science linking atrazine to hormone disruption was uncertain.

The EPA, however, did not only deem the atrazine data inconclusive; the agency allowed the chemical industry to effectively set the course of future action. As the Post reported, "in closed meetings—details of which the EPA has declined to release—company representatives and EPA officials worked out a plan to avoid tighter restrictions." Independent scientists and environmental groups were excluded from these negotiations. The Center for Biological Diversity reports that in the final deal, continued oversight of atrazine will be provided by atrazine manufacturers, who will be responsible for monitoring three percent of "at risk" watersheds.

The Natural Resources Defense Council sued the EPA over its approval of atrazine, saying that with the decision to re-register the herbicide, the EPA effectively bought into the chemical industry's effort to obscure perfectly clear science. Jennifer Sass, a scientist with the Natural Resources Defense Council, charges that the negotiated settlement went forward without any "scientific rationale." By accepting suspect industry science, minimizing well regarded and peer-reviewed scientific studies, and putting the chemical industry in charge of future data collection, the Bush administration showed its disregard for independent science.

"Scientific Integrity." Union of Concerned Scientists. 12 Dec 2006. 29 Feb 2008.
<http://www.ucsusa.org/scientific_integrity/interference/atrazine-and-health.html>



Lesson #5 Case Study Student Worksheet

NAME _____ DATE _____

Read over the questions below before reading your article. For each question summarize in a sentence or two the perspective of that article's author. You may want to underline the sections of the article that are pertinent to each question in order to give examples from the text to back up your conclusion.

Title of Film: _____

- 1.) How does atrazine used as an herbicide impact frog populations?
- 2.) Does the author view Tyrone Hayes' arguments as credible?
- 3.) Why was this article published and who paid for it?
- 4.) How do the article headline and section titles influence the interpretation of information?

Assessments

Document Based Question (DBQ)	
“Changing Public Attitudes Towards the Wolf”	169
Short Answer Questions	
“Changing Public Attitudes Towards the Wolf”	171



Document-Based Question: Changing Public Attitudes Towards the Wolf

Write a well-organized essay that includes an introduction, several paragraphs, and a conclusion. Use evidence from at least three documents in your essay. Support your response with relevant facts, examples, and details. Include additional outside information.

Discuss how public knowledge and attitudes about the gray wolf have changed over time.

In your essay:

- Explain how public attitudes toward the wolf have changed over time.
- Reference public knowledge of the costs and benefits of the Endangered Species Act.
- Incorporate information from at least three of the documents.
- Explain how media reflects public attitudes and perspectives.
- Incorporate relevant outside information.
- Support the theme with relevant facts, examples and details.
- Use a logical and clear plan of organization that includes an introduction and conclusion that goes beyond a restatement of the theme.

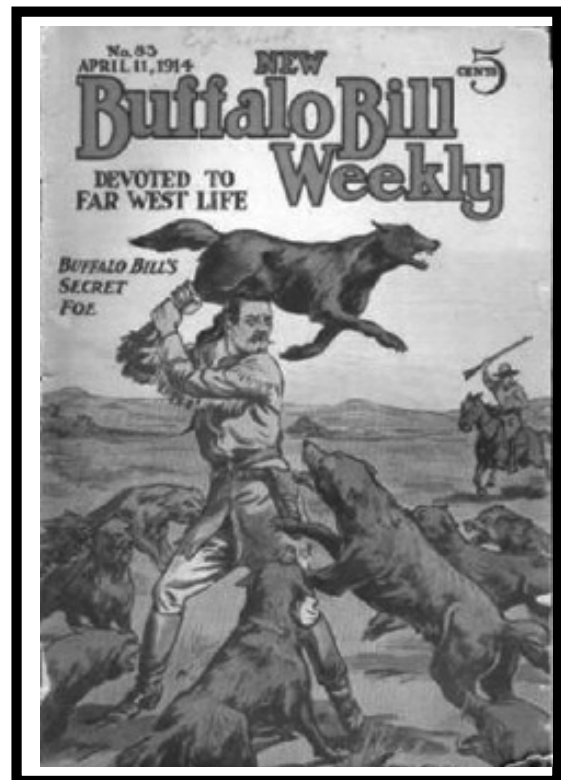
Document #1

1844 *Buffalo Hunt Under the White Wolf Skin*,
George Catlin oil painting

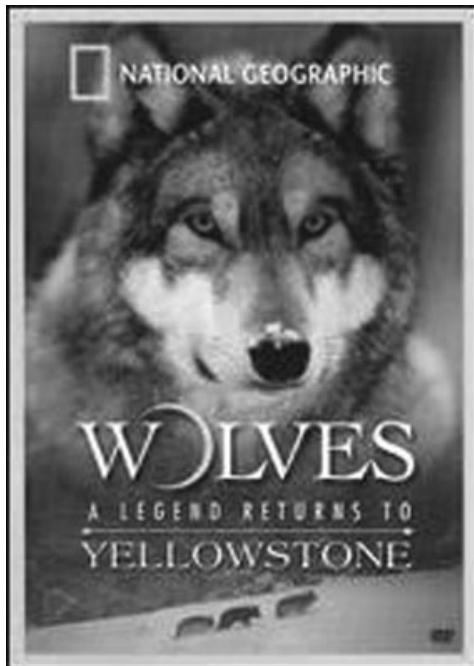


Document #2

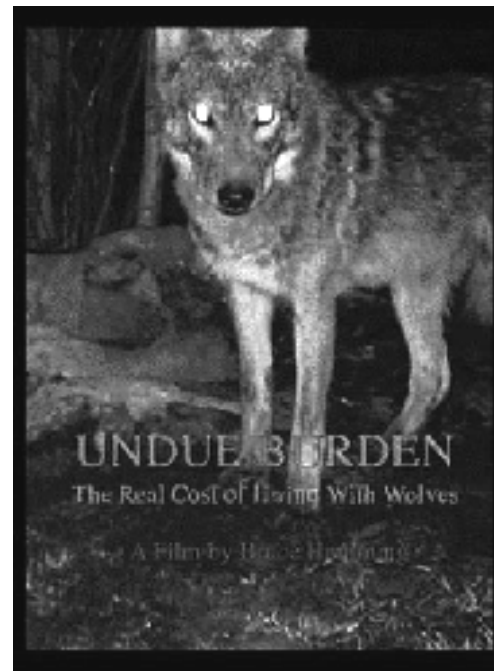
1914 *Buffalo Bill Weekly* magazine cover



Document #3
2000 DVD cover



Document #4
2008 DVD cover



Document #5
2007 Web page



Document #6
2007 Blog banner





Short Answer Questions

Changing Public Attitudes Towards the Wolf

NAME _____ DATE _____

1. Use document #1 to describe how artist George Catlin represented this Native American tribe's relationship with the wolf.

2. Using document #2, #4 and/or #5 as examples, describe how fear has been used to frame people's relations with wolves over the past century.

3. Using document #3 and #4 as examples, describe two different perspectives regarding the reintroduction of the wolf into its former habitat in the 1990s following its protection under the Endangered Species Act.

4. Using documents #5 and #6 as examples discuss the ways that blogs and websites have been used to communicate divergent perspectives about wolf protection under the Endangered Species Act.

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