

## Preface

### THE NORTH AMERICAN MODEL OF WILDLIFE CONSERVATION; AND ITS IMPORTANCE TO YOU AND YOUR COUNTRY

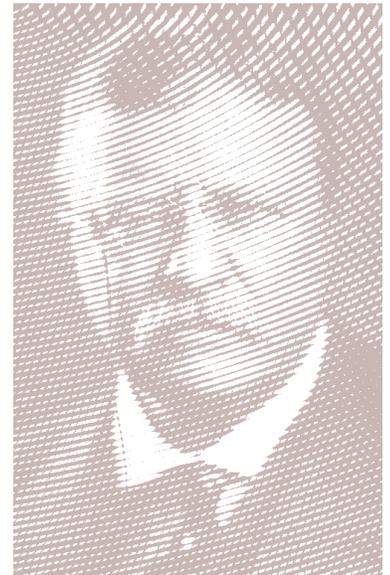
When the Europeans were settling North America, they were totally focused on using the natural resources of a place they knew as the “new world,” first to survive and then perhaps prosper. America’s founding documents focused on human rights. The Declaration of Independence, Constitution, and Bill of Rights all fail to mention our relationship with nature and natural resources. Thus, the people of our young democracy were left to chart our nation’s future course relative to the exploitation or conservation of fish, wildlife, forests, soil, water, and air.

In our first one hundred years, there was no sign of a conservation ethic among the people. Those seeking timber simply logged out an area and moved on. Wildlife and fish became commercial products and were generally killed and sold for their flesh, feathers or hides. The question of who would have the right to take fish and wildlife was left for the court’s to decide. We were only 66 years old as a country when the U.S. Supreme Court, hearing a dispute over access to oysters, began ruling that fish and wildlife in the “new world” were to attach, not to property, but to the people. What had been the kings-deer in the “old world” - became the people’s game in America.

When Theodore Roosevelt was born, there were 10 Americans and 17 buffalo per square mile in the United States. Forty-two years later, when he reached the White House as our youngest president, there were about 25 Americans per square mile and only 40 wild buffalo left alive – hiding out in Yellowstone National Park. All “useable” wildlife were suffering a similar plight.

Theodore Roosevelt (TR ) loved to hunt and in 1887 he and another passionate hunter, George Bird Grinnell, formed a club to introduce a sporting code that would be basic to our relationship with wildlife, and to work for the restoration of big game in America. Their message of conservation gained moment when TR became our 26th president. As president, the hunter in the White House began introducing our nation to conservation starting with his first message to Congress. He would call seven national conferences on the subject, and being a man of action, he set aside over 230 million acres for wildlife and forest protection. It was just about 10 percent of America. These places included wildlife refuges, game ranges, forest reserves, national monuments, and national parks – and for wildlife, they were an “estate of hope.” When TR went into the White House there were about 500,000 deer left in the entire United States. Today there are over 33,000,000 whitetail deer alone.

Similar statistics apply to virtually all species of hunted game. The important thing to learn is that this remarkable achievement of restoration did not happen by accident. It happened because people cared, and for more than a century now, hunters nurtured a conservation ethic that made it happen. We have come to call this achievement the North American Model of Wildlife Conservation. So enjoy your journey through this educational opportunity; and then, out on the landscape, where it all is still very much alive and waiting for you.



*Theodore Roosevelt*

- Jim Posewitz, author of *Inherit the Hunt* and *Beyond Fair Chase*

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# AMERICA'S WILDLIFE — YESTERDAY, TODAY AND TOMORROW

## Lesson I – Wildlife at the Brink

### Time Frame

2-3 hours/periods

### Grades

High School

### Overview

Students view an introductory PowerPoint presentation which provides a historical overview of the near decimation of wildlife in the United States from the settling of our continent up to the early 20th century – “the darkest hour.” The PowerPoint presentation examines the reasons for the near destruction of our wildlife including loss of habitat, westward expansion, market hunting, improvement of hunting aids and transportation, lack of game laws, and the perception of the “endless bounty” of a new nation. A study guide for students to complete during the presentation is provided. A class discussion follows the PowerPoint presentation during which students answer the “questions for discussion” from their study guides.

### Objectives

Students will:

- learn about the decimation of wildlife populations in the late 19th and early 20th centuries.
- complete a study guide to reinforce content and concepts presented in the Wildlife at the Brink.
- analyze reasons for the near extinction of wildlife in the late 19th and early 20th centuries.
- evaluate how human values toward wildlife have changed over time.

### Essential Questions

- What specific activities led to the near-extinction of wildlife in the late 19th and early 20th centuries?
- What species of wildlife were on the brink of extinction and which were completely lost around the turn of the 20th century?
- What human attitudes and/or beliefs contributed to the near extinction of wildlife?
- How did the concept of an “endless bounty” contribute to the demise of wildlife and how does that relate to conservation today?
- What resources appear to be endless today and how do we use and regulate those resources?

### Standards Correlations

*Note: The full text of these standards can be found in Appendix A.*

#### AFWA Core Concepts

- 1.1; 1.2
- 2.1; 2.2; 2.3

#### NSES Content Standards

- Life Science: Interdependence of Organisms
- Science in Personal and Social Perspectives: Natural Resources; Natural and Human Induced Hazards; Science and Technology in Local, National, and Global Challenges

#### NCSS Curriculum Standards

- |      |      |
|------|------|
| 1: a | 6: g |
| 2: c | 7: h |
| 3: i | 8: a |

#### Excellence in Environmental Education Guidelines for Learning

- 2.2: A, C
- 2.3: B, C
- 2.4: A, B, C, D



## Materials and Resources

- Computer with PowerPoint software
- Computer projector
- *Wildlife at the Brink* PowerPoint presentation
- *Wildlife at the Brink Study Guide*
- **Optional:** *Wildlife at the Brink Vocabulary Definitions* OR *Wildlife at the Brink Vocabulary Matching*

## Teacher Preparation

- Reserve computer/projector if necessary.
- Review the *Wildlife at the Brink* PowerPoint presentation to be sure it works on computer/projector. If the teacher-led version is being used, become familiar with the content/script.
- Print and copy *Wildlife at the Brink Study Guide* (one per student).
- If the optional introduction activity is being used, determine which version of the vocabulary exercise students will perform. Print and copy appropriate worksheet (one per student).

## Background Information

Students may become overwhelmed with some of the vocabulary in this lesson. An optional introduction activity has been provided that will help students with the new words. Students read a brief summary of the PowerPoint presentation and use context clues to determine the definitions of the vocabulary. There are two versions of this activity depending on the level of the students. One option requires students to match the words with provided definitions. The advanced option requires students to develop their own definitions and identify synonyms.

There are also two ways to present the PowerPoint to the students. If you are comfortable with the content, there is a traditional PowerPoint that you can advance at your own pace. A script has been provided to

help you tell the story. If you prefer, an automated and narrated version has also been provided. Once started, it will play automatically, just like a movie. For increased student interaction, both versions have options to stop and discuss. When you see a small stop sign in the corner of the slide, you may briefly stop the presentation and use the questions provided in the procedures to guide the class discussion. The signs can also be ignored if you prefer to run the presentation without stopping.

Teachers and students should be familiar with American History including the settling of the continent and westward expansion.



## Suggested Procedures

*Steps in red are optional. See Background Information for more details.*

1. Explain to students that for the next few days they will be studying the North American Model of Wildlife Conservation. Today's lesson presents the early history of wildlife and human interactions in North America and the events that led up to the conservation movement.
2. *Hand out either the Wildlife at the Brink Vocabulary Definitions or Wildlife at the Brink Vocabulary Matching. Inform students that before the presentation begins, it is important to have a little background on the topic. Have them complete the vocabulary worksheet.*
3. *Write the vocabulary words on the board. As a class, discuss each of the definitions. If necessary, have students use each word in a new sentence.*
4. Hand out and review *Wildlife at the Brink Study Guide*. Explain that students should complete Part A of the study guide during the presentation. Each of the questions will be answered in order.
5. Present the *Wildlife at the Brink PowerPoint*.
6. *At the stop sign icons, pause the presentation to engage the students in a class discussion. Use the questions below as guides:*
  - *Stop Sign 1: How is market hunting different from the subsistence hunting that occurred earlier? Which is potentially more damaging to wildlife populations?*
  - *Stop Sign 2: What is meant by buffaloes "utilized" and buffaloes "wasted"? What do you think might account for the sharp decline in buffaloes killed from 1873 to 1874?*
  - *Stop Sign 3: Is there anything on this menu that surprises you? Why?*
  - *Stop Sign 4: Why would cold storage contribute to the decline of wildlife populations?*
  - *Stop Sign 5: Do you agree with this quote? Is it our responsibility to help wildlife populations survive? Why or why not?*
7. Give students time to complete Part A of the study guide and answer any questions the students may have.
8. Review Part B - Questions for Discussion and assign for homework.
9. During the next class, review the Questions for Discussion.

## Assessment

- Describe the specific events that led to the near-extinction of wildlife in the late 19th and early 20th centuries.
- Describe the differences between market, subsistence, and regulated hunting.

## Modifications

- Have students watch the *Wildlife at the Brink PowerPoint* presentation individually or in small groups.
- Have a team of students study and present the *Wildlife at the Brink PowerPoint* presentation to the rest of the class.

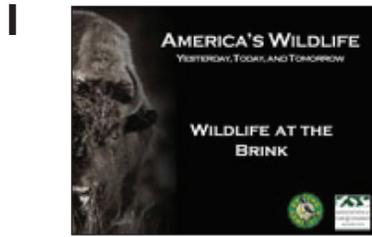
## Extensions

- Prior to viewing the Turning the Tides of Conservation PowerPoint presentation (Lesson 2) have students conduct research to find out how wildlife was brought back from the brink of extinction in the 20th century and present their findings to the class.

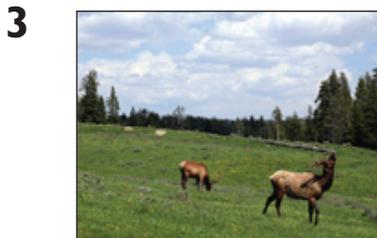


PowerPoint Script

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As Americans in the 21st century, we are fortunate to live in a nation of natural beauty and abundance.



We live in a country where we can readily visit national parks, reserves, and wilderness and see astounding natural scenery and wildlife. Our country is famous for the majestic elk, the grizzly, the bison, and the wolf.



But not so long ago, in fact just 100 years ago, the fate of our wildlife was in its most precarious state – many species were on the brink of extinction and if the status quo of that time continued, today there would be no bison, grizzly, wolf, elk, cranes – none at all. We would have hunted them to extinction.



However, Americans rose to the challenge. Instead of extinction, we chose the path of conservation and the wise use of our natural resources. We took action. We stopped the unregulated use and saved our wildlife. It was a conscious, measured, and deliberate effort on the part of various citizens, such as naturalists, policymakers, and especially, the hunters and anglers of the time.



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6



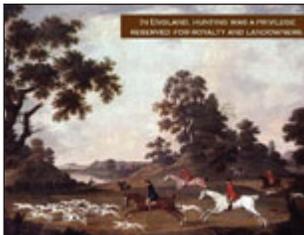
How could such a tide be turned? How could a country restore nearly extinct wildlife to the abundance for which we are now known? The story is an amazing tale of national history. A story that can serve as a reminder of what we can accomplish when working together with a common goal. In this case, the goal was to save our wildlife legacy.

7



The story begins with the founding of our country. When colonists first settled here they encountered an abundance of natural resources. Settlers quickly learned which trees made the best lumber, which fields made the best farmlands, and which wildlife was the best game.

8



For many early settlers, unregulated hunting was a privilege they had never experienced. Back in Elizabethan England, game belonged to the landowners, who were usually royalty, and only the wealthy participated in big game hunting. Commoners were reduced to taking small game from the minimally available public lands.

9



Hunting wildlife was an important part of the settling of this land. Wild game was crucial to the survival of the early settlers, and deer, turkey, moose, elk, and small game were an important part of the early American diet. Hide for clothing was also important. At the time, game was abundant and the bounty seemed endless.

10



In addition to being an important source of food, wildlife was also valued for its fur and feathers. Many Europeans saw the natural bounty of the American wilderness as a source of wealth, with the fur-bearing animals such as beaver, marten, fisher, and wolverine being abundant, free for the taking, and whose hides were profitable to sell.



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11



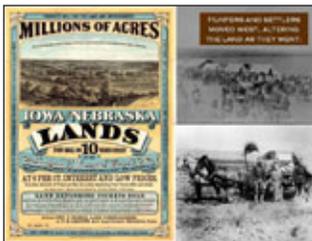
What started as an exchange between European traders and the Native Americans became, for a time, one of the most profitable and important industries in North America. Beaver pelts were considered not only a measure of wealth and currency, but the most important natural resource to come out of the new world.

12



Demand for furs in Europe grew and more trappers came to the new world to partake in this bounty. By the 1700s, beaver became increasingly scarce in eastern North America. Trappers moved west, exploring the wilderness and extracting an abundance of pelts from the western lands.

13



With a strong belief in "Manifest Destiny" or America's right and duty to expand across the continent, the settlers pressed westward. More and more land was cleared for settlements and agricultural fields. Forests were cut for fuel wood and lumber. This westward expansion increased the demand for game.

14



Wildlife continued to be an important food source and hunting was a way of life in this growing country. By the 1800s, however, animals, such as deer, bison, pronghorn, elk, and beaver, were becoming scarce in some places primarily due to unregulated hunting and loss of habitat.

15

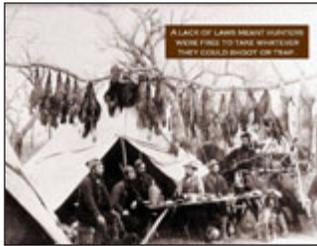


The first "Transcontinental Railroad," completed in 1869, not only brought new settlers, but provided easier access to western hunting grounds. The railroad also made the shipping of animal hides to the East more convenient and economical for market hunters.



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16



Up to this time, hunting was mostly unregulated and unrestricted. In the eastern United States, where some wildlife had become noticeably absent, the first hunting restrictions that reduced hunting seasons or “bag” limits were imposed. However, the West was still wide open to unregulated hunting; there were no bag limits and hunters were free to take what they could shoot or trap. While some conscientiously self-regulated their hunting, taking only what they needed, others made a living from hunting.

17



Market hunting – the shooting or capture of wildlife for sale to milliners, restaurants, or other markets – became big business during the mid to late 1800s. Not only were market hunters taking fur-bearing animals, but market hunting for birds also became popular and profitable for food, down, and fashion.

18



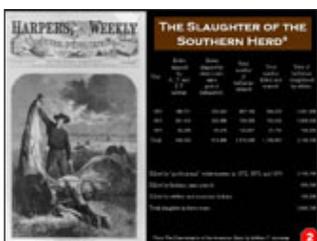
The story of the demise of the American bison is well known to most Americans. “Professional” market hunters, responding largely to the demand for “buffalo” hides and meat, hunted the bison to near extinction in the late 19th century.

19



Aided by the development of more efficient guns and the transportation opportunities provided by the railroad, unregulated hunting reduced the American Bison herd from a population of at least 30 million to a few thousand. By the late 1800s the American Bison was on the brink of extinction.

20



The slaughter of the “southern herd” was documented by William T. Hornaday, director of the New York Zoological Society.



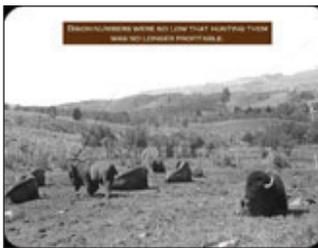
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21



By 1889, the total number of bison “running wild and unprotected” was 635. Added to that were 256 captive bison and 200 that were under government protection in Yellowstone National Park. According to Hornaday, “the whole number of individuals of *Bison americanus* now living is 1,091.”

22



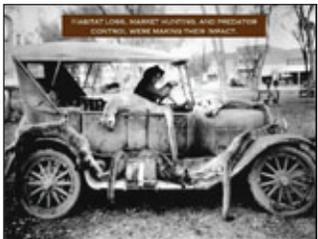
Bison were so scarce, hunting became unprofitable. However, herds in captivity and protected in Yellowstone slowly started growing.

23



While most people know the story of the bison, few know that during that same era, other wildlife populations such as deer, elk, pronghorn, cougar, wolf, grizzly, turkey, and waterfowl were drastically declining.

24



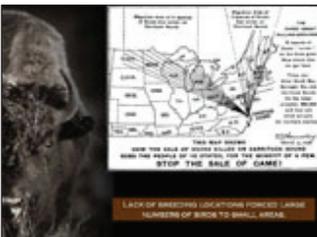
Habitat loss, market hunting, and predator eradication all contributed to the decline.

25



In the eastern waterways and wetlands, waterfowl were being decimated by market hunters with some species very near extinction. In the words of William T. Hornaday, “Of all the meat-shooters, the market-gunners who prey on wild fowl and ground game birds for the big-city markets are the most deadly to wild life.”



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26		<p>In an attempt to kill as many birds as possible in the shortest amount of time and with the least effort, market hunters employed a variety of techniques and weapons. To aid in the slaughter, gun technology advanced to ensure more take with fewer shots.</p>
27		<p>The punt gun was a modified shotgun used by market hunters to kill waterfowl. It was mounted on a small boat and could shoot up to 100 birds in a single shot.</p>
28		<p>Waterfowl are migratory birds and many species come from various breeding grounds in the North to only a few bays along the eastern seaboard to over winter. These bays and marshes would harbor thousands and thousands of wild ducks, geese, and other waterfowl.</p>
29		<p>These wintering grounds became a shooting ground for market hunters.</p>
30		<p>In any market driven situation, one cannot place all the blame on the supplier. Those in demand of the game meat were equally at fault.</p>



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31



Game meat, furs, and especially, ornamental bird feathers were all in great demand and very fashionable at the time.

32



In addition to improved gun technology, developments in cold storage aided market hunters' endeavors. The numbers of wild birds taken by market hunters for food and fashion was driving some species to near-extinction.

33



When William T. Hornaday, Director of the New York Zoological Society published his seminal book, *Our Vanishing Wildlife* in 1913, some wildlife species had already been exploited to extinction or near-extinction due to unregulated hunting.

34



North American birds that were already or nearly extinct included the great auk, the Carolina parakeet, and the passenger pigeon.

35



In addition to the loss of birds, several species of large mammals were in danger. Numbers of elk, deer, pronghorn, grizzly, and wolves were drastically declining. An entire sub-species of elk which occurred in the Southwest, called Merriam's elk, was eradicated before it could even be scientifically described. The last Merriam's elk was killed in Arizona around 1900.



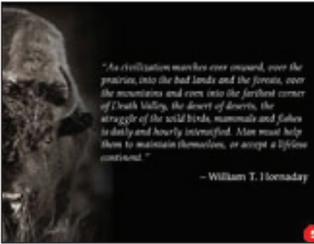
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36



It was wildlife's "darkest hour." Something had to be done to stop the complete annihilation of America's wildlife.

37



As the alarm cry was sounded, Americans listened. The vanishing wildlife was too evident not to notice. Sportsmen, scientists, politicians, naturalists, and many citizens all knew that something must be done.

38



Even the president of the United States, Theodore Roosevelt, himself an avid hunter, recognized the problem: "The professional market hunter who kills game and the rich people, who are content to buy what they have not the skill to get by their own exertions – these are the men who are the real enemies of game."

39



It was time to turn the tides and save our vanishing wildlife. But who would do it?



## Wildlife at the Brink Vocabulary Definitions

Just 100 years ago, the wildlife of North America was in its most *precarious* state. Many species, including bison, elk, and wolf, were on the brink of *extinction*. They were nearly eliminated.

How could a country restore nearly extinct wildlife to the abundance that we are known for today? It is an amazing tale of what we can accomplish when working together toward a common goal. In this case, the goal was to save our wildlife *legacy*.

The story begins with the founding of our country. When settlers first arrived they encountered an abundance of *natural resources*. There were lots of trees to provide wood for building. There was lots of wildlife to use for food and clothing.

Hunting for *game* and *angling* for fish became important parts of daily life. Deer, turkey, moose, and other game animals as well as numerous fish were a main component of the diet. The *hides* of many of these animals were used for clothing.

Soon, people began to see wildlife as a source of wealth. The hides of *fur-bearing animals*, such as beaver, could be sold for a considerable profit. Birds were valued as well. The feathers were sold to *milliners* to be used as decorations in women's hats. The meat of birds, mammals, and fish was sold to restaurants.

As the demand for fur, feathers, and meat increased, the business of hunting did as well. More and more people came to North America to *partake* in the seemingly endless bounty. In addition, exploration opened up the West. New lands provided new opportunities to *extract* wildlife. New technological developments helped *market hunters* increase their *take* and lower their costs.

Sometimes it was too easy. Migratory *waterfowl* only breed in certain waterways. These bays and marshes could hold thousands of ducks and geese at one time. Since there was no *bag limit* or maximum amount of wildlife one person could take, these areas became shooting grounds for market hunters.

With no major laws in place, *unregulated* hunting continued and its impact was strong. By the early 1900s, the Carolina parakeet, the passenger pigeon, and the Merriam's elk were *eradicated*. And populations of several other animals, such as elk, grizzly bears, and wolves, were drastically declining.

It was wildlife's "darkest hour." Something had to be done to stop the complete *annihilation* of America's wildlife.

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*Part A: Use context clues from the reading passage to determine the definition of each of the words listed below. Write your answers on the back or on a separate sheet of paper.*

- |                        |                       |
|------------------------|-----------------------|
| 1. Angling             | 10. Market Hunting    |
| 2. Annihilate          | 11. Milliner          |
| 3. Bag Limit           | 12. Natural Resources |
| 4. Eradicate           | 13. Partake           |
| 5. Extinction          | 14. Precarious        |
| 6. Fur-bearing Animals | 15. Take              |
| 7. Game                | 16. Unregulated       |
| 8. Hide                | 17. Waterfowl         |
| 9. Legacy              |                       |

*Part B: Select eight of the words above. In the reading passage, replace those words with synonyms.*



## Wildlife at the Brink Vocabulary Matching

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Hunting for *game* and *angling* for fish became important parts of daily life. Deer, turkey, moose, and other game animals as well as numerous fish were a main component of the diet. The *hides* of many of these animals were used for clothing.

Soon, people began to see wildlife as a source of wealth. The hides of *fur-bearing animals*, such as beaver, could be sold for a considerable profit. Birds were valued as well. The feathers were sold to *milliners* to be used as decorations in women's hats. The meat of birds, mammals, and fish was sold to restaurants.

As the demand for fur, feathers, and meat increased, the business of hunting did as well. More and more people came to North America to *partake* in the seemingly endless bounty. In addition, exploration opened up the West. New lands provided new opportunities to *extract* wildlife. New technological developments helped *market hunters* increase their *take* and lower their costs.

Sometimes it was too easy. Migratory *waterfowl* only breed in certain waterways. These bays and marshes could hold thousands of ducks and geese at one time. Since there was no *bag limit* or maximum amount of wildlife one person could take, these areas became shooting grounds for market hunters.

With no major laws in place, *unregulated* hunting continued and its impact was strong. By the early 1900s, the Carolina parakeet, the passenger pigeon, and the Merriam's elk were *eradicated*. And populations of several other animals, such as elk, grizzly bears, and wolves, were drastically declining.

It was wildlife's "darkest hour." Something had to be done to stop the complete *annihilation* of America's wildlife.

*Use context clues from the reading passage to match the words in the left column with their definition in the right column. Two words could be considered synonyms of each other and have the same definition.*

- |                        |   |
|------------------------|---|
| 1. Angling             | a. Animal that is hunted  |
| 2. Annihilate          | b. Animals with fur that have value to humans                           |
| 3. Bag Limit           | c. Birds that swim and live near water                                  |
| 4. Eradicate           | d. Completely eliminate   |
| 5. Extinction          | e. End of a species   |
| 6. Fur-bearing Animals | f. Fishing  |
| 7. Game                | g. Hat maker  |
| 8. Hide                | h. Hunting for profit   |
| 9. Legacy              | i. Legally remove from the wild   |
| 10. Market Hunting     | j. Materials provided by nature that are valued by humans               |
| 11. Milliner           | k. Maximum number of animals that can legally be taken in a time period |
| 12. Natural Resources  | l. Not limited by laws or rules   |
| 13. Partake            | m. Participate  |
| 14. Precarious         | n. Perilous, unstable, or uncertain                                     |
| 15. Take               | o. Skin of an animal  |
| 16. Unregulated        | p. Something inherited or passed down to future generations             |
| 17. Waterfowl          |   |



Name: \_\_\_\_\_

## Wildlife at the Brink Study Guide

### Part A. To be completed during the PowerPoint presentation.

1. When colonists first settled in this country, they encountered an abundance of \_\_\_\_\_, such as \_\_\_\_\_.
2. In Elizabethan England, game belonged to \_\_\_\_\_.
3. In addition to food, wildlife was valued for \_\_\_\_\_ and \_\_\_\_\_.
4. One of the first game animals to become increasingly scarce was the \_\_\_\_\_, which was hunted for its \_\_\_\_\_.
5. Demand for game increased with \_\_\_\_\_.
6. By the 1800s, some wildlife populations declined due to \_\_\_\_\_.
7. What occurred in 1869 that further opened the west to settlement? \_\_\_\_\_
8. Developments that aided market hunting were \_\_\_\_\_ and \_\_\_\_\_.
9. By 1889, there were approximately \_\_\_\_\_ bison left alive.
10. At the turn of the 19th century, what other wildlife populations were declining? \_\_\_\_\_  
\_\_\_\_\_
11. What contributed to the decline of wildlife at the turn of the century? \_\_\_\_\_  
\_\_\_\_\_
12. How could market hunters kill so many waterfowl in such a short period of time? \_\_\_\_\_  
\_\_\_\_\_
13. Who besides market hunters (the suppliers) were at fault for the decline of wildlife at the time? \_\_\_\_\_  
\_\_\_\_\_
14. Some species that were hunted to extinction included: \_\_\_\_\_  
\_\_\_\_\_
15. Wildlife's darkest hour was considered to be \_\_\_\_\_.



**Part B. Questions for Discussion**

1. Why was wildlife important to early settlers?
2. What value does wildlife have today? To whom? Why?
3. What is “Manifest Destiny” and what role did it have in the near-extinction of wildlife on the North American continent in the middle 1800s?
4. What specific scientific inventions and technologies contributed to the near-extinction of wildlife in the late 19th and early 20th centuries?
5. How did the concept of an “endless bounty” contribute to the demise of wildlife?
6. What resources today appear to be endless? In your opinion, could they experience the same challenges that wildlife faced in the 20th century? Why or why not?
7. “Those who cannot remember the past are condemned to repeat it.” How is this familiar quote relevant to conservation today?
8. Use the table below to describe the possible actions different groups of individuals could have taken during wildlife’s “darkest hour” to bring wildlife back from the brink.

Group Taking Action	Actions They Could Take
Hunters	
Scientists	
Politicians / Lawmakers	
Concerned Citizens	

9. What actions do you think ultimately turned the tide and saved wildlife?
10. Why should we care about the survival of wildlife species?



## KEY Wildlife at the Brink Vocabulary KEY

Just 100 years ago, the wildlife of North America was in its most *precarious* state. Many species, including bison, elk, and wolf, were on the brink of *extinction*. They were nearly eliminated.

How could a country restore nearly extinct wildlife to the abundance that we are known for today? It is an amazing tale of what we can accomplish when working together toward a common goal. In this case, the goal was to save our wildlife *legacy*.

The story begins with the founding of our country. When settlers first arrived they encountered an abundance of *natural resources*. There were lots of trees to provide wood for building. There was lots of wildlife to use for food and clothing.

Hunting for *game* and *angling* for fish became important parts of daily life. Deer, turkey, moose, and other game animals as well as numerous fish were a main component of the diet. The *hides* of many of these animals were used for clothing.

Soon, people began to see wildlife as a source of wealth. The hides of *fur-bearing animals*, such as beaver, could be sold for a considerable profit. Birds were valued as well. The feathers were sold to *milliners* to be used as decorations in women's hats. The meat of birds, mammals, and fish was sold to restaurants.

As the demand for fur, feathers, and meat increased, the business of hunting did as well. More and more people came to North America to *partake* in the seemingly endless bounty. In addition, exploration opened up the West. New lands provided new opportunities to *extract* wildlife. New technological developments helped *market hunters* increase their *take* and lower their costs.

Sometimes it was too easy. Migratory *waterfowl* only breed in certain waterways. These bays and marshes could hold thousands of ducks and geese at one time. Since there was no *bag limit* or maximum amount of wildlife one person could take, these areas became shooting grounds for market hunters.

With no major laws in place, *unregulated* hunting continued and its impact was strong. By the early 1900s, the Carolina parakeet, the passenger pigeon, and the Merriam's elk were *eradicated*. And populations of several other animals, such as elk, grizzly bears, and wolves, were drastically declining.

It was wildlife's "darkest hour." Something had to be done to stop the complete *annihilation* of America's wildlife.

*Key: Vocabulary words are matched with the definitions provided. Words in parenthesis are some examples of synonyms students might use.*

- |                                      |   |
|--------------------------------------|---|
| 1. Angling                           | f. Fishing  |
| 2. Annihilate (exterminate, destroy) | d. Completely eliminate   |
| 3. Bag Limit                         | k. Maximum number of animals that can legally be taken in a time period |
| 4. Eradicate (eliminate, remove)     | d. Completely eliminate   |
| 5. Extinction (loss, disappearance)  | e. End of a species   |
| 6. Fur-bearing Animals               | b. Animals with fur that have value to humans                           |
| 7. Game                              | a. Animal that is hunted  |
| 8. Hide (skin, pelt)                 | o. Skin of an animal  |
| 9. Legacy (inheritance, heritage)    | p. Something inherited or passed down to future generations             |
| 10. Market Hunting                   | h. Hunting for profit   |
| 11. Milliner (hat maker)             | g. Hat maker  |
| 12. Natural Resources                | j. Materials provided by nature that are valued by humans               |
| 13. Partake (participate)            | m. Participate  |
| 14. Precarious (unstable, perilous)  | n. Perilous, unstable, or uncertain                                     |
| 15. Take                             | i. Legally remove from the wild   |
| 16. Unregulated (unrestricted)       | l. Not limited by laws or rules   |
| 17. Waterfowl                        | c. Birds that swim and live near water                                  |



## KEY Wildlife at the Brink Study Guide KEY

Part A. To be completed during the PowerPoint presentation.

1. When colonists first settled in this country, they encountered an abundance of **NATURAL RESOURCES**, such as **TREES, FIELDS, AND WILDLIFE**.
2. In Elizabethan England, game belonged to **LANDOWNERS**.
3. In addition to food, wildlife was valued for **FUR** and **FEATHERS**.
4. One of the first game animals to become increasingly scarce was the **BEAVER**, which was hunted for its **FUR**.
5. Demand for game increased with **WESTWARD EXPANSION (MANIFEST DESTINY)**.
6. By the 1800s, some wildlife populations declined due to **UNREGULATED HUNTING AND HABITAT LOSS**.
7. What occurred in 1869 that further opened the west to settlement? **TRANSCONTINENTAL RAILROAD**
8. Developments that aided market hunting were **MORE EFFICIENT GUNS** and **IMPROVED TRANSPORTATION OPTIONS (RAILROADS)**.
9. By 1889, there were approximately **1,000** bison left alive.
10. At the turn of the 19th century, what other wildlife populations were declining? **DEER, ELK, PRONGHORN, COUGAR, WOLF, GRIZZLY BEAR, TURKEY, AND WATERFOWL SPECIES**
11. What contributed to the decline of wildlife at the turn of the century? **HABITAT LOSS, MARKET HUNTING, AND PREDATOR ERADICATION**
12. How could market hunters kill so many waterfowl in such a short period of time? **NEW ADVANCES IN GUN TECHNOLOGY ALLOWED FOR MORE KILLS IN FEWER SHOTS**
13. Who besides market hunters (the suppliers) were at fault for the decline of wildlife at the time? **THE CUSTOMERS WHO WERE DEMANDING MORE WILDLIFE-RELATED PRODUCTS (FOOD, HATS, ETC.)**
14. Some species that were hunted to extinction included: **GREAT AUK, CAROLINA PARAKEET, PASSENGER PIGEON, AND MERRIAM'S ELK**
15. Wildlife's darkest hour was considered to be **THE BEGINNING OF THE 20TH CENTURY**.



**Part B. Questions for Discussion**

1. Why was wildlife important to early settlers? *It was crucial for their survival. It provided basic needs such as food and clothing. It also became a source of wealth.*
2. What value does wildlife have today? To whom? Why? *Answers will vary.*
3. What is “Manifest Destiny” and what role did it have in the near-extinction of wildlife on the North American continent in the middle 1800s? *Manifest Destiny is the idea that Americans had a right and duty to expand across the North American continent. This opened up the western lands and provided easier access to wildlife populations.*
4. What specific scientific inventions and technologies contributed to the near-extinction of wildlife in the late 19th and early 20th centuries? *Improved guns (like the punt gun) which allowed market hunters to kill more animals more efficiently. The development of railroads (specifically the Transcontinental Railroad) provided easier access to lands, and faster shipping back to the East. The development of cold storage also increased the market for game meat because people could get more meat and store it longer.*
5. How did the concept of an “endless bounty” contribute to the demise of wildlife? *Since wildlife was viewed to be an “endless bounty” that could never be depleted, people didn’t care about how much they killed or how much they wasted.*
6. What resources today appear to be endless? In your opinion, could they experience the same challenges that wildlife faced in the 20th century? Why or why not? *Answers will vary.*
7. “Those who cannot remember the past are condemned to repeat it.” How is this familiar quote relevant to conservation today? *Answers will vary.*
8. Use the table below to describe the possible actions different groups of individuals could have taken during wildlife’s “darkest hour” to bring wildlife back from the brink.

Group Taking Action	Actions They Could Take
Hunters	<i>Answers will vary.</i>
Scientists	<i>Answers will vary.</i>
Politicians / Lawmakers	<i>Answers will vary.</i>
Concerned Citizens	<i>Answers will vary.</i>

9. What actions do you think ultimately turned the tide and saved wildlife? *Answers will vary.*
10. Why should we care about the survival of wildlife species? *Answers will vary.*



# AMERICA'S WILDLIFE — YESTERDAY, TODAY AND TOMORROW

## Lesson 2 – Turning the Tides of Conservation

### Time Frame

2-3 hours/periods

### Grades

High School

### Overview

Students view Part 2 of the PowerPoint presentation which provides an overview of the conservation movement from the late 19th century to the present. Part 2 moves students through the specific events that turned the tides from “the darkest hour” to the model of wildlife conservation we recognize today. Included are the contributions of important conservation figures such as Teddy Roosevelt and Aldo Leopold, key legislative acts, and other historical events that brought wildlife back from the brink of extinction. The presentation concludes by introducing the concepts and seven key principles of the North American Model of Wildlife Conservation. Part 2 also includes a study guide for students to complete during the presentation and questions for discussion.

### Objectives

Students will:

- learn about the recovery and conservation of wildlife populations from the early 20th century to the present.
- complete a study guide to reinforce content and concepts presented in the *PowerPoint Presentation: Part 2 - The Turning of the Tides and the North American Model of Wildlife Conservation*.
- analyze the human actions and attitudes that contributed to the wildlife conservation movement.
- evaluate how human values toward wildlife have changed over time.

### Essential Questions

- What specific events brought wildlife back from near-extinction in the 20th century?
- How did human attitudes / beliefs change with the evolution of wildlife conservation?
- Who owns wildlife and what responsibilities come with that ownership?
- How does our understanding of wildlife science influence wildlife management and wildlife law?
- How are wildlife management and conservation funded and what would happen to wildlife if those funds were lost?
- What factors affect wildlife management decisions?

### Standards Correlations

*Note: The full text of these standards can be found in Appendix A.*

#### AFWA Core Concepts

- 1.1; 1.2; 1.3; 1.8; 1.9
- 2.1; 2.2; 2.3; 2.4
- 3.1; 3.2
- 4.1; 4.3
- 5.1

#### NSES Content Standards

- Life Science: Interdependence of organisms
- Science in Personal and Social Perspectives: Natural resources; Natural and human-induced hazards; Science and technology in local, national, and global challenges
- History and Nature of Science: Science as a human endeavor; Historical perspectives

#### NCSS Curriculum Standards

- |         |         |       |
|---------|---------|-------|
| 1: a, g | 6: a, e | 10: e |
| 2: c    | 7: h    |       |
| 5: b, f | 8: c    |       |

#### Excellence in Environmental Education Guidelines for Learning

- 2.2: A, C
- 2.3: A, B, C
- 2.4: A, C
- 4: A



## Materials and Resources

- Computer with PowerPoint software
- Computer projector
- *Turning the Tides of Conservation* PowerPoint presentation
- *Turning the Tides of Conservation Study Guide*
- **Optional:** *Turning the Tides of Conservation Vocabulary Definitions* OR *Turning the Tides of Conservation Vocabulary Matching*

## Teacher Preparation

- Reserve computer/projector if necessary.
- Review the *Turning the Tides of Conservation* PowerPoint presentation to be sure it works on computer/projector. If the teacher-led version is being used, become familiar with the content/script.
- Print and copy *Turning the Tides of Conservation* (one per student).
- If the optional introduction activity is being used, determine which version of the vocabulary exercise students will perform. Print and copy appropriate worksheet (one per student).

## Background Information

Prior to this lesson, students should view and be familiar with the *Wildlife at the Brink* PowerPoint presentation found in Lesson 1.

Students may become overwhelmed with some of the vocabulary in this lesson. An optional introduction activity has been provided that will help students with the new words. Students read a brief summary of the PowerPoint presentation and use context clues to determine the definitions of the vocabulary. There are two versions of this activity depending on the level of the students. One option has students match the words with provided definitions. The advanced option requires students to develop their own definitions and identify synonyms.



There are also two ways to present the PowerPoint presentation to the students. If you are comfortable with the content, there is a traditional PowerPoint that you can advance at your own pace. A script has been provided to help you tell the story. If you prefer, an automated and narrated version has also been provided. Once started, it will play automatically, just like a movie. For increased student interaction, both versions have options to stop and discuss. When you see a small stop sign in the corner of the slide, you may briefly stop the presentation and use the questions provided in the procedures to guide a class discussion. The signs can also be ignored if you would prefer to run the presentation without stopping.

Teachers and students should be familiar with American History including the Presidency of Theodore Roosevelt.



## Suggested Procedures

*Steps in red are optional. See Background Information for more details.*

1. Remind students that they will be continuing an overview of conservation in the United States and the development of the North American Model of Wildlife Conservation. Today's lesson presents the move away from wildlife's "darkest hour" to an era of conservation success and wildlife prosperity.
2. *Hand out either the Turning the Tides of Conservation Vocabulary Definitions or Turning the Tides of Conservation Vocabulary Matching. Inform students that before the presentation begins, it is important they get a little background about the topic. Have them complete the vocabulary worksheet.*
3. *Write the vocabulary words on the board. As a class, discuss each of the definitions. If necessary, have students use each word in a new sentence.*
4. Hand out and review *Turning the Tides of Conservation Study Guide*. Explain that students should complete Part A of the study guide during the presentation. Each of the questions will be answered in order.
5. Present the *Turning the Tides of Conservation PowerPoint*.
6. *At the stop sign icons, pause the presentation to engage the students in a class discussion. Use the questions below as guides:*
  - *Stop Sign 1: Why was this obvious? Why should we bother conserving and saving wildlife populations?*
  - *Stop Sign 2: Are there other groups that have a code of honor or conduct? Who are they? What are some principles in their code?*
  - *Stop Sign 3: How do the ideas of Justinian and the public trust doctrine relate to wildlife conservation?*
  - *Stop Sign 4: What do you think is meant by the concept of "fair chase"?*
  - *Stop Sign 5: Can states (or countries) manage wildlife alone, or is some cooperation required? Why?*
  - *Stop Sign 6: Do you agree with Leopold's quote? Why or why not? How is it relevant to conservation?*
  - *Stop Sign 7: Can wildlife populations remain healthy and sustainable if they are hunted? Why or why not?*
7. Give students time to complete Part A of the study guide and answer any questions the students may have.
8. Review Part B - Questions for Discussion and assign for homework.
9. During the next class, review the Questions for Discussion.

## Assessment

Describe the evolution of wildlife conservation from the turn of the century to the present, noting specific events, laws, and people that contributed to the movement.

## Modifications

- Have students watch the Turning the Tides of Conservation PowerPoint presentation individually or in small groups.
- Have a team of students study and present the Turning the Tides of Conservation PowerPoint to the rest of the class.

## Extensions

Lessons 3 and 4, in which students research conservation events and historical figures, are extensions of this lesson.



## PowerPoint Script

Slide #	Slide Thumbnail	Script
---------	-----------------	--------

1



2



It was the turn of a new century, the 20th century. It was also wildlife's darkest hour:

3



What had once seemed like an inexhaustible resource was dwindling to nothing. Many species were on the brink of extinction due to many factors including unregulated hunting and unregulated timber harvest.

4



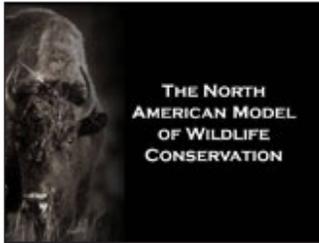
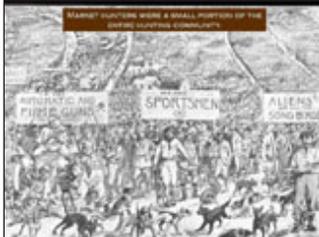
Some, like the Merriam's elk and passenger pigeon, were already gone. Extinct.

5



What would be done to bring wildlife back from the brink? Who would do it?



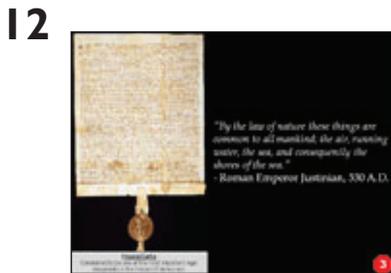
Slide #	Slide Thumbnail	Script
6		<p>This is the story of wildlife conservation in America. The story of bold individuals and determined politicians. Of concerned scientists and passionate hunters and anglers.</p>
7		<p>It is a story of the evolution of what would become the world's most successful model for wildlife conservation, the North American Model of Wildlife Conservation.</p>
8		<p>As wildlife numbers dwindled in the late 1800s, it was clear that something needed to be done. The exploitation of wildlife had to stop. To ensure America would have any wildlife in the next century, wildlife would have to be conserved and wildlife populations brought back from the brink of extinction.</p>
9		<p>While concerned citizens, scientists, politicians, and others championed conservation efforts, it was hunters and anglers, collectively called sportsmen, that took the actions that started wildlife on the road to recovery. By the turn of the century, "sportsmen" hunters had already been at work for several decades, striving to turn the tide.</p>
10		<p>First, hunters realized there was a division among their own ranks. Most hunters were not market hunters. They were "gentlemen" sportsmen that respected wildlife and the wilderness in which they lived. They were individuals with a passion for getting into the outdoors and providing meat for the table. They abhorred the slaughter by market hunters.</p>



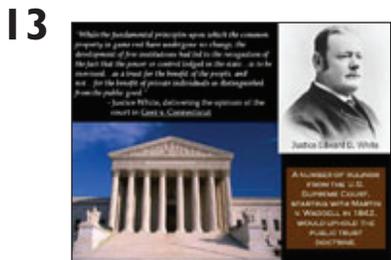
Slide # | Slide Thumbnail | Script



Next, hunters also realized that as “sportsmen,” they must embrace a hunting ethic – a code of honor – that incorporated the ideas of recognizing and honoring “bag” limits, season restrictions, and the concept of “fair chase.”



For the most part, the public understood the concept that wildlife was held in the public trust. That is, wildlife belongs to everyone and is held in trust by the government. This principle, known as the Public Trust Doctrine, can be traced to Roman emperor Justinian and was formalized by the Magna Carta of 1215. Although the Magna Carta was originally a document limiting the powers of the English King, it would become a foundational document for our own Constitution.



More recently, a series of Supreme Court decisions, starting in 1842, with a case known as *Martin v Waddell*, legally upheld the public trust principle as outlined in the Magna Carta. These rulings upheld the idea that natural resources such as water, fish, and wildlife are held in trust by the government for the benefit of all the people, today and in the future. *Geer v. Connecticut*, in 1896, further solidified this idea.



Although wildlife belonged to everyone, no one had the right to decimate wildlife populations for their own gain. But market hunters were doing just that. Sportsmen realized that in order to stop market hunting, commerce in wildlife would have to be abolished. Hunting would need to be better regulated. However, public and political support was needed.



Sportsmen's clubs formed and sporting magazines were published to help build that support.



Slide #	Slide Thumbnail	Script
16		<p>Forest and Stream magazine, first published in 1873, was one of the first “sporting magazines” to advocate for hunting regulations and the conservation of wildlife.</p>
17		<p>In 1887, the Boone and Crockett Club was formed. It acted to promote fair and regulated hunting, and would become a significant force for wildlife conservation and the elimination of market hunting.</p>
18		<p>Although there were already numerous sporting clubs in existence, the Boone and Crockett Club – founded by Theodore Roosevelt, an avid sportsman but not yet President – would become the country’s most influential. The Club also worked to create wildlife reserves and promote the concept of “fair chase.”</p>
19		<p>Other advocacy groups, such as the Sierra Club and Audubon Society, were founded during this era. Each with a mission and message of conservation.</p>
20		<p>This nation-wide public outcry influenced a series of laws and treaties as well as the creation of wildlife refuges, National Parks, and other protected lands.</p>



Slide # | Slide Thumbnail | Script

**21**

In 1900, the Lacey Act was passed, making it illegal to move unlawfully taken game across state lines. This was the act to end market hunting. No longer could a hunter move hundreds or thousands of waterfowl, not even a single duck, from rich hunting grounds to out-of-state markets.

**22**

Though it took a while for market hunters to comply, egrets in Florida were now legally safe from becoming hat adornments in New York.

**23**

Around the same time, the concept of National Parks and wildlife refuges was taking hold. More and more lands were being set aside to protect wildlife and wild lands. It was recognized that wildlife needed some undisturbed, wild places to recover and thrive.

**24**

Yellowstone, which had become the world's first National Park in 1872, gained further protection in 1894 with the passage of the National Park Protective Act, which prohibited hunting and other potentially disturbing activities in National Parks.

**25**

In 1918, the Migratory Bird Treaty Act was passed, protecting migratory birds, their nests, eggs, and feathers. This significant legislation was among the first to recognize wildlife as an international resource.



Slide #	Slide Thumbnail	Script
26		<p>While lands were set aside for wildlife, market hunting was outlawed, and migratory birds were protected, across the country, states were limiting the harvest by setting hunting seasons and bag limits. Enforcement was difficult but sportsmen were encouraged to comply, honoring their code of ethics.</p>
27		<p>At first, bag limits were set based on a variety of suppositions about wildlife populations and their movements. It was not until the 1930s that wildlife management became a science. Aldo Leopold, known as the father of wildlife management, developed the first graduate program in Game Management at the University of Wisconsin.</p>
28		<p>In 1930, Leopold's "American Game Policy" was presented and adopted nationwide. This comprehensive policy established the era of wildlife management based on science. The Policy, along with his publication, Game Management, served as a guide for wildlife managers for decades and advanced the understanding of the balance of natural resources.</p>
29		<p>As wildlife science developed, and understanding of wildlife populations and habitats grew, the management of wildlife improved. It was clear that science should inform the laws regulating hunting to ensure a sustainable harvest.</p>
30		<p>A sustainable harvest meant that healthy wildlife populations could be ensured for the future by scientifically determining how many of a certain species could be harvested each season. Thus, science informed wildlife law and wildlife populations began to grow as a result.</p>



Slide # | Slide Thumbnail | Script

31



As with the establishment of other laws and regulations, the public also had the opportunity to shape hunting and angling laws through the public process.

32



State and federal wildlife regulatory agencies were established across the country. However, monies to support this new profession and these efforts were scarce. Many state agencies began requiring licenses to legally hunt and fish. The money from the sale of these licenses was used to fund wildlife management and conservation.

33



Then, in 1937, following recommendations from the North American Wildlife Conference, the Federal Aid in Wildlife Restoration Act (known as the "Pittman-Robertson Act") was passed with strong support from sportsmen. This Act placed an 11% excise tax on hunting equipment and ammunition. The funds were to be allocated by the Federal government to the states to aid in the management and restoration of wildlife.

34



In 1950, a similar act was passed to support fisheries. The Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act) established an excise tax on fishing equipment and allocated the funds to the management and restoration of state fisheries.

35



Along with the money collected from the sale of hunting and fishing licenses, these funds were, and still are, used for the restoration of wildlife populations, acquisition and enhancement of habitat, and other wildlife conservation and education activities that benefit non-game, or non hunted, species as well as game species.



Slide #	Slide Thumbnail	Script
36		<p>Over the years, wildlife populations recovered. The 20th century saw wildlife emerge from its darkest hour into a new light of conservation.</p>
37		<p>To bring wildlife not only back from the brink of extinction, but to healthy and sustainable populations has been the legacy of the wildlife conservation movement in America. And the success shows. In the early 1900s, turkey, elk, and pronghorn populations, just to name a few, were at dangerously low levels. Now, a million or more of each of these animals roam the wilds of the United States.</p>
38		<p>To this day, wildlife is still held in the public trust and everyone has the opportunity to hunt. The public also continues to shape wildlife conservation laws through the public process. Market hunting has been abolished and it is recognized that wildlife is an international resource. Wildlife continues to be regulated by law, which is informed by science. Additionally, wildlife conservation is still funded through license fees and excise taxes on hunting and fishing equipment. All of these concepts come together to form a model of wildlife conservation that is unique to North America.</p>
39		<p>They are considered to be the guiding principles of what is known as the North American Model of Wildlife Conservation. These seven foundational concepts still inform and define wildlife management today. They evolved with the story of wildlife conservation.</p> <p>They are so important that each principle and how it came to be is worth review:</p>
40		<p>Wildlife is Held in the Public Trust – the wildlife resource belongs to all citizens and is managed by the government for the benefit of all current and future generations.</p>



Slide # | Slide Thumbnail | Script

41



Commerce in Wildlife is Regulated – commercial hunting and the sale of wildlife and their parts is restricted to ensure sustainability of wildlife populations.

42



Hunting and Fishing Laws are Created Through Public Process – since the public owns the wildlife resource, people have the opportunity and the responsibility to help shape the laws that govern wildlife conservation.

43



Everyone Has the Opportunity to Hunt and Fish – Unlike some other countries, hunting and angling is not restricted to those with wealth or land. The opportunity to participate is guaranteed for all in good standing.

44



Hunters and Anglers Fund Conservation – Hunting and fishing license sales and taxes on hunting and fishing equipment pay for the management of all wildlife, including non-game species.

45



Wildlife is an International Resource – Wildlife do not recognize international boundaries. Therefore, effective conservation requires coordinated wildlife and habitat management strategies among countries.



Slide # | Slide Thumbnail | Script

46



Science is the Basis for Wildlife Policy – wildlife population management, including the limited use of wildlife as a renewable resource, is based on sound, up-to-date science.

47



Representative John Lacey, a visionary from Iowa who sponsored the Lacey Act, stated to the 56th Congress in 1900 that: "By taking this course we will set an example to other countries and the good work of bird and game protection in America may serve as a model."

He was right, it is a model: The North American Model of Wildlife Conservation..

48



## Turning the Tides of Conservation Vocabulary Definitions

Once viewed as an *inexhaustible* resource, many wildlife species in North America at the beginning of the twentieth century were on the brink of extinction. It was clear that something needed to be done to ensure America would have any wildlife in the next century.

Wildlife is a resource held in the *public trust*. It belongs to everyone and is held in trust by the government to be managed for the benefit of all generations. No one had a right to *exploit* wildlife populations for their own gain. As a result, market hunting would need to be *abolished*.

While many people would join together to conserve wildlife, it was the actions of hunters and anglers, collectively called *sportsmen*, who started wildlife on the road to recovery. Many of these sportsmen *abhorred* the slaughter by market hunters. They believed hunters should follow an *ethic* or a collection of unwritten rules for how to behave while hunting. One important component of this ethic is the concept of *fair chase*, in which the hunter does not have an improper advantage over the animal being pursued. Private hunting clubs, such as the Boone and Crockett Club, and publications, such as *Forest and Stream*, formed to promote this ethic.

These efforts worked. Laws were passed and hunting became regulated. Many market hunting practices, like killing birds just for feathers to *adorn* hats, were now illegal.

In the beginning, many of these laws were based on *suppositions* rather than facts. Scientists, such as Aldo Leopold, began to study wildlife populations. As our understanding increased, our management of wildlife and hunting improved. The laws focused on the concept of *sustainable harvest*, in which science determines the number of animals that can be removed to maintain healthy populations. Hunting remained an activity available to all, but the laws ensured wildlife would be available to future generations.

Funding for wildlife conservation became another priority of the laws. Hunting and fishing licenses were sold. *Excise taxes* on hunting and fishing equipment were collected. This money was used to manage and restore wildlife habitats.

To this day, wildlife is still held in the public trust and everyone has the opportunity to hunt. Wildlife continues to be regulated by law, which is informed by science. And, wildlife conservation is still funded through license fees and excise taxes. These ideas, along with a few others, are considered to be the guiding principles of what is known as the North American Model of Wildlife Conservation.

Over the years, wildlife populations recovered. The twentieth century saw wildlife emerge from its darkest hour into a new light of conservation. Many species that were *decimated* have been brought back to healthy and sustainable populations. Turkey, elk, and pronghorn, all nearly extinct in the early 1900s, now number a million or more across the United States.

*Part A: Use context clues from the reading passage to determine the definition of each of the words listed below. Write your answers on the back or a separate sheet of paper.*

- |               |                         |
|---------------|-------------------------|
| 1. Abhor      | 8. Fair Chase           |
| 2. Abolish    | 9. Inexhaustible        |
| 3. Adorn      | 10. Public Trust        |
| 4. Decimate   | 11. Sportsmen           |
| 5. Ethic      | 12. Supposition         |
| 6. Excise Tax | 13. Sustainable Harvest |
| 7. Exploit    |                         |

*Part B: Select seven of the words above. In the reading passage, replace those words with a synonym.*



## Turning the Tides of Conservation Vocabulary Matching

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*Use context clues from the reading passage to match the words in the left column with their definition in the right column.*

- |                         |   |
|-------------------------|---|
| 1. Abhor                | a. Assumption or speculation  |
| 2. Abolish              | b. Cease, end, or void  |
| 3. Adorn                | c. Decorate or embellish  |
| 4. Decimate             | d. Destroy a large portion of a population                                  |
| 5. Ethic                | e. Detest, despise, or loathe   |
| 6. Excise Tax           | f. Fee imposed on a specific product or service                             |
| 7. Exploit              | g. Hunters and anglers who abide by a code of conduct                       |
| 8. Fair Chase           | h. Hunting in a way that does not provide an improper advantage over animal |
| 9. Inexhaustible        | i. Incapable of being entirely depleted or consumed                         |
| 10. Public Trust        | j. Managed by the government for the benefit of all people                  |
| 11. Sportsmen           | k. Number of animals that can be removed while maintaining population       |
| 12. Supposition         | l. Set of principles or guidelines for behavior                             |
| 13. Sustainable Harvest | m. Use selfishly for personal benefit                                       |



Name: \_\_\_\_\_

## Turning the Tides of Conservation Study Guide

Part A. To be completed during the PowerPoint presentation.

1. \_\_\_\_\_ were among the first to take action to save our wildlife.
2. Most hunters were not \_\_\_\_\_.
3. Sportsmen hunters embraced a hunting ethic which incorporates the ideas of honoring \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
4. The Public Trust Doctrine can be traced to Roman Emperor \_\_\_\_\_ and the \_\_\_\_\_ of 1215.
5. Which Supreme Court ruling first upheld the public trust doctrine in the United States? \_\_\_\_\_
6. Sportsmen hunters know that to better regulate hunting, \_\_\_\_\_ and \_\_\_\_\_ support was needed.
7. Sporting magazines, such as \_\_\_\_\_, advocated for hunting regulations and the \_\_\_\_\_ of wildlife.
8. The \_\_\_\_\_ Club promoted \_\_\_\_\_ hunting and was a significant force in wildlife \_\_\_\_\_ and the elimination of \_\_\_\_\_.
9. Other advocacy groups included \_\_\_\_\_.
10. The \_\_\_\_\_ was the 1900 Act that ended market hunting by making it illegal to move unlawfully taken game across \_\_\_\_\_.
11. \_\_\_\_\_ was the world's first National Park.
12. The \_\_\_\_\_ protected migratory birds and their nests and eggs.
13. States limited harvest by setting \_\_\_\_\_ and \_\_\_\_\_.
14. In the 1930s, wildlife management became a \_\_\_\_\_.
15. \_\_\_\_\_ is known as the father of wildlife management.
16. It became clear that science should inform the \_\_\_\_\_ regulating hunting.



17. A \_\_\_\_\_ harvest helps ensure healthy wildlife populations for the future.
18. The \_\_\_\_\_ placed an excise tax on hunting equipment.
19. The \_\_\_\_\_ placed an excise tax on fishing equipment.
20. These Acts allocated funds for the \_\_\_\_\_ and \_\_\_\_\_ of state fisheries and wildlife.
21. The model we follow for wildlife management today is called \_\_\_\_\_.
- 22 – 28. The seven basic principles of this model are:
- a. Wildlife is held in the \_\_\_\_\_.
  - b. \_\_\_\_\_ in wildlife is regulated.
  - c. Hunting and fishing laws are created through \_\_\_\_\_.
  - d. Everyone in good standing has the opportunity to \_\_\_\_\_.
  - e. \_\_\_\_\_ fund conservation.
  - f. Wildlife is an \_\_\_\_\_ resource.
  - g. \_\_\_\_\_ is the basis for wildlife policy.

**Part B. Questions for Discussion**

1. Who owns wildlife and what responsibilities come with that ownership?
2. How did human attitudes and beliefs change with the evolution of wildlife conservation?
3. How does our understanding of wildlife science influence wildlife management and wildlife law?
4. How are wildlife management and conservation funded and what would happen to wildlife if those funds were lost?
5. Name at least two groups who had an interest in saving wildlife? What was their interest? What action did they take?
6. How did ethics influence early wildlife conservation and how do they factor in today?



## KEY Turning the Tides of Conservation Vocabulary KEY

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*Key: Vocabulary words are matched with the definitions provided. Words in parentheses are some examples of synonyms students might use.*

- |   |   |
|---|---|
| 1. Abhor (detest, hate, loathe)         | a. Assumption or speculation  |
| 2. Abolish (eliminate, stop)            | b. Cease, end, or void  |
| 3. Adorn (decorate, embellish)          | c. Decorate or embellish  |
| 4. Decimate (destroy, devastate)        | d. Destroy a large portion of a population                                  |
| 5. Ethic (code of conduct)              | e. Detest, despise, or loathe   |
| 6. Excise Tax                           | f. Fee imposed on a specific product or service                             |
| 7. Exploit (abuse, use)                 | g. Hunters and anglers who abide by a code of conduct                       |
| 8. Fair Chase                           | h. Hunting in a way that does not provide an improper advantage over animal |
| 9. Inexhaustible (unlimited, limitless) | i. Incapable of being entirely depleted or consumed                         |
| 10. Public Trust                        | j. Managed by the government for the benefit of all people                  |
| 11. Sportsmen                           | k. Number of animals that can be removed while maintaining population       |
| 12. Supposition (assumption, guess)     | l. Set of principles or guidelines for behavior                             |
| 13. Sustainable Harvest                 | m. Use selfishly for personal benefit                                       |



## KEY Turning the Tides of Conservation Study Guide KEY

Part A. To be completed during the PowerPoint presentation.

1. **HUNTERS AND ANGLERS (SPORTSMEN)** were among the first to take action to save our wildlife.
2. Most hunters were not **MARKET HUNTERS**.
3. Sportsmen hunters embraced a hunting ethic which incorporates the ideas of honoring **BAG LIMITS, SEASON RESTRICTIONS,** and **FAIR CHASE**.
4. The Public Trust Doctrine can be traced to Roman Emperor **JUSTINIAN** and the **MAGNA CARTA** of 1215.
5. Which Supreme Court ruling first upheld the public trust doctrine in the United States? **MARTIN V. WADDELL**
6. Sportsmen hunters know that to better regulate hunting, **PUBLIC** and **POLITICAL** support was needed.
7. Sporting magazines, such as **FOREST AND STREAM,** advocated for hunting regulations and the **CONSERVATION** of wildlife.
8. The **BOONE AND CROCKETT** Club promoted **FAIR AND REGULATED** hunting and was a significant force in wildlife **CONSERVATION** and the elimination of **MARKET HUNTING**.
9. Other advocacy groups included **SIERRA CLUB AND THE AUDUBON SOCIETY**.
10. The **LACEY ACT** was the 1900 Act that ended market hunting by making it illegal to move unlawfully taken game across **STATE LINES**.
11. **YELLOWSTONE** was the world's first National Park.
12. The **MIGRATORY BIRD TREATY ACT** protected migratory birds and their nests and eggs.
13. States limited harvest by setting **HUNTING SEASONS** and **BAG LIMITS**.
14. In the 1930s, wildlife management became a **SCIENCE**.
15. **ALDO LEOPOLD** is known as the father of wildlife management.
16. It became clear that science should inform the **LAWS** regulating hunting.
17. **A SUSTAINABLE** harvest helps ensure healthy wildlife populations for the future.
18. **The PITTMAN-ROBERTSON ACT** placed an excise tax on hunting equipment.



19. The **DINGELL-JOHNSON ACT** placed an excise tax on fishing equipment.
20. These Acts allocated funds for the **MANAGEMENT and RESTORATION** of state fisheries and wildlife.
21. The model we follow for wildlife management today is called **THE NORTH AMERICAN MODEL OF WILDLIFE CONSERVATION**.
- 22 – 28. The seven basic principles of this model are:
  - a. Wildlife is held in the **PUBLIC TRUST**.
  - b. **COMMERCE** in wildlife is regulated.
  - c. Hunting and fishing laws are created through **PUBLIC PROCESS**.
  - d. Everyone in good standing has the opportunity to **HUNT AND FISH**.
  - e. **HUNTERS AND ANGLERS** fund conservation.
  - f. Wildlife is an **INTERNATIONAL** resource.
  - g. **SCIENCE** is the basis for wildlife policy.

### Part B. Questions for Discussion

1. Who owns wildlife and what responsibilities come with that ownership? *In North America, the people own wildlife. That means that no single person has a right to it. Therefore, the resource must be managed in a way that ensures all people, today and in the future, continue to have access to it. Part of the responsibility for ownership is that people must be involved. They must help shape wildlife laws.*
2. How did human attitudes and beliefs change with the evolution of wildlife conservation? *Answers will vary.*
3. How does our understanding of wildlife science influence wildlife management and wildlife law? *As our understanding of species and populations has improved, we have been able to adjust our management strategies to take this new knowledge into account. We are better able to know what sustainable populations sizes are and attempt to maintain numbers near these levels.*
4. How is wildlife management and conservation funded and what would happen to wildlife if those funds were lost? *The vast majority of wildlife management and conservation is funded by hunters and anglers. This is done through license fees and excise taxes on hunting and fishing equipment. If this funding was lost, state wildlife agencies would have an extremely difficult time managing wildlife and enforcing laws.*
5. Name at least two groups who had an interest in saving wildlife? What was their interest? What action did they take? *Answers will vary.*
6. How did ethics influence early wildlife conservation and how do they factor in today? *Since little to no wildlife laws were in place, ethics was the primary driving force for wildlife conservation. People conserved wildlife because they felt it was the right thing to do.*



# AMERICA'S WILDLIFE — YESTERDAY, TODAY AND TOMORROW

## Lesson 3 – Conservation in Context

### Time Frame

1-2 hours/periods

### Grades

High School

### Overview

Students review major historical events from 1800 – 2000 and place them along a scaled timeline. Events include major political, social, and scientific activities as well as selected laws, seminal publications, and other activities that contributed to the conservation movement in the United States. Students will be given a collection of events and must place them in specific categories along the timeline. Then, students will analyze the timeline and see how various events influenced the conservation movement in North America. A study guide for students to complete is provided.

### Objectives

Students will:

- Create a scaled timeline of events in the history of the U.S. conservation movement.
- Analyze the effect of national historical events on wildlife conservation.
- Evaluate the impact of specific conservation events on the development of the conservation movement in the United States.

### Essential Questions

- What events triggered the need for wildlife conservation in the U.S.?
- What specific actions by various U.S. citizens shaped wildlife conservation?
- How did human attitudes toward natural resources evolve from exploitation to stewardship?
- How can citizens influence law and shape history?

### Materials and Resources

- *Timeline Cards: Dates; Category Headings; Government, War, and Politics Long-term Events; Government, War, and Politics Individual Events; Wildlife Events; and, Student Events*
- *Conservation in Context Study Guide*
- String
- Choice of tape, staples, magnets, thumbtacks, sticky tack (depending on how the timeline is posted)

### Standards Correlations

*Note: The full text of these standards can be found in Appendix A.*

#### AFWA Core Concepts

- 1.7; 1.8; 1.9
- 2.3; 2.4
- 2.1; 3.2
- 5.1

#### NSES Content Standards

- Life Science: Interdependence of organisms
- Science and Technology: Understandings about science and technology
- Science in Personal and Social Perspectives: Natural resources; science and technology in local, national, and global challenges
- History and Nature of Science: Science as a human endeavor; Historical perspectives

#### NCSS Curriculum Standards

- |            |            |
|------------|------------|
| 1: b       | 6: b, g    |
| 2: i       | 8: a, b, c |
| 5: b, f, g | 10: a, e   |

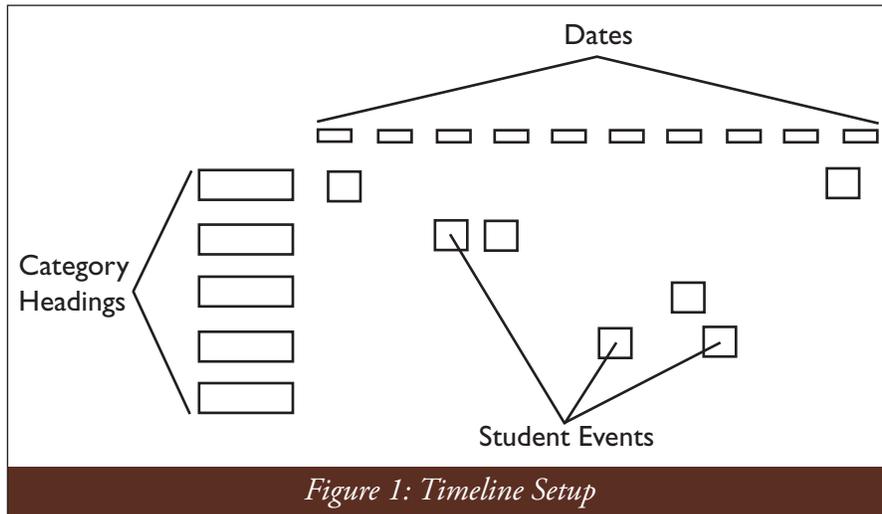
#### Excellence in Environmental Education Guidelines for Learning

- 2.3: A, B, C, E
- 2.4: A, B, C, D, E
- 3.1: B
- 4: A, B

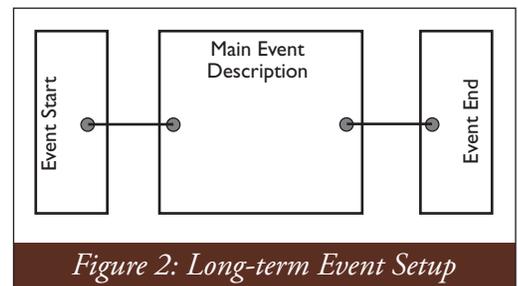


## Teacher Preparation

- Print one copy of Timeline Cards and cut into individual events. For multiple, long-term use, consider laminating the cards.
- Print and copy *Conservation in Context Study Guide* (one per student).
- Prepare timeline by marking decades and posting in the classroom. Place category headings along the left side to create five distinct rows (see Figure 1).



- Punch holes at the gray dots on the long-term events. Tie string through these holes to attach the beginning and ending dates to the main description (see Figure 2).
- Place the *Government, War, and Politics Long-term Events* and *Individual Events* in their appropriate locations on the timeline in the Government, War, and Politics category.
- Divide the class into small groups of four or five students.
- Divide the student events into the same number of piles as the student groups.



## Background Information

The purpose of this activity is to expose students to the many social and political factors that have influenced wildlife conservation. While every attempt has been made to include a diverse collection of historical events, no timeline can possibly contain all of the relevant events. If you feel there are significant events missing (perhaps some that are more relevant to your local community), feel free to create new events using the blank event cards included in the handouts.

Teachers and students should review the *Wildlife at the Brink* and *Turning the Tides of Conservation* PowerPoint presentations.



## Suggested Procedures

1. Ask students to describe some of the more memorable portions of the PowerPoint presentations from Lesson 1 (Wildlife at the Brink) and Lesson 2 (Turning the Tides of Conservation). Explain that we will now be looking at the conservation movement in the context of other major historical events.
2. Discuss the timeline that has been established on the board. Explain that, as a class, they will be creating a series of concurrent timelines. The first one has already been completed as an example. Show the events along the Government, War, and Politics section.
3. Explain that they will be given some events. For each one, they need to decide in which of the next three categories it best fits: Scientific Discoveries and Developments; Art, Culture, and Society; or Conservation Laws and Events. For the science category, this should include events that relate directly to scientific discoveries or the development of new technologies. For the society category, this should include publications of books, social movements, or events involving groups of people. The conservation category will include anything laws, court cases, or other events directly related to conservation. Do not hand out the Wildlife Milestones at this time, and be sure that students understand that they will not be filling in this category right now.
4. Hand out a pile of student events to each group and instruct them to attach the events to the timeline in the appropriate category at the correct time.
5. Give students time to place the events on the timeline. If they struggle with the correct category placement, remind them that there are no correct answers but they should be able to justify their choices. Ask them guiding questions that may help them determine the correct location.
6. When all of the student events have been placed on the timeline, instruct the students to remain quiet and review the entire timeline. There should be no talking during this portion of the activity. If they disagree with an event placement, they should quietly move it to the new location. If students cannot agree on the placement of an event, break the silence and have students justify their choices. As a class, come to a consensus on the location.
7. Once everyone has had a chance to review it and all of the events appear to be in the correct location, ask students for their observations. Do they notice any patterns, absences, etc.? Discuss possible reasons for these observations. Use the Essential Questions to guide discussion.
8. One at a time, introduce the *Wildlife Milestones*. Select a student to place them in the appropriate location on the timeline. As each one is placed, discuss how this event may have impacted the conservation movement.
9. Hand out the *Conservation in Context Study Guide*. Give students time to complete. If you prefer, students may be allowed to use the Internet (and the provided links) to research the five key events on the back of the worksheet in more detail before finishing.
10. During the next class, review the questions from the worksheet.



### Post-Assessment

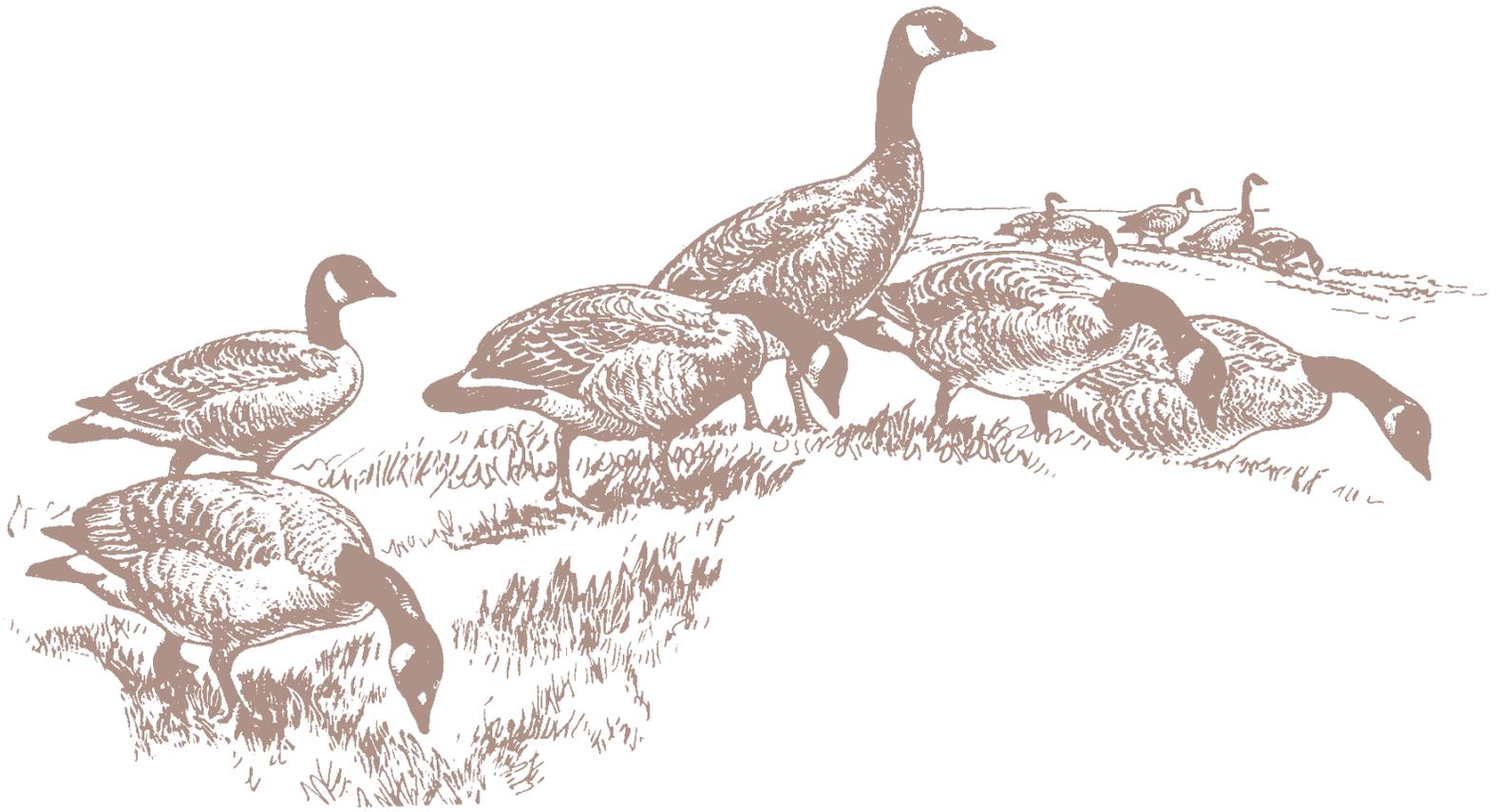
Describe the evolution of wildlife conservation since the founding of the United States and explain how attitudes and understanding have changed over time.

### Modifications

- Remove one or more of the categories to simplify the timeline.
- Do not use the timeline. Assign each student or group one of the events in the Conservation Laws and Events category. Have them research their event and present the information to the class.

### Extensions

- Students can select and research one of the conservation events. Have them create a single PowerPoint slide focused on their event. Put all of the slides together in a slideshow that can be shared with other classes.
- Have students identify and research other events in conservation history that are not already included in the activity.
- Encourage students to conduct further study on current wildlife conservation events.
- Have students vote for the three most important events, in their opinion. Students can place stickers near each of their selections. Tally the votes and have students debate and discuss the results.



Timeline Cards - Dates

1800	1900
1810	1910
1820	1920
1830	1930
1840	1940
1850	1950
1860	1960
1870	1970
1880	1980
1890	1990
	2000



**Timeline Cards** - Category Headings

Government, War,  
and Politics

Scientific Discoveries  
and Developments

Art, Culture, and  
Society

Conservation Laws  
and Events

Wildlife Milestones



**Timeline Cards - Government, War, and Politics Long-term Events**

<p><b>1812</b></p> <p>●</p> <p><b>Begins</b></p>	<p><b>War of 1812</b></p> <p>●</p> <p>This is often called the “Second War of Independence.” It began when the United States was frustrated with the British navy harassing and seizing American ships and seamen.</p> <p>●</p>	<p><b>1815</b></p> <p>●</p> <p><b>Ends</b></p>	<p><b>1846</b></p> <p>●</p> <p><b>Begins</b></p>	<p><b>Mexican – American War</b></p> <p>●</p> <p>A war fought between the United States and Mexico over the American annexation of Texas.</p> <p>●</p>	<p><b>1848</b></p> <p>●</p> <p><b>Ends</b></p>
<p><b>1861</b></p> <p>●</p> <p><b>Begins</b></p>	<p><b>American Civil War</b></p> <p>●</p> <p>A war fought within the United States, between the northern states and eleven southern states that wanted to secede from the Union.</p> <p>●</p>	<p><b>1865</b></p> <p>●</p> <p><b>Ends</b></p>	<p><b>1901</b></p> <p>●</p> <p><b>Begins</b></p>	<p><b>Teddy Roosevelt Presidency</b></p> <p>●</p> <p>An avid hunter and outdoorsman, Roosevelt would make conservation a significant part of his Presidential legacy.</p> <p>●</p>	<p><b>1909</b></p> <p>●</p> <p><b>Ends</b></p>
<p><b>1914</b></p> <p>●</p> <p><b>Begins</b></p>	<p><b>World War I</b></p> <p>●</p> <p>“The Great War” was an unprecedented war involving most of the world’s major nations. The United States, Great Britain, and others fought against Germany, Austria-Hungary, Turkey, and Bulgaria.</p> <p>●</p>	<p><b>1918</b></p> <p>●</p> <p><b>Ends</b></p>	<p><b>1929</b></p> <p>●</p> <p><b>Begins</b></p>	<p><b>Great Depression</b></p> <p>●</p> <p>A worldwide economic depression that began in the United States with the stock market crash on October 29, 1929.</p> <p>●</p>	<p><b>1939</b></p> <p>●</p> <p><b>Ends</b></p>





**Timeline Cards - Government, War, and Politics Individual Events**

**1803**

**Louisiana Purchase**

The United States purchased over 800,000 square miles of land from France, including all or part of fourteen current states and two Canadian provinces. It was done in large part to secure access to the Port of New Orleans, and increased the westward expansion.

**1848**

**California Gold Rush Begins**

When gold was discovered at Sutter's Mill in California, about 300,000 people traveled by land and sea to find their fortunes. The populations of many California towns, including San Francisco, increased substantially.

**1867**

**Alaska Purchased**

The United States purchased nearly 600,000 square miles from the Russian empire.

**1867**

**Canadian Confederation Created**

Four provinces, Ontario, Quebec, Nova Scotia, and New Brunswick, became one country, Canada.

**1896**

**Klondike Gold Rush Begins**

After George Washington Carmack returned to the United States with gold he had discovered in the Yukon near the Klondike River, over 100,000 people would travel to Canada in search of fortune. Only about 40,000 would make it to the Klondike.



## Timeline Cards - Wildlife Events

**1880**

### **Eastern Elk Becomes Extinct**

One of six subspecies of elk found in the United States and Canada. The last one is believed to have been shot in Pennsylvania in 1877. It was officially declared extinct three years later.

**1906**

### **Merriam's Elk Becomes Extinct**

A subspecies of elk found in the arid lands of the southwestern United States. Not much was known about this animal before it went extinct.

**1918**

### **Carolina Parakeet Becomes Extinct**

The Carolina parakeet was the only parrot species native to the eastern United States. The last wild species was killed in 1904, and the last captive bird died in 1918 at the Cincinnati Zoo.

**1914**

### **Passenger Pigeon Becomes Extinct**

Flocks of these pigeons were described as stretching one mile wide and 300 miles long. The last sighting in the wild was in 1900. The last captive bird died in 1914 at the Cincinnati Zoo.

**1920**

### **Wild Turkeys Extirpated From 18 States and Ontario**

Originally found in 39 states and Ontario, by 1920, wild turkeys had been completely eliminated from over half of those locations.

**1926**

### **Wolves Extirpated From Yellowstone National Park**

As part of a government program to eliminate predators, the wolf is largely believed to have been eliminated from Yellowstone Park.

**1995**

### **Wolves Reintroduced To Yellowstone National Park**

After decades of absence, wild caught wolves from Canada are released and roaming free in Yellowstone Park.



**Timeline Cards - Student Events**

**1804**

**Lewis and Clark Expedition Begins**

Meriwether Lewis and William Clark led the first over-land expedition from the Atlantic Ocean to the Pacific and back. It was designed to get an adequate view of the resources available.

**1825**

**Erie Canal Completed**

The 363-mile Erie Canal connected the Great Lakes to the Atlantic Ocean, significantly lowering transportation costs. It is considered one of the greatest technological feats of the nineteenth century.

**1826**

**First Locomotive in United States**

The Mohawk and Hudson Railroad became the first railroad in the United States to use a locomotive instead of horse-drawn or gravity railroads.

**1837**

**Emerson Writes *Nature***

Ralph Waldo Emerson helps to increase Americans' awareness and appreciation of nature, and ushers in the era of the nature essay in American literature.

**1839**

**Photography Invented**

Sir John Herschel coins the term photography from two Greek words photos, light, and graphein, to write. The next year, the first American patent related to photography was issued.

**1842**

**Martin v. Waddell Supreme Court Decision**

Martin v. Waddell establishes that it is the government's responsibility to hold wild nature in trust for the benefit of all citizens, resulting in the "public trust doctrine."

**1844**

**First Telegraph**

The telegraph was a communication system that sent electric signals over wires between two distinct locations. Samuel Morse, who developed the Morse Code, sent the first message by telegraph: *What hath God wrought?*

**1854**

**Thoreau Publishes *Walden***

Henry David Thoreau publishes his famous book detailing his experiences living in a cabin near Walden Pond. Thoreau considered Ralph Waldo Emerson to be a friend and mentor.



## Timeline Cards - Student Events

**1864**

### **Marsh publishes *Man and Nature***

George Perkins Marsh's book is the first in-depth analysis of environmental changes caused by humans. It is later re-titled *The Earth as Modified by Human Action: Man and Nature*.

**1869**

### **Transcontinental Railroad Completed**

Known as the "Pacific Railroad," the world's first railroad to cross an entire continent was completed in Promontory Summit, Utah. It opened shipping and commerce routes away from rivers and oceans.

**1871**

### **U.S. Commission of Fish and Fisheries Established**

It becomes the first Federal agency concerned with natural resources conservation, to study both the decline in coastal and inland food fish populations and their restoration.

**1872**

### **Yellowstone National Park Created**

Yellowstone is created as the first national park in the United States (and the world), for the "benefit and enjoyment of the people" and to be preserved in its natural state.

**1873**

### ***Forest and Stream* First Published**

A strong advocate for wildlife conservation, *Forest and Stream* is the forerunner to all other U.S. sporting magazines.

**1876**

### **First Telephone**

Alexander Graham Bell patented the first device that could transmit speech electrically across a distance.

**1887**

### **Boone and Crockett Club Forms**

Founded by explorers, sportsmen, scientists and political leaders, the Boone and Crockett Club promotes a "fair chase" hunting ethic and addresses national wildlife conservation issues.

**1891**

### **Forest Reserve Act**

The Forest Reserve Act empowers the President to create "forest reserves" and lays the foundation for the future National Forest system.



**Timeline Cards - Student Events**

**1892**

**Sierra Club Forms**

Founded by famous naturalist and nature writer, John Muir, the Sierra Club promotes an enduring legacy for America's wild places and strives toward safe and healthy communities.

**1893**

**First Gas-Powered Car in U.S.**

Charles and Frank Duryea produced the first gas-powered automobile in the United States. They would start selling them commercially three years later.

**1894**

**National Park Protective Act**

Also known as the Yellowstone Game Protection Act, this Act established the principle that national parks exist in part to protect wildlife and are not to be used for hunting.

**1900**

**Lacey Act**

The Lacey Act prohibits the transport of illegally taken game across state lines. It is the first Federal law protecting game.

**1903**

**First Airplane**

On December 17, the Wright Brothers would record the first successful human flight using an engine-powered airplane. Orville Wright would fly the craft 10 feet off the ground for 120 feet for 12 seconds.

**1903**

**Pelican Island Wildlife Refuge Created**

The first federally protected wildlife refuge in the United States is created, which later becomes part of the National Wildlife Refuge System.

**1905**

**Audubon Society Forms**

Although the roots of the Audubon Society can be traced earlier, the society became officially incorporated in 1905. Founded by a group of concerned Americans, it was formed primarily to protect birds from slaughter and use in fashion.

**1905**

**U.S. Forest Service Established**

The U.S. Forest Service is created with the Transfer Act of 1905. Gifford Pinchot becomes the first chief and implements a program of science-based forestry management.



## Timeline Cards - Student Events

**1908**

### **National Conservation Commission Created**

The National Conservation Commission is created to compile the first inventory of U.S. natural resources and make recommendations on resource management.

**1910**

### **Boy Scouts of America Incorporated**

Modeled after similar movements in other countries, the Boy Scouts of America was founded to teach basic values such as patriotism and self-reliance. There was a large focus on outdoor activities.

**1913**

### **Migratory Bird Act**

Also known as the Weeks-McLean Act, this Act allows the Federal government to regulate the hunting of migratory birds. It would later be replaced with the Migratory Bird Treaty Act.

**1916**

### **National Park Service Act**

This Act creates the National Park Service within the Department of the Interior "to conserve the scenery and the natural and historic objects and the wildlife therein...and to...leave them unimpaired for the enjoyment of future generations."

**1919**

### **Grand Canyon National Park Created**

Already being used for extensive mining and exploration, the designation of the Grand Canyon as a National Park ensured its protection and increased tourism to the area.

**1929**

### **Migratory Bird Conservation Act**

The Migratory Bird Conservation allows for land and water areas to be designated as reservations for migratory birds.

**1930**

### **Leopold Presents His Game Policy**

Aldo Leopold presents the first American Game Policy at the 17th American Game Conference, stating that wildlife should be scientifically managed.

**1934**

### **Duck Stamp Act**

Also known as the Migratory Bird Hunting Stamp Act, this Act requires that waterfowl hunters purchase a stamp before hunting. The revenue from the stamp is to be used for the protection of waterfowl and their habitat.



**Timeline Cards - Student Events**

**1936**

**Hoover Dam Completed**

This engineering marvel required over 200 engineers and 7,000 additional workers. It was developed to control flooding of the Colorado River and provide sustainable water and electricity to the arid Southwest.

**1937**

**Pittman-Robertson Act**

Also known as the Federal Aid in Wildlife Restoration Act, this Act placed a tax on guns and ammunition to provide state funding for wildlife management, restoration, research, and hunter education.

**1945**

**First Nuclear Weapon Tested**

Code named "Trinity," the first atomic bomb was tested at White Sands Proving Ground in New Mexico on July 16, beginning the "Atomic Age."

**1949**

**Leopold Publishes  
*A Sand County Almanac***

Published a year after his death, *A Sand County Almanac* would become one of Aldo Leopold's most influential books. It would set the tone for a "land ethic" still valued today.

**1950**

**Dingell-Johnson Fishery  
Restoration Act**

Also known as the Federal Aid in Sport Fish Restoration Act, this Act placed a tax on fishing tackle and boats to provide state funding for research and management of game fish species.

**1957**

**Sputnik Launched**

When the Soviet Union successfully launched the first Earth-orbiting artificial satellite, the United States was pushed to respond, forcing the countries into the "Space Race." The United States focused attention on science research and education.

**1961**

**First Person in Space**

Four years after putting up the first satellite, the Soviet Union would successfully send a man into space. Yuri Gagarin became the first human to travel into space and orbit the Earth.

**1962**

**Carson Publishes *Silent Spring***

Rachel Carson was already an established marine biologist and nature writer when she would publish *Silent Spring*. The book is credited with inspiring public outrage over pesticides and pollution.



## Timeline Cards - Student Events

**1964**

### **Wilderness Act**

This Act allows for the creation of wilderness areas on certain Federal lands, guaranteeing that many areas will be free from human development.

**1965**

### **Land and Water Conservation Fund Act**

This Act establishes a fund to acquire land and waters for recreational and conservation purposes.

**1969**

### **First Person on the Moon**

Despite early victories by the Soviet Union, the United States would become the first country to put a man on the moon. Neil Armstrong, a Navy test pilot, would achieve this feat on July 20.

**1969**

### **National Environmental Policy Act**

This U.S. law established policies to help protect the environment. Now, federal government agencies were required to consider the environmental impacts of all actions they took

**1970**

### **Environmental Protection Agency Created**

Created by President Richard Nixon, the EPA was established to set and enforce environmental regulations.

**1973**

### **Endangered Species Act**

This Act provides a program for the conservation of threatened and endangered plants and animals and their habitats.

**1997**

### **National Wildlife Refuge System Improvement Act**

This Act implements an ecosystem-based approach to wildlife conservation in all refuges.



Name: \_\_\_\_\_

## Conservation in Context Study Guide

Use the timeline you created in class to help answer the questions below.

1. What timeframe would you consider to be wildlife's "darkest hour"? Why?
2. What timeframe appears to be the most active for wildlife conservation events? What was happening in North America before and during this time that might have led to this?
3. Does it appear that conservation was influenced by other historical events, or did conservation influence those other events more? Explain your answer.
4. In what ways did science and technology influence conservation?
5. In what ways did society, art, and culture influence conservation?
6. In what ways did the major wars influence conservation?
7. How did the extinction of animals such as the passenger pigeon affect wildlife conservation?
8. In your opinion, what single event had the greatest impact on wildlife conservation in North America? Why?
9. Based on the status of wildlife conservation at the end of this timeline, do you believe that our conservation activities are increasing, decreasing, or remaining stable today?
10. What groups do you think will help shape wildlife conservation in the future?



Below are some of the events important to the wildlife conservation movement. Answer the questions for each one. Additional Internet links have been provided if you need more information.

### **Martin v. Waddell**

- <http://supreme.justia.com/us/41/367/case.html>
- [http://westvirginia.sierraclub.org/newsletter/archives/2005/07/a\\_001.html](http://westvirginia.sierraclub.org/newsletter/archives/2005/07/a_001.html)

- a. Briefly summarize this event in your own words.
  
  
  
  
  
  
  
  
  
  
- b. How was this event important to wildlife conservation in North America?

### **Boone and Crockett Club**

- <http://sports.espn.go.com/outdoors/hunting/columns/story?id=3636688>
- [http://www.boone-crockett.org/about/about\\_overview.asp?area=about](http://www.boone-crockett.org/about/about_overview.asp?area=about)

- a. Briefly summarize this event in your own words.
  
  
  
  
  
  
  
  
  
  
- b. How was this event important to wildlife conservation in North America?

### **Lacey Act**

- <http://www.fws.gov/pacific/news/2000/2000-98.htm>
- <http://library.findlaw.com/1999/Mar/18/128202.html>

- a. Briefly summarize this event in your own words.
  
  
  
  
  
  
  
  
  
  
- b. How was this event important to wildlife conservation in North America?



### **Pittman-Robertson Act**

- <http://www.fws.gov/southeast/federalaid/pittmanrobertson.html>
- [http://clerk.house.gov/art\\_history/highlights.html?action=view&intID=466](http://clerk.house.gov/art_history/highlights.html?action=view&intID=466)

- a. Briefly summarize this event in your own words.
  
  
  
  
  
  
  
  
  
  
- b. How was this event important to wildlife conservation in North America?

### **Dingell-Johnson Act**

- <http://www.fws.gov/southeast/federalaid/sportfishrestoration.html>
- <http://permanent.access.gpo.gov/lps52835/federalaid.fws.gov/sfr/fasfr.html>

- a. Briefly summarize this event in your own words.
  
  
  
  
  
  
  
  
  
  
- b. How was this event important to wildlife conservation in North America?



## KEY Conservation in Context Study Guide KEY

Use the timeline you created in class to help answer the questions below.

1. What timeframe would you consider to be wildlife's "darkest hour"? Why?

ANSWERS MAY VARY BUT STUDENTS SHOULD RECOGNIZE THAT THE EARLY 1900s WAS ONE OF THE WORST TIMES FOR WILDLIFE. FEW CONSERVATION LAWS HAD BEEN IN PLACE AND MANY WILDLIFE WERE GOING EXTINCT.

2. What timeframe appears to be the most active for wildlife conservation events? What was happening in North America before and during this time that might have led to this?

ANSWERS MAY VARY

3. Does it appear that conservation was influenced by other historical events, or did conservation influence those other events more? Explain your answer.

ANSWERS MAY VARY. STUDENTS SHOULD BE ABLE TO RECOGNIZE THAT CONSERVATION (LIKE ALL OTHER IDEAS) DOES NOT EXIST IN THE WORLD ALONE. IT IS INFLUENCED BY EXTERNAL EVENTS AND WILL INFLUENCE FUTURE EVENTS.

4. In what ways did science and technology influence conservation?

ANSWERS MAY VARY. ONE IMPORTANT DEVELOPMENT WAS THE SPREAD OF RAILROADS ACROSS THE CONTINENT. THIS MADE WESTERN WILDERNESSES ACCESSIBLE AND LOWERED SHIPPING COSTS.

5. In what ways did society, art, and culture influence conservation?

ANSWERS MAY VARY. STUDENTS MAY POINT OUT THAT EARLY NATURE, WRITERS LIKE EMERSON AND THOREAU WERE SETTING THE STAGE FOR AN APPRECIATION OF THE NATURAL WORLD.

6. In what ways did the major wars influence conservation?

ANSWERS MAY VARY.

7. How did the extinction of animals such as the passenger pigeon affect wildlife conservation?

ANSWER MAY VARY. STUDENTS SHOULD RECOGNIZE THAT MANY OF THESE WILDLIFE POPULATIONS WERE SO LARGE THAT THEY WERE CONSIDERED AN INEXHAUSTIBLE RESOURCE. UNDOUBTEDLY, THEIR LOSS CHANGED MANY PERCEPTIONS ABOUT OUR RESOURCE USE.

8. In your opinion, what single event had the greatest impact on wildlife conservation in North America? Why?

ANSWERS MAY VARY. THERE ARE MANY POSSIBILITIES TO CHOOSE FROM AND STUDENTS SHOULD UNDERSTAND THAT MANY FACTORS NEED TO WORK TOGETHER TO MAKE CONSERVATION SUCCESSFUL.

9. Based on the status of wildlife conservation at the end of this timeline, do you believe that our conservation activities are increasing, decreasing, or remaining stable today?

ANSWERS MAY VARY.

10. What groups do you think will help shape wildlife conservation in the future?

ANSWERS MAY VARY. STUDENTS SHOULD RECOGNIZE THAT SPORTSMEN'S GROUPS HAVE BEEN EXTREMELY INFLUENTIAL IN CONSERVATION TO DATE. THEY SHOULD BE ABLE TO EXPLAIN WHETHER THEY WILL CONTINUE IN THIS ROLE OR IF OTHER GROUPS WILL EMERGE AS CONSERVATION LEADERS.



Below are some of the events important to the wildlife conservation movement. Answer the questions for each one. Additional Internet links have been provided if you need more information.

### **Martin v. Waddell**

- <http://supreme.justia.com/us/41/367/case.html>
- [http://westvirginia.sierraclub.org/newsletter/archives/2005/07/a\\_001.html](http://westvirginia.sierraclub.org/newsletter/archives/2005/07/a_001.html)

a. Briefly summarize this event in your own words.

FIRST ESTABLISHED THE CONCEPT OF PUBLIC TRUST AS A LEGAL CONCEPT IN THE UNITED STATES. DETERMINED THAT NATURAL RESOURCES ARE HELD BY THE GOVERNMENT FOR THE BENEFIT OF ALL CURRENT AND FUTURE GENERATIONS.

b. How was this event important to wildlife conservation in North America?

THE PUBLIC TRUST DOCTRINE IS A KEYSTONE COMPONENT OF WILDLIFE CONSERVATION IN NORTH AMERICA. IT GRANTS AUTHORITY TO WILDLIFE MANAGEMENT AGENCIES TO SET REGULATIONS TO APPROPRIATELY MANAGE WILDLIFE.

### **Boone and Crockett Club**

- <http://sports.espn.go.com/outdoors/hunting/columns/story?id=3636688>
- [http://www.boone-crockett.org/about/about\\_overview.asp?area=about](http://www.boone-crockett.org/about/about_overview.asp?area=about)

a. Briefly summarize this event in your own words.

ONE OF THE MOST INFLUENTIAL SPORTING GROUPS THAT WOULD PUSH FOR THE DEVELOPMENT OF A HUNTING ETHIC FOR ALL SPORTSMEN TO ABIDE BY.

b. How was this event important to wildlife conservation in North America?

BOONE AND CROCKETT WERE ONE OF THE FIRST CITIZEN GROUPS THAT WOULD RECOGNIZE THE VALUE OF WILDLIFE FOR ALL.

### **Lacey Act**

- <http://www.fws.gov/pacific/news/2000/2000-98.htm>
- <http://library.findlaw.com/1999/Mar/18/128202.html>

a. Briefly summarize this event in your own words.

THIS ACT MADE IT ILLEGAL TO TRANSPORT ILLEGALLY TAKEN (POACHED) GAME ACROSS STATE LINES.

b. How was this event important to wildlife conservation in North America?

THIS MADE ENFORCEMENT OF STATE WILDLIFE LAWS MORE POTENT. NOW POACHERS COULD NOT JUST CROSS OVER STATE BORDERS AND BE FREE FROM PROSECUTION.



### **Pittman-Robertson Act**

- <http://www.fws.gov/southeast/federalaid/pittmanrobertson.html>
- [http://clerk.house.gov/art\\_history/highlights.html?action=view&intID=472](http://clerk.house.gov/art_history/highlights.html?action=view&intID=472)

- a. Briefly summarize this event in your own words.

THIS PLACED AN EXCISE TAX ON ALL SHOOTING EQUIPMENT AND FIREARMS PURCHASED IN THE UNITED STATES. THESE FUNDS WOULD BE USED FOR WILDLIFE RESTORATION PROJECTS. IN THE EARLY 1970s, THIS LAW WAS AMENDED TO INCLUDE HANDGUNS AND ARCHERY EQUIPMENT.

- b. How was this event important to wildlife conservation in North America?

THIS ACT CREATED ONE OF THE FIRST SIGNIFICANT FUNDING SOURCES FOR WILDLIFE CONSERVATION ACTIVITIES. TODAY IT CONTINUES TO BE ONE OF THE PRIMARY SOURCES OF MONEY FOR CONSERVATION.

### **Dingell-Johnson Act**

- <http://www.fws.gov/southeast/federalaid/sportfishrestoration.html>
- [http://www.fws.gov/southwest/federal\\_assistance/sfr.html](http://www.fws.gov/southwest/federal_assistance/sfr.html)

- a. Briefly summarize this event in your own words.

MODELED AFTER THE PITTMAN-ROBERSTON ACT, THIS PLACED AN EXCISE TAX ON ALL FISHING EQUIPMENT PURCHASED IN THE UNITED STATES. THESE FUNDS WOULD BE USED FOR AQUATIC RESTORATION PROJECTS.

- b. How was this event important to wildlife conservation in North America?

THIS ACT CREATED ONE OF THE MOST SIGNIFICANT FUNDING SOURCES FOR SPORTFISH CONSERVATION ACTIVITES. TODAY IT CONTINUES TO BE ONE OF THE PRIMARY SOURCES OF MONEY FOR CONSERVATION.



# AMERICA'S WILDLIFE – YESTERDAY, TODAY, AND TOMORROW

## Lesson 4 – On the Shoulders of Giants

### Time Frame

4-5 hours/periods

### Grades

High School

### Overview

Working either alone or in teams, students research selected individuals who championed conservation in the United States. A student research guide is provided along with website and book references to get students started on their research. Using information gathered, students then prepare a website or a Power-Point presentation for the rest of the class on their assigned individuals.

### Objectives

Students will:

- Research selected individuals who played important roles in the U.S. conservation movement.
- Use technology to conduct research.
- Analyze the impact individuals have had on wildlife conservation.
- Analyze ways people's actions can inspire others.
- Creatively present research findings to the class.

### Essential Questions

- Who were some significant historical figures that contributed to wildlife conservation?
- In what ways can individuals take action to affect positive change?
- How can people influence public opinion?
- How can life events influence people's attitudes and cause them to change over time?
- How can different professions contribute to conservation efforts?

### Materials and Resources

- *Historical Figures - Student Assignments*
- *Historical Figures - Research Guide*
- *Historical Figures - Study Guide*
- Computers with Internet access
- Reference books

### Standards Correlations

*Note: The full text of these standards can be found in Appendix A.*

#### AFWA Core Concepts

- 1.8; 1.9
- 2.1; 2.4
- 2.1; 3.2

#### NSES Content Standards

- History and Nature of Science:  
Science as a human endeavor

#### NCSS Curriculum Standards

- 4: a, e                      9: h
- 5: a, b                      10: b, e
- 6: a

#### Excellence in Environmental Education Guidelines for Learning

- 3.1: A
- 3.2: D
- 4: A, B, C



## Teacher Preparation

- Sign up for the computer lab and/or library.
- Print one copy of *Historical Figures - Student Assignments* and cut into individual historic figures (one per student or team).
- Print and copy *Historical Figures Research Guide* (one per student or group) and *Historical Figures Study Guide* (one per student).

## Background Information

This lesson works best if students are allowed to create their own website devoted to their assigned historical figure. This makes the information available to a larger audience and allows students to complete the final analysis on a more relaxed schedule. Ideally, your school or district has web space available for student websites. If this is not the case, there are many free web hosting sites that may work. It is recommended that you research these sites prior to performing this lesson. Some web hosting sites may be blocked by your district.

If you cannot, or choose not to, have students develop websites, then they should create brief PowerPoint presentations. These presentations can be combined to create one educational slideshow.

Rubrics have been provided for the website and rubric. These can be used as the assessment of the final product. It is assumed, however, that the teacher has experience or information on website or PowerPoint development. Specific details for how to have students develop each of these items is not included in this lesson.

Teachers and students should review the *PowerPoint Presentation - Parts 1 and 2* before this lesson. Students should also have completed Lesson 3 - *A Timeline of Wildlife Conservation in America*.

## Suggested Procedures

1. Assign each student or team an individual and hand out the appropriate sheet from *Historical Figures - Student Assignments*. (Students may have the option of selecting their own individuals.) Explain that each student or group will research their assigned individual and then create a website or PowerPoint presentation and share it with the class.
2. Hand out and review the *Historical Figures Research Guide*. Review research procedures and discuss appropriate "Works Cited" format.
3. Give students time to conduct their research. Research may be completed during additional class time or as homework.



4. Once students have completed the Historical Figures Research Guide, they should be allowed to begin the development of their website or PowerPoint. Be sure to review proper presentation guidelines as a class. Students should clearly address each point from their Historical Figures Research Guide in a creative and educational way.
5. Have students present their final products to the class. For websites, all student pages should be linked to a main (teacher) home page. Students should be given time, in class or at home, to review each of the webpages and complete the Historical Figures Study Guide. For PowerPoint presentations, provide adequate classroom time for each student or group to present. During presentations, students should complete the Historical Figures Study Guide.
6. Conduct a class discussion using the Essential Questions as a guide.

### Post-Assessment

Name historical figures and describe how they have contributed to wildlife conservation in the United States.

### Modifications

- Short biographies of each significant person can be created and given to students who are unable to do the research on their own. The biographies can be written at the appropriate reading level for those students.
- Students can be permitted to develop posters about their historical figures instead of creating electronic products.
- To save paper, students can access the *Historical Figures - Student Assignments* on-line.

### Extensions

- Have students identify and research other important individuals in conservation history who are not included in the *Historical Figures List*.
- Conduct a round table discussion with students playing the roles of their historical figures.
- Have a class party in which students attend in character.
- Invite a guest speaker from a local historical society to give a presentation on one of the historical figures.
- Have students pretend to interview their historical figures. One person in the group can respond to questions as if they are the individual. The interview can be recorded and turned into a podcast.

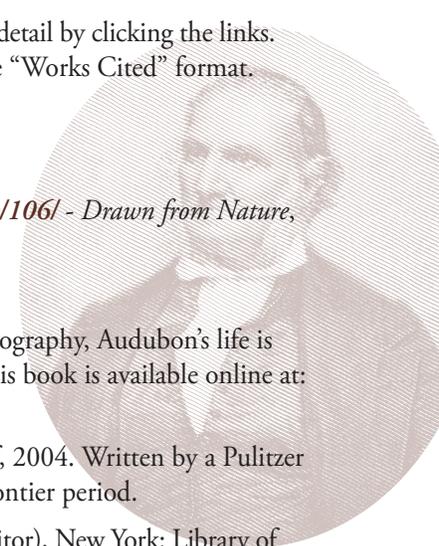


## Historical Figures - Student Assignments

### John James Audubon

Here are several resources to get you started. For some of the websites, you may need to explore in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

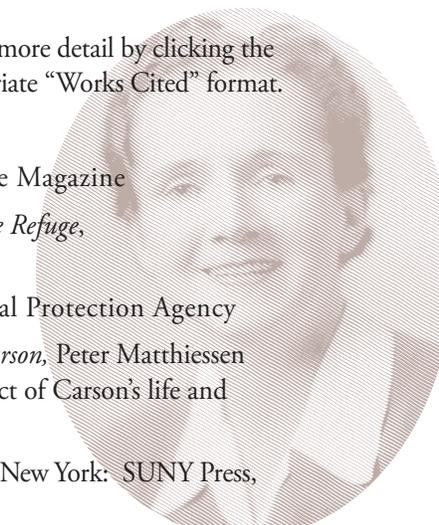
- <http://www.audubon.org/nas/jja.html> - National Audubon Society
- <http://monet.unk.edu/mona/artexplr/audubon/audubon.html> - Museum of Nebraska Art
- <http://www.pbs.org/wnet/americanmasters/episodes/john-james-audubon/drawn-from-nature/106/> - *Drawn from Nature*, PBS American Masters
- <http://www.notablebiographies.com/An-Ba/Audubon-John-James.html> - Notable Biographies
- *John James Audubon*, John Burroughs. Boston: Small, Maynard and Company, 1902. In this biography, Audubon's life is divided into three periods: his youth, his business career, and his career as an ornithologist. This book is available online at: <http://www.gutenberg.org/etext/7404>
- *John James Audubon: The Making of an American*, Richard Rhodes. New York: Alfred A. Knopf, 2004. Written by a Pulitzer Prize-winning historian, this book provides a portrait of Audubon and the U.S. of the early frontier period.
- *John James Audubon: Writings and Drawings*, John James Audubon and Christopher Irmscher (editor), New York: Library of America, 1999. This book contains a very comprehensive selection of Audubon's writings, along with many of his drawings.



### Rachel Carson

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

- <http://www.rachelcarson.org> - The Life and Legacy of Rachel Carson
- <http://www.time.com/time/magazine/article/0,9171,990622,00.html> - Rachel Carson, Time Magazine
- <http://www.fws.gov/northeast/rachelcarson/carsonbio.html> - *Rachel Carson National Wildlife Refuge*, U.S. Fish and Wildlife Service, Northeast Region
- <http://www.epa.gov/history/topics/perspect/carson.htm> - Biography from the Environmental Protection Agency
- *Courage for the Earth: Writers, Scientists, and Activists Celebrate the Life and Writing of Rachel Carson*, Peter Matthiessen (editor). Boston: Mariner Books, 2007. This book is a collection of essays describing the impact of Carson's life and writings on the authors' lives as well as the world.
- *Rachel Carson: Legacy and Challenge*, Lisa H. Sideris and Kathleen Dean Moore (editors). Albany, New York: SUNY Press, 2008. This collection of essays examines Carson's books, speeches, essays, and letters.
- *Rachel Carson: Witness for Nature*, Linda Lear. New York: Henry Holt and Company, 1997. This biography describes how the famous nature writer became an environmental reformer.
- *Environmental Pioneers*, Patricia Byrnes. Minneapolis, Minnesota: The Oliver Press, Inc., 1998. There is a chapter on Carson in this book about influential people in the environmental movement.
- *Silent Spring*, Rachel Carson. Boston: Houghton Mifflin, 1962. This landmark book exposed the hazards of pesticides on the environment.



## Historical Figures - Student Assignments

### Jay Norwood “Ding” Darling

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate “Works Cited” format.

- <http://www.fws.gov/dingdarling/About/DingDarling.html> - J.N. “Ding” Darling National Wildlife Refuge
- [http://www.inhf.org/ecology\\_college/ding\\_darling/dingdarling.htm](http://www.inhf.org/ecology_college/ding_darling/dingdarling.htm) - Iowa Natural Heritage Foundation
- <http://digital.lib.uiowa.edu/ding/who.html> - The Editorial Cartoons of J.N. Ding Darling, Iowa Digital Library
- <http://www.dingdarling.org/about.html> - The Ding Darling Foundation
- *Ding: The Life of Jay Norwood Darling*, David L. Lendt. Ames, Iowa: Iowa State University Press, 1979. This award-winning biography not only describes the life of Darling, but also provides a history of the early conservation movement in the United States. This book is available online at: <http://www.ding-darling.org/darling.pdf>
- *Environmental Pioneers*, Patricia Byrnes. Minneapolis, Minnesota: The Oliver Press, Inc., 1998. One chapter of this book about influential people in the environmental movement is about Darling.
- *J.N. “Ding” Darling Conservation and Wildlife Cartoons*, J.N. Darling. Iowa City, University of Iowa, 1988. This is a book containing 50 of Darling’s cartoons related to wildlife conservation.

### George Bird Grinnell

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate “Works Cited” format.

- <http://www.rmef.org/NewsandMedia/PubsTV/Bugle/2004/NovDec/Features/Grinnell.htm> - “George Bird Grinnell: The Father of American Conservation, Part 1,” *Bugle* (The Journal of the Rocky Mountain Elk Foundation), Volume 21, Issue 6, November/December 2004
- <http://www.rmef.org/NewsandMedia/PubsTV/Bugle/2005/JanFeb/Features/Grinnell.htm> - “George Bird Grinnell: The Father of American Conservation, Part 2,” *Bugle* (The Journal of the Rocky Mountain Elk Foundation), Volume 23, Issue 1, January/February 2005
- [http://www.fws.gov/refuges/history/bio/grinnell\\_fs.html](http://www.fws.gov/refuges/history/bio/grinnell_fs.html) - History of the National Wildlife Refuge System, US Fish and Wildlife Service
- [http://www.mnsu.edu/emuseum/information/biography/fghij/grinnell\\_george\\_bird.html](http://www.mnsu.edu/emuseum/information/biography/fghij/grinnell_george_bird.html) - emuseum @ Minnesota State University, Mankato
- *Last Stand: George Bird Grinnell, the Battle to Save the Buffalo, and the Birth of the New West*, Michael Punke. New York: Harper Collins, 2007. Last Stand is about the destruction of the great buffalo herds and how Grinnell became one of the leaders of America’s conservation movement.
- *American Big Game in Its Haunts: The Book of the Boone and Crockett Club*, George Bird Grinnell, New York: Forest and Stream Publishing Company, 1904. This book describes the Club’s participation in conservation action through a variety of articles on hunting, wildlife, and wilderness preservation, and natural history by prominent members, including President Roosevelt and George Bird Grinnell.



## Historical Figures - Student Assignments

### William T. Hornaday

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

#### Websites

- <http://usscouts.org/history/hornadaybiography.asp> - U.S. Scouting Service Project
- <http://siarchives.si.edu/history/exhibits/documents/hornaday.htm> - Smithsonian Scrapbook: Letters, Diaries, and Photographs from the Smithsonian Archives
- [http://www.iptv.org/video/detail.cfm/3024/lii\\_19940520\\_0427\\_clip](http://www.iptv.org/video/detail.cfm/3024/lii_19940520_0427_clip) - William T. Hornaday - Saver of Buffalo, National Zoo Founder (7 minute video clip), Iowa Public Television
- <http://nationalzoo.si.edu/AboutUs/History/hornaday.cfm> - Smithsonian National Zoological Park

#### Books

- *Our Vanishing Wildlife: Its Extermination and Preservation*, William T. Hornaday. New York: Charles Scribner's Sons, 1913. *Our Vanishing Wildlife* reviews the history and causes of wildlife destruction in America and elsewhere, and describes ways to ensure the protection of remaining wildlife for the future. This book is available online at: <http://www.gutenberg.org/etext/13249>
- *The Extermination of the American Bison*, William T. Hornaday, Washington Government Printing Office, 1889. This book describes the near extinction of the American Bison including reasons for the decline and past and current population numbers. It also suggests strategies for saving the bison. This book is available online at: <http://www.gutenberg.org/etext/17748>

### Aldo Leopold

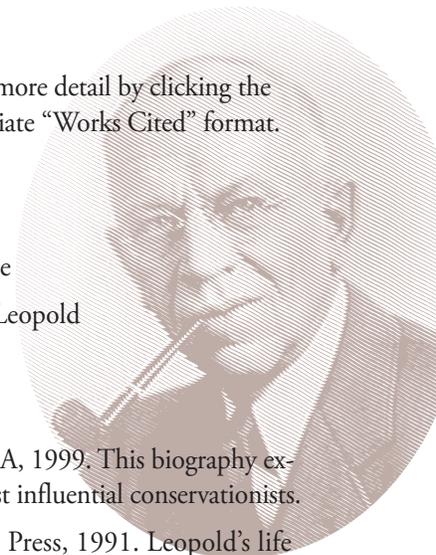
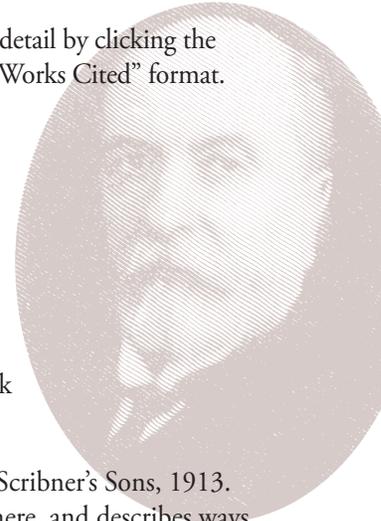
Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

#### Websites

- [http://www.aldoleopold.org/about/leopold\\_bio.shtml](http://www.aldoleopold.org/about/leopold_bio.shtml) - The Aldo Leopold Foundation
- <http://leopold.wilderness.net/aboutus/aldo.htm> - Aldo Leopold Wilderness Research Institute
- <http://gargravarr.cc.utexas.edu/chrisj/leopold-quotes.html> - Excerpts from the Works of Aldo Leopold
- <http://wilderness.org/about-us/aldo-leopold> - The Wilderness Society

#### Books

- *Aldo Leopold: A Fierce Green Fire*, Marybeth Lorbiecki. New York: Oxford University Press, USA, 1999. This biography examines the background, early inspirations, and lifetime achievements of one of this century's most influential conservationists.
- *Aldo Leopold: His Life and Work*, Curt Meine. Madison, Wisconsin: University of Wisconsin Press, 1991. Leopold's life is described in historical context, making this book a study in the evolution of ecology and American conservation.
- *Aldo Leopold's Odyssey*, Julianne Lutz Newton. Washington, D.C.: Island Press, 2006. More than a biography, this book not only depicts Leopold's personal and professional life, but also explores how he played a fundamental role in American environmentalism.
- *Environmental Pioneers*, Patricia Byrnes. Minneapolis, Minnesota: The Oliver Press, Inc., 1998. One chapter of this book about influential people in the environmental movement is about Leopold.
- *A Sand County Almanac*, Aldo Leopold. New York: Oxford University Press, 1949. This classic book of nature writing, published shortly after Leopold's death, is considered one of the most important nature books ever published.



## Historical Figures - Student Assignments

### George Perkins Marsh

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

#### Websites

- <http://www.rmef.org/NewsandMedia/PubsTV/Bugle/2004/JulyAug/Features/Triumph.htm> - "The North American Wildlife Conservation Model: Triumph For Man and Nature," Bugle (The Journal of the Rocky Mountain Elk Foundation), Volume 21, Issue 4, July/August 2004.
- <http://www.clarku.edu/departments/marsh/about/> - Clark University, George Perkins Marsh Institute
- <http://www.wilderness.net/index.cfm?fuse=feature0308> - Wilderness.net
- [http://www.eoearth.org/article/Marsh,\\_George\\_Perkins](http://www.eoearth.org/article/Marsh,_George_Perkins) - The Encyclopedia of Earth

#### Books

- *A Word for Nature: Four Pioneering Environmental Advocates, 1845-1913*, Robert L. Dorman. Chapel Hill, N.C.: University of North Carolina Press, 1998. One chapter of this book is about Marsh.
- *George Perkins Marsh: Prophet of Conservation*, David Lowenthal. Seattle, Washington: University of Washington Press, 2000. This biography not only recounts Marsh's life, but also describes the time in which Marsh lived.
- *So Great a Vision: The Conservation Writings of George Perkins Marsh*, George Perkins Marsh and Stephen C. Trombulak (editor). Hanover, New Hampshire: University Press of New England, 2001. This book includes the important conservation writings of Marsh, annotated in the context of modern conservation thinking.
- *Man and Nature: or, Physical Geography as Modified by Human Action*, George Perkins Marsh. New York: C. Scribner and Co., 1864. This book was one of the most significant advances in geography, ecology, and resource management of the 19th century.

### John Muir

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

#### Websites

- <http://www.rmef.org/NewsandMedia/PubsTV/Bugle/2005/MayJun/Features/Muir.htm> - "The American Wilderness and John Muir, Part 1," Bugle (The Journal of the Rocky Mountain Elk Foundation), Volume 22, Issue 3, May/June 2005.
- <http://www.rmef.org/NewsandMedia/PubsTV/Bugle/2005/NovDec/Features/Muir.htm> - "The American Wilderness and John Muir, Part 2," Bugle (The Journal of the Rocky Mountain Elk Foundation), Volume 22, Issue 6, Nov/Dec 2005.
- <http://www.notablebiographies.com/Mo-Ni/Muir-John.html> - Notable Biographies
- [http://www.sierraclub.org/john\\_muir\\_exhibit/](http://www.sierraclub.org/john_muir_exhibit/) - Sierra Club

#### Books

- *A Passion for Nature: The Life of John Muir*, Donald Worster. New York: Oxford University Press, 2008. This book is written by one of America's foremost environmental historians and is based on Muir's private correspondence.
- *A Word for Nature: Four Pioneering Environmental Advocates, 1845-1913*, Robert L. Dorman. Chapel Hill, North Carolina: University of North Carolina Press, 1998. One chapter of this book is about Muir.
- *Environmental Pioneers*, Patricia Byrnes. Minneapolis, Minnesota: The Oliver Press, Inc., 1998. One chapter of this book about influential people in the environmental movement is about Muir.
- *The Wilderness World of John Muir*, John Muir and Edwin Way Teale (editor). Boston: Houghton Mifflin Harcourt, 2001. This book uses the best of Muir's journal writings to examine his life and times.

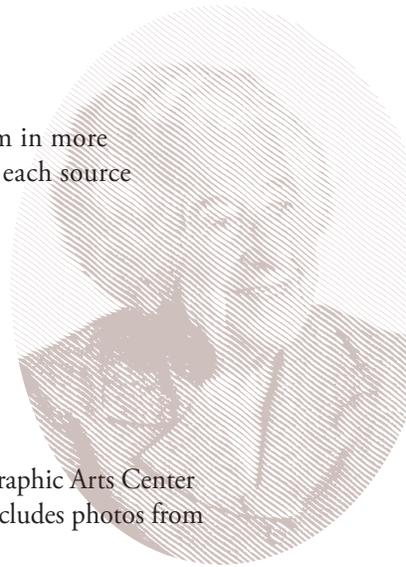


## Historical Figures - Student Assignments

### Mardy Murie

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

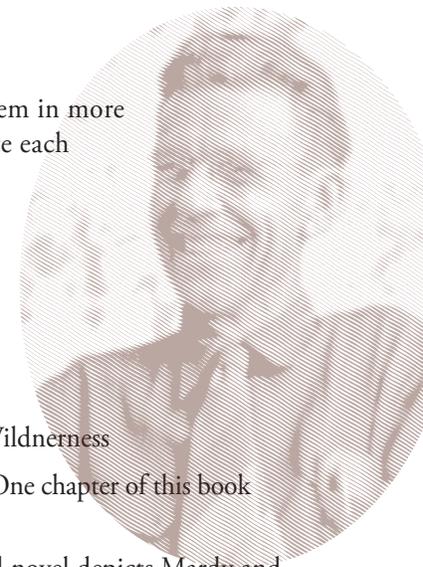
- <http://www.muriecenter.org/murie-legacy/mardy/> - The Murie Center
- <http://www.litsite.org/index.cfm?section=Digital-Archives&page=People-of-the-North&cat=Explorers-and-Adventurers&viewpost=2&ContentId=2566> - LitSite Alaska
- <http://www.npr.org/templates/story/story.php?storyId=860015> - National Public Radio
- <http://wilderness.org/content/mardy-murie> - The Wilderness Society
- *Arctic Dance: The Mardy Murie Story*, Charles Craighead and Bonnie Kreps. Portland, Oregon: Graphic Arts Center Publishing Company, 2002. This biography, based on a documentary video of the same name, includes photos from Mardy's personal collection and excerpts from her letters and journals.
- *Environmental Pioneers*, Patricia Byrnes. Minneapolis, Minnesota: The Oliver Press, Inc., 1998. One chapter of this book about influential people in the environmental movement is about the Muries.
- *Two in the Far North*, Mardy Murie. New York: Alfred A. Knopf, Inc., 1962. This biographical novel depicts Mardy and Olaus Murie's lives spent fighting for the preservation of the final wilderness frontiers of Alaska. Illustrations are by Olaus Murie.



### Olaus Murie

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

- <http://www.muriecenter.org/murie-legacy/olaus/> - The Murie Center.
- [http://www.nps.gov/history/history/online\\_books/sontag/murie.htm](http://www.nps.gov/history/history/online_books/sontag/murie.htm) - National Park Service: The First 75 Years
- <http://www.rpts.tamu.edu/Pugsley/Murie.htm> - American Academy for Parks and Recreation, Cornelius Amory Pugsley Local Medal Award, 1953
- [http://www.wilderness.net/library/documents/Apr03\\_glover.pdf](http://www.wilderness.net/library/documents/Apr03_glover.pdf) - International Journal of Wilderness
- *Environmental Pioneers*, Patricia Byrnes. Minneapolis, Minnesota: The Oliver Press, Inc., 1998. One chapter of this book about influential people in the environmental movement is about the Muries.
- *Two in the Far North*, Mardy Murie. New York: Alfred A. Knopf, Inc., 1962. This biographical novel depicts Mardy and Olaus Murie's lives spent fighting for the preservation of the final wilderness frontiers of Alaska. Illustrations are by Olaus Murie.



## Historical Figures - Student Assignments

### Gifford Pinchot

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

#### Websites

- <http://www.foresthistory.org/ASPNET/people/Pinchot/Pinchot.aspx> - The Forest History Society
- <http://toto.lib.unca.edu/findingaids/photo/usfs/biographies/pinchot.htm> - University of North Carolina at Asheville
- <http://www.fs.fed.us/gt/local-links/historical-info/gifford/gifford.shtml> - U.S. Forest Service, Gray Towers National Historic Landmark
- [http://www.pabook.libraries.psu.edu/palitmap/bios/Pinchot\\_\\_Gifford.html](http://www.pabook.libraries.psu.edu/palitmap/bios/Pinchot__Gifford.html) - The Pennsylvania Center for the Book

#### Books

- *Gifford Pinchot and the Making of Environmental Modernism*, Char Miller. Washington, D.C.: Island Press, 2004.
- *The Conservation Diaries of Gifford Pinchot*, Gifford Pinchot and Harold K. Steen (editor). Dunham, North Carolina: The Forest History Society, 2001. Pinchot's diary entries from 1889-1946 are organized by topic, with each section introduced by the editor with contextual and background information.
- *Breaking New Ground*, Gifford Pinchot. Washington, D.C.: Island Press, 2004 (originally published 1947). This special commemorative edition of Pinchot's autobiography includes an introduction examining Pinchot's career in the context of his personal life as well as social and environmental issues of his time.

### John Wesley Powell

Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

#### Websites

- <http://www.powellmuseum.org/MajorPowell.html> - John Wesley Powell Historical Museum
- <http://www.pbs.org/wgbh/amex/canyon/peopleevents/pandeAMEX05.html> - PBS, The American Experience
- <http://www.nps.gov/archive/grca/photos/powell/pages/career.htm> - Grand Canyon National Park
- [http://www.desertusa.com/magnov97/nov\\_pap/du\\_jwpowell.html](http://www.desertusa.com/magnov97/nov_pap/du_jwpowell.html) - Desert USA

#### Books

- *A River Running West: The Life of John Wesley Powell*, Donald Worster. New York: Oxford University Press, 2001. Written by a leading Western historian, this biography describes Powell's adventures and their historical significance.
- *A Word for Nature: Four Pioneering Environmental Advocates, 1845-1913*, Robert L. Dorman. Chapel Hill, North Carolina: University of North Carolina Press, 1998. One chapter of this book is about Powell.
- *Beyond the Hundredth Meridian: John Wesley Powell and the Second Opening of the West*, Wallace Earle Stegner. Boston: Houghton Mifflin, 1954. This book is not only a biography of Powell, but also an account of the problems of the settlement of the West at the end of the 19th century.
- *The Exploration of the Colorado River and its Canyons*, John Wesley Powell. Courier Dover Publications, 1961 (originally published 1869). "Full text of Powell's 1,000-mile expedition down the fabled Colorado in 1869. Superb account of terrain, geology, vegetation, Indians, famine, mutiny, treacherous rapids, mighty canyons."



## Historical Figures - Student Assignments

### Theodore Roosevelt

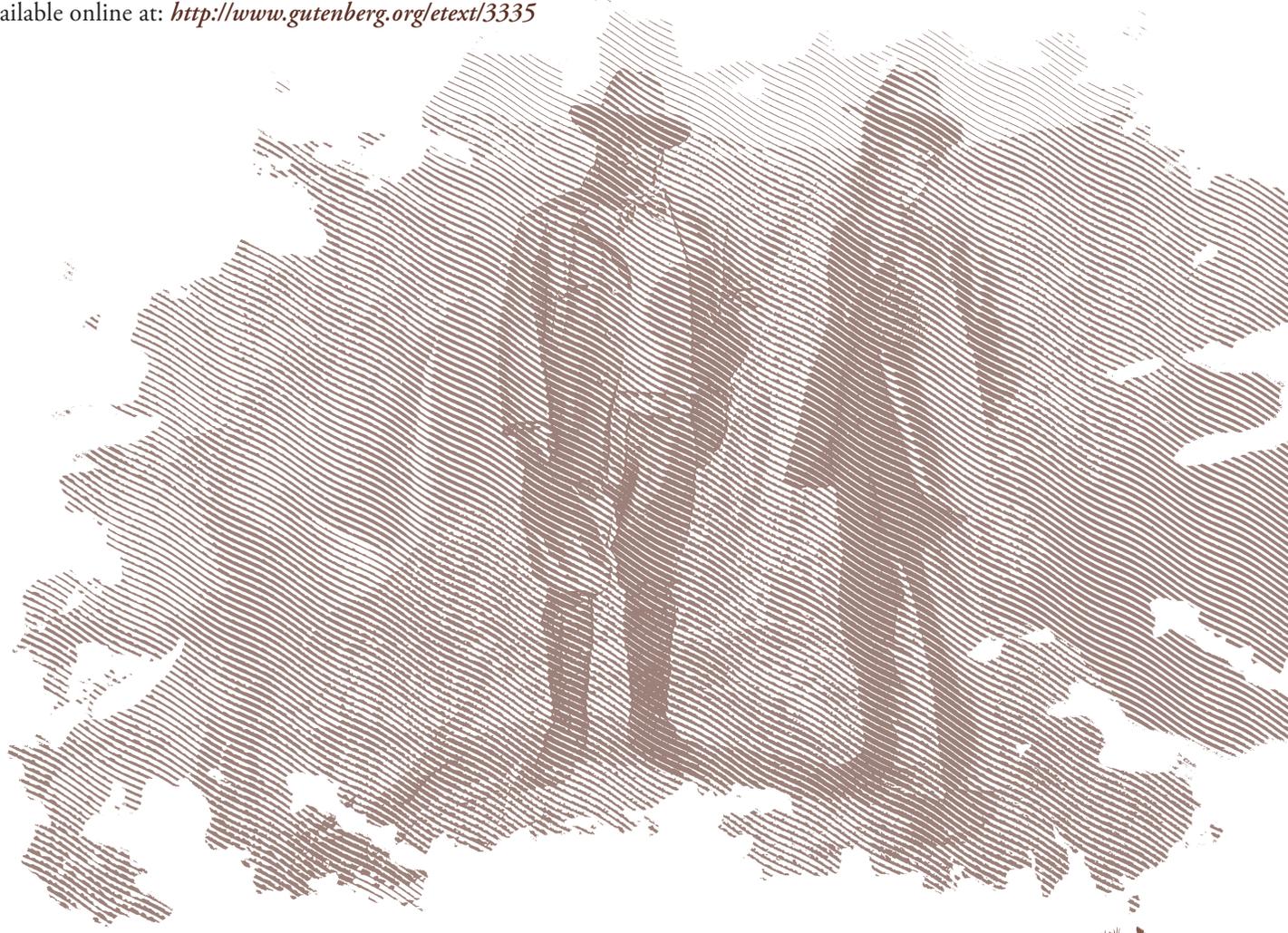
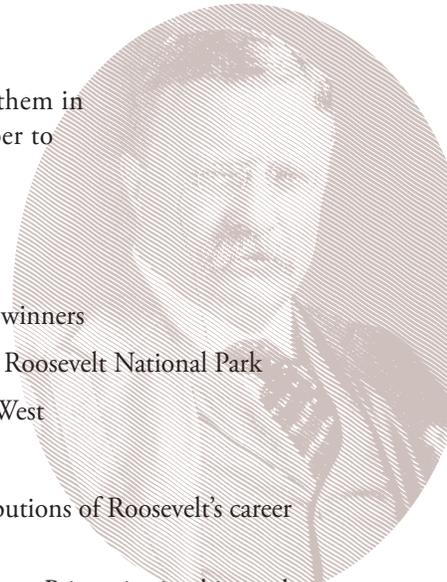
Here are several resources to get you started. For some of the websites, you may need to explore them in more detail by clicking the links. Some of the books included may be available on-line. Remember to cite each source using appropriate "Works Cited" format.

#### Websites

- <http://www.theodoreroosevelt.org/> - Theodore Roosevelt Association
- [http://nobelprize.org/nobel\\_prizes/peace/laureates/1906/roosevelt-bio.html](http://nobelprize.org/nobel_prizes/peace/laureates/1906/roosevelt-bio.html) - Nobel Prize winners
- <http://www.nps.gov/throl/historyculture/theodore-roosevelt-and-conservation.htm> - Theodore Roosevelt National Park
- [http://www.pbs.org/weta/thewest/people/i\\_r/roosevelt.htm](http://www.pbs.org/weta/thewest/people/i_r/roosevelt.htm) - PBS New Perspectives on the West

#### Books

- *Theodore Roosevelt*, Louis Auchincloss. New York: Times Books, 2002. The important contributions of Roosevelt's career and administration are described in this biography.
- *Theodore Roosevelt: A Biography*, Henry F. Pringle. New York: Harcourt Brace, 1931. This Pulitzer Prize-winning biography examines the events that shaped Roosevelt's career.
- *Theodore Roosevelt: An Autobiography*, Theodore Roosevelt. NY: The McMillan Company, 1913. Roosevelt's autobiography provides a look at the formation of his political ideals, as well as his interest in nature. This book is available online at: <http://www.gutenberg.org/etext/3335>



## Historical Figures - Research Guide

Complete the research guide below. Use the references from your *Historical Figures - Student Assignments* to get started. Use additional paper if necessary. When your research is complete, work on a creative way to share your information with the rest of the class, as determined by your teacher.

Name of Historical Figure:

Birth/Death Dates:

Description of Childhood:

Significant life events:

How did this person contribute to conservation in the United States?

What was this person's profession and how did he/she apply this profession toward wildlife conservation?

Where did this person live and how did it influence his/her attitudes towards wildlife and the environment?

Describe any significant event(s) that inspired this person's actions.



## Historical Figures - Research Guide

Name people who influenced this person and describe how they influenced him or her.

What groups or types of people do you think this person has inspired or is likely to inspire? Explain.

Was this person a hunter or angler?

Describe this person's values toward wildlife and the environment.

Describe how this person's attitudes/actions changed over time.

Describe at least one way you are similar to this person and one way you are different from this person.

Works Cited (sources):





## Historical Figures - Study Guide

### Jay Norwood "Ding" Darling

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### George Bird Grinnell

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### William T. Hornaday

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### Aldo Leopold

How did this person contribute to conservation in the United States?

List three interesting facts about this person:



## Historical Figures - Study Guide

### George Perkins Marsh

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### John Muir

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### Mardy Murie

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### Olaus Murie

How did this person contribute to conservation in the United States?

List three interesting facts about this person:



## Historical Figures - Study Guide

### Gifford Pinchot

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### John Wesley Powell

How did this person contribute to conservation in the United States?

List three interesting facts about this person:

### Theodore Roosevelt

How did this person contribute to conservation in the United States?

List three interesting facts about this person:



Name: \_\_\_\_\_

## KEY Historical Figures - Study Guide KEY

As you learn about the various historical figures, answer the questions in each appropriate box. When you have studied each individual, answer the questions below.

Questions for Review:

1. To which of the historical figures are you most similar? Explain.

ANSWERS MAY VARY.

2. Famous scientist Sir Isaac Newton once stated: "If I have seen further, it was by standing on the shoulders of giants." What do you think Newton meant? How is this relevant to wildlife conservation in North America?

ANSWERS MAY VARY. STUDENTS SHOULD UNDERSTAND THAT NEWTON WAS CLAIMING THAT HE COULD NOT HAVE MADE HIS DISCOVERIES IF IT HAD NOT BEEN FOR THE SCIENTISTS AND PEOPLE WHO CAME BEFORE HIM.

3. In your opinion, do you believe these figures come from diverse backgrounds and careers or are they similar? How has that diversity (or lack of diversity) impacted the conservation movement?

ANSWERS MAY VARY. STUDENTS SHOULD RECOGNIZE THAT THESE INDIVIDUALS REPRESENT DIVERSE BACKGROUNDS. ULTIMATELY, THIS DIVERSITY HELPED CONSERVATION BECAUSE PEOPLE WERE ABLE TO SEE PROBLEMS FROM DIFFERENT PERSPECTIVES AND DEVELOP RELEVANT AND UNIQUE SOLUTIONS.

John James Audubon	Rachel Carson
<p>How did this person contribute to conservation in the United States?</p> <p style="color: red; font-weight: bold;">A HIGHLY SUCCESSFUL WILDLIFE ARTIST WHO ATTEMPTED TO PAINT EVERY BIRD FOUND IN THE UNITED STATES. HIS NAME WOULD BE THE BASIS FOR THE AUDUBON SOCIETY.</p> <p>List three interesting facts about this person:</p> <p style="color: red;">ANSWERS MAY VARY.</p>	<p>How did this person contribute to conservation in the United States?</p> <p style="color: red; font-weight: bold;">FAMOUS WRITER AND BIOLOGIST. HER BOOK <i>SILENT SPRING</i> SOUNDED AN ALARM TO AMERICA ABOUT THE DANGERS OF PESTICIDES TO WILDLIFE.</p> <p>List three interesting facts about this person:</p> <p style="color: red;">ANSWERS MAY VARY.</p>



## KEY Historical Figures - Study Guide KEY

### Jay Norwood "Ding" Darling

How did this person contribute to conservation in the United States?

DREW NUMEROUS EDITORIAL CARTOONS FOCUSED ON WILDLIFE CONSERVATION. WAS THE DIRECTOR OF THE U.S. BIOLOGICAL SURVEY AND DEVELOPED THE FIRST DUCK STAMP TO PROVIDE FUNDING FOR WATERFOWL CONSERVATION.

List three interesting facts about this person:

ANSWERS MAY VARY.

### George Bird Grinnell

How did this person contribute to conservation in the United States?

WAS EDITOR OF *FIELD AND STREAM* MAGAZINE, INFLUENCING THE PASSAGE OF MANY CONSERVATION LAWS. FOUNDED THE AUDUBON SOCIETY OF NEW YORK.

List three interesting facts about this person:

ANSWERS MAY VARY.

### William T. Hornaday

How did this person contribute to conservation in the United States?

LARGELY CREDITED WITH HELPING TO KEEP THE AMERICAN BISON AND ALASKAN FUR SEAL FROM EXTINCTION. HELPED CREATE THE NATIONAL ZOO. WROTE MANY BOOKS AND ARTICLES THAT HELPED PASS NUMEROUS CONSERVATION LAWS.

List three interesting facts about this person:

ANSWERS MAY VARY.

### Aldo Leopold

How did this person contribute to conservation in the United States?

IS CONSIDERED THE "FATHER OF WILDLIFE MANAGEMENT" FOR HIS WORK TO DEVELOP A SCIENCE-BASED CAREER IN WILDLIFE MANAGEMENT. HELPED FOUND THE WILDERNESS SOCIETY.

List three interesting facts about this person:

ANSWERS MAY VARY.



## KEY Historical Figures - Study Guide KEY

### George Perkins Marsh

How did this person contribute to conservation in the United States?

OFTEN CONSIDERED TO BE AMERICA'S FIRST ENVIRONMENTALIST. WAS ONE OF THE FIRST TO SHOW HOW HUMAN ACTIVITIES CAN BE EXTREMELY DESTRUCTIVE TO THE ENVIRONMENT.

List three interesting facts about this person:

ANSWERS MAY VARY.

### John Muir

How did this person contribute to conservation in the United States?

CREATED THE SIERRA CLUB. PUSHED FOR YOSEMITE VALLEY TO BECOME A NATIONAL PARK.

List three interesting facts about this person:

ANSWERS MAY VARY.

### Mardy Murie

How did this person contribute to conservation in the United States?

PLAYED A SIGNIFICANT ROLE IN LAND CONSERVATION IN ALASKA. IS LARGELY RESPONSIBLE FOR THE ARCTIC NATIONAL WILDLIFE REFUGE AS WELL AS THE ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT, WHICH ADDED MILLIONS OF ACRES TO NATIONAL PARKS AND NATIONAL WILDLIFE REFUGES.

List three interesting facts about this person:

ANSWERS MAY VARY.

### Olaus Murie

How did this person contribute to conservation in the United States?

WAS THE FIRST PRESIDENT OF THE WILDERNESS SOCIETY. IS LARGELY RESPONSIBLE FOR THE ARCTIC NATIONAL WILDLIFE REFUGE AND THE PASSAGE OF THE WILDERNESS ACT.

List three interesting facts about this person:

ANSWERS MAY VARY.



## KEY Historical Figures - Study Guide KEY

### Gifford Pinchot

How did this person contribute to conservation in the United States?

HELPED FOUND THE SOCIETY OF AMERICAN FORESTRY. WAS THE NATION'S FIRST SCIENTIFICALLY TRAINED FORESTER AND THE FIRST HEAD OF THE U.S. FOREST SERVICE.

List three interesting facts about this person:

ANSWERS MAY VARY.

### John Wesley Powell

How did this person contribute to conservation in the United States?

MADE THE FIRST BOAT TRIP THROUGH THE GRAND CANYON. AS DIRECTOR OF THE U.S. GEOLOGIC SURVEY, HE MADE NUMEROUS CONTRIBUTIONS TO THE FIELD OF GEOLOGY. HE ALSO PUSHED FOR BETTER PLANNING OF THE ARID LANDS IN THE WEST.

List three interesting facts about this person:

ANSWERS MAY VARY.

### Theodore Roosevelt

How did this person contribute to conservation in the United States?

HELPED FOUND THE BOONE AND CROCKETT CLUB. AS PRESIDENT, HE CREATED THE U.S. FOREST SERVICE AND ESTABLISHED NUMEROUS NATIONAL PARKS, MONUMENTS, AND WILDLIFE REFUGES.

List three interesting facts about this person:

ANSWERS MAY VARY.



Name: \_\_\_\_\_

## Historical Figures - PowerPoint Rubric

Use this rubric to evaluate your web page. A "0" can be awarded if the category is missing entirely. If project was done individually, ignore the Teamwork category.

	1	2	3	4	Your Score
<b>Content</b>	Main idea is not clear. Content contains incorrect or unrelated information. It is not presented in a logical order.	Main idea of the presentation is not clear. Content has accurate information. It is not presented in a logical order.	Main idea of the presentation is clear. Content has accurate information. It may not be in a logical order but is still easy to follow.	Main idea of the presentation is clear. Content has accurate and useful information, and is presented in a logical order.	
<b>Writing Skill</b>	The text has many spelling and grammar errors. The writing is difficult to understand.	The text has a few spelling and grammar errors. The writing could be made more succinct.	The text has no spelling or grammar errors. The writing could be made more succinct.	The text has no spelling or grammar errors. The writing is clear and concise.	
<b>Appearance</b>	Background and text are not consistent. Text is difficult to read throughout the presentation. Slide transitions distract from the overall presentation.	Background and text may change throughout the presentation. Text can be difficult to read at times. Slide transitions may not be smooth.	Background and text may change throughout the presentation but text remains readable. Slide transitions are smooth.	Background and text (size and color) complement each other and are consistent throughout presentation. Slide transitions are smooth and enhance presentation.	
<b>Creativity</b>	Presentation shows no creativity. Content is cut-and-pasted from other sources.	Presentation shows little creativity. Content is collection of other people's ideas.	Presentation shows some level of creativity. Some content is new and original.	Presentation shows significant level of creativity. Much of the content is original thoughts and ideas.	
<b>Images</b>	Some images are related to content.	Most images are related to content.	Most images are related to content. They have proper size, resolution, and cropping.	Images are unique and related to content. They have proper size, resolution, and cropping.	
<b>Copyright and Fair Use</b>	Sources have not been properly cited AND permission to use graphics has not been received.	Sources have not been properly cited OR permission to use graphics has not been received.	All sources are properly cited. Permission to use graphics has been received but is not clearly evident in presentation.	All sources are properly cited. Permission to use graphics has been received and is clearly evident in presentation.	
<b>Teamwork</b>	One or two people did all or most of the work.	Most team members contributed but workloads were not equal.	Workload was divided and shared equally. However, individual parts were created with little collaboration.	Work was divided and shared equally by all team members. Team worked collaboratively toward goal.	



Name: \_\_\_\_\_

## Historical Figures - Web Page Rubric

Use this rubric to evaluate your web page. A “0” can be awarded if the category is missing entirely. If project was done individually, ignore the Teamwork category.

	1	2	3	4	Your Score
<b>Content</b>	Main idea is not clear. Content contains incorrect or unrelated information.	Main idea of the web page is not clear. Content has accurate information.	Main idea of the web page is clear. Content has accurate information.	Main idea of the web page is clear. Content has accurate and useful information. Web site provides opportunities for readers to learn more.	
<b>Writing Skill</b>	The text has many spelling and grammar errors. The writing is difficult to understand.	The text has a few spelling and grammar errors. The writing could be made more succinct.	The text has no spelling or grammar errors. The writing could be made more succinct.	The text has no spelling or grammar errors. The writing is clear and concise.	
<b>Appearance</b>	Page is difficult to navigate and understand. Information is not presented in a logical sequence. Some links may be broken.	Page supports content but may not be visually appealing. There is some logical sequence of information. Some links may be broken.	Page supports content but may not be visually appealing. Information is presented in a logical sequence. Links are clear and working.	Page is visually appealing and supports content. Information is presented in a logical sequence. All links are clear and working.	
<b>Creativity</b>	Web site shows no creativity. Content is cut-and-pasted from other sources.	Web site shows little creativity. Content is collection of other people's ideas.	Web site shows some level of creativity. Some content is new and original.	Web site shows significant level of creativity. Much of the content is original thoughts and ideas.	
<b>Images</b>	Some images are related to content.	Most images are related to content.	Most images are related to content. They have proper size, resolution, and cropping.	Images are unique and related to content. They have proper size, resolution, and cropping.	
<b>Copyright and Fair Use</b>	Sources have not been properly cited AND permission to use graphics has not been received.	Sources have not been properly cited OR permission to use graphics has not been received.	All sources are properly cited. Permission to use graphics has been received but is not clearly evident on web page.	All sources are properly cited. Permission to use graphics has been received and is clearly evident on web page.	
<b>Credibility</b>	More than three elements are missing from the web page.	Two to three elements are missing from the web page.	One element is missing from the web site.	Author name, affiliation, and contact info (if applicable) as well as dates of page creation and revision are clearly included on each page.	
<b>Teamwork</b>	One or two people did all or most of the work.	Most team members contributed but workloads were not equal.	Workload was divided and shared equally. However, individual parts were created with little collaboration.	Work was divided and shared equally by all team members. Team worked collaboratively toward goal.	



## Lesson 5 – Bringing It Home

### Time Frame

5-6 hours/periods

### Grades

High School

### Overview

Students examine contemporary wildlife issues and consider the future of wildlife conservation in the United States in general and specifically in their state. Students first examine actual wildlife conservation action plans specific for their state and other related documents. Then, as a class, they will list and discuss threats to wildlife and wildlife conservation today. Next, students work in teams to select a wildlife conservation issue for further investigation. Each team researches their issue and considers possible solutions. The activity culminates with a simulated “Wildlife Summit” at which teams will present their issues and proposed solutions.

### Objectives

Students will:

- Review contemporary wildlife planning and policy documents.
- Analyze wildlife conservation issues, impacts, and solutions.
- Complete a *Student Research Guide*.
- Research and evaluate solutions to a selected wildlife conservation issue.
- Prepare and present an overview of, and a proposed solution to, a wildlife conservation issue specific to their state.

### Essential Questions

- What are some conservation challenges that wildlife face today?
- What are the over-arching conservation issues that impact wildlife in your state?
- How are wildlife conservation efforts funded today?
- What are possible solutions to today's wildlife conservation issues?

### Standards Correlations

*Note: The full text of these standards can be found in Appendix A.*

#### AFWA Core Concepts

- 1.2; 1.7; 1.8; 1.9
- 2.3; 2.4
- 3.1; 3.2
- 5.1

#### NSES Content Standards

- Life Science: Interdependence of organisms
- Science in Personal and Social Perspectives: Natural resources; Natural and human-induced hazards; Science and technology in local, national, and global challenges
- History and Nature of Science: Science as a human endeavor

#### NCSS Curriculum Standards

- 1: a                      4: h                      10: c, d, i, j  
3: k                      9: d

#### Excellence in Environmental Education Guidelines for Learning

- 2.2: A, C
- 2.3: A, B, C, E
- 2.4: A, C, E
- 3.1: A, B, C, D
- 3.2: A, B, C
- 4: B, C



## Materials and Resources

- Overhead projector or Smart Board
- Your state's *Wildlife Action Plan summary* (available from <http://www.wildlifeactionplans.org>)
- *Reading Anticipation and Comprehension Guide*
- *Student Research Guide*
- *Defining a Vision for Conservation Success* overhead
- *Eight Required Elements* overhead
- *Wildlife Conservation Challenges Table* overhead
- *Wildlife Conservation Fact Sheet* overhead
- Computers with Internet access
- A variety of materials and media to support student presentations possibly including: computers with PowerPoint software, computer projector, digital cameras (still and video), art supplies for making posters and other graphics, etc.

## Teacher Preparation

- Review teacher procedures and associated documents.
- Prepare the *Defining a Vision for Conservation Success*, *Eight Required Elements*, *Wildlife Conservation Challenges Table*, and *Wildlife Conservation Fact Sheet* for use on an overhead projector or Smart Board.
- Download and copy your state's *Wildlife Action Plan summary* (one per student). To find this document, visit <http://www.wildlifeactionplans.org>. Select your state from the drop down box on the right side. When the page opens, click on the summary PDF document found on the right side.
- Print and copy the *Reading Anticipation and Comprehension Guide* and *Student Research Guide* (one per student).
- Sign up for the computer lab and/or library for student research.

## Background Information

Students will be required to review a collection of primary source documents. These are professional documents that may not be written at their level. They should be able to adequately scan reading material in order to pull out relevant information. If necessary, you may use whole-class reading strategies to breakdown the material with the students before they work on the project in their small groups.

Students should also be somewhat familiar with issues that may affect wildlife. They do not need to be experts, but they should be able to generate potential threats and be able to discuss them.

Teachers and students should be familiar with the North American Model of Wildlife Conservation and should have completed Lessons 1 through 4 of this unit.



## Suggested Procedures

1. Remind students that until now, they have focused on the history of wildlife conservation in America and the development of the North American Model of Wildlife Conservation. Point out that the model brought many species back from the brink of extinction. But what about today and in the future? While over hunting to the point of extinction is no longer a threat in the United States (thanks to the successful management practices represented by the model), are wildlife still safe from becoming threatened and endangered? What issues does wildlife face today?
2. Hand out the *Reading Anticipation and Comprehension Guide*. Instruct students to read each of the statements found in Part A and determine whether they agree or disagree with them. Discuss some student responses.
3. Hand out your state's *Wildlife Action Plan*. Instruct each student to read the document carefully and answer the remaining questions on the *Reading Anticipation and Comprehension Guide*. Provide time for the students to read.
4. Instruct the students to partner with a neighboring student and share what they learned from the reading.
5. After a few minutes, discuss the answers to the *Reading Anticipation and Comprehension Guide* as a class.
6. Inform students that what they read was a summary of a much larger document known as a comprehensive wildlife conservation strategy that each state has developed. Place the *Defining a Vision for Conservation Success* on the overhead projector or Smart Board. Read the document aloud in the class. Call on various students to explain what each of the sections mean. Discuss that the purpose of each plan was to have actions in place that will prevent more species within the state from becoming endangered. Although the state wildlife agency is primarily responsible, the plan was created through a public process that included a diverse collection of people.
7. Remind students that since the action plans are specific to each state, they each look a little different. However, there are some elements that can be found in each one. Place the *Eight Required Elements* document on the overhead projector or Smart Board. As a class, discuss each of the components. Ask students why they think each one is important.
8. Inform the students that they will now look at some specific challenges to wildlife conservation in their state and attempt to develop some solutions. As a class, brainstorm issues that affect wildlife today. Remind students that in a brainstorming session, ideas should just pour out and not be critiqued or discussed yet. The idea is to generate a list of as many issues as possible in a short period of time. Write all the issues on the board. Once students feel they have listed everything they can think of, briefly review the list.
9. Place the *Wildlife Conservation Challenges Table* on an overhead projector or Smart Board. Ask students to list the primary conservation challenges that were identified in the state's *Wildlife Action Plan*. They can find this information on their *Reading Anticipation and Comprehension Guide*. Write these challenges in the column titled "Primary Conservation Challenges."



10. Point out that most of the issues they just brainstormed can be categorized into one of these primary challenges. Have students categorize each of the issues into one of these primary challenges. Write the issues in the appropriate cells on the table. Note that some issues may be associated with more than one theme.

11. Next, have students come up with examples of wildlife species that are known to be or are likely affected by the issues listed. Write them in the appropriate cells on the table.

12. Conduct a class discussion using the following questions as a guide:

- ❖ *Are any of these species unique to our state?*
- ❖ *Are the issues listed unique to our state?*
- ❖ *Which of these wildlife species are game animals (hunted)?*
- ❖ *Are more game or non-game animals affected by these various issues?*
- ❖ *How have wildlife conservation efforts historically been funded?*
- ❖ *How is wildlife conservation funded today?*

13. Place the *Wildlife Conservation Fact Sheet* on an overhead projector or Smart Board. Review the key points one by one as a follow-up to the previous discussion. Explain that for their culminating activity, students will work in teams to select and research a regionally-relevant wildlife conservation issue and propose a solution to that issue that will ensure a future for wildlife.

14. Divide the class into teams. The number of primary conservation challenges should be the same as the number of teams. Assign each team one of the primary conservation challenges.

15. Hand out the *Student Research Guide*, one to each student. Point out that each student will need to complete and turn in their own *Student Research Guide* but they may work in their teams to conduct the research and discuss answers.

16. Give students time to conduct their research and complete their *Student Research Guides*. They will need time to meet and work as a team, time to conduct Internet research, time to answer all their questions, and time to prepare their final presentations.

17. Plan and conduct a Wildlife Summit. Have each team come to the front of the room and share their team's presentation with the rest of the class. Allow for questions and answers. You may consider inviting local wildlife experts to attend.

18. Conduct a wrap-up discussion reviewing all the issues and solutions. If students have created media associated with their presentations, consider displaying the media either in the classroom or in a location to share with the rest of the school.



### Assessment

Describe the over-arching conservation challenges faced today by wildlife and propose solutions to address specific issues related to each.

### Modifications

- The *Wildlife Action Plan* can be read aloud in class.
- Assign a pre-selected issue to each team (instead of having students select their own issues to research).
- If class size is large, create two sets of teams for each conservation challenge.
- Students can complete the *Student Research Guide* as a team rather than individually.
- Students can be permitted to develop a poster about their historical figure instead of creating an electronic product.

### Extensions

- Students could interview a wildlife expert from a local college or the wildlife management agency as part of their issue research.
- Educate others about wildlife conservation today by presenting a Wildlife Summit to other classes, the entire school, or the community.
- Research ways to take action and get involved in local wildlife conservation efforts.
- Download Wildlife Action Plans from other states and compare the issues with your state.



## Bringing It Home - Wildlife Conservation Fact Sheet

Although there are some wildlife species unique to our state, most wildlife conservation issues are not unique. Across the country, key issues (stressors) affecting wildlife can be attributed to primary conservation challenges.

Approximately 90% of wildlife species are non-game (not hunted) animals. Wildlife conservation has historically been funded through excise taxes on hunting and fishing equipment and licenses (Pittman-Robertson and Dingell-Johnson Acts). There has been a serious gap in funding available for conservation of all species.

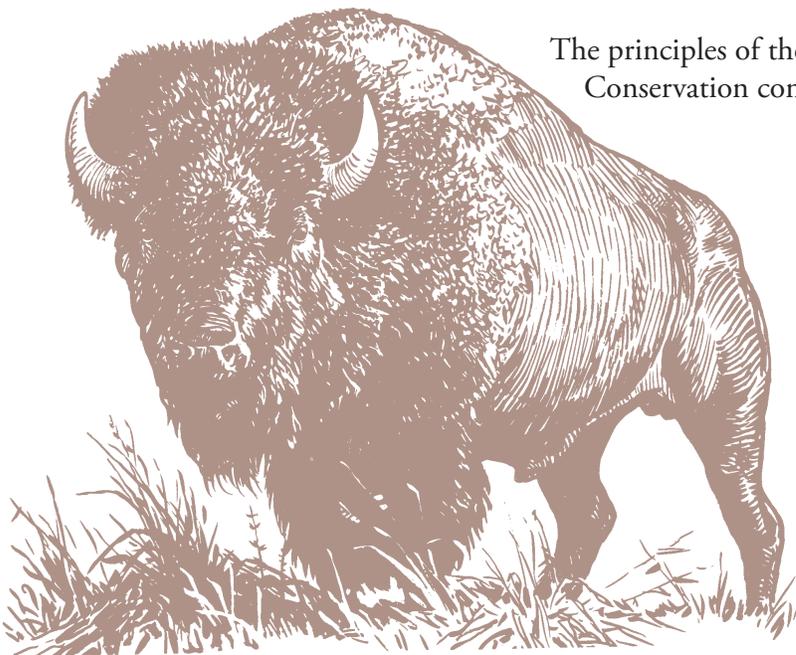
A coalition of nearly 6,000 conservation organizations known as “Teaming With Wildlife” formed over a decade ago. Their goal was (and still is) to keep species from becoming endangered by increasing state and federal funding for wildlife conservation.

Teaming With Wildlife’s work led to the passage of the Wildlife Conservation and Restoration Program and the State Wildlife Grants Program in 2001. These programs provide federal dollars to states to support conservation projects that prevent wildlife from becoming endangered.



As a requirement of these programs, each state wildlife agency had to develop a comprehensive wildlife conservation strategy (CWCS)—a wildlife action plan—that evaluates wildlife conservation needs and outlines the necessary action steps. They are focused on identifying and managing the wildlife and habitats of greatest conservation need.

The principles of the North American Model of Wildlife Conservation continue to inform wildlife management today.



## Bringing It Home - State Wildlife Action Plans

### Eight Required Elements

Congress identified eight required elements to be addressed in each state's wildlife action plan (technically called a "comprehensive wildlife conservation strategy"). Congress also directed that the plans must identify and be focused on the species in greatest need of conservation yet address the full array of wildlife and wildlife-related issues.

- (1) Information on the distribution and abundance of species of wildlife, including low and declining populations as the state fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the state's wildlife; and,
- (2) Descriptions of extent and condition of habitats and community types essential to conservation of species identified in (1); and,
- (3) Descriptions of problems which may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats; and,
- (4) Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions; and,
- (5) Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions; and,
- (6) Descriptions of procedures to review the plan at intervals not to exceed ten years; and,
- (7) Plans for coordinating the development, implementation, review, and revision of the plan with federal, state, and local agencies and Indian tribes that manage significant land and water areas within the state or administer programs that significantly affect the conservation of identified species and habitats.
- (8) Broad public participation is an essential element of developing and implementing these plans, the projects that are carried out while these plans are developed, and the species in greatest need of conservation.

#### Teaming with Wildlife

A coalition of more than 5,000 groups working together to prevent wildlife from becoming endangered.

c/o Association of Fish and Wildlife Agencies

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[www.teaming.com](http://www.teaming.com)



## Bringing It Home - State Wildlife Action Plans

### Defining a Vision for Conservation Success

In order to make the best use of the federal funds provided through the Wildlife Conservation and Restoration Program and the State Wildlife Grants Program, Congress charged each state and territory with developing a statewide wildlife action plan. These proactive plans, known technically as “comprehensive wildlife conservation strategies,” will help conserve wildlife and vital natural areas before they become more rare and more costly to protect. As our communities grow, the wildlife action plans will help us fulfill our responsibility to conserve wildlife and the lands and waters where they live for future generations.

#### *Who developed the wildlife action plans?*

Primary responsibility for wildlife management has always rested with the states, so they have had the formal authority for developing and implementing the wildlife action plans. State fish and wildlife agencies have developed these strategic action plans by working with a broad array of partners, including scientists, sportsmen, conservationists and members of the community. Working together, with input from the public, these diverse coalitions have reached agreement on what needs to be done for the full array of wildlife in every state.

#### *What do the wildlife action plans look like?*

The wildlife action plans are all required to assess the condition of each state's wildlife and habitats, identify the problems they face, and outline the actions that are needed to be conserve them over the long term. By drawing together all of the scientific data, the wildlife action plans identify what needs to be done in each state to conserve wildlife and the natural lands and waters where they live— with benefits for both wildlife and people. Each wildlife action plan reflects a different set of local issues, management needs, and priorities, so no two look alike. However, the states have been working together and with the U.S. Fish and Wildlife Service to ensure nationwide coordination.

#### *What kinds of actions are in the wildlife action plans?*

The wildlife action plans identify a variety of actions aimed at preventing wildlife from declining to the point of becoming endangered. By focusing on conserving the natural lands and clean waters that provide habitat for wildlife, the plans have important benefits for wildlife and people. In addition to specific conservation projects and actions, the plans describe many ways we can educate the public and private landowners about effective conservation practices. Finally, the plans also identify the information we need in order to improve our knowledge about what kinds of wildlife are in trouble so we can decide what action to take.

#### *Action plans with deliverable results*

What makes the state wildlife action plans different from other plans that have been drafted over the years? A focus on results for all wildlife in every state. These plans are proactive and address the needs of all wildlife in every state. By outlining the steps that need to be taken now, the action plans can save us money over the long term. Taken together, they create – for the first time – a nationwide approach to keeping wildlife from becoming endangered.

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[www.teaming.com](http://www.teaming.com)



## Bringing It Home - Student Research Guide

### Part I – Issue Overview

*You should complete Section A and C on your own. Section B will be done as you meet with your team. Even when working together, each student should complete his or her own Research Guide. For your research, you may want to refer to some of the documents you have been reading (Wildlife Action Plan, Defining a Vision for Conservation Success, Eight Required Elements, and Wildlife Conservation Fact Sheet).*

#### **Section A.**

1. Describe your conservation challenge theme.

2. List and describe at least five wildlife conservation issues (stressors) that can be categorized under your theme. Choose the stressors you think have the greatest impact on wildlife. In your description of each, include the issue, causes of the issue, impacts, and wildlife affected. (*Note: You may want to refer to the Wildlife Conservation Challenges Table for ideas.*)

#### **Section B.**

3. Conduct a team meeting. With your whole team, discuss the various issues each of you listed. As a team, select one issue to be your team's topic for further research. Choose an issue you all find relevant (either a local or regional issue, an issue that affects an animal you are interested in, or an otherwise significant issue). Write down your issue.



## Bringing It Home - Student Research Guide

### Section C.

4. Use the Internet and other sources available to you to research your issue. Provide a detailed description of the issue. Be sure to include causes of the issue, history of its development, and potential future impacts from the issue. Include local examples if possible.

5. List and describe key wildlife species affected by your issue. Include how the animals are affected.

6. Describe how the issue affects humans.

7. What are some possible solutions to your issue?

8. List the sources you used to find your information



## Bringing It Home - Student Research Guide

### Part II – Solutions and Wildlife Summit Preparation

1. Conduct another team meeting. Discuss your findings from Part I, Section C. Specifically discuss possible solutions to your issue (Question 7). As a team, select and/or otherwise come up with a real, viable action that your team agrees is the best solution to your issue. Work as a team to research, refine, and describe your solution in detail. Be as specific as possible. Select a team “scribe” to record your team’s final responses to the questions below:

- What specific actions does your team recommend as a solution to your issue?
- How will the specific actions alter the issue’s effects on wildlife?
- How does your solution address the overarching primary conservation challenge?
- Who should be responsible for these actions?
- How and which specific species will be affected by the actions?
- How will the actions be monitored for success?
- How will the project be funded?
- Which principles of the North American Model of Wildlife Conservation have been incorporated into your solution? How?
- How will the solution ensure a future for wildlife?

*(Note: You should use several sources for your research. As you use sources, make sure you are documenting them.)*

2. Prepare a team presentation for the class’s Wildlife Summit. Be creative! Feel free to use media such as video, PowerPoint, or music. Make sure to include relevant imagery such as photos, tables, posters and/or graphs. These can be drawn, photographed, or downloaded from the Internet. Finally, make sure to involve the entire team in the preparation and presentation.

Summarize your research using the guide below. Use the summary as an outline for the presentation of your issue. Be sure to cover each of the points in your presentation.

- Description of the primary conservation challenge
- Description of selected issue (history, causes, impacts)
- Species affected
- How humans are affected
- Detailed description of your team’s proposed solution



Name: \_\_\_\_\_

## Bringing It Home - Reading Anticipation and Comprehension Guide

**Part A.** Before reading the summary of your state's wildlife action plan, read each statement in the table below. If you agree with the statement, write "AGREE" in the left column. If you disagree, write "DISAGREE." After reading the summary, re-read the statements and write "AGREE" or "DISAGREE" in the right column.

Response Before Reading	Statement	Response After Reading
	Your state has a diverse number of animals.	
	There are only a few primary threats to wildlife in your state.	
	The government has actively sought participation from many different groups and people to help manage wildlife.	

**Part B.** Answer the questions after reading the summary of your state's wildlife action plan.

1. List three interesting facts that you learned about your state from the "Snapshot."
2. Briefly summarize your state's planning approach.
3. What are the primary challenges to conserving wildlife in your state?
4. What percentage of your state's wildlife is in need of conservation? What percentage is threatened or endangered?
5. List the key habitats found in your state and one action that can be performed to help each one.
6. Which of the principles found in the North American Model of Wildlife Conservation are represented in this document?



## Bringing It Home - Wildlife Conservation Challenges Table

Primary Conservation Potential Species Affected					
Specific Issues, Stressors, or Challenges					
Primary Conservation Challenges					



## Bringing It Home - Wildlife Challenges Presentation Rubric

Use this rubric to evaluate your presentation. A "0" can be awarded if the category is missing entirely.

	1	2	3	4	Your Score
<b>Content</b>	No more than two required elements are missing. Student has little understanding of subject.	No more than two required elements are missing. Student has knowledge of subject but provides little elaboration.	No more than one required element is missing. Information is accurate. Student has knowledge of subject but provides little elaboration.	All required elements are present. Information is accurate and useful. Student has a thorough understanding of material.	
<b>Writing Skill</b>	The text has many spelling and grammar errors. The writing is difficult to understand.	The text has a few spelling and grammar errors. The writing could be made more succinct.	The text has no spelling or grammar errors. The writing could be made more succinct.	The text has no spelling or grammar errors. The writing is clear and concise.	
<b>Organization</b>	Information is not presented in a logical sequence. Audience cannot follow the presentation.	Some logical sequence of information. Difficult to follow because presentation jumps around.	Information is presented in a logical sequence that is easy to follow.	Information is presented in a logical and interesting sequence that is easy to follow.	
<b>Creativity</b>	Presentation and materials show no creativity. Content is cut-and-pasted from other sources.	Presentation and materials show little creativity. Content is collection of other people's ideas.	Presentation and materials show some level of creativity. Some content is new and original.	Presentation and materials show significant level of creativity. Much of the content is original thoughts and ideas.	
<b>Audio-Visual Aids</b>	Some images, videos, and sounds are related to content.	Most images, videos, and sounds are related to content.	Most images, videos, and sounds are related to content. They have proper size, resolution, cropping, and format.	Images, videos, and sounds are unique and related to content. They have proper size, resolution, cropping, and format.	
<b>Verbal Skills</b>	Mumbles and is difficult to hear throughout presentation. Uses numerous unnecessary and distracting words.	Uses a low voice that is difficult to hear at times. Numerous unnecessary and distracting words are used.	Uses a clear voice that can be heard by all audience members. A few unnecessary and distracting words are used.	Uses a clear voice that can be heard by all audience members. No unnecessary and distracting words (e.g., "um") are used.	
<b>Nonverbal Skills</b>	Minimal eye contact. Movements are exaggerated or limited. Does not look professional.	Minimal eye contact. Movements are exaggerated or limited. Professional appearance.	Maintains eye contact through most of the presentation. Movements are natural. Professional appearance.	Maintains eye contact with audience and movements are confident, relaxed, and natural. Professional appearance.	
<b>Teamwork</b>	One or two people did all or most of the work.	Most team members contributed but workloads were not equal.	Workload was divided and shared equally. However, individual parts were created with little collaboration.	Work was divided and shared equally by all team members. Team worked collaboratively toward goal.	



## APPENDIX A: – Standards Correlations

### Association of Fish and Wildlife Agencies Core Concepts

Standards		Lessons				
Number	Description	1	2	3	4	5
1.1	The health and well-being of fish, wildlife and humans depend on the quality of their environment.	★	★			
1.2	All living things depend on habitat that includes adequate supplies and suitably arranged food, water, shelter, and space.	★	★			★
1.3	The “Carrying Capacity” of an area determines the size of the population that can exist or be tolerated.		★			
1.7	Species differ in their ability to adapt.			★		★
1.8	Conserving biodiversity is important.		★	★	★	★
1.9	Fish and wildlife can be conserved and restored through science-based management which considers the needs of humans as well as those of fish and wildlife.		★	★	★	★
2.1	A person’s culture affects his or her view and use of fish and wildlife and their habitats.	★	★		★	
2.2	The distribution and abundance of fish and wildlife provide significant economic benefits.	★	★			
2.3	Everyone impacts fish and wildlife and their habitats and as human populations grow, impacts on natural resources increase.	★	★	★		★
2.4	Unlike other organisms, only humans have the capacity and responsibility to consider the effects of their actions on the environment.		★	★	★	★
3.1	In North America, fish and wildlife are public trust resources managed by governmental agencies.		★	★	★	★
3.2	Primary responsibility for most fish and wildlife management programs in North America is delegated to governmental agencies.		★	★	★	★
4.1	Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats.		★			
4.3	Responsible users of fish, wildlife and the out of doors, respect the rights and property of others.		★			
5.1	Responsible users of fish, wildlife and the out of doors, respect the rights and property of others. Within the U.S., state fish and wildlife management is funded through hunting, fishing and trapping licenses and through federal excise taxes collected from the sale of hunting, target shooting, fishing equipment, and motor boat fuels.		★	★		★

Association of Fish and Wildlife Agencies. K-12 Conservation Education Scope and Sequence. Washington, DC: Association of Fish and Wildlife Agencies, 2008.



**National Science Education Content Standards**

Standards		Lessons				
Number	Description	1	2	3	4	5
C: Life Science	The Interdependence of Organisms	★	★	★		★
E: Science and Technology	Understandings about Science and Technology			★		
F: Science in Personal and Social Perspectives	Natural Resources	★	★	★		★
	Natural and Human-induced Hazards	★	★			★
	Science and Technology in Local, National, and Global Challenges	★	★	★		★
G: History and Nature of Science	Science as a Human Endeavor		★		★	★
	Nature of Scientific Knowledge					
	Historical Perspectives		★			

National Academy Press. National Science Education Standards. Washington, DC: National Academy Press, 1996.



**National Council for Social Studies Curriculum Standards**

Standards		Lessons				
Number	Description	1	2	3	4	5
1: Culture	a. Analyze and explain the ways groups, societies, and cultures address human needs and concerns.	★	★			★
	g. Construct reasoned judgments about specific cultural responses to persistent human issues.		★			
2: Time, Continuity, and Change	b. Apply key concepts such as time, chronology, causality, change, conflict, and complexity to explain, analyze, and show connections among patterns of historical change and continuity.			★		
	c. Identify and describe significant historical periods and patterns of change within and across cultures such as the development of ancient cultures and civilizations, the rise of nation-states, and social, economic, and political revolutions.	★	★			
3: People, Places, and Environments	i. Describe and assess ways that historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national, and global settings.	★		★		
	k. propose, compare, and evaluate alternative policies for the use of land and other resources in communities, regions, nations, and the world.					★
4: Individual Development and Identity	a. Articulate personal connections to time, place, and social/cultural systems.				★	
	e. Examine the interactions of ethnic, national, or cultural influences in specific situations or events.				★	
	h. work independently and cooperatively within groups and institutions to accomplish goals.					★
5: Individuals, Groups, and Institutions	a. Apply concepts such as role, status, and social class in describing the connections and interactions of individuals, groups, and institutions in society.				★	
	b. Analyze group and institutional influences on people, events, and elements of culture in both historical and contemporary settings.		★	★	★	
	f. Evaluate the role of institutions in furthering both continuity and change.		★	★		
	g. Analyze the extent to which groups and institutions meet individual needs and promote the common good in contemporary and historical settings.			★		
6: Power, Authority, and Governance	a. Examine persistent issues involving the rights, roles, and status of the individual in relation to the general welfare.		★		★	
	b. Explain the purpose of government and analyze how its powers are acquired, used, and justified.			★		
	e. Compare different political systems (their ideologies, structure, institutions, processes, and political cultures) with that of the United States, and identify representative political leaders from selected historical and contemporary settings.		★			
	g. Evaluate the role of technology in communications, transportation, information-processing, weapons development, or other areas as it contributes to or helps resolve conflicts.	★	★			



**National Council for Social Studies Curriculum Standards (cont.)**

Standards		Lessons				
Number	Description	1	2	3	4	5
7: Production, Distribution, and Consumption	h. Apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues.	★	★			
8: Science, Technology, and Society	a. Identify and describe both current and historical examples of the interaction and interdependence of science, technology, and society in a variety of cultural settings.	★		★		
	b. Make judgments about how science and technology have transformed the physical world and human society and our understanding of time, space, place, and human-environment interactions.			★		
	c. Analyze how science and technology influence the core values, beliefs, and attitudes of society, and how core values, beliefs, and attitudes of society shape scientific and technological change.		★	★		
9: Global Connections	d. Analyze the causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues, such as health, security, resource allocation, economic development, and environmental quality.				★	
	h. Illustrate how individual behaviors and decisions connect with global systems.					★
10: Civic Ideals and Practices	a. Explain the origins and interpret the continuing influence of key ideals of the democratic republican form of government, such as individual human dignity, liberty, justice, equality, and the rule of law.			★		
	b. Identify, analyze, interpret, and evaluate sources and examples of citizens' rights and responsibilities.				★	
	c. Locate, access, analyze, organize, synthesize evaluate, and apply information about selected public issues – identifying, describing, and evaluating multiple points of view.					★
	d. Practice forms of civic discussion and participation consistent with the ideals of citizens in a democratic republic.					★
	e. Analyze and evaluate the influence of various forms of citizen action on public policy.		★	★	★	
	i. Construct a policy statement and an action plan to achieve one or more goals related to an issue of public concern.					★
	j. Participate in activities to strengthen the “common good,” based upon careful evaluation of possible options for citizen action.					★

National Council for the Social Studies. Expectations of Excellence: Curriculum Standards for Social Studies. Silver Spring, MD: National Council for the Social Studies, 2008.



**Excellence in Environmental Education Guidelines for Learning**

Standards		Lessons				
Number	Description	1	2	3	4	5
2.2: The Living Environment	A) Organisms, populations, and communities	★	★			★
	C) Systems and connections	★	★			★
2.3: Humans and Their Societies	A) Individuals and groups		★	★		★
	B) Culture	★	★	★		★
	C) Political and economic systems	★	★	★		★
	E) Change and conflict			★		★
2.4: Environment and Society	A) Human/environment interactions	★	★	★		★
	B) Places	★		★		★
	C) Resources	★	★	★		★
	D) Technology	★		★		
	E) Environmental issues			★		★
3.1: Skills for Analyzing and Investigating Environmental Issues	A) Identifying and investigating issues				★	★
	B) Sorting out the consequences of issues			★		★
	C) Identifying and evaluating alternative solutions and courses of action					★
	D) Working with flexibility, creativity, and openness					★
3.2: Decision-Making and Citizenship Skills	A) Forming and evaluating personal views					★
	B) Evaluating the need for citizen action					★
	C) Planning and taking action					★
	D) Evaluating the results of actions				★	
4: Personal and Civic Responsibility	A) Understanding societal values and principles		★	★	★	
	B) Recognizing citizens' rights and responsibilities				★	★
	C) Recognizing efficacy				★	★

North American Association for Environmental Education. Excellence in Environmental Education: Guidelines for Learning (Pre K-12). Washington, DC: North American Association for Environmental Education, 2004.



## APPENDIX B: – Assessment Options

Below are some possible questions that could be incorporated into a pre- and/or post-assessment of the entire 5-lesson unit.

### Multiple Choice Questions

The Merriam's elk and the Passenger pigeon both went extinct around:

- a. 1700
- b. 1800
- c. 1900**
- d. 2000

The first organized efforts to conserve wildlife in the United States came from:

- a. European governments.
- b. Hunting and angling groups.**
- c. Environmental organizations.
- d. Biologists and other scientists.

The Lacey Act of 1900 made it illegal to:

- a. Hunt without a state-issued license.
- b. Buy products with real fur or feathers.
- c. Move unlawfully taken wildlife across state lines.**
- d. Kill or remove migratory birds, their nests or eggs.

Which U.S. President was an avid hunter and a major force for wildlife conservation at the beginning of the 20th century?

- a. Ulysses Grant
- b. Woodrow Wilson
- c. William McKinley
- d. Theodore Roosevelt**

The Pittman-Robertson Act of 1937 provided valuable funds for states to manage and restore wildlife populations by:

- a. Implementing a 3% general sales tax on all purchases.
- b. Providing federal grant money for habitat improvement projects.
- c. Placing an 11% excise tax on hunting equipment and ammunition.**
- d. Allowing people to deduct from their taxes any donations to conservation groups.



Who is known as the “Father of Wildlife Management”?

- a. John Muir
- b. Aldo Leopold**
- c. John James Audubon
- d. Ralph Waldo Emerson

What is meant by the phrase “wildlife is held in the public trust”?

- a. People are “trusted” to leave wildlife to survive on its own.
- b. Wildlife is held in “trust” by the government to benefit all people.**
- c. People are “trusted” to take wildlife for reasonable personal needs.
- d. Wildlife is held in “trust” by zoos and conservation groups for survival.

Which of the following is true?

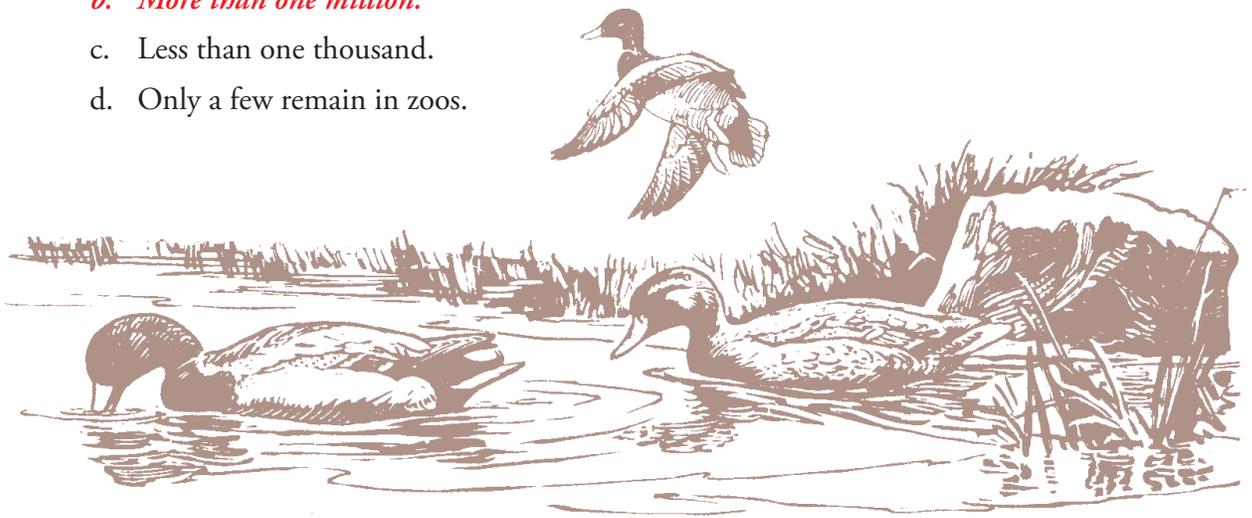
- a. Regulated hunting is a valid tool to help manage wildlife populations.**
- b. Market hunting provides a reliable source of funding for conservation.
- c. Regulated hunting has led to the extinction of more than one hundred species.
- d. Market hunting insures valuable wildlife species are preserved for future profit.

What two factors most affect wildlife management policy in the United States?

- a. Market demand and science.
- b. Market demand and technology.
- c. Public participation and science.**
- d. Public participation and technology.

How many wild turkey can be found in United States today?

- a. They are extinct.
- b. More than one million.**
- c. Less than one thousand.
- d. Only a few remain in zoos.



## True-False Questions

- There were about 12 million white-tailed deer in the United States in 1900. Today there are less than one million. **FALSE**
- Wildlife experts predict that by 2020, wild turkeys will be extinct in the United States. **FALSE**
- The first organized efforts to save wildlife in North America were started more than 100 years ago by hunting and fishing clubs. **TRUE**
- Almost all of the money for wildlife conservation in America today comes from general tax dollars. **FALSE**
- Wildlife experts support regulated hunting seasons as one part of a successful wildlife management program. **TRUE**
- The Supreme Court has determined that the management of natural resources, like wildlife and forests, for the use of all current and future generations is a basic function of government. **TRUE**
- Regulated hunting has not resulted in the extinction of any North American wildlife species. **TRUE**
- For most wildlife species alive today, if they were simply allowed to survive without human intervention, their populations would recover and thrive. **FALSE**

## Essay Questions

- What actions led to the near-extinction of wildlife in the late 19th and early 20th centuries?
- How did the concept of an “endless bounty” contribute to the demise of wildlife?
- What resources appear to be endless today? How do we use and regulate those resources?
- How did American attitudes and beliefs about wildlife change through time?
- Who owns wildlife and what responsibilities come with that ownership?
- How does our understanding of wildlife science influence wildlife management and law?
- How can citizens influence wildlife conservation law and management?
- In what ways did the following individuals influence wildlife conservation: Theodore Roosevelt, John Lacey, Aldo Leopold, and John Muir?
- What are some conservation challenges wildlife face today? What are possible solutions to those challenges?
- Summarize the main principles of the North American Model of Wildlife Conservation in your own words.

