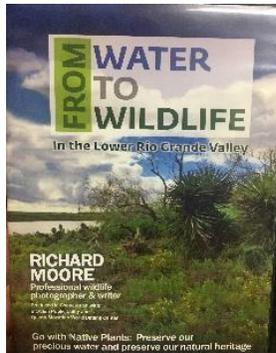


# From Water to Wildlife DVD

**Subject Area(s)** biology, life science, ecology, hydrology

**Associated Unit** Impacting Earth's Systems, Flow of Energy

**Activity Title** From Water to Wildlife DVD



**Grade Level** 7th Grade Middle School Science  
High School Aquatic Science  
High School Environmental Science

**Time Required** 50 minutes

**Group Size** 3-4

**Expendable Cost per Group** US \$1

## Summary

The Lower Rio Grande Valley of Texas is one of the most unique regions in the nation. It sustains some 1200 types of plants, 700 plus vertebrates, over 524 species of birds and more than 300 kinds of butterflies. Much of the ecotourism of the area is centered on bird watching, and key to maintaining this vital economic driver is providing sufficient native habitats for birds to thrive. The magic elixir that sustains the Valley's wildlife to flourish is water. In this video, Richard Moore, professional wildlife photographer and writer, explores the impact of water availability and native or non-native vegetation on the ecosystem. This documentary encourages planning and planting our Valley for future generations!

## *ITEEA Educational Standard(s)*

none in this lesson

## **Educational Standards**

*Texas Standard(s)*

7.10 *Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:*

- (A) observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms
- (B) describe how biodiversity contributes to the sustainability of an ecosystem

### Pre-Requisite Knowledge

Students should already have an understanding of biomes, including the characteristics of and ability to identify abiotic and biotic factors. Students should also be familiar with species interactions, including competition and interdependence.

### Learning Objectives

- Water's impact on the lower Rio Grande Valley.
- To think critically about environmental issues.
- To figure out ways to solve environmental issues facing their community.
- Describe sustainability of an ecosystem due to biodiversity.

### Materials List

Each group needs:

- Savings and Loans handout
- Video quiz

To share with the entire class:

- From Water to Wildlife DVD

### Vocabulary / Definitions

| Word             | Definition  |
|------------------|---|
| biodiversity     | the variety of life in the world or in a particular habitat or ecosystem.   |
| biome            | a large, naturally occurring community of plants and animals occupying a major habitat, for example forest or tundra.     |
| microhabitat     | a habitat that is of small or limited extent and which differs in character from some surrounding more extensive habitat. |
| sustainability   | the ability to uphold or maintain a certain species due to resources available in a particular ecosystem.                 |
| habitat          | the natural home or environment of an animal, plant, or other organism.   |
| native plants    | an animal or plant indigenous or naturally occurring to a place.  |
| nonnative plants | an animal or plant NOT indigenous or naturally occurring to a place.  |
| sanctuary        | a nature reserve.   |

## Procedure

### Before the Activity

- Make 1 copy per student of Savings and Loans: Student's Notes.
- Discuss directions of handout with class to ensure understanding.
- Make 1 copy per student of From Water to Wildlife DVD Quiz.

### With the Students

1. Ensure that students are in groups of 3 to 4 and that every student has a "Savings and Loans: Student Notes" handout.
2. Show the DVD titled From Water to Wildlife to the whole class. Pause DVD as needed.
3. After DVD has ended, instruct students to fill out the Savings section of the handout individually.
4. Instruct students to follow the second part of the note taking process by partnering up with other students in their group and writing down 5 new ideas on the side titled Loans.
5. Hold a class discussion that allows students to share their notes with class. This will serve as review for the video quiz.
6. Complete quiz.

### Assessment

#### Post-Activity Assessment

*From Water to Wildlife DVD Quiz*

## Activity Extensions

### 1. Engineering Connection

Plan a housing development in an existing biome. Your group must protect the native species that live there. Conduct research, draw plans, make brochures and give presentations. Each team must have a group member serving as a project manager, civil engineer, environmental engineer and graphic designer. The best designs creatively balance the needs and resources necessary to support both the native species and human infrastructure.

### 2. Flow of Energy

Record a Public Service Announcement encouraging your community to plant natives in their homes and/or businesses. Conduct research to find a list of native plants of the Lower Rio Grande Valley as examples for the community. In your PSA include the importance of planting natives versus non-natives and the impact on the flow of energy in an ecosystem.

### Activity Scaling

- For lower grades: 6.12E describe biotic and abiotic parts of an ecosystem in which organisms interact
- For upper grades: 8.11 Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems.

## From Water to Wildlife DVD

### Savings and Loans: Student Notes

**Directions:** Write 5 facts you consider to be important from the video “From Water to Wildlife” on the side titled Savings. Then, partner up with other students in your group and write down 5 new ideas on the side titled Loans. When you are finished take a moment and think before you write ONE sentence that summarizes your video notes.

| <u>Savings</u> | <u>Loans</u> |
|----------------|--------------|
| 1.             | 1.           |
| 2.             | 2.           |
| 3.             | 3.           |
| 4.             | 4.           |
| 5.             | 5.           |

**ONE sentence:**

## From Water to Wildlife DVD Quiz

1. What is causing our water crisis?
2. Where is one of the largest growth areas in the state of Texas?
3. Who do we share our Rio Grande river water with?
4. Why do *you* think it's important to know where our water comes from?
5. Identify 2 downsides of suburban lawns.
6. What is water conservation?
7. Why does landscaping with native plants help to conserve water?
8. How does landscaping with native plants save homeowners' money?
9. Why are "native" plants better at supporting wildlife?
10. What is "Eco-tourism"? How is the need to provide native habitat in the Valley necessary for eco-tourism?
11. True or false: It is not possible to reuse water that goes down the drain.
12. Where can you acquire native plants for landscaping?

## From Water to Wildlife DVD Quiz

1. **What is causing our water crisis?**  
**Answer:** We will have twice as many people in Texas in the next 50 years and we've already given permission for more water to be withdrawn from most of our rivers than is actually in them.  
Simplified: Due to significant population growth into the future, and the fact that we're already using more water than we should be.
2. **Where is one of the largest growth areas in the state of Texas?**  
**Answer:** The Lower Rio Grande Valley
3. **Who do we share our Rio Grande river water with?**  
**Answer:** Mexico
4. **Why do you think it's important to know where our water comes from?**  
Open-ended option 1: We can better understand how to manage our consumption/usage.  
Open-ended option 2: We are made more aware of the way water affects regions, not just cities.
5. **Identify 2 downsides of typical home grass lawns.**  
**Answer 1:** They require much more water to survive.  
**Answer 2:** They don't really provide necessary food and habitat for native wildlife.
6. **What is water conservation?**  
**Answer:** Using strategies and methods to lower our consumption and waste of water.
7. **How does landscaping with native plants help to conserve water?**  
**Answer:** They require much less water because they are used to having survived in a drier climate for centuries, if not millennia. They are adapted to long hot seasons and low rainfall.
8. **How does landscaping with native plants save homeowners' money?**  
**Answer:** The water bill goes down by not having to water native plants the way an "exotic" grass lawn would need to be watered. Example: \$14/month vs. \$400/month example
9. **Are all plants created equal in their ability to support wildlife? Why or why not?**  
**Answer:** No, because plants from other parts of the world are only good at supporting wildlife in those parts of the world. If you move them to other parts of the world, they are separated from the evolutionary relationships that created the state of nature where they come from. Plants capture energy from the sun and if they don't pass that energy on by an animal eating those plants and absorbing their energy, then there's a dead end of energy distribution in the ecosystem.
  1. Mainly insects, in particular caterpillars, which are the mainstay of most terrestrial food webs.
  2. Even though it's common for people to view insects as pests, "pest free is life free" - a dead zone.
2. **How is the need to provide native habitat in the Valley necessary for eco-tourism?**  
**Answer:** People won't pay good money to travel here if there isn't a thriving state of nature to see and experience.  
Homes and businesses can contribute to this by planting natives.  
People are starting to see that there's beauty in function  
Plants are more than decorations
  1. They're supporting our pollinators
  2. They're sequestering carbon
  3. They're managing our watershed
  4. Lawns don't do any of those things
11. **True or false: It is not possible to reuse water that goes down the drain.**  
**Answer:** False. Treated, potable water that is used by homes and businesses can be recycled after going down the drain and becoming wastewater. Once this wastewater is treated at the sewage plant, it can be re-routed and mixed in with the raw, river water being directed to the original treatment plant that distributes clean water to homes and businesses.
12. **Where can you acquire native plants for landscaping?**  
**Answer 1:** Native Plant Growers/Nurseries      **Answer 2:** Nature Centers.