



# WATERSHED 360°

EPISODE 6 | "GROUNDWATER RISING" (3:05)

Nebraska Social Studies and/or Science Standards Addressed

## Geography-Location and Place

SS 4.3.1 Explore where (spatial) and why people, places, and environments are organized in the state and around the world.

SS 4.3.1.a Use local and state maps and atlases to locate physical and human features in Nebraska.

SS 5.3.1 Explore where (spatial) and why people, places and environments are organized in the United States.

SS 5.3.1.a Use maps and atlases to locate major human and physical features in the United States.

## Geography-Human-Environment Interaction

SS 4.3.3 Explain how human and natural forces have modified different environments in Nebraska and how humans have adapted.

SS 4.3.3.b Identify examples of ecosystems in Nebraska and describe related environmental issues.

SS 4.3.3.d Describe how humans have adapted to Nebraska's physical environment and use available natural resources.

## Geography-Geospatial Skills and Geo-literacy

SS 4.3.5 Use geographic skills to make connections to issues and events.

SS 4.3.5.b Explain the interrelationships of human or physical geographic characteristics of places in Nebraska.

*(continues next page)*

Each episode of Watershed 360° begins with the same two questions. "Who cares about a watershed? And why?"

Each episode ends with the question, "Do you know your watershed?"

Tell students that they should be able to answer these questions after viewing most or all of the episodes. However, the first two questions have many different answers.

[Watershed\\_questionsposters.pdf](#)



## OBJECTIVE(S)

Students will identify the purposes and characteristics of a wildlife refuge.

Students will explain the interdependence of plants, animals, and water in an ecosystem.

Students will describe the structure and function of an aquifer.

## VOCABULARY

arid: dry

## CAPTIONS

Groundwater creates critical wetland habitats for plants and animals. 0:46

Like snowmelt, groundwater is critical to stream flow in watersheds around the globe. 1:15

Groundwater from the Sandhills flows into the Platte River System. 1:35

Rainwater absorbed by the sand dunes recharges the Ogallala Aquifer. 2:00

## LOCATION

Crescent Lake National Wildlife Refuge (Ellsworth, Nebraska)

[https://www.fws.gov/refuge/Crescent\\_Lake/](https://www.fws.gov/refuge/Crescent_Lake/)



# WATERSHED 360°

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GRADES 4-8

## Geography-Regions

SS 5.3.2 Compare the characteristics of places and regions and draw conclusions on their impact on human decisions.

SS 5.3.2.a Identify criteria used to define regions within the United States.

SS 5.3.2.b Identify and classify regions and places within the United States using physical and human features.

## SC.3.7 Interdependent Relationships in Ecosystems

SC.3.7.2 Gather and analyze data to communicate an understanding of the interdependent relationships in ecosystems.

SC.3.7.2.D Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

## SC.5.13 Earth's Systems

SC.5.13.4 Gather and analyze data to communicate understanding of Earth's systems.

SC.5.13.4.C Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

## QUESTIONS

1. Some people might view the Sandhills as a desert. How does Marlin French, wildlife biologist, see it? (*He sees the sand as a huge sponge that absorbs and releases the water through a series of lakes, then releases it into the North Platte River and down the system of rivers. It's like a "large inland sea."*)

2. "Who cares about a watershed? And why?"

*Water from the Gulf of Mexico all the way to Canada is connected. The wildlife that spends the winter on the Gulf coast migrates through Nebraska along the North Platte River basin. The groundwater is necessary for their survival. - Marlin French, wildlife biologist*

## ACTIVITIES:

1. Lesson 2 in *The Educator's Guide to Water1der "Aquifer (Concept)"* introduces vocabulary (unconfined aquifer, porosity, permeability, confined aquifer) and gives basic facts about aquifers. The related activity "Earth Parfaits" asks students to create an edible model of an aquifer to demonstrate how an aquifer functions. It would complement either Episode 6 Groundwater Rising or Episode 8 Spring-Fed. Download the activity directly from the Watershed 360° Resources Document | 5-8. [[Water1der User's Guide.pdf](#)]

2. Students might research the plants and animals that are found in the Crescent Lake National Wildlife Refuge.

### Threatened Species

Bald Eagle (*Haliaeetus leucocephalus*)

[https://www.fws.gov/refuge/crescent\\_lake/wildlife\\_and\\_habitat/Threatened\\_Species.html](https://www.fws.gov/refuge/crescent_lake/wildlife_and_habitat/Threatened_Species.html)

<http://www.nebraskabirdlibrary.org/falconiformes/accipitridae/bald-eagle/>

### Endangered Species

Blowout Penstemon (*Penstemon haydenii*)

[https://www.fws.gov/refuge/Crescent\\_Lake/wildlife\\_and\\_habitat/Blowout\\_Penstemon.html](https://www.fws.gov/refuge/Crescent_Lake/wildlife_and_habitat/Blowout_Penstemon.html)

The "Wildlife & Habitat" tab includes lists of birds, mammals, reptiles & amphibians, fish, and plants found at the refuge.

[https://www.fws.gov/refuge/Crescent\\_Lake/wildlife\\_and\\_habitat/index.html](https://www.fws.gov/refuge/Crescent_Lake/wildlife_and_habitat/index.html)

Additional information about the 3 birds alluded to by the wildlife biologist on the video can be found on these pages:

### White-faced ibis

<http://www.nebraskabirdlibrary.org/ciconiiformes/threskiornithidae/white-faced-ibis/>

### Black-crowned Night-heron

<http://www.nebraskabirdlibrary.org/ciconiiformes/ardeidae/black-crowned-night-heron/>

### cattle egret

<http://www.nebraskabirdlibrary.org/ciconiiformes/ardeidae/cattle-egret/>

3. Nebraska has six National Wildlife Refuges and one shared with Iowa (DeSoto). Students can research the purpose of a wildlife refuge and the

