



# **Oklahoma Alliance for Geographic Education**

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**Teacher Training | Curriculum Development | Outreach Programs**

## ***Using Giant Floor Maps to Understand Bald Eagle Populations***



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## Using Giant Floor Maps to Understand Bald Eagle Populations

**Grade Level:** 7<sup>th</sup>, 8<sup>th</sup>

### **Purpose/Overview:**

In this lesson, students will use the Oklahoma or North America Giant Map to explore where bald eagles can be found, what the requirements are for a healthy habitat, and how their habitats are affected by human activity.

### **National Geography Standards from *Geography for Life***

#### **Geographic Elements & Standards:**

<https://www.nationalgeographic.org/standards/national-geography-standards/>

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
3. How to analyze the spatial organization of people, places, and environments on Earth's surface
4. The physical and human characteristics of places
8. The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
14. How human actions modify the physical environment
18. How to use geography to interpret the present and plan for the future

#### **Oklahoma Academic Standards for the Social Studies:**

- 6.C.1.1 - Describe geography as a field of inquiry which answers "they why of where" by examining both physical and human geography using spatial thinking skills.
- 6.C.1.2 - Integrate visual information to organize understandings about the people and environments of the Western Hemisphere.
- 6.C.4.4 - Identify environmental challenges and explain how they can impact a region.
- 7.C.1.2 - Reinforce geographic skills through the routine practice and use of geographic tools in order to draw conclusions and make predictions from geographic data.
- 7.C.3.3 - Describe the challenges of urbanization and urban sprawl.
- 7.C.4.3 - Evaluate the effects of human modification of the natural environment through processes related to industrialization.

8.C.1.4 - Analyze how the Second Continental Congress functioned as the de facto national government, uniting colonial response:

- A. Describe how the congress successfully formed the Continental Army, directed military strategy, **established a national currency**, and negotiated a foreign alliance with France.

### **Geographic Themes:**

Choose all that apply for your lesson's focus: Location, Place, Movement, Human-Environment Interaction, and/or Region.

Location: Oklahoma or North America

Place: The physical characteristics of and human influence upon bald eagle habitats

Movement: How bald eagles move across the landscape

Human-Environment Interaction: While human activity can be a threat to bald eagles, humans also create policies and carry out conservation measures such as designating wildlife refuges to protect eagles.

Region: Characteristics of areas where bald eagles are likely to be found

### **Objectives:**

Each lesson plan should answer in a short narrative these questions:

1. What **key topic/issue(s)** is/are associated with this lesson/unit? Requirements for bald eagle habitats, threats to bald eagles, and the bald eagle as a national symbol
2. **What should students know** after this lesson/unit? Students will understand where bald eagles are located and why. They will examine how bald eagle populations have changed over time and how they are impacted by human activity.
3. **How will students apply** this lesson/unit **content**? Students will examine their local environment or region and identify how it compares to habitats required for bald eagles.

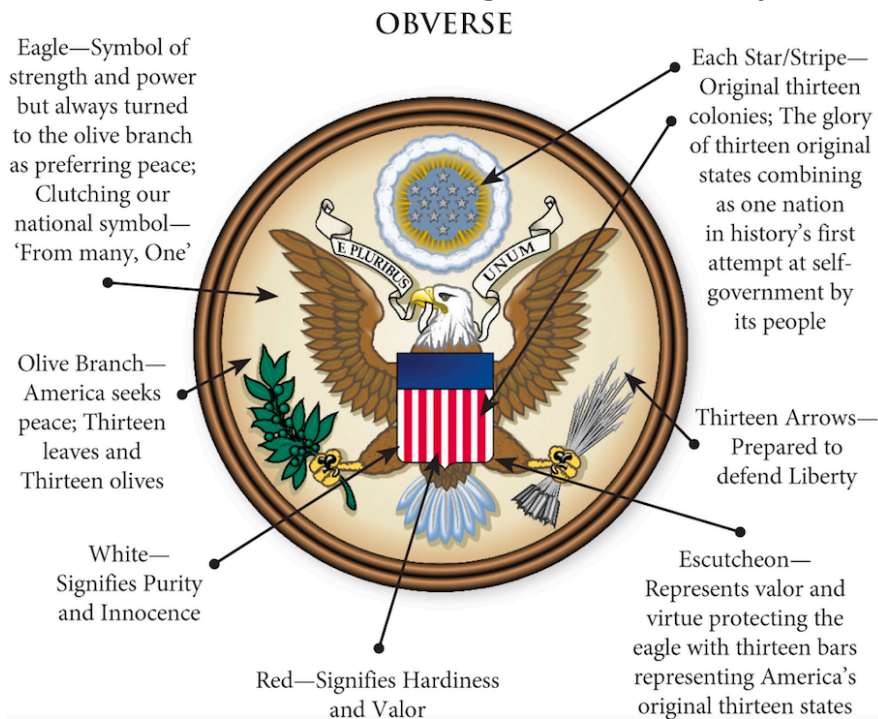
## Materials:

North America and/or Oklahoma Giant Map kit (Reserve a Giant Map from OKAGE [here.](#))  
Socks (to be worn on Giant Map)  
North America and/or Oklahoma eagle hotspot cards

**Time Frame:** One class period

## Procedures:

- The teacher will begin with showing some photos of bald eagles and will ask the class what they already know about bald eagles as a species.
- The teacher will then show a picture of the National Seal and ask what they know about this seal or about the eagle as a national symbol.



- The teacher will then lead a brief discussion about characteristics of bald eagles and their habitats, how their population has changed recently and why, and their status as a national symbol. More information is located here (<https://www.mvr.usace.army.mil/Portals/48/docs/Recreation/ODM/pdf/Bald%20Eagle%20Activity%20Guide.pdf>).
- Following this discussion, the teacher will then explain that there are places in Oklahoma/North America where bald eagles can be found.

- The teacher will split the class into two groups and distribute one cone or bean bag per student in the first group.
- The teacher will then ask the first group of students to explore the Giant Map and place their item on a location on the map where they think bald eagles could be found, keeping in mind that eagles need an environment of quiet isolation with clean water within 300 yards. Bald eagles typically choose tall, mature trees between 50 and 150 feet for perching and nesting.
- Once each student in the first group has placed their cone or bean bag, ask each student to explain why they marked the locations they did. Perhaps it is located near water and trees, or far away from a large city.
- Next, the teacher will distribute the eagle location hotspot cards to students in the second group. They can take turns finding the locations on the map or they can all go at once. After the second group has found all of their locations, the teacher will call on each student to read the back of their card aloud and ask if that location has a cone or bean bag nearby. If so, the first team will receive a point. If not, the second team will receive a point.
- On the North America map, the teacher may point out that most eagles are located in Canada and Alaska in areas away from large cities and the associated infrastructure. While there are eagles in the conterminous United States, they are usually found in protected areas like wildlife refuges; typically, this is why some eagles may be located near population centers if there is a protected space nearby, otherwise the eagle population thrives where there are abundant resources and a sparse human population.
- After the Giant Map activity, the teacher will explain that while there are many places where we can observe bald eagles, they are threatened by human activities. Top threats to bald eagles include lead poisoning, habitat destruction, collisions with wind turbines, and entanglement in fishing line and accidental ingestion of fishing hooks.

**Assessment:**

Go outside with your students and ask them to compare the school site with what they have learned about ideal bald eagle habitats. This could also be extended to a discussion about regional characteristics of their city, town, or neighborhood that influence whether or not the area is a suitable location for bald eagles. During or following the activity, collect their responses to the following questions. The teacher should pay attention to who is participating in the discussion and combine with the written responses as an assessment of student learning. Suggested questions are listed below, but the teacher may develop additional questions.

- Have you ever seen a bald eagle in the wild? If so, where were you?
- Which birds can you see from our school or from home? How do you think their needs compare to those of bald eagles?
- List three things bald eagles need in their habitat.
- List three threats to bald eagle populations.
- List three places where you can find bald eagles.

**Resources:** All resources/sources used in the lesson must be documented and cited appropriately, including websites, videos, publications, personal interviews, etc.

<https://www.fws.gov/story/eagles-across-america>

<https://www.travelok.com/articles/top-10-places-for-eagle-watching-in-oklahoma>

<https://www.mvr.usace.army.mil/Portals/48/docs/Recreation/ODM/pdf/Bald%20Eagle%20Activity%20Guide.pdf>

Contact okage@ou.edu to participate in the [National Geographic Slingshot Challenge](#). Students aged 13-18 are challenged to create a one-minute video on an issue they are passionate about. The 2022-23 first place winner of the Oklahoma competition created a one-minute video about bald eagles. Watch Clay the Bald Eagle [here](#) and view the full Oklahoma Slingshot Challenge playlist for 2023 [here](#).

## **Connections:**

### **Oklahoma Academic Standards for Science**

7.LS2.1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

7.LS2.2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

7.LS2.5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

7.ESS3.3 Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.

7.ESS3.4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

8.LS1.4 Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

# **ROBERT S. KERR LAKE**

## **Sequoyah National Wildlife Refuge**

**Bring your binoculars and hiking boots to the Sequoyah National Wildlife Refuge and venture out to spot southern bald eagles on the nest. Located along the upper half of the Robert S. Kerr Reservoir south of Vian, the refuge is known for its winter eagle sightings along numerous hiking trails and observation areas scattered throughout the park. This picturesque area of northeast Oklahoma is a haven for a variety of wintering birds and wildlife with plentiful shoreline, river bottoms and wooded swampland.**



# KEYSTONE LAKE

## Keystone State Park

**A favorite fishing area for migrating bald eagles, Keystone Lake consistently attracts eagles each winter to its eastern shores. Located on the Arkansas River about 23 miles west of downtown Tulsa, Keystone Lake and Keystone State Park offer numerous opportunities to see eagles as they dive for fish around Keystone Dam or as they soar above the park's lakeside, wooded hiking trails. Make your way over to the Eagle Overlook Platform in the Brush Creek area below the dam to watch as these elegant creatures capture fish in the calm waters of the lake.**

# **NORMAN**

## **Lake Thunderbird State Park**

**Lake Thunderbird State Park, situated within the bald eagle migration corridor in Norman, hosts roosting eagles between the months of December and February. Attracted by the rolling, oak-covered hills that surround Lake Thunderbird, eagles flock to the park for shelter and a stable food source. Treat yourself to a leisurely stroll along the park's trails to seek out the birds yourself or stop by for an informative chat with the staff in the park's Discovery Nature Center before journeying to several eagle-watching hot spots throughout the park.**

# **CHICKASAW NATIONAL RECREATION AREA**

## **Chickasaw National Recreation Area**

**The Chickasaw National Recreation Area, a picturesque oasis of outdoor splendor in southern Oklahoma, plays host to a remarkable number of bird species, including the wintering bald eagle. Aided by the park's proximity to the central flyway and unique location as a transition point between Oklahoma's eastern hardwood forests and western grasslands, the area consistently attracts eagle populations to Sulphur during the winter months. Walk along the park's freshwater streams and the shoreline surrounding the Lake of the Arbuckles to view these roosting visitors, or attend the park's annual Bald Eagle Watch for access to the area's optimal viewing areas. The eagle watch begins with a ranger-led program at the Travertine Nature Center and continues with a caravan to search for eagles in the wild.**

# **GREAT SALT PLAINS LAKE**

## **Salt Plains National Wildlife Refuge**

**Northwestern Oklahoma's 32,000-acre Salt Plains National Wildlife Refuge includes 10,000 acres of salt flats, as well as wetlands, prairies, woodlands and the Great Salt Plains Lake. This diversity of landscape has contributed to the area's success as a habitat for over 300 species of birds.**

**Designated as a Globally Important Bird Area by the National Audubon Society, the refuge and nearby Salt Plains State Park are excellent destinations for birders, and are prime locations for eagle viewing during the winter months. Travel along the refuge's Sandpiper Trail, which begins near the nature center and refuge office, and take a short journey to the edge of the salt flats for eagle viewing from the trail's birding observation platform.**

# EDMOND

## Arcadia Lake

Located in central Oklahoma between the cities of Edmond and Arcadia, Arcadia Lake offers 26 miles of shoreline that attract bald eagles with plentiful trees and woodland areas, as well as excellent fishing beneath the lake's still waters. Each year, lake visitors are invited to join the Arcadia Lake Eagle Watch, historically held in January. The event begins in the Arcadia Lake park office, where visitors can see a wingspan display, watch videos about eagles and learn more about the graceful birds before venturing out in search of them on the grounds around the lake. Spotters are available to help visitors find the birds, whether in roosts or soaring over the lake in search of food.

# LAKE ALTUS

## Quartz Mountain State Park

**Eagles begin to arrive at Quartz Mountain State Park toward the end of December and remain residents until they depart the Lone Wolf area after the first of March. Head out on the trail and search the tall cottonwood trees located on the northern shore of Lake Altus-Lugert or on the southwest face of Twin Peaks, two areas where the eagles commonly roost. Cast your gaze skyward an hour after sunrise or an hour before sunset to increase your odds of spotting an eagle soaring above the park, or head over to the dam, where eagles are often seen fishing.**

# BLACK MESA

## Black Mesa State Park and Nature Preserve

Located in the panhandle of northwest Oklahoma, Black Mesa State Park & Nature Preserve offers a glimpse of the golden eagle. Like the bald eagle, the golden eagle migrates to Oklahoma during the winter, but chooses to reside in the far western part of the state amidst the area's cliffs and cottonwood trees. Instead of eating fish like the bald eagle, the golden eagle feeds on small mammals such as jackrabbits and prairie dogs, making the arid, rugged landscape of Black Mesa State Park an ideal choice for its winter habitat. Hike along the nature trails that wind throughout the park and keep your eye out for the golden eagles that often glide overhead, or take your camera to the banks of Lake Carl Etling, located within the park, to snap photos of the eagles that call the shoreline home.

# OREGON

## **Bear Valley National Wildlife Refuge**

**Bear Valley National Wildlife Refuge was established in 1978 to protect a vital night roost site for wintering bald eagles. The refuge consists of 4,200 acres, primarily of old growth ponderosa pine, incense cedar, and white and Douglas fir. These mature stands of trees have open branching patterns of large limbs which allow easy eagle access and can support many birds. In recent years, as many as 300 bald eagles have used the roost in a single night.**



# **SOUTH DAKOTA**

## **Karl E. Mundt National Wildlife Refuge**

**The Karl E. Mundt National Wildlife Refuge is part of the National Wildlife Refuge System and includes Lake Andes National Wildlife Refuge and Lake Andes Wetland Management District. Along the Missouri River, bald eagles take shelter from winter weather. Some eagles remain in the warmer months to nest and raise their young. This refuge protects one of the most critical bald eagle winter roosts in the country and provides important habitat for 100-300 bald eagles. To protect the eagles from disturbance, the Refuge itself is closed to visitors.**

# VIRGINIA

## James River National Wildlife Refuge

**James River National Wildlife Refuge was established in 1991 to protect bald eagles and other species of special concern within 4,800 acres of forests and wetlands. Management of these lands focuses on conserving habitats to benefit and promote healthy populations of native plants and animals. The wildlife refuge provides a safe haven and nursery ground for hundreds of living creatures. Refuge habitats consist of pine-dominated, moist hardwood and floodplain forests, freshwater marsh and shrub swamp, aquatic habitats, erosional bluffs, and non-forested uplands. In addition to supporting hundreds of native plant and animal species, the refuge offers important breeding and roosting habitat for resident and migrating eagles.**

# VIRGINIA

## **Elizabeth Hartwell Mason Neck National Wildlife Refuge**

**Eighteen miles south of Washington, D.C., on the banks of the Potomac River, lies a peninsula known as Mason Neck. Here, on February 1, 1969, the U.S. Fish and Wildlife Service created the first national wildlife refuge established specifically for the protection of our nation's symbol, the bald eagle.**

**Once on the brink of extinction, the bald eagle enjoys the safety of the refuge's forests and shoreline for nesting and foraging along the upper portions of the Potomac River and its tributaries. Other species observed on the refuge include wood thrush, white-tailed deer, groundhog, and wood duck.**

# CALIFORNIA

## **Tule Lake National Wildlife Refuge**

**Tule Lake National Wildlife Refuge is a significant staging area for migrating waterfowl during spring and fall migrations; and while today's wetlands represent just a small fraction of the wetlands that existed prior to reclamation, they remain crucial as a critical resource for 80 percent of the migratory waterfowl in the Pacific Flyway.**

# IOWA

## **Port Louisa National Wildlife Refuge**

**The 24,149 acre Port Louisa National Wildlife Refuge was established for the protection of migratory birds and other wildlife. It is located in Iowa and Illinois along the Mississippi River Flyway, one of the major routes for migrating waterfowl. Each year in the spring and fall hundreds, if not thousands, of geese and ducks utilize the refuge to rest and refuel on their migration. Common species include Canada geese, mallards, trumpeter swans, wood ducks, blue and green-winged teals, northern shovelers, hooded mergansers, and other waterfowl. The river floodplains are important sites not only for migrating birds but year-round residents as well.**

# **NORTH CAROLINA**

## **Alligator River National Wildlife Refuge**

**Alligator River National Wildlife Refuge is located on the Albemarle Peninsula in eastern North Carolina. The refuge was established in 1984 to protect the rare pocosin wetlands and their associated wildlife. Pocosin wetlands grow on thick layers of peat and have stunted, shrubby vegetation. The refuge also protects swamp forest and is fringed with marsh. The vast protected area supports large populations of black bear, wintering waterfowl, river otter, and other wildlife species. In addition, the refuge is one of the only places in the world where you may see endangered red wolves in the wild.**

# MISSISSIPPI

## **Sam D. Hamilton Noxubee National Wildlife Refuge**

**Established in 1940, Noxubee National Wildlife Refuge manages habitat for the conservation of migratory birds. The refuge is located in three counties of Mississippi - Noxubee, Oktibbeha, and Winston. Four green-tree reservoirs, two major lakes (Bluff Lake – 800 acres and Loakfoma Lake – 400 acres), 16 small impoundments (reservoirs), and assorted wetland areas provide important habitat for the wood stork, American alligator, bald eagle, and wintering waterfowl.**

# MAINE

## **Moosehorn National Wildlife Refuge**

**Moosehorn National Wildlife Refuge is a northern treasure in the National Wildlife Refuge System. It consists of nearly 30,000 acres of federally protected lands in northeastern coastal Maine. The refuge's landscape is varied, with rolling hills, large ledge outcroppings, streams, lakes, bogs, and marshes. The diversity of forests and wetlands provides habitat for over 225 species of birds, endangered species, resident wildlife and rare plants. A northern hardwood forest of aspen, maple, birch, spruce and fir dominates the upland. Scattered stands of majestic white pine are common.**



# ALASKA

## Alaska Chilkat Bald Eagle Preserve

**The Alaska Chilkat Bald Eagle Preserve was created by the State of Alaska in June of 1982. The preserve was established to protect and perpetuate one of the world's largest concentrations of Bald Eagles and their critical habitat. It also sustains and protects the natural salmon runs and allows for traditional uses; provided such uses do not adversely affect the Preserve's resources. The Preserve consists of 48,000 acres of river bottom land of the Chilkat, Kleheni, and Tsirku Rivers. The boundaries were designated to include only areas important to eagle habitation. Virtually every portion of the preserve is used by eagles at some time during the year. Bald eagles are commonplace among Alaska's 16 national wildlife refuges.**

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

## Giant Map Activity Exit Ticket

1. Have you ever seen a bald eagle in the wild? If so, where were you?

2. Which birds can you see from school or home? How do you think their needs compare to those of bald eagles?

3. List three things bald eagles need in their habitat.

4. List three threats to bald eagle populations.

5. List three places where you can find bald eagles.

6. Bonus: Is there anything else you want to know about bald eagles?