

# Request for Proposals

## Turnbull National Wildlife Refuge Curriculum Development

U.S. Fish & Wildlife Service  
Turnbull National Wildlife Refuge  
26010 S Smith Road  
Cheney, WA 99004

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### Introduction

We invite proposals from qualified contractors to develop an environmental education framework which will be used to connect local students with Turnbull National Wildlife Refuge. This curriculum will be composed of a minimum of seven (7) lesson plans aligned with Next Generation Science Standards (NGSS) across designated grade bands that consist of an inquiry-based field experience coupled with bookend pre- and post-visit lessons that frame the experience within the broader learning context.

### Project Goals

The primary goal of this project is to develop a curriculum specific to the Turnbull National Wildlife Refuge site that enhances classroom learning and aligns with NGSS standards.

### Project Components

#### Outreach to Local Teachers and Schools

The selected contractor will conduct outreach to local teachers, classes, and/or schools in the Cheney School District prior to development of any lesson plans to determine teacher needs and learning goals.

#### High Impact Field Experiences

The selected contractor will design the curriculum with the following components:

1. Develop lesson plans that integrate with a teacher's learning goals for students
2. Provide comprehensive pre- and post-visit lesson plan activities for teachers to use at their schools to frame the on-site lesson activities
3. Lesson plans will follow the established USFWS template to outline materials, timing, safety, and standards connections within the curriculum

### Timeline

- Proposal Submission Deadline: June 28, 2024
- Contractor Selection: July 26, 2024
- Project Initiation: August 5, 2024



## Deliverables

1. Conduct outreach with local schools and teachers to determine programmatic needs.
2. Preparation and submission of a minimum of seven (7) lesson plans that create a new, holistic curriculum that meets all stated requirements as outlined in the Scope of Work.
3. Design field journals (science notebooks) to organize and focus students' learning during the field experiences.
4. Attendance at all review meetings and incorporation of all agency review comments.

## Contractor Qualifications

Please refer to the attached Scope of Work for a full list of required and preferred qualifications.

## Submission Requirements

Interested parties should submit proposals detailing their approach to the project, relevant experience, team qualifications, and a proposed timeline. Bids shall be submitted on a per-lesson-plan basis for a total of seven (7) lessons. Interested parties may choose to submit examples of previous work, but this is not strictly required. Proposals should also include a budget breakdown, including costs for materials, transportation, and personnel.

## Contact Information

For inquiries and proposal submissions, please contact Turnbull NWR Visitor Services Manager Joshua Contois via email at [joshua\\_contois@fws.gov](mailto:joshua_contois@fws.gov) or by phone at 509-559-3034.

We look forward to receiving your proposals and partnering with a qualified contractor to enhance science education for students through high impact field experiences at the Turnbull National Wildlife Refuge.

# Scope of Work

## Environmental Education Curriculum Development

U.S. Fish & Wildlife Service  
Turnbull National Wildlife Refuge  
26010 S Smith Road  
Cheney, WA 99004

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### Background

Turnbull National Wildlife Refuge was established in 1937 by Franklin D. Roosevelt as a “refuge and breeding ground for migratory birds and other wildlife.” Turnbull NWR encompasses over 23,000 acres of the Channeled Scablands habitat of eastern Washington. The ecosystem that predominates the refuge is unique within the National Wildlife Refuge System and has characteristics that distinguish it from natural reserves worldwide with its broad diversity of plants and animals. The powerful forces of volcanism, glaciation and the largest floods in geological history have combined to forge a distinct environment. The combination of basalt outcrops, flood-eroded channels, and ponderosa pine forests infused in a diverse landscape of over 130 marshes, wetlands and lakes, create an environment of aesthetic beauty as well as high quality wildlife habitat. Refuge ecosystems represent an ecological transition between the dry, sagebrush-dotted grasslands of the Columbia Basin and the timbered Selkirk and Bitterroot Mountain Ranges that rise up to the east. The more than 3,000 acres of wetlands on Turnbull NWR represent some of the last quality breeding habitat available in eastern Washington for waterfowl, which have experienced tremendous population declines across North America due to loss and degradation of breeding, migration, and wintering habitat. The area serves as an important link in migrations for at least 139 species of birds, but its best function is as a production area for at least 100 bird species. Habitat diversity provides a stable, productive and flexible resource to ensure that the native faunal diversity of the Refuge is maintained. The Refuge restores and maintains ecosystem processes that provide for a natural diversity of flora and fauna native to the wetland, aspen, riparian, steppe, and ponderosa pine communities of eastern Washington. Maintenance of biodiversity is further supported by the conservation of threatened and endangered species.

Visitor access is limited to a 3,300-acre Public Use Area, the Columbia Plateau Trail and designated sites identified in hunt permits. This area includes a 5.5-mile scenic auto tour route, over 10 miles of hiking trails, and a small visitor contact station which houses a nature store operated by the Friends of Turnbull NWR. Combined, these facilities provide opportunities for visitors to learn about the refuge and the natural resources that it protects, as well as engage in wildlife-dependent recreational activities such as wildlife observation and photography, interpretation, and environmental education.

Turnbull NWR has hosted environmental education (EE) and outreach activities for students, educators, and civic groups for over 40 years. In the past, EE was an informal program that was user-guided or run by refuge staff with other collateral duties. A formal EE program was initiated in the mid-1990s, with the

express goal of creating more structured programming, including providing a classroom space and developing a curriculum. These efforts initially reached 2,500 students per year and in later years that number increased to over 7000 students. As the population around the refuge has increased at an average rate of 15% per decade, greater demands from the public for EE are placed on the refuge.

Providing support for environmental education at Turnbull has always been a challenge. In 1996, the Friends of Turnbull NWR formed and raised over \$80,000 in funding via grants and fundraisers. In the years since, the Refuge has tried to continue to meet this demand. As funding became available (primarily through Friends), the program operated and was facilitated largely by AmeriCorps members, Student Conservation Association (SCA) interns, and community volunteers. However, because of the lack of a stable funding base and the time commitment involved in training a new EE staff each year, it has been a regular challenge to maintain a consistent, quality program from one year to the next. Beginning in early 2020, the COVID-19 pandemic, along with a near total turnover of all management staff brought all environmental education programming to a halt.

This project is needed because not only is environmental education a priority public use (as described in the National Wildlife Refuge System Improvement Act of 1997), but because there is desire from the local community, buy-in from local constituents, and a long history of quality EE at Turnbull. Refuge management identified the need for new, user-facilitated programming and curriculum largely because of the historic difficulties with staffing the program combined with existing curriculum that is over three decades old. New curriculum will support national and state science standards. The creation of a user-facilitated program as opposed to a staff-facilitated one will allow more users to partake in education programs, free up staff resources, reduce costs, and provide students with a quality, up-to-date education experience focused on inquiry-based learning and the latest pedagogical techniques.

To learn more about the refuge, please visit: <https://www.fws.gov/refuge/turnbull>.

## General

This project will create an environmental education framework which will be used to connect local students with Turnbull National Wildlife Refuge. Environmental education is one of the “Big Six” priorities of the U.S. Fish & Wildlife Service ([603 FW 1.3](#)). Tiered lesson plans, as a part of a USFWS and refuge curriculum, will be produced to help students find a sense of place within their local area through repeated visits, hands-on experiences, and scientific inquiry, with the goal of fostering environmental stewardship.

This project aims to leverage resources and broaden reach within the community by producing a series of lesson plans which build on and complement one another in a logical and strategic way. This will be accomplished through integrating shared biological priorities and visitor services goals within the framework. When combined, these lesson plans will create high impact field experiences for students.

Management decisions within water and landscape systems, especially in the western United States, impact our neighbors. Sharing what we do and why we do it with our local community fosters partnerships and creates avenues for open communication. Environmental education helps field sites target and connect with their local community constituency. Early experiences in nature can be an important factor in adult pro-environmental behaviors. Creating this shared environmental education

framework will meet Service and Regional priorities and create a shared vision for communicating and teaching environmental stewardship to a much larger audience than each refuge is able to reach alone.

### Period of Performance

The anticipated period of performance from the issuance of the Notice to Proceed is approximately nine (9) months. The anticipated and desired start date is negotiable. A minimum of 30 days will be allowed for review of 30%, 60%, and 90% deliverables. Refuge staff shall be advised of and given approval over all anticipated deviations from the project schedule.

### Firm Fixed Price

This contract pays [AMOUNT DETERMINED BY REQUEST FOR PROPOSAL], to be paid in full by the Friends of Turnbull NWR.

### Scope

Contractor will develop a new environmental education curriculum with a minimum of seven (7) lesson plans that meet the following criteria:

### Objectives & Standards

- are aligned with Next Generation (NGSS) and Common Core standards
- are aligned with classroom learning goals
- can be integrated in such a way as to create meaningful, high impact field experiences for students
- are user-facilitated (self-directed)
  - i.e., lessons are teacher-led, not FWS staff-led, and can be conducted with minimal support
- are inquiry-based and provide for an appropriate level of student-directed learning
- are culturally relevant
- are place-based, with priority given to getting students out on the landscape

### Grades

- consist of two (2) lower elementary lessons, three (3) upper elementary lessons, one (1) middle school lesson, and one (1) high school lesson
- are scalable along designated grade bands (lower elementary, upper elementary, middle school, and high school)

### Time & Season

- are approximately one-hour in length for field experiences
- are intended for use during the spring or fall field season

### Extensions

- include available pre- and post-visit extension activities that frame the field experience within the broader learning context
  - the pre-visit activity may be a virtual presentation or in-person, and may be shared across multiple lesson plans

## USFWS Branding & Messaging

- incorporate the latest branding and messaging of the National Wildlife Refuge System
- reinforce management priorities and actions of the Service and Turnbull NWR

## Concepts

- focus on the topics of:
  - adaptations (with emphasis on beavers and owls as representative species)
  - habitats (prairie/steppe, riparian/wetland, and upland/forest)
  - wetland ecology (with emphasis on hydrology, water quality, and benthic macroinvertebrates)
  - geology of the Channeled Scablands ecoregion (can be incorporated into the other topics as appropriate)
  - migratory birds (with emphasis on identification techniques and habitat use; this can be incorporated into the other topics as appropriate)

## Logistics & Materials

- include a field or nature journaling component
- take into account the planning logistics of materials and chaperones
- take into account the planning logistics of student safety
- are sufficiently and thoroughly detailed such that any teacher may utilize the lesson with minimal training or instruction
- follow formatting, vocabulary, and utilizes templates for lesson plans (provided by USFWS)
- are on par qualitatively with the curricula available at other national wildlife refuges (which will be used as a standard of measurement when completing this project)

## Accessibility

- meets the requirements of programmatic accessibility as outlined in Sections 504 and 508 of the Rehabilitation Act. Written lesson plans and curriculum materials should meet accessibility standards so that anyone with physical, behavioral, emotional, or cognitive disabilities can participate fully.

## Outreach Component

The Contractor will conduct outreach into local school districts as part of the planning process to determine teacher needs prior to creation of the new curriculum.

## Review Component

The Contractor will be available for planning review meetings with USFWS staff and, if requested, with the Friends of Turnbull NWR and other refuge partners.

## Existing Resources

It is fully understood that the contractor may adapt, interpolate, reference, cite, or include aspects from existing curricula in any newly developed materials. All such materials must be appropriately credited and attributed. Refuge staff will provide the contractor access to all existing educational materials, as

well as any additional reference material that may be useful, including, but not limited to activity guides and curricula from other refuges. The contractor is welcome to use additional external resources not listed within this Scope of Work.

### Site-Visit Requirement

The contractor is required to make a minimum of one (1) site visit to Turnbull NWR during the period of performance, preferably before the 30% review phase. The purpose of this visit is to acquaint the contractor with the layout, size, and orientation of refuge resources. The site visit also serves to familiarize the contractor with existing educational materials and, if needed, to provide the contractor with any requested reference materials. The Contractor should also use this time to conduct outreach with local teachers. Housing may be available at a shared bunkhouse for anyone visiting from outside the local commuting area. Additional travel stipends may be available from the Friends of Turnbull NWR.

### Format

Lesson plan documents are expected to be formatted using templates that the Service will provide. All the features of the lesson design from the template must be included. Lesson plan documents will need to be formatted into PDF and made accessible to screen readers. Field guides or other supplemental materials may be designed at the discretion of the Contractor but should still meet the same formatting and accessibility guidelines.

## Qualifications

### Required

- Must be a U.S. citizen or Permanent Resident, as required by U.S. government contracts
- Willing and able to represent the U.S. Fish & Wildlife Service and the Friends of Turnbull NWR in a professional, positive, and enthusiastic manner
- Be pursuing or hold a bachelor's degree or higher and/or have relevant experience in subject areas such as environmental education, wildlife biology, environmental science, natural resources, parks and recreation, ecology or other related disciplines appropriate to the position
- Or, barring a formal degree, possess equivalent job experience in the realm of outreach, interpretation, or place-based, environmental, and other non-formal education
- Experience in writing curricula or lesson plans in formal or non-formal education settings
- Writing skills, with an understanding of basic grammar, punctuation, and spelling
- Ability to be both self-directed/work alone, and be a positive, contributing member of a group
- Ability to effectively communicate with refuge staff and partner organizations
- Have access to, and familiarity with Microsoft Office products including Word, PowerPoint, and Publisher
- Have access to, and familiarity with Adobe Acrobat
- Attention to detail
- Desire to work with diverse audiences from urban and rural settings
- Ability to perform the essential duties of the position with or without reasonable accommodation

### Preferred

Competitive applicants for this position will:

- Have experience working with schools and teaching formal or non-formal educational programming
- Have experience developing and coordinating education programs
- Have experience with basic elements of graphic design
- Have access to, and familiarity with the Adobe Suite, including Acrobat, InDesign, Illustrator, and Photoshop, or
- Have access to, and familiarity with the Canva graphic design platform

## Deliverables

- a) Conduct outreach with local schools and teachers to determine programmatic needs
- b) Prepare and submit a tentative schedule
- c) Prepare and submit a minimum of seven (7) lesson plans as outlined in the Scope subheading, that create a new, holistic curriculum that supports the Service and Refuge mission.
- d) Develop any associated lesson plan materials, such as student notebooks, worksheets, etc. (including all graphic design work, as deemed appropriate)
- e) Attend all review meetings
- f) Incorporate all agency review comments

*It is understood that all deliverables become the property of the U.S. Fish & Wildlife Service upon completion of this Scope of Work.*

## Approximate Timeline

- a) Prepare and submit a tentative schedule.
- b) Attend a pre-planning meeting, including refuge staff and a representative from the Friends of Turnbull NWR.
- c) Visit Turnbull NWR. Meet with staff to review trails, education spaces, existing materials, and interpretive signage.
- d) Conduct outreach with local teachers and schools.
- e) Develop and plan 30% of all elements. 30% completion is defined as having visited the refuge, identified existing resources, identified focus topics, completed all research and initial outreach related to curriculum development, and created an outline for all the lesson plans.
- f) Attend a virtual review meeting with refuge staff.
- g) Incorporate review comments.
- h) Develop and plan 60% plan of all elements. 60% completion is defined as having drafted all the lesson plans (including materials lists) and having at least three lesson plans completed.
- i) Attend a virtual review meeting with refuge staff.
- j) Incorporate review comments.
- k) Prepare and submit 90% plan of all elements. 90% completion is defines as having completed all 7 lesson plans and the student workbook or field journal.
- l) Attend a virtual review meeting with refuge staff.
- m) Incorporate final review comments.
- n) Prepare and submit final documents.



## Codes and Standards

### Accessibility

The Contractor shall adhere to all requirements of programmatic accessibility as outlined in Sections 504 and 508 of the Rehabilitation Act.

#### Section 504

Section 504 requires agencies to provide individuals with disabilities an equal opportunity to participate in their programs and benefit from their services, including the provision of information to employees and members of the public. Agencies must provide appropriate auxiliary aids where necessary to ensure an equal opportunity. Types of auxiliary aids may include brailled or large print versions of materials, electronic diskettes, audiotapes, qualified interpreters or readers, telecommunications devices for deaf persons (TDDs), captioning of video, and other methods of making information available and accessible to persons with disabilities. In considering what type of auxiliary aid to provide, agencies must give primary consideration to the request of the individual with a disability and shall honor that request, unless it can demonstrate that another effective means of communication exists.

*Within the context of this Scope of Work, the Contractor is responsible for ensuring that field experiences are designed to provide equal opportunity for individuals with disabilities to participate. Any auxiliary aids are the responsibility of the Service.*

#### Section 508

Section 508 requires Federal agencies to ensure that persons with disabilities (both employees and members of the public) have comparable access to and use of electronic information technology. That means that any electronic and information technology used, maintained, developed, or procured by USFWS must be accessible to persons with disabilities.

*Within the context of this Scope of Work, the Contractor is responsible for creating documents that meet electronic accessibility guidelines. Examples include providing captions and alt text for images and graphics, using appropriate headers, and ensuring proper color contrast for all documents.*

### Safety Standards

The Contractor shall adhere to Occupational Safety and Health Administration (OSHA) 29 CFR 1910 and 1926, as well as other applicable DOI, USFWS, State, or local regulations. In the event of a conflict, the most stringent code requirement shall apply.

### Equal Opportunity Employment (EEO)

It is the policy of the U.S. Fish & Wildlife Service (Service) to provide equal employment opportunity to all employees and applicants for employment. Our success in meeting the mission of the Service rests on a foundation of shared values and underlying beliefs that we can be our true selves at work, that dignity and respect are paramount, and that our individual and collective accomplishments have intrinsic worth.

### Professional Standards

The Contractor will be the only individual providing these contracted services. No other individuals will be subcontracted.

## FWS Policies

The work performed under this contract must also meet the standards set forward by the National Wildlife Refuge System Improvement Act of 1997, USFWS policy ([605 FW 1-7](#)).

## Invoice and Payment

This contract awards a stipend of [AMOUNT DETERMINED BY REQUEST FOR PROPOSAL]. Payment will be made via check or bank transfer at the 30% and 60% completion marks, and upon final review and acceptance of all materials by the U.S. Fish & Wildlife Service. Payment is provided via the Friends of Turnbull NWR.

## Progress Payments

Progress payments shall be invoiced and submitted at the 30% completion, 60% completion, and satisfactory completion of the project. 30% completion is defined as having visited the refuge, identified existing resources, identified focus topics, completed all research and initial outreach related to curriculum development, and created an outline for all the lesson plans. 60% completion is defined as having drafted all the lesson plans (including materials lists) and having at least three lesson plans completed. Each deliverable is due two weeks prior to any associated review meeting. Invoices shall reflect the actual work performed at the time of submission. Prior to submitting invoices, they shall be sent to the USFWS representative for review and approval.

## Final Payment

Final payment shall be invoiced and submitted upon satisfactory completion of the project. Prior to submitting the final invoice, the Contractor shall have submitted all closeout deliverables. In addition, contractor shall have been provided an approval by the Service stating that all requirements have been met.

## Place of Performance

Turnbull National Wildlife Refuge  
26010 S Smith Road  
Cheney, WA 99004

This work can be performed remotely, except for the required site visit(s).

## Government Availability

The Service is available Monday through Friday from 8:00 AM to 4:00 PM (Pacific Daylight Time), excluding Federal holidays. Availability outside the dates / hours shall be coordinated with the Refuge Point of Contact (POC) at least two business days in advance.

## Point of Contact

Joshua Contois  
Supervisory Park Ranger (Visitor Services Manager)



U.S. Fish & Wildlife Service  
Inland Northwest National Wildlife Refuge Complex  
26010 S Smith Road  
Cheney, WA 99004  
[joshua\\_contois@fws.gov](mailto:joshua_contois@fws.gov)  
(509) 559-3034



# Signatures

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**Contractor**

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**Date**

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**U.S. Fish & Wildlife Service Representative**

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**Date**

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**Friends of Turnbull NWR Representative**

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**Date**



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**Grade Level:**

3rd to 5th

**Time:**

75 Minutes

**Season:**

All

**Objectives:**

Students will be able to...

- Collect data in a tally chart based on observations
- Translate data collected from a chart to a bar graph

**Key Concepts:**

- Habitat Fragmentation
- Invasive Species
- Fish Migration

**Materials:**

- Blank paper, nature journals, or printed data sheet
- Clipboards (if not using journals)
- Pencils
- Binoculars
- Field Guides (optional)
- Graphing Paper
- Projector/Elmo

# Name of Lesson

Unit – Subtitle (Lora 14)

## Background & Summary

Tasked with finding answers to a specific question about wildlife, students will investigate a natural place and collect data that reflects their observations. They will then translate that data from a chart into a bar graph and discuss their results, as well as the advantages of representing data visually. PA State Standards listed on final page.

## Procedure

The following lesson is based on the question: **What kinds of wildlife live at XXX?** It can be easily adapted by just adjusting the categories and can be completed in schoolyards or other outdoors spaces. (See extensions)

### Introduction

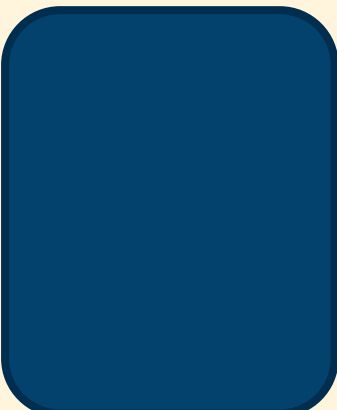
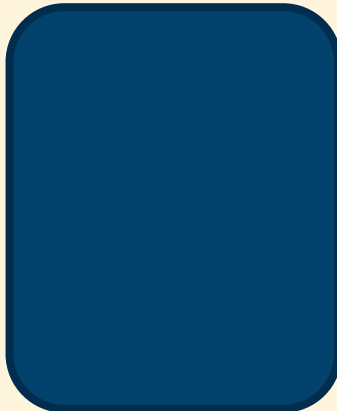
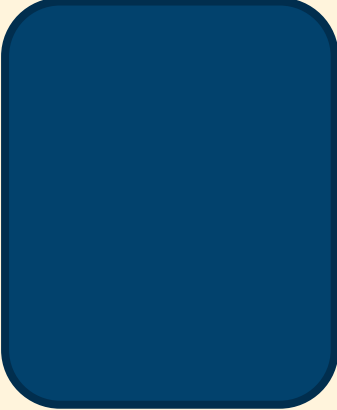
1. In the classroom, ask students what a **detective** does. They use clues to search for answers! Tell them that today, they will become **Nature Detectives**, working to find wildlife clues. Make a list on the board of their predictions of what wildlife they may find outdoors. Prompt discussion by asking: What could attract a pollinator to a flower? Color, scent, following others of the same species, etc. Which senses can we use to make observations? Hearing & Sight. Where should we look for wildlife or find signs of them?
2. Inform students that their mission is to investigate the trails to answer that question: What signs of wildlife live at John Heinz? using their best detective skills. Have students choose three to four animal groups to search for on their hike, such as mammals, birds, reptiles, amphibians, or insects.
3. Give each student a blank page or printed data sheet. Orient it horizontally and fold it from right to left so that it ends up like a backwards book.

### Header with Relevant Information





## Journal Page Setup



## Procedure (Continued)

4. Using the “Journal Page Setup” on the left, guide students through creating a chart. Include relevant data like the *title, date, location,* and at least 2-3 words about the day's weather.

5. Explain to students that they will compile a tally chart to keep track of their data. Review what a tally chart is and outline possible examples and how best to record them. *Example: If 6 birds fly over- demonstrate how to tally a set of 5, plus 1 in the Birds box. If we find a set of deer tracks and a pile of scat, tally 2 marks in Mammals.*

6. Inform students that when they come back inside, they will use this chart to create a “picture” of their data.

7. Check for understanding and answer any questions.

8. Pass out clipboards & instruct students to clip-on their data sheet & pencil.

9. Tell students that they will receive one more tool to help them on with their investigation: *binoculars!* Before handing out, remind students to place the straps over their heads immediately to prevent drops. Review proper use in the classroom or on the trail.

*\*Tip: Write a simple word on a small paper. Tape it on the*

*wall and have students stand at the other end of the room and try to read it by adjusting the focus on their binoculars.\**

10. Before heading outside, remind students how they should behave in order to successfully complete their mission (calm, quiet, observant).

### Hike/Data Collection

11. Hike the Boardwalk Loop and assist students in spotting wildlife and identifying signs.

12. Keep your own journal page along the way, tallying as you go and informing students of what you are doing to keep them on task.

### Graph/Data Analysis

13. Once back in the class-room, instruct students to **sum** each category and circle the total in each of the four boxes. Let students know their results may vary from their neighbors.

(See “Completed Tally Chart” image). Discuss results in pairs or as a group.

14. Explain that students will now transform their data into a graph. Facilitate a brief discussion of graphs: *Why do we make graphs? How are they useful?* Show some examples to demonstrate (see next page).



## Procedure (Continued)

15. Ask students to flatten out their data sheets with their chart on the left and a blank side on the right.
16. Pass out graph paper and tape a graph sheet to each side. Use an Elmo, projector, or oversized blank graph paper to allow for students to follow along as the graph is made.
17. Ask students what to include on a graph and work together to fill in spaces:
- Title: Copied over from tally chart
  - Labeled X Axis: *Types of Wildlife* with each of the four categories
  - Labeled Y Axis: *Number of Observations* with axis numbered based on total observations made (ex. Multiples of 1, 2, 5 to best fit the graph)
18. Discuss the results. Does everyone's graph look the same? Why? What do they have in common?
- How might our results change in another season? Another location?
19. Wrap up by discussing two questions: Do you have to come to John Heinz to see wildlife? Where else could you look? Challenge students to try out their own detective investigation where they live!

### Vocabulary Blurb:

You can type in the definitions most important for this lesson. You can also add a photo below in a box like this if you'd like.

### Vocabulary Blurb:

You can type in any definitions most important for this lesson.

## Extensions

### Additional Topic Ideas

#### Phenology

Tying phenology into your investigation will get students thinking critically and making connections. Include the season in your discovery question to get students thinking about the concept!

#### Get Specific!

For older students or those with more experience, list the different species from each animal group and create a graph that represents the level of species diversity among each group.

#### Going Off Refuge

This lesson could easily be completed at other sites off refuge! Visit your school or a nearby park to investigate. This can be done as a pre- or post-trip activity or even without visiting a refuge.

#### Data Sheets

If you are pressed for time or working with a group with less data collection experience, making data sheets ahead of time can be helpful! Include lines but leave categories for students to decide.





## Vocabulary to Know

**Habitat** – the natural home or environment of an animal, plant, or other organism

**Wildlife** – wild animals that live free of humans

**Conservation** – the protection of nature, such as soil, water, or forests, from loss, pollution, or waste.

**National Wildlife Refuge** – an area designated to help protect and conserve wild animals and their habitats

**Prairie**– a type of habitat with mostly grasses, but also flowering plants and occasional shrubs or a few trees

**Wetlands**– a type of habitat where standing water covers the soil or an area where the ground is very wet

**Track**– the imprint left behind in the soil, snow, mud, or other ground surfaces that an animal walks across

**Scat**– what animals leave because they all must eat and then get rid of their waste – poop!





## State or NGSS Standards

### Mathematics

#### 2.4 Measurement, Data and Probability

CC 2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.

CC 2.4.4.A.2 Translate information from one type of display to another.

CC2.4.5.A.2 Represent and interpret data using appropriate scale.

### Science and Technology and Engineering Education

#### 3.1.A Organisms and Cells

3.1.3.A1. Describe characteristics of living things that help to identify and classify them.

3.1.4.A5. Describe common functions living things share to help them function in a specific environment.

#### 3.1.C Evolution

3.1.5.C Describe how organisms meet some of their needs in an environment by using behaviors in response to information received from the environment.

### Environment and Ecology

#### 4.1 Ecology

4.1.3.A. Differentiate between the living and non-living components in an environment.

4.2.3.C. Identify plants and animals that live in lakes, ponds, streams, and wetlands.

4.1.4.D. Explain how specific adaptations can help organisms survive in their environment

4.1.4.E. Explain that ecosystems change over time due to natural and/or human influences.

#### 4.1 Watersheds and Wetlands

4.2.5.B. Identify important wetlands in the United States.

### English Language Arts

#### 1.5 Speaking and Listening

CC.1.5.3.C Ask and answer questions about information from a speaker, offering appropriate detail.

CC.1.5.4.A Engage effectively in a range of collaborative discussions on grade level topics and texts, building on others' ideas and expressing their own clearly.

CC.1.5.5.C Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.