



Washington  
Department of  
**FISH and  
WILDLIFE**

# Managing Wildlife Disease

## 9-12th Grade

Themes: Zoonoses, Wildlife Disease

### Location:

**Remote learning modification:** Lesson can be taught over Zoom or Google Classrooms. The PowerPoint, brainstorming, and assessments can be done in the classroom with student computers.

### Standards:

#### NGSS

##### [HS-LS2-1](#)

Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

#### CCSS

##### [CCSS.ELA-LITERACY.RH.11-12.7](#)

Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

##### [CCSS.ELA-LITERACY.RH.11-12.9](#)

Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.

### Modifications, Adaptations:

For COVID-19 distance learning, or other remote learning modification, look for **remote learning modifications** throughout the lesson plan.

### Materials:

WDFW Wildlife Disease PowerPoint, Modeling Disease Transmission Lesson Plan, Modeling Disease Transmission Key, Wildlife Disease Research Questions

### Objectives:

Students will..

1. Describe what disease is and how zoonoses impact both wildlife populations and humans.
2. Determine the benefits and drawbacks of head-starting Western Pond Turtles.
3. Analyze the management of one wildlife disease in Washington.
4. Present their findings to their peers using peer-reviewed information.

### Vocabulary:

**Anthropogenic:** Caused by human activity.

**Bacteria:** Single-celled prokaryotes that have the potential to cause disease. Bacteria has no organelle or nucleus.

**Biodiversity:** The full range of life in all its forms. This includes the habitats in which life occurs, the ways that species and habitats interact with each other, and the physical environment and the processes necessary for those interactions.

**Disease:** Any impairment of the normal structure or function of any part, organ, or system of a plant or animal.

**Ecology:** The study of the relationships between living organisms and their physical environment. Ecosystem services: Benefits people obtain from ecosystems, plants, and wildlife.

**Host:** The organism that vector/parasite is feeding from.

**Parasite:** An organism that lives in or on another organism (host) and benefits by taking nutrients from the host.

**Pathogen:** An infectious agent that causes disease.

**Vector:** Species that carry and spread disease to other organisms (i.e., ticks and Lyme disease)

**Virus:** An infective agent consisting of genetic material in protein. Viruses can only multiply within the cells of a host.

**Zoonosis:** A disease that can be transmitted between humans and non-human animals (i.e., rabies).

### Procedure:

#### Part one: Introduction

Open the WDFW Wildlife Disease PowerPoint and make sure presenter notes are on. Go through the 15-slide PowerPoint in one class period. The PowerPoint includes prompts for student discussion, links to movies to supplement learning and an article for students to read together in class.

Homework: Have students read through and answer the questions from the [University of Illinois Wildlife Encounters Program on Wildlife veterinary care, education and conservation](#).

Have them answer the following questions:

- 1) What is the difference between wildlife rehabilitation and wildlife medicine?
- 2) What is disease monitoring and why is it important?
- 3) What is the state doctrine of ownership and how does it pertain to sick or injured wildlife?
- 4) Describe three challenges wildlife vets face in the field.
- 5) List three ways you can help wildlife.

In your next class period have students share their answers with a partner, then share out as a class.


#### Part two: Modeling Disease Transmission

For the next part of this lesson, please see the Modeling Disease Transmission lesson from Perdue University. Also included in the supplemental materials is a teacher's key for the modeling sheets.



## Part three: Wildlife disease in Washington research project and presentation

Pass out Washington Disease Research Assignment sheet. Have students read through some of the [wildlife diseases in Washington](#) and have them choose one disease to research. They may also use [this database of wildlife and fish disease in Oregon](#), but must research to ensure the disease they choose to study is in Washington. Students will do research in small groups of two-three and then put their findings into a presentation. Make sure students cite their work properly. You may choose to give them this [citation resource from Gonzaga University](#). We recommend giving students one to two weeks to complete this assignment. After they complete have them present during class.

 **Idea:** Show off your students' work! Share student projects from this lesson with WDFW.  
Facebook: @WashingtonFishWildlife  
Instagram: @TheWDFW  
Twitter: @WDFW  
#WildWashington #WildWa

Did you teach this lesson? [Give us your feedback.](#)

## Additional Resources :

*We encourage you to use the following resources as either a supplement to this lesson, or to share the resources with students for their project.*

## Supplemental lessons:

- [Prying into Prions: Investigating Chronic Wasting Disease](#)-Colorado Division of Wildlife
- [Solving the Mystery of an Outbreak Using the One Health Concept](#)-University of California Press
- [Solve the Outbreak](#)-Centers for Disease Control

## Other Resources:

- [Studying Elk Hoof Disease: Elk Necropsy](#) (video)-WDFW
- [Understanding Elk Hoof Disease](#) (video)- AgForestry Leadership Program
- [One Health: Animals, Humans, and the Environment](#) (video)-UW Medicine
- [Common Zoonotic diseases in the U.S.](#)-Kansas State University
- [Fish and Wildlife Disease](#)-USGS
- [Response to white-nose syndrome](#)- USGS
- [Elk Hoof Disease Fact Sheet](#)-Oregon Department of Fish and Wildlife
- [Infectious Diseases](#)-Washington Invasive Species Council
- [FAQ on salmonellosis in wild birds](#)-WDFW
- [Western Pond Turtle Rehabilitation Program](#)- Sustainability in Prisons Project