

National Wildlife Health Center Investigates Educator Guide

A resource for using QUEST media in the classroom; created by PBS/NPR partner station QUEST Wisconsin

Watch it online <http://science.kqed.org/quest/video/science-on-the-spot-national-wildlife-health-center-investigates/> | 6:40 minutes

QUEST SUBJECTS

Life Science **Biology**
Health
Environment

Earth Science **Geology**
Climate
Weather
Astronomy

Physical Science **Physics**
Chemistry
Engineering

WISCONSIN MODEL ACADEMIC STANDARDS

Grade 8

Nature of Science

B.8.3 Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications.

Diversity and Adaptation of Organisms

F.8.9 Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species.

Grade 12

Science Connections

A.12.7 Re-examine the evidence and reasoning that led to conclusions drawn from investigations, using the science themes.

PROGRAM NOTES



“The National Wildlife Health Center is sort of what it says. We’re a national center and we receive carcasses from refuges and state management areas all around the country, usually from state biologists, federal biologists, tribal biologists,” says disease investigation chief [Dr. Scott Wright](#). Carcasses shipped overnight to the center are most often samples taken from large animal die-offs. Join **QUEST** on a

visit to the National Wildlife Health Center (NWHC) to investigate animal die-offs and the work of the center.

In this segment you’ll find...

- ⦿ an explanation of how pathologists at the NWHC determine the cause of die-offs.
- ⦿ information about the investigation of a recent red-wing blackbird die-off in a small Arkansas town.
- ⦿ analysis of why some species of amphibians in North America are declining or going extinct.

TOPIC BACKGROUND

Each year in the United States, investigative wildlife managers research unusual animal sickness and death. These scientists often study unexplained or sudden declines in a particular animal population, often referred to as a die-off. A recent die-off, jokingly referred to as “aflockalypse” by the media, took place in Beebe, Arkansas when over 5000 red-winged black birds seemed to mysteriously fall out of the sky. Investigating and minimizing such unanticipated wildlife loss is a large part of the NWHC’s mission.

Due to the mobility of wildlife and the potential for spread of disease, the Center’s work requires timely and accurate determination of animal illness and death. NWHC field personnel provide immediate technical assistance to those who find sick and dead wildlife, and will travel to problem areas to conduct investigations and assist local personnel. Wildlife carcasses and tissue samples are then sent to buildings and laboratories in Madison, Wisconsin for diagnostic examination by a staff of over seventy scientists and support personnel.

The NWHC was established in 1975 as a biomedical laboratory dedicated to assessing the impact of disease on wildlife and to identifying the role of various pathogens in contributing to wildlife losses. The Center monitors and assesses the impact of disease on animal populations; defines the environmental conditions which lead to the occurrence of disease; transfers technology for disease prevention and control; and provides guidance, training and on-site assistance for reducing wildlife losses when outbreaks occur.

Adapted from NWHC: http://www.nwhc.usgs.gov/information_desk/

VOCABULARY

Die-off

the decline or death of a significant portion of a population

Infectious Disease

a disease found in animals and/or humans caused by pathogens

Necropsy

an examination and dissection of an animal corpse to determine cause of death or changes produced by disease

Pathologist

a specialist who examines organism tissue and cells for diagnostic or forensic purposes

Toxicology

the branch of science concerned with the nature, effects, and detection of chemicals on living organisms

PRE-VIEWING

- Are you aware of any recent animal die-offs in your area?
- How and why are animal die-offs investigated?

VIEWING FOCUS

- How does the NWHC conduct an investigation?
- What event did the NWHC investigate in Beebe, AR? What did their investigation determine?
- Outline the investigative process used to investigate the tadpoles shown in the video?
- Why is the mission of the NWHC important to both animals and humans?

For all media see:

- Segment Summary Student Sheet
http://www.kqed.org/quest/downloads/QUEST_SegSum_StudentSheet.pdf
- Personal Response Student Sheet
http://www.kqed.org/quest/downloads/QUEST_PersResp_StudentSheet.pdf

LESSON PLANS and RESOURCES from NWHC, QUEST, PBS and NPR

Recent Mortality Events Map NWHC

http://www.nwhc.usgs.gov/map/mortality_events.jsp

The NWHC Mortality Events Map shows recent mortality events that have been reported to the NWHC.

USGS at the Forefront of Saving Bats From White-Nose Syndrome QUEST

<http://science.kqed.org/quest/2011/12/01/usgs-at-forefront-of-saving-bats-from-white-nose-syndrome/>

In this blog post, Dr. Kimberli Miller outlines the investigation and research conducted by the USGS National Wildlife Health Center on white-nose syndrome in bats.

Birds Tumbling From the Sky; Fish Floating Dead in the Water: How Unusual Are These Animal Die-Offs? PBS

<http://www.pbs.org/newshour/runtdown/2011/01/birds-tumbling-from-the-sky-fish-floating-dead-in-the-water-how-unusual-are-these-animal-die-offs.html>

This article analyzes the frequency of die-offs and whether or not they are as rare as the general public perceives.

Puzzling Demise of Arkansas' Red-Winged Blackbird NPR

<http://www.npr.org/2011/01/12/132810674/puzzling-demise-of-arkansas-red-winged-blackbird>

This story explores the back-to-back incidents of thousands of plummeting blackbirds from Arkansas and Louisiana skies and how the National Wildlife Health Center was involved in the investigation.

MORE EDUCATIONAL RESOURCES FOR USING QUEST MULTIMEDIA TO ENHANCE 21st CENTURY SKILLS IN TEACHING AND LEARNING

Why Use Multimedia in Science Education?

<http://www.kqed.org/quest/downloads/QUESTWhyMedia.pdf>

- Read about the importance of using multimedia in the 21st century science classroom.

How to Use Science Media for Teaching and Learning

<http://www.kqed.org/quest/downloads/QUESTMediaTips.pdf>

- A collection of tips, activities and handouts to actively engage students with multimedia.

Science Multimedia Analysis

<http://www.kqed.org/quest/downloads/QUESTMediaAnalysis.pdf>

- Give your students the tools to recognize the purposes and messages of science multimedia.

Create Online Science Hikes with Google Maps

http://www.kqed.org/quest/files/download/52/QUEST_ExplorationCreation.pdf

- Do you like the science hike Explorations on the QUEST site? Use this place-based educational guide to create similar science-based maps with youth.

Media-Making Toolkit for Science Education

<http://www.kqed.org/quest/education>

- Are you interested in integrating media making into your classroom or science education program? Find instructions, worksheets and rubrics for implementing simple media-making projects with students.

MORE QUEST



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www.kqed.org/quest

This Educator Guide was created by QUEST Wisconsin a PBS/NPR partner station. To learn more about this partnership, please visit

<http://science.kqed.org/quest/stations/wisconsin/>

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