



## Illinois Wesleyan University Digital Commons @ IWU

John Wesley Powell Student Research  
Conference

2008, 19th Annual JWP Conference

Apr 12th, 9:00 AM - 10:00 AM

# Detection of Heavy Metals in Kidney Tissue of North American Grey Wolves (*Canis Lupus*) Using Inductively Coupled Plasma Emission Spectrometry

Susan Blunck

*Illinois Wesleyan University*

Patty Troxell

*Illinois Wesleyan University*

Sarah Rueth

*Illinois Wesleyan University*

Alex Ozaki

*Illinois Wesleyan University*

Stephen Hoffmann, Faculty Advisor

*Illinois Wesleyan University*

*See next page for additional authors*

Follow this and additional works at: <http://digitalcommons.iwu.edu/jwprc>

Blunck, Susan; Troxell, Patty; Rueth, Sarah; Ozaki, Alex; Hoffmann, Faculty Advisor, Stephen; Frick, Faculty Advisor, Jeffrey; and Harper, Faculty Advisor, Given, "Detection of Heavy Metals in Kidney Tissue of North American Grey Wolves (*Canis Lupus*) Using Inductively Coupled Plasma Emission Spectrometry" (2008). *John Wesley Powell Student Research Conference*. 2.

<http://digitalcommons.iwu.edu/jwprc/2008/posters/2>

This Event is brought to you for free and open access by The Ames Library, the Andrew W. Mellon Center for Curricular and Faculty Development, the Office of the Provost and the Office of the President. It has been accepted for inclusion in Digital Commons @ IWU by the faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

---

**Presenter Information**

Susan Blunck; Patty Troxell; Sarah Rueth; Alex Ozaki; Stephen Hoffmann, Faculty Advisor; Jeffrey Frick, Faculty Advisor; and Given Harper, Faculty Advisor

Poster Presentation P3

**DETECTION OF HEAVY METALS IN KIDNEY TISSUE OF NORTH  
AMERICAN GREY WOLVES (*CANIS LUPUS*) USING INDUCTIVELY COUPLED PLASMA  
EMISSION SPECTROMETRY**

Susan Blunck, Patty Troxell, Sarah Rueth, Alex Ozaki and  
Stephen Hoffmann\*, Jeffrey Frick\*, and Given Harper\*  
Chemistry and Biology Departments, Illinois Wesleyan University

Sizeable grey wolf (*Canis lupus*) populations in North America are currently found in Alaska, Canada, Idaho, Wyoming, Montana, Michigan, Minnesota and Wisconsin. Since the grey wolf is at the top of its food chain, biomagnification may cause this species to contain high levels of some heavy metals, especially in areas where minerals have been extracted. However, no studies have documented heavy metal contamination in grey wolves throughout their North American range, which is the purpose of this collaborative study with the U.S. Fish and Wildlife Service and with state and Canadian wildlife agencies. Wolves were either found dead or were collected via lethal control methods and hunting from 2005 to 2007. The presence of heavy metals in wolf kidneys was determined via Inductively Coupled Plasma Emission Spectrometry at the University of Wisconsin-Madison; 120 kidneys were analyzed for aluminum, cadmium, copper, iron, lead and zinc. Differences in concentration levels due to sex and location will be evaluated; furthermore, a regression analysis will be used to assess possible relationships among heavy metals. The knowledge gained from this study may have implications for other top endangered predators in North America [e.g., red wolves (*Canis rufus*), Mexican grey wolves (*Canis lupus baileyi*), grizzly bears (*Ursus arctos*), and polar bears (*Ursus maritimus*)].