



**Preserving our wildlife conservation
and hunting heritage**

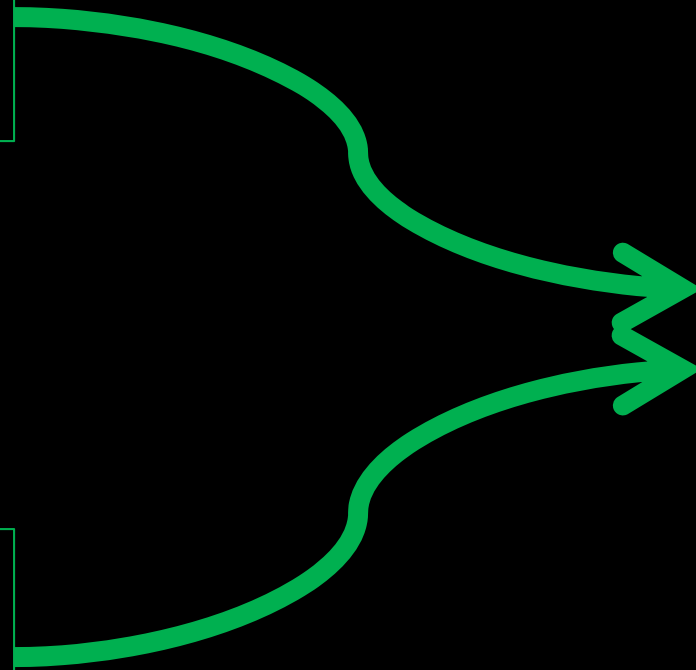


Common Goals

**Hunting
Conservation
Community**

**Non-Hunting
Conservation
Community**

**Maintain
wildlife and
habitat for
future
generations**





Non-Lead Hunting Education Coordinator





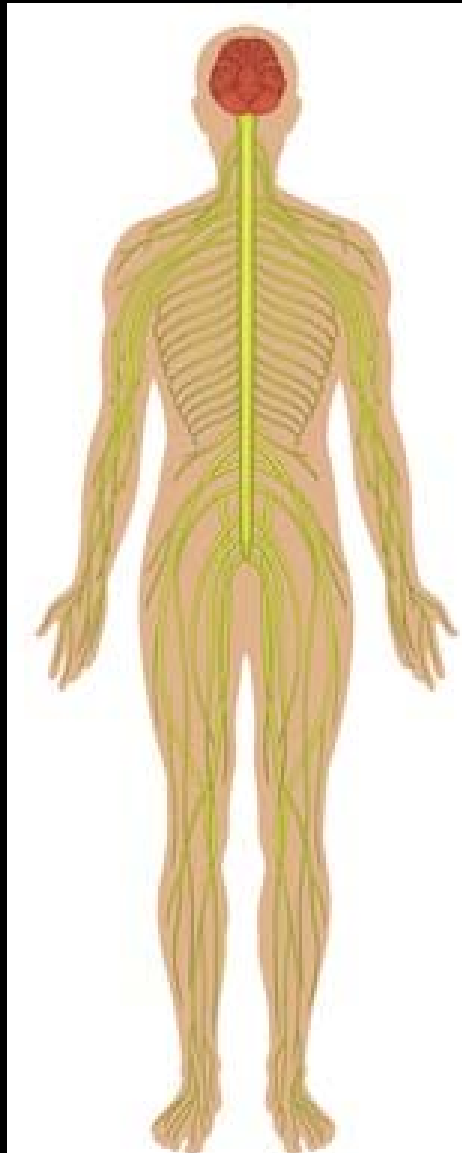
History





About Lead

- Lead stays in the blood for 1-3 weeks
- Replaces calcium in bone and remains for life



- Enters the soft tissue
- Lead disrupts the nervous system, especially in the young. there
- Exposure can cause decreased IQ, behavioral issues, long term health problems and death.



Identifying Exposure

- Live animals
 - Blood Lead Levels
 - Feather Lead
 - Radiographs
- Mortalities
 - Organ Lead Levels
 - Bone Lead Levels
 - Feather Lead











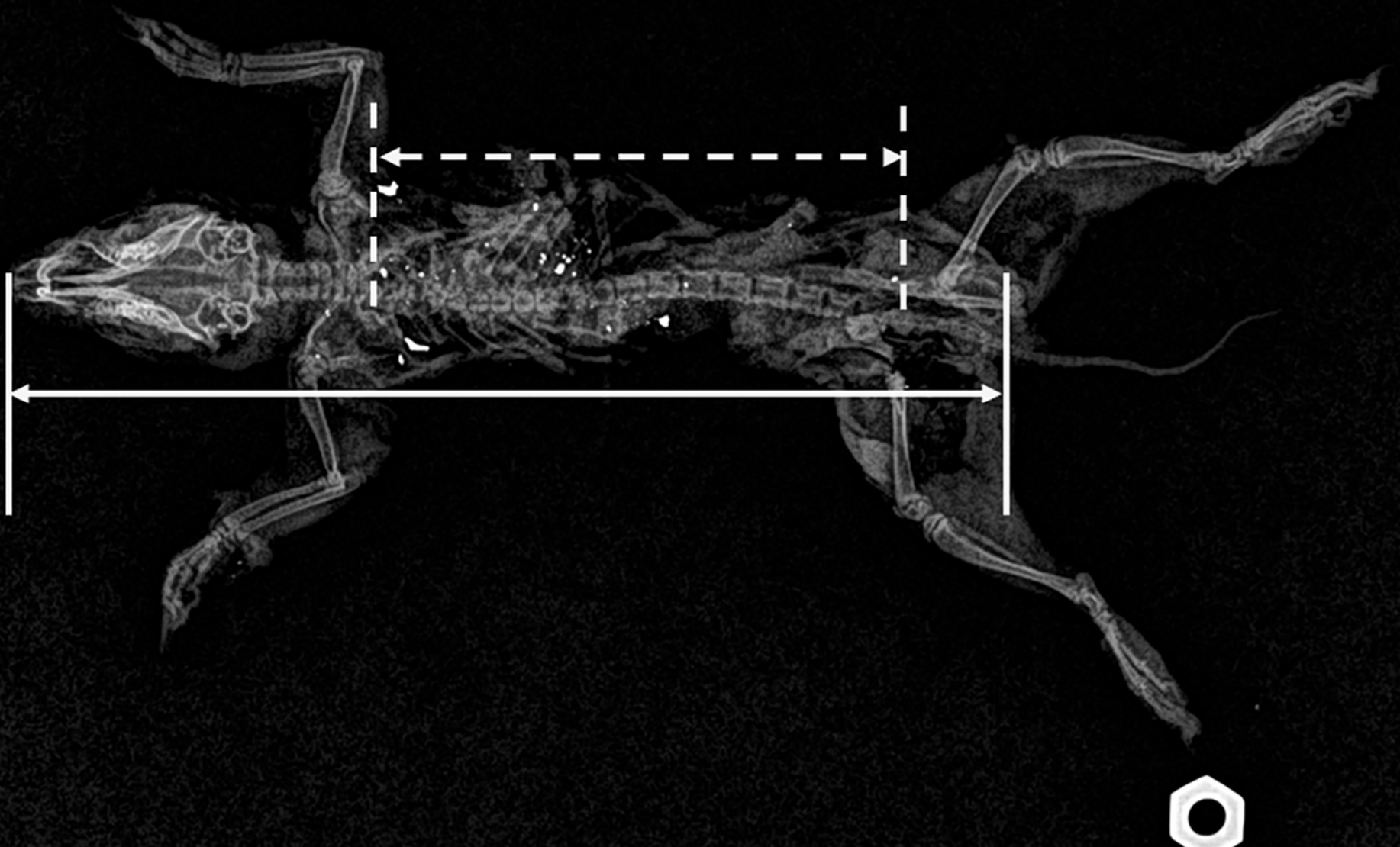
Pathways of Exposure

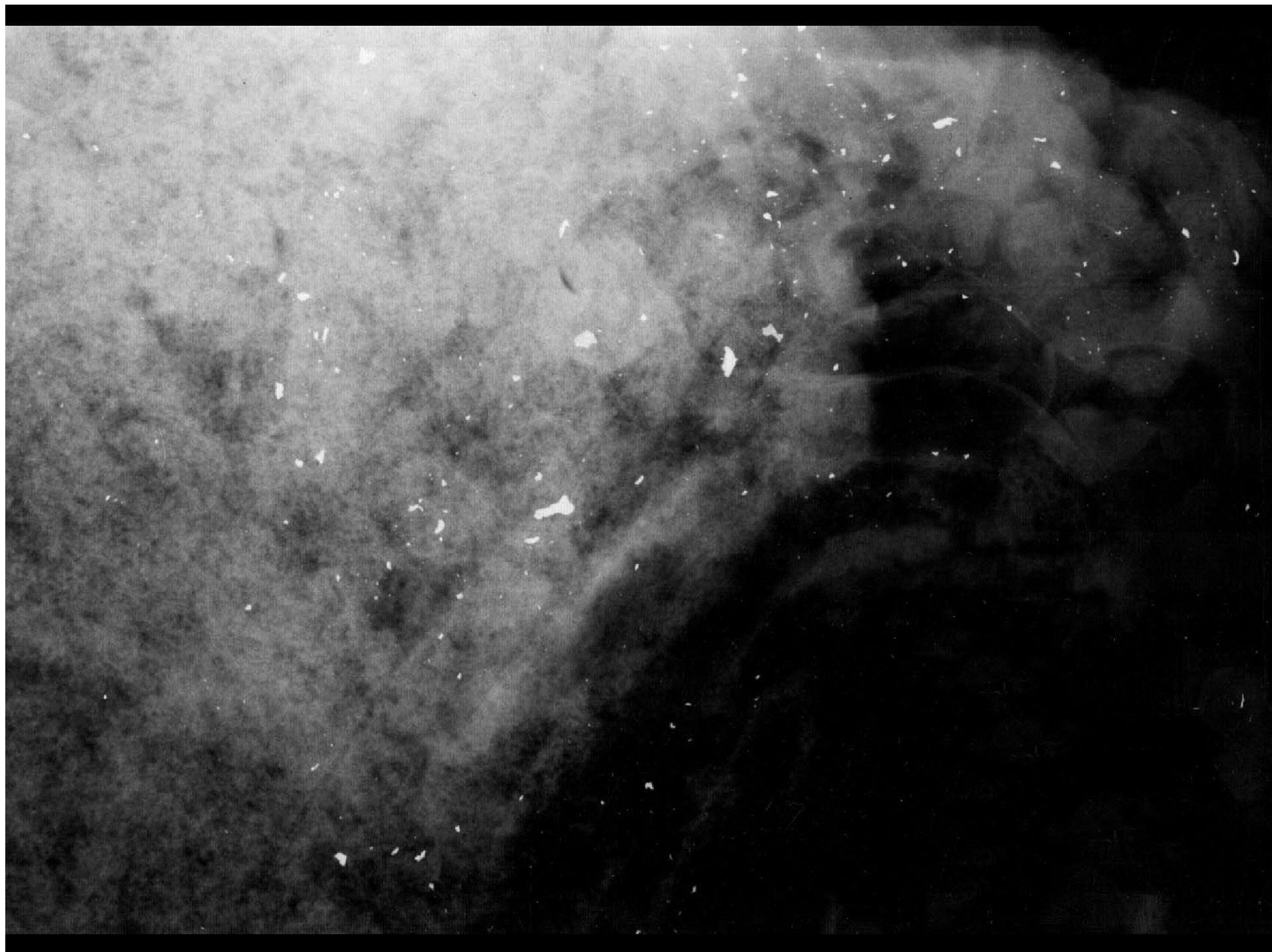
**Coyote shot with
lead ammunition**

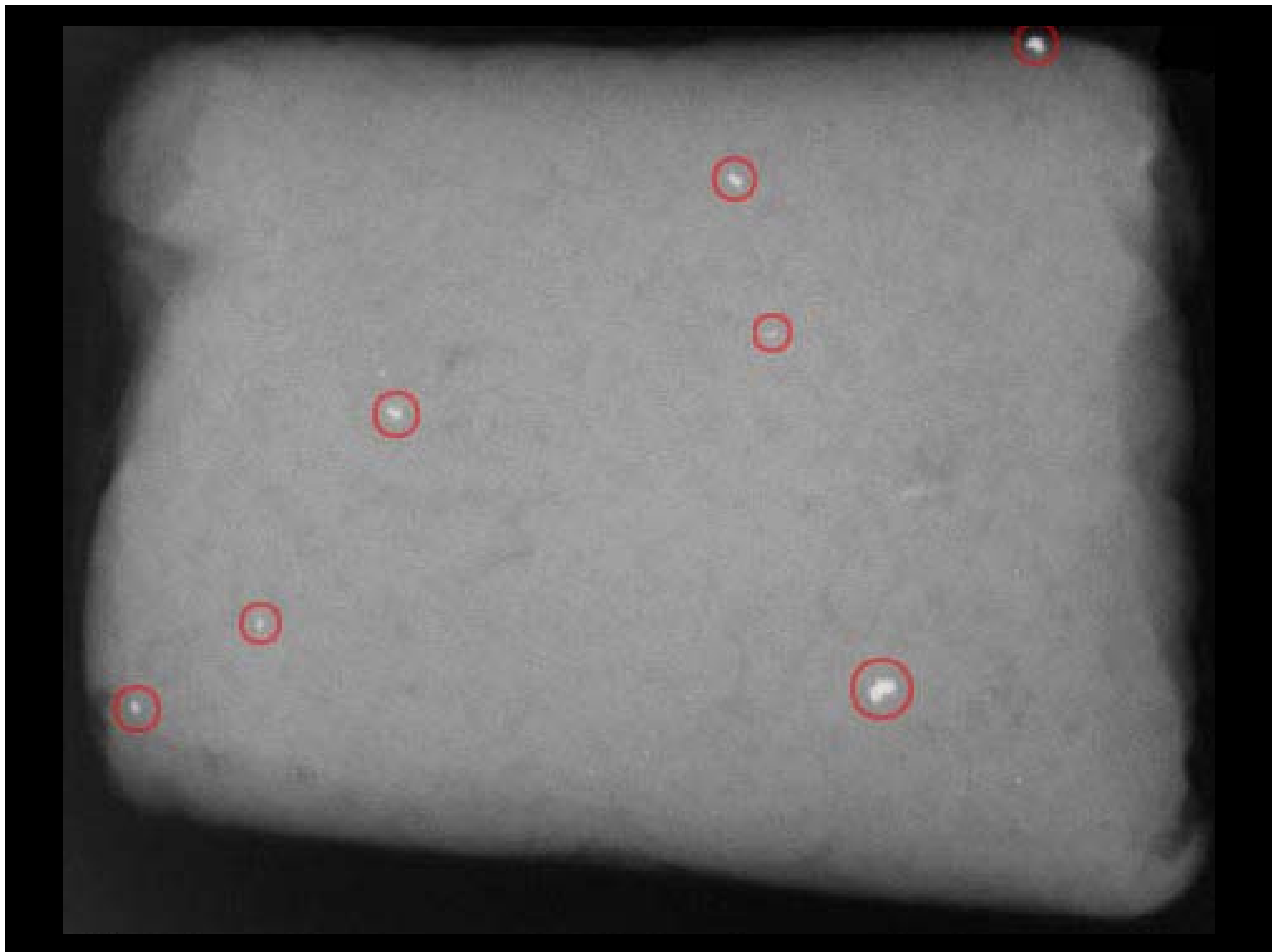




Pathways of Exposure









Wildlife Exposure



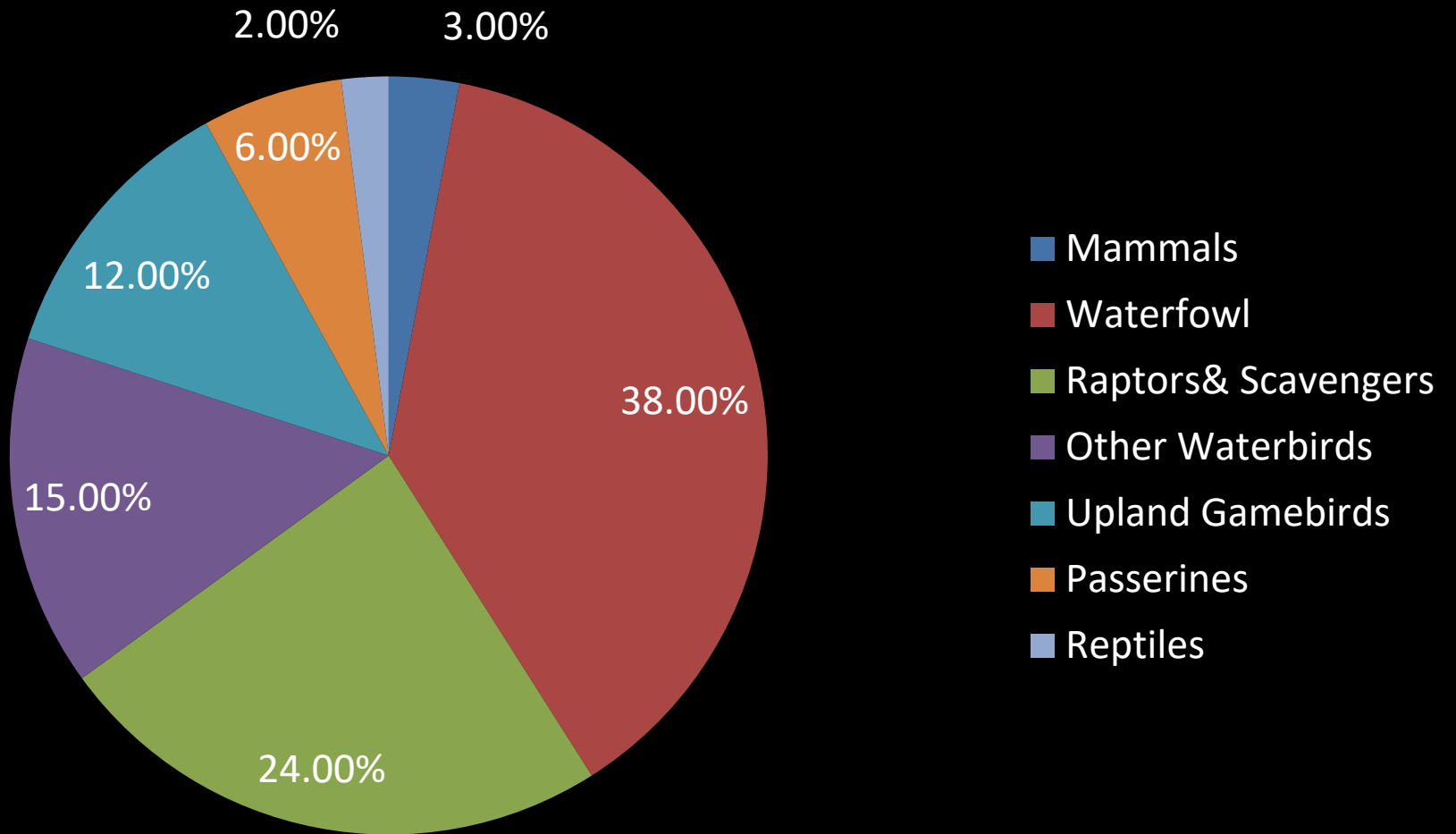
©Soarraptors.org

R



Wildlife Exposure

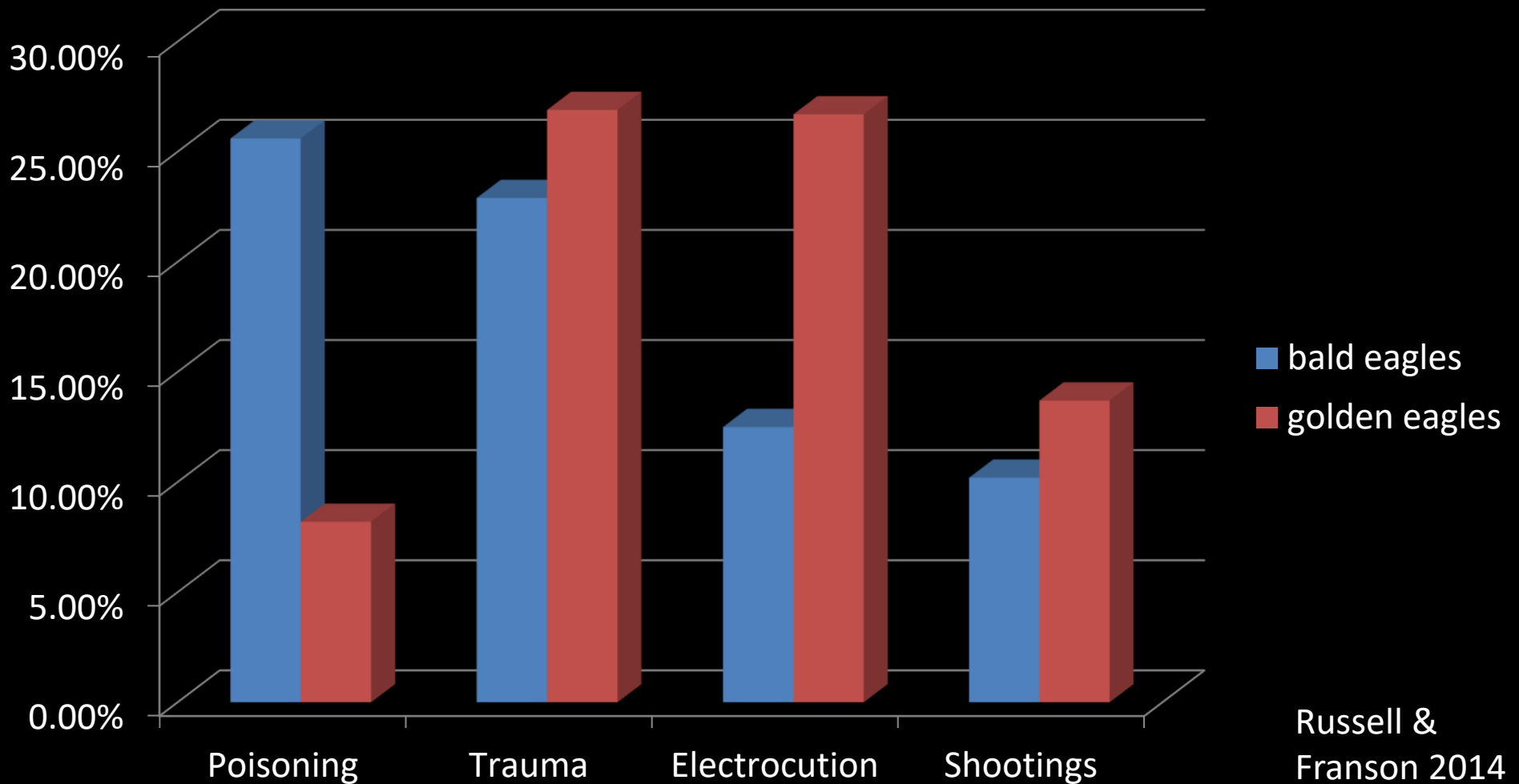
Categories of 130 Species affected by Lead Ammunition





Eagle Mortality

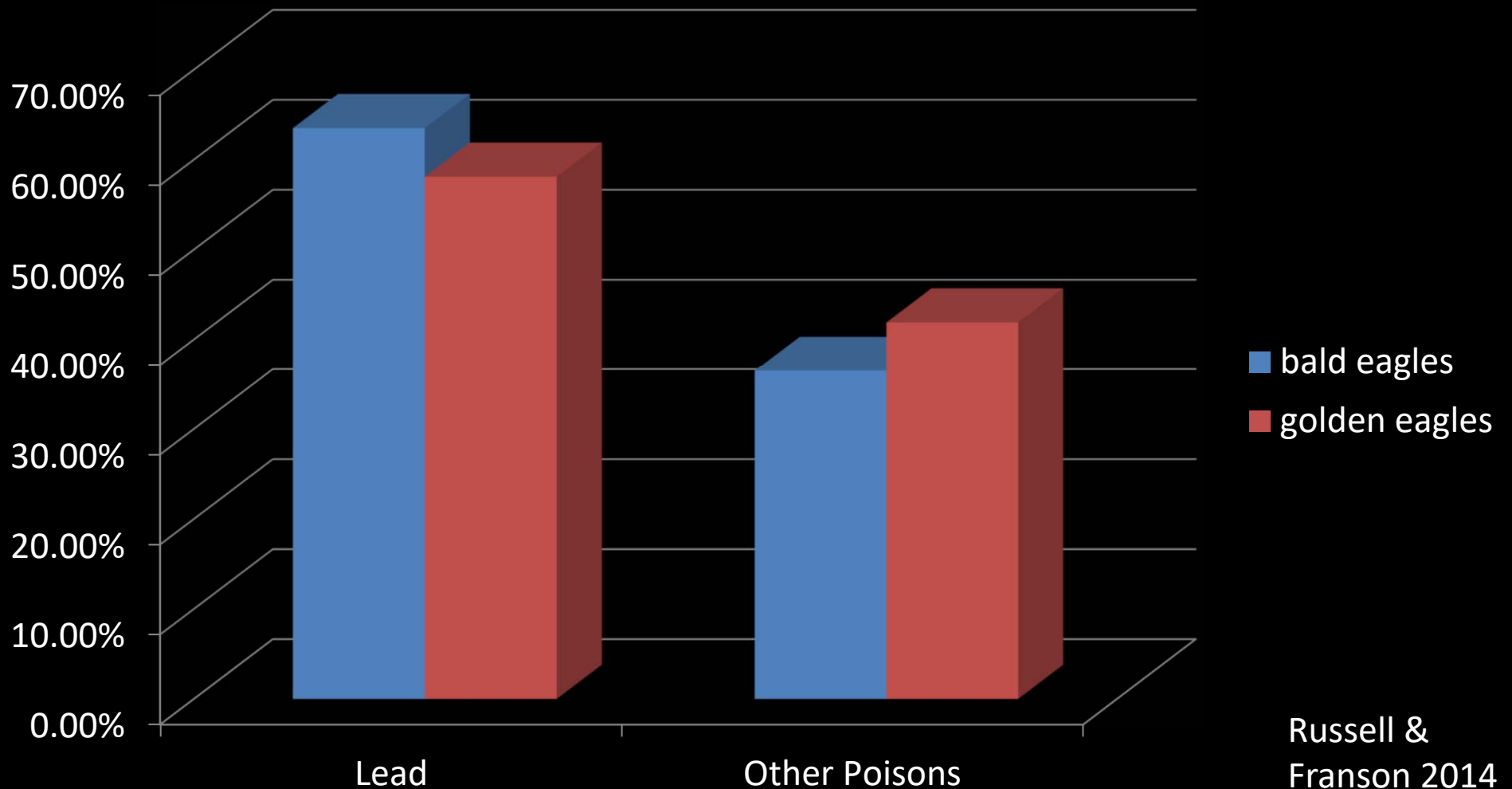
Bald and golden eagle leading causes of mortality 1975-2013





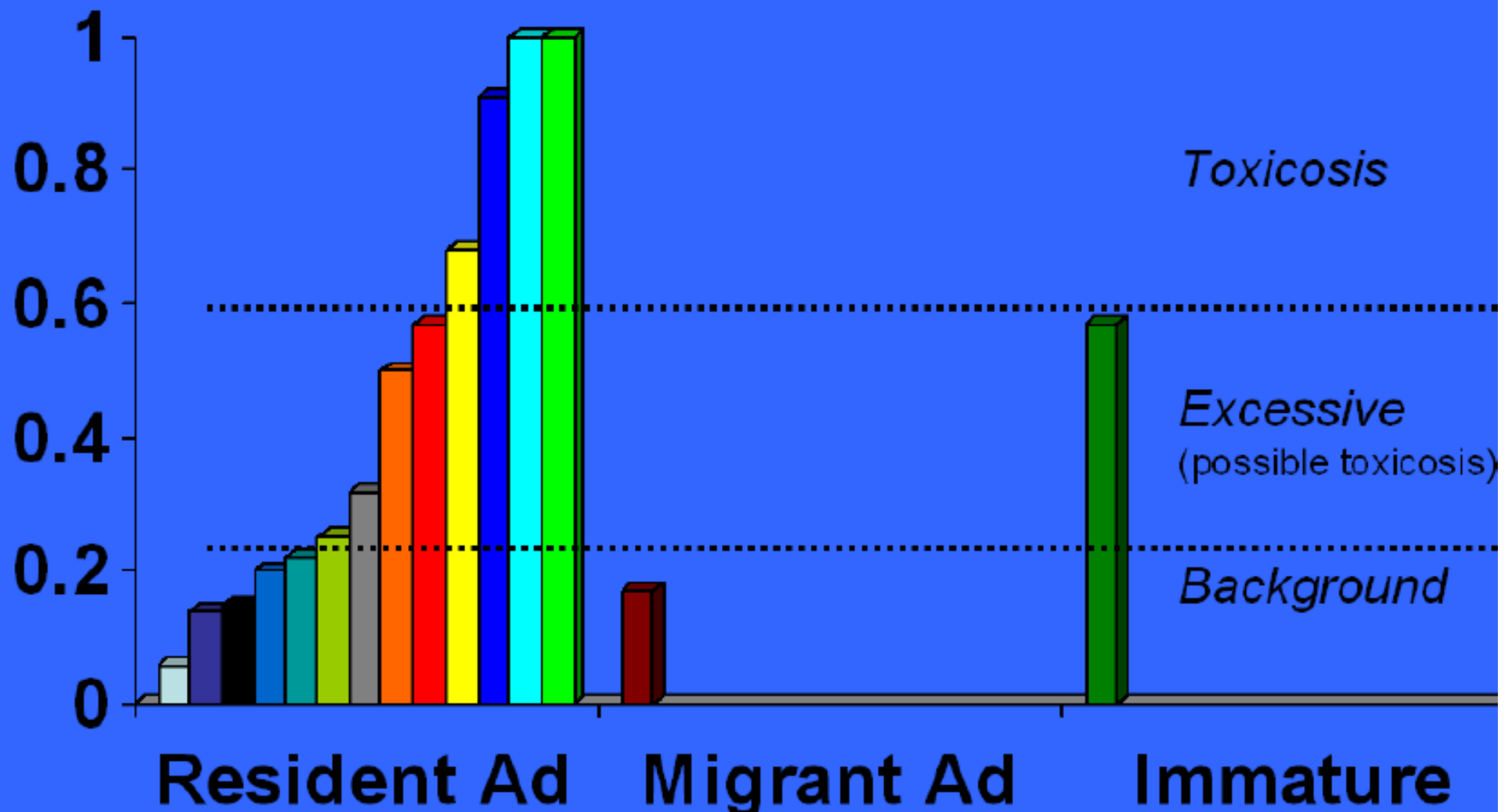
Eagle Mortality

Bald and golden eagle poison mortality 1975-2013



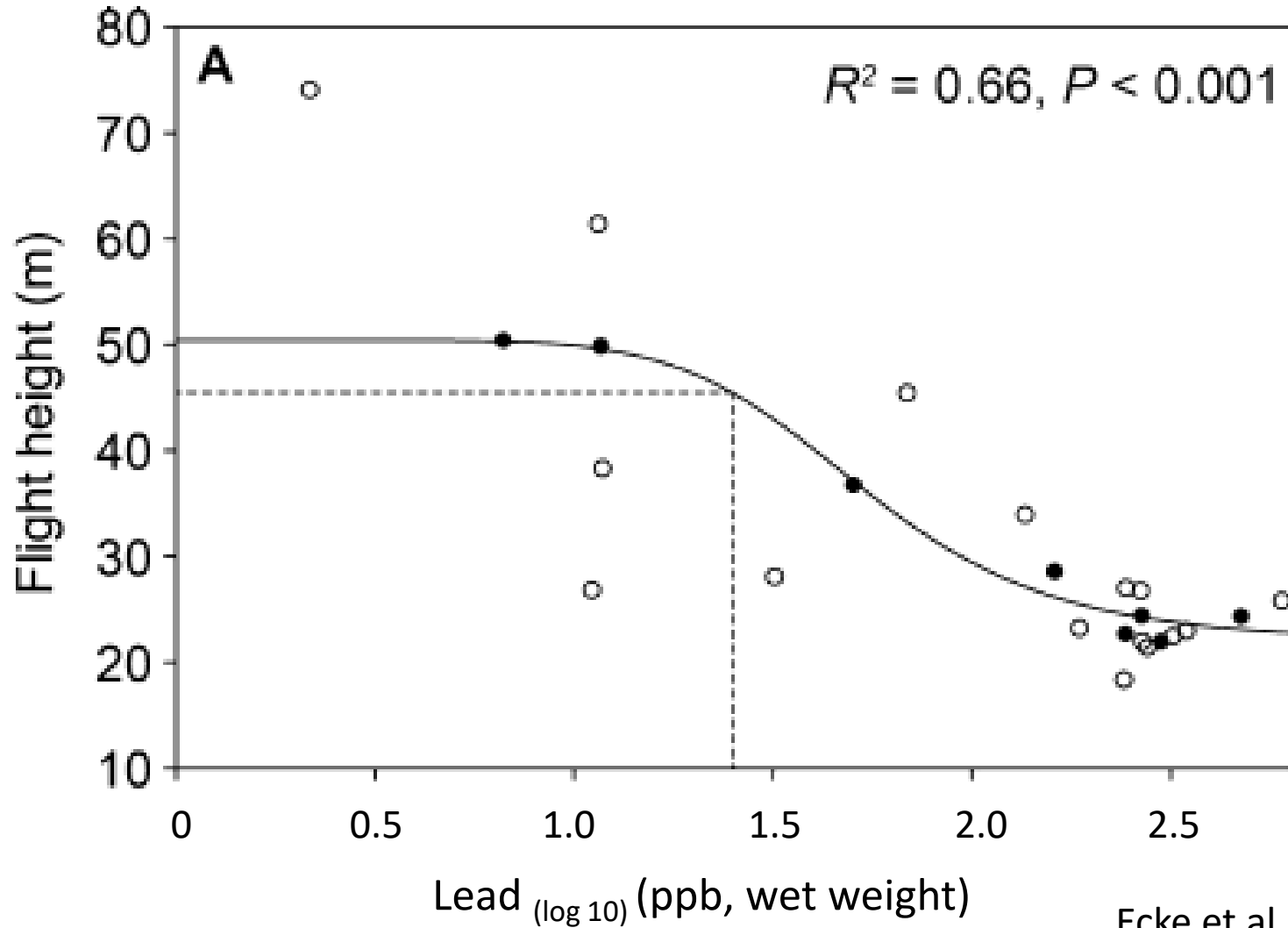
Russell &
Franson 2014

Blood Lead Levels of Washington Golden Eagles, 2005-08





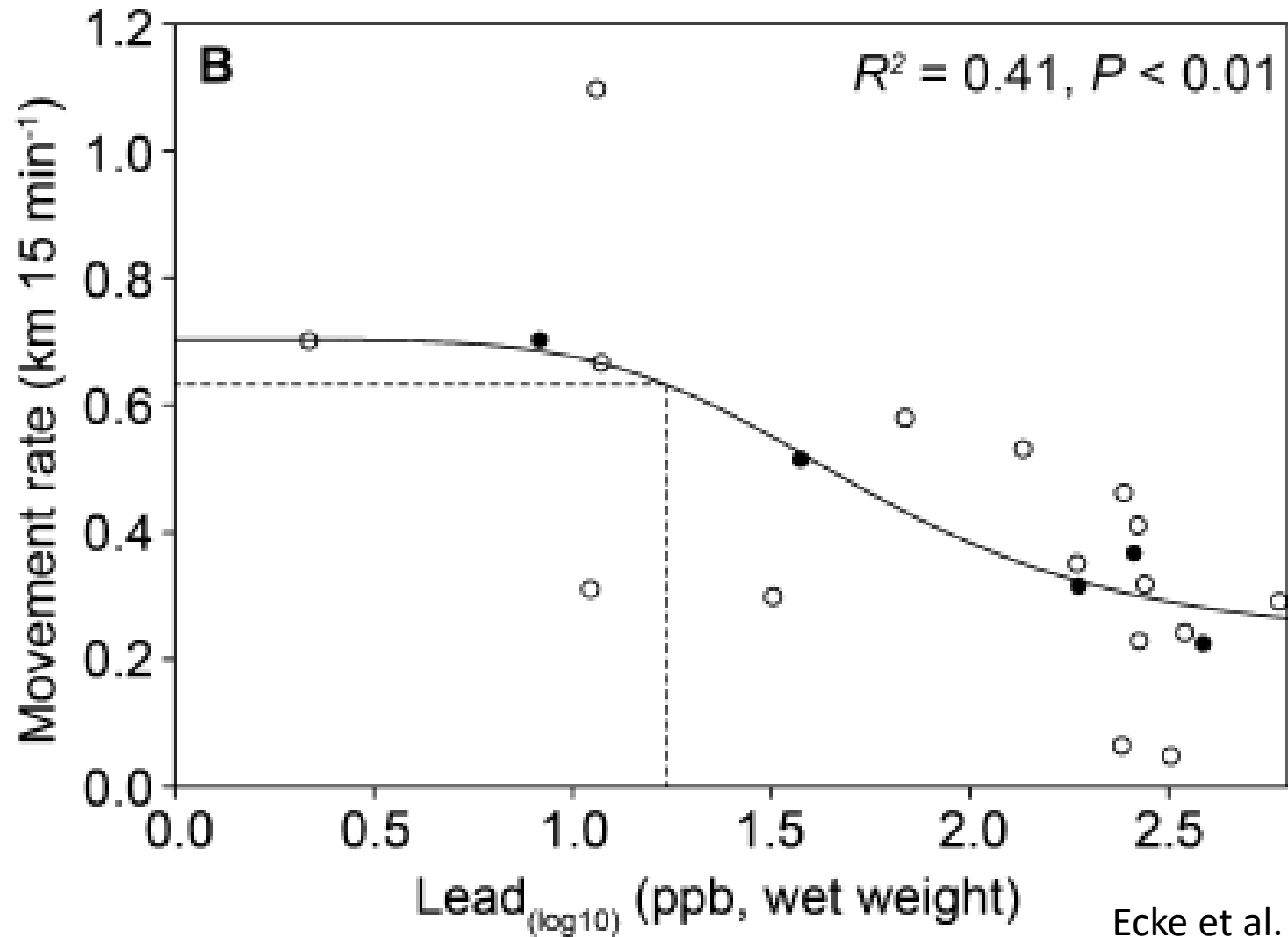
Sub-lethal impacts



Ecke et al. 2017



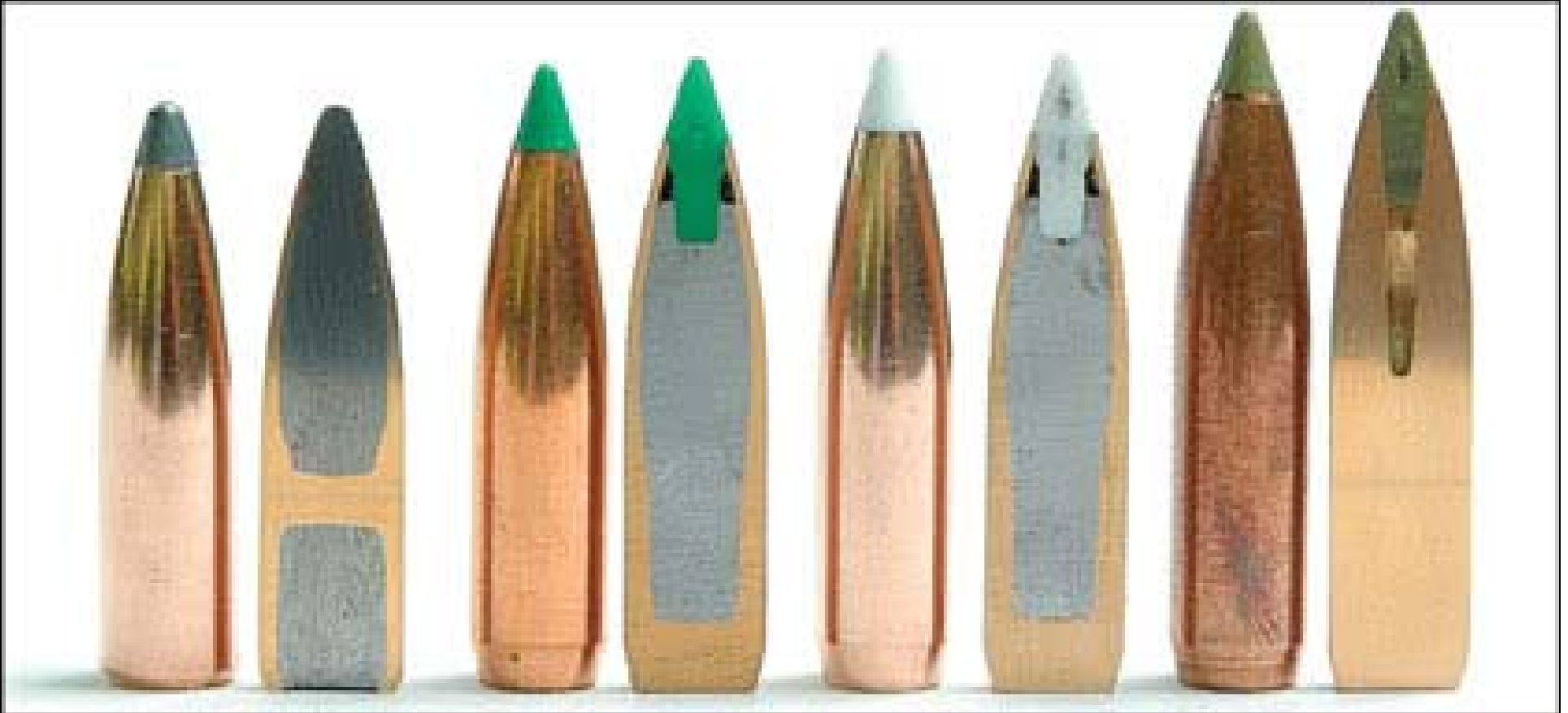
Sub-lethal impacts



Ecke et al. 2017



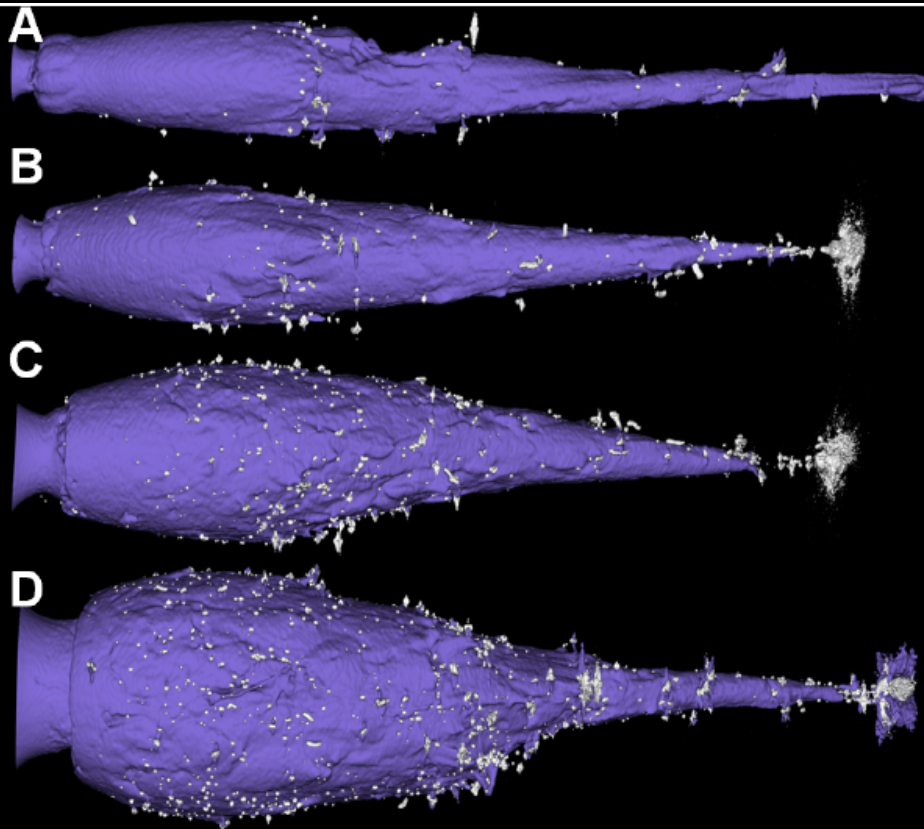
Projectile Development



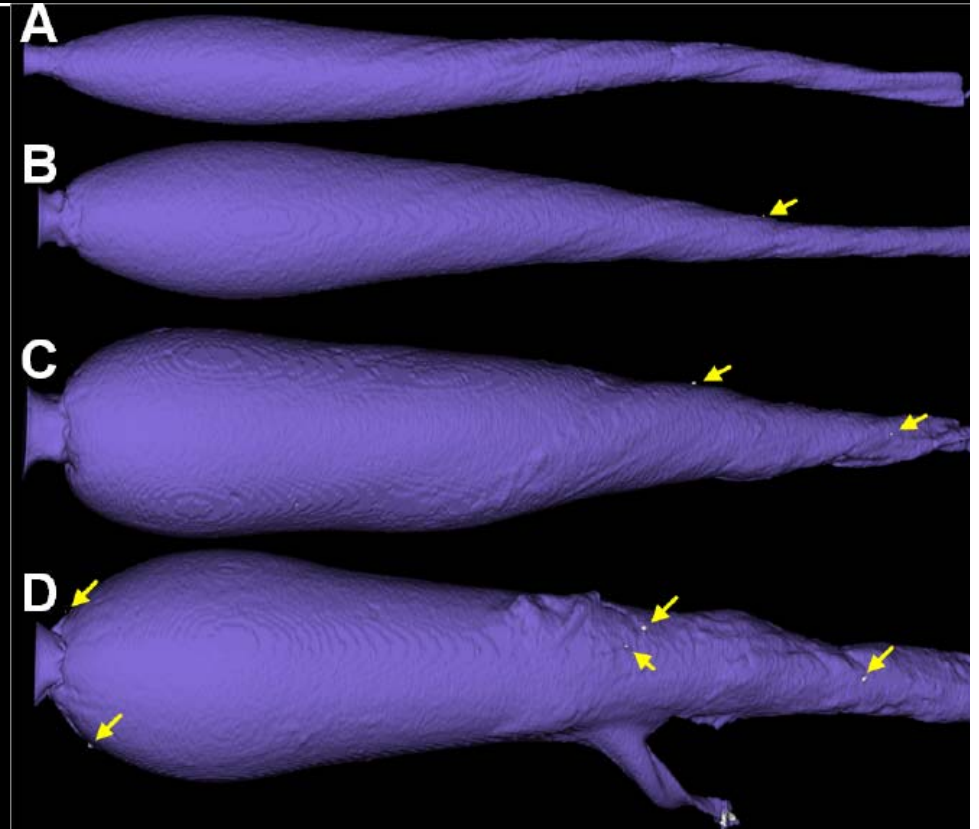
http://www.shootingtimes.com/ammo/ammunition_st_nosler_200802/



Terminal Performance



Lead Bullet:
Norma Vulcan



Non-Lead Bullet:
Barnes TSX



Terminal Performance

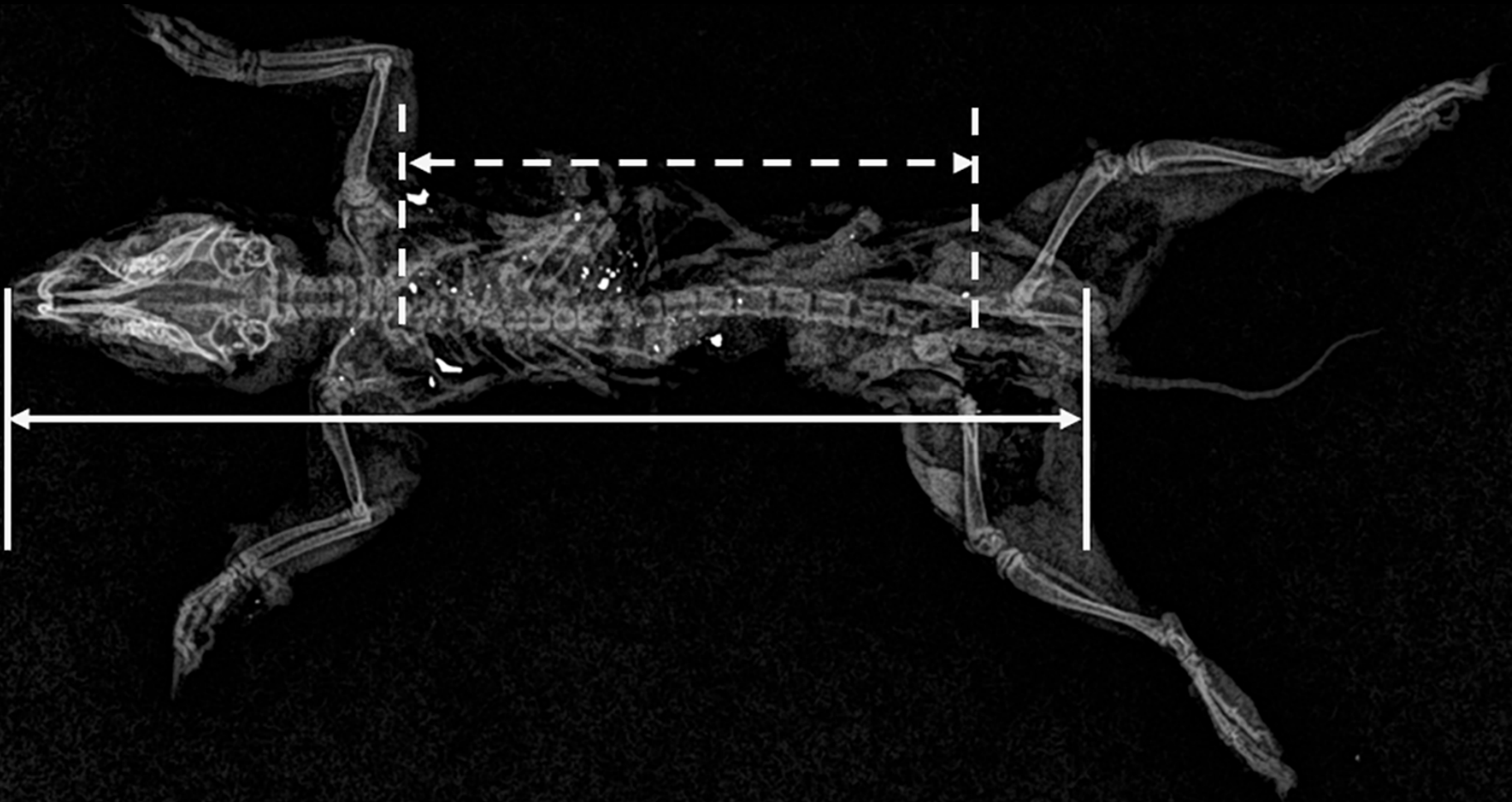








Terminal Performance



Herring et al. 2016







Conservation Opportunity





OR Non-lead Hunting Education

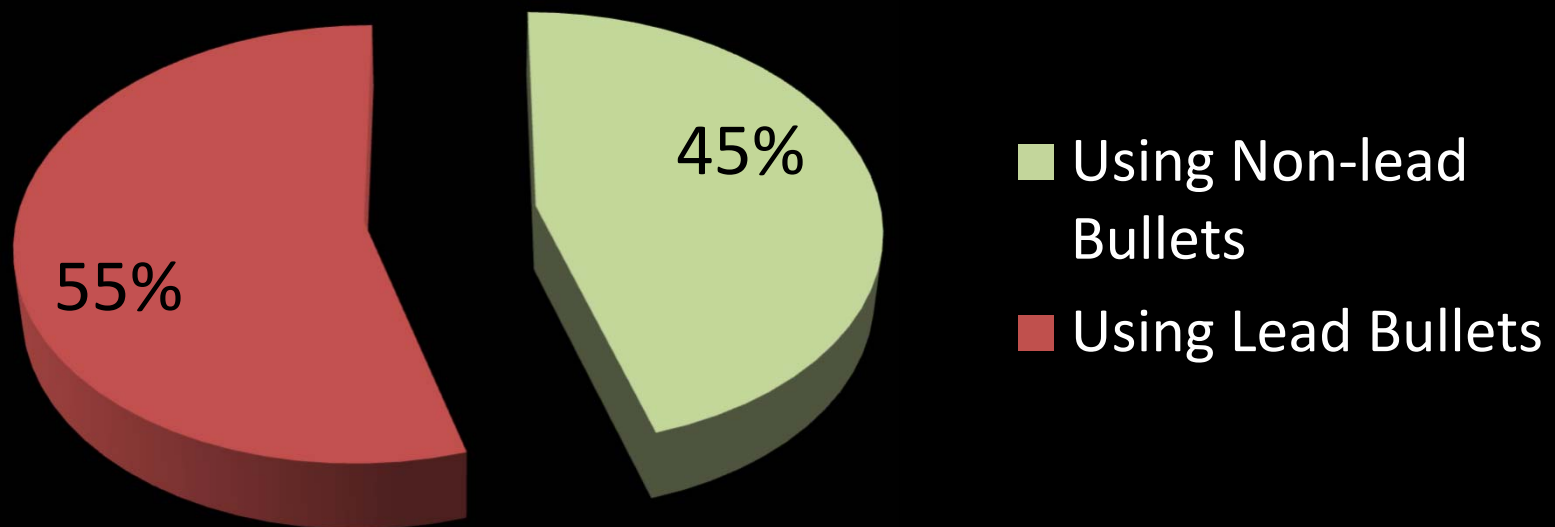
2015-to date

- **352** events
 - **24,686** people
- Included information in hunter education packets 2016-2019
 - ~13,000 new hunters
- Zumwalt Prairie Incentive Program



OR Non-lead Hunting Education

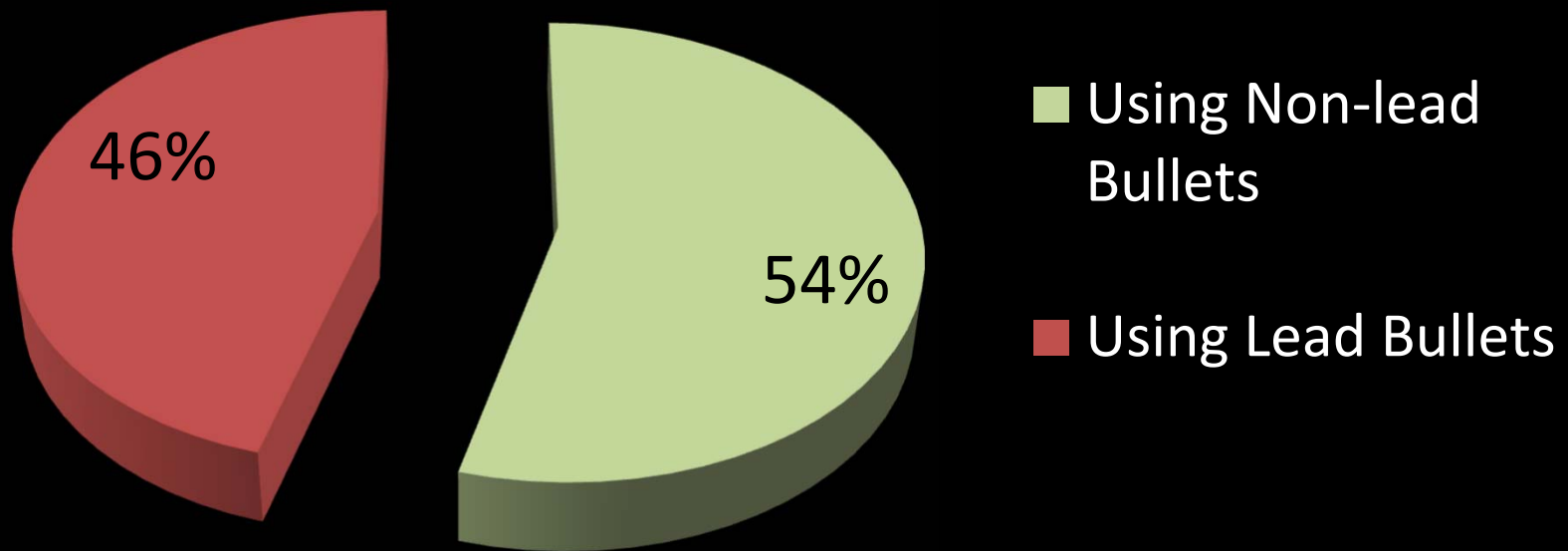
Zumwalt Prairie Preserve Incentive Participation 2016-2017





OR Non-lead Hunting Education

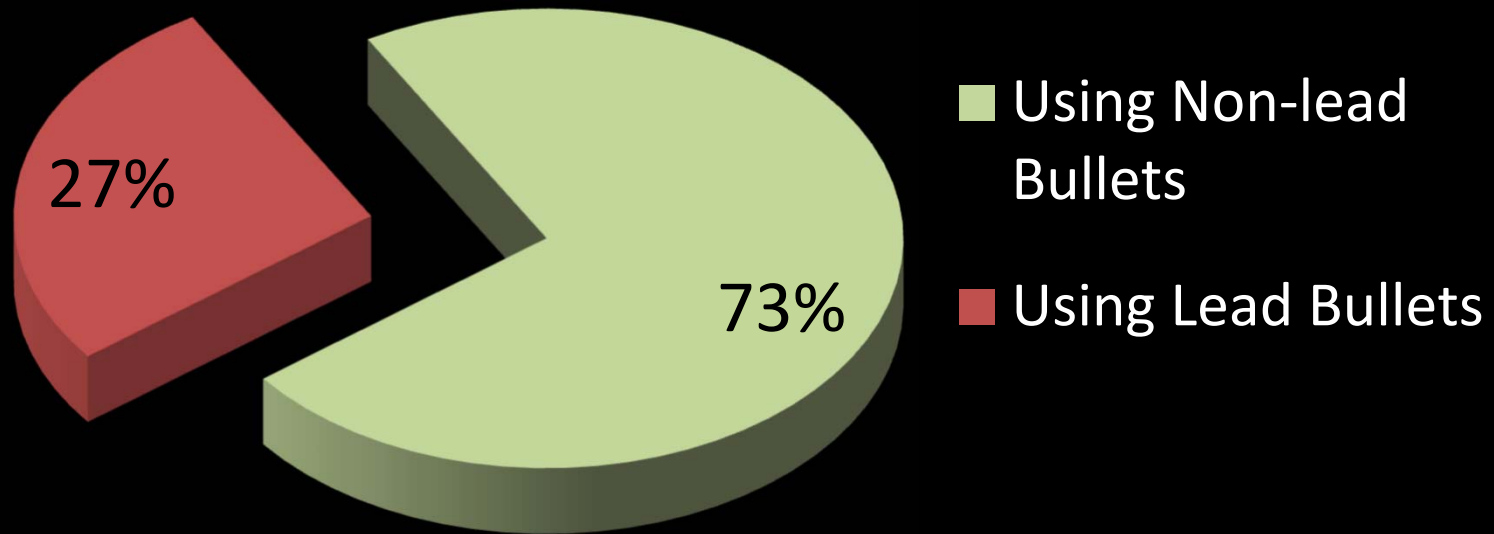
Zumwalt Prairie Preserve Incentive Participation 2017-2018





OR Non-lead Hunting Education

Zumwalt Prairie Preserve Incentive Participation 2018-2019





OR Non-lead Hunting Education

NON-LEAD HUNTING EDUCATION

Welcome to Non-Lead Hunting Education.

There are two different courses on ammunition types, bullet construction and performance, and the benefits of choosing non-lead ammunition. There is a longer course for brand new hunters who are considering what ammunition to use for their first hunt, and a shorter course for experienced hunters who have already chosen ammunition. Please choose the one that fits you. At the end of the courses there will be options to participate in programs that help you access and thank you for choosing non-lead ammunition. If you have any questions or concerns please send a message to [Non-Lead Partnership](#).

New Hunters

Experienced Hunters



Bullet Fragments in remains of rifle-hunted mule deer

Hunt et. al. 2006. "Bullet Fragments in Deer Remains: Implications for lead Exposure in Avian Scavengers"

- 100% whole deer killed with Pb based bullets contained fragments. (N=34)
74% showed >100 fragments
- 90% gutpiles showed fragments.
5 showed >200 fragments (N=20)



Gutpile – Kaibab - 2006



Whole deer carcass, neck shot

2005 11 16



Ammunition lead Types documented



Bullet Fragments in the gut of a dead Condor

Intact bullet – 3
Fragments – 17
Bird shot - 7

27/40 (68%) individuals
contained
evidence of metallic lead



In the Southwest...

Cause of death (n = 76)

<u>Lead</u>	40 (53%)
Predation	19
<u>Shot</u>	6
Starvation	3
Collision	3
Impaction	2
Infection	2

Over twenty years of intensive monitoring of obligate scavengers





AZ Game and Fish Department Hunting Regulations

Lead and Wildlife

Know the facts and make your own choice

- Lead is a naturally occurring element in the environment and has many beneficial uses. However, it is a known toxin and has been removed from many consumer products like pipes, paint and gasoline.
- Lead has been used in the manufacture of ammunition and fishing tackle for centuries because of its unique properties, availability, performance, and ease and low cost to manufacture.
- Spent ammunition, lost fishing tackle and lead fragments in carcasses and gut piles can be ingested by wildlife. In some cases, these lead sources can cause illness or death in individual animals.
- Birds are the most susceptible to lead toxicity, and population-level effects have been documented in waterfowl and California condors.
- State fish and wildlife agencies have primary responsibility for managing fish and wildlife resources and use the best science to implement focused management solutions when population effects are documented. Educating the public about wildlife issues is part of their mission.
- Hunters and anglers have been the primary supporters of wildlife conservation in North

America since the early 1900s. Collaboration with industry, conservation organizations and shooting-sports interests is also essential to ensuring continued protection of our wildlife resources and conservation heritage.

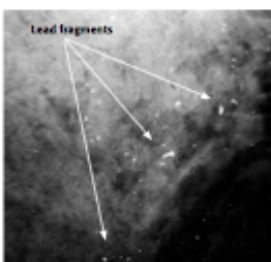
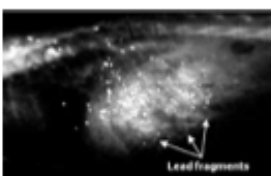
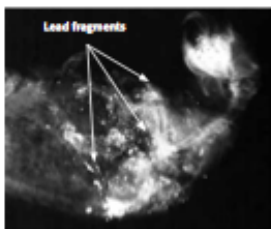
- Non-lead ammunition and fishing tackle alternatives are becoming more widely available and reasonably priced. Using non-lead alternatives can prevent lead poisoning of individual wildlife and may offer better performance.

- Hunters who choose to use lead ammunition can still help to reduce lead poisoning in scavenging animals by removing the entire game carcass from the field.

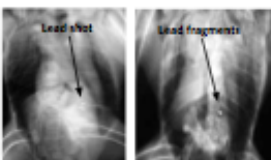
Availability

Non-lead ammo alternatives are available for big game, varmint and small game hunting. Non-fragmenting solid copper or copper alloy bullets are now loaded in most hunting calibers. Highly frangible non-lead varmint bullets (compressed copper or tin powder) are available in both centerfire and rimfire cartridges. Non-lead shot (steel, tungsten, and bismuth) is also available.

To learn more about lead and wildlife, visit www.azgfd.gov/lead.



X-ray of prairie dog (top), coyote (center) and a deer (bottom) gut pile. All contain lead bullet fragments that could be ingested by wildlife.



Eagles and other raptors feed on game remains and ingest lead shot and bullet fragments. Doves and waterfowl are known to pick up lead shot in the field.

Condor Country: Why Non-lead Ammunition?

Hunters are helping

For the past five years, 80 to 90 percent of fall hunters have participated in the Department's voluntary lead reduction program by using non-lead ammunition or removing gut piles from the field in the condor's core range.

The hunting community should be proud of this accomplishment, but we still need more hunters to help. Please help us prove to our critics that we can solve this problem on our own and that mandatory measures are not needed.

Hunters who use non-lead ammunition in condor range carry on sportsmen's proud tradition of wildlife conservation. If you choose to use lead ammunition, you can still help by removing your entire game carcass (including small game and varmints) and gut pile from the field. Local landfills accept and bury animal remains.

Hunters praise non-lead bullets

Copper bullets have superior penetration, are less toxic, and do not fragment like lead. 93 percent of hunters say that non-lead bullets perform as well as or better than lead bullets on game. Non-lead shot and frangible bullets also are available for varmint and small game hunting.



The Arizona Game and Fish Department and our partners ask you to be part of the solution by using non-lead ammunition when hunting in condor country (Game Management Units 9, 10, 12A, 12B, 13A, and 13B).

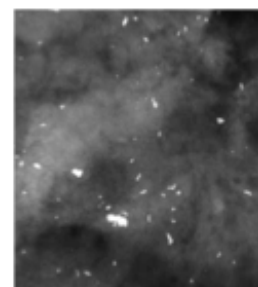
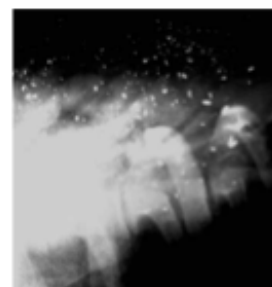
These sportsmen's groups ask you to use non-lead ammunition in condor range:

- Arizona Deer Association
- Arizona Elk Society
- Arizona Antelope Foundation
- Arizona Desert Bighorn Sheep Society
- Arizona Chapter of the National Wild Turkey Federation

Hunters drawn for hunts in condor range will be mailed more information before their hunt.

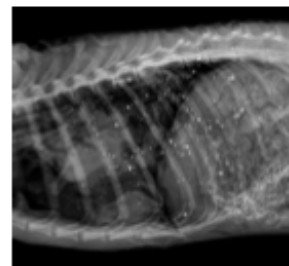


Lead poisoning is the leading cause of death in condors and the main obstacle to a self-sustaining population. There are currently 79 free-flying condors in Arizona and Utah. At least 22 condors have died from lead poisoning – including three in 2012. Several had lead shot and bullet fragments in their digestive tract. More than 450 cases of lead exposure have been documented in the condor population since 1999.



Lead bullet fragments remain in game carcasses and gut piles left in the field by hunters. These X-rays show hundreds of lead fragments (fragments appear bright white in X-ray) in a deer carcass and gut pile. Condors are group feeders, so several birds can ingest fragments from one carcass or gut pile containing lead.

Studies have concluded that lead shot and bullet fragments found in game carcasses and gut piles are the main source of lead in condors. To learn more about the condor program and for a complete list of non-lead ammunition available, visit: www.azgfd.gov/condor.



Lead varmint and small game ammunition also fragments significantly. This x-ray of a coyote illustrates the amount of lead (bright white fragments) left in the carcass. Each spring condor lead exposures increase as they forage on animal remains left in the field by hunters. Hunters can help by either using non-lead ammunition OR removing ALL varmint and small game carcasses from the field.

What hunting magazines and Arizona hunters say about solid copper bullets:

"I was very impressed with the bullet's performance, the buck literally dropped in its tracks." – Kaibab deer hunter

"Accurate, zero bloodshot, no wasted game meat." – Kaibab deer hunter

"I've never seen deadlier performance on game." – Safari Club International article

"While their terminal performance is the stuff of legend, they are also capable of remarkable accuracy." – American Rifleman article

LEAD VS. NON-LEAD AMMO COSTS 2012 PRICES FROM ONLINE AMMO RETAILERS

30-06 165 gr. loaded ammo, Box of 20 (big game hunting)	Basic lead: \$17-\$20, Premium lead: \$25-\$40, Non-lead: \$30-\$40
.223 loaded ammo, Box of 20 (35-55 gr.) (varmint hunting)	Basic lead: \$6-\$10, Premium lead: \$20-\$27, Non-lead: \$22-\$27
.22 long rifle rimfire, Box of 50 (25-40 gr.) (small game hunting)	Basic lead: \$2-\$4, Premium lead: \$5-\$10, Non-lead: \$6-\$11
12 gauge #6 shotshells, Box of 25 (upland game/dove hunting)	Lead: \$7-\$25, Steel: \$7-\$32



UT Division of Wildlife

CHRONIC WASTING DISEASE IN UTAH

Chronic wasting disease (CWD) is a relatively rare disease that attacks the nervous system and brain of infected deer, elk and moose.

The Division has been monitoring for CWD since 1998. Over the past 15 years, only 53 mule deer and 1 elk have tested positive for CWD in Utah.

The first positive mule deer in Utah was identified in 2002 as a result of a Division testing effort near Vernal. Since that time, CWD has also been found on the La Sal Mountains near Moab, on the San Juan Mountains near Monticello, and in central Utah near Fountain Green.

In these areas (and a few others), Division biologists collect samples from harvested deer and elk during the fall hunts. When you stop at a checkstation in a CWD-sampling area, a biologist may take a sample from the head of your harvested animal and send it to the lab for CWD testing.

If your deer or elk is tested by the Division, you can find the results online at wildlife.utah.gov/cwdtesting within six to eight weeks. If your animal tests positive for CWD, the Division will contact you directly.

To learn more about CWD, the testing process and precautions you can take, please visit wildlife.utah.gov/cwd.

Lead-free ammunition helps wild condors

In 2013, the Division will offer a free box of lead-free ammunition to hunters who have permits for buck deer or antlerless elk on the Zion unit. By using this ammunition in the field, hunters can help limit lead exposure in wild California condors that live and forage in southern Utah.

Condors are native to Utah, and their diet consists of large dead mammals, including the gut piles and other remains of harvested deer and elk. As a result, condors consume lead bullet fragments that can poison them and sometimes cause fatalities.

If you have obtained an any legal weapon permit for the Zion unit, the Division will contact you with additional details about this offer before the hunting season begins.

The Division encourages all eligible hunters to participate in the program and to help Utah's condor population continue its recovery.

BIG GAME HUNTS

Utah offers several different big game hunts each year. Depending on the permit you obtain, you could hunt deer, elk, pronghorn, bison, bighorn sheep, moose or mountain goat. The following section describes the species you can hunt, the weapons you can use and the types of permits that are available.

Buck deer hunting



A "buck deer" is a deer with antlers that are longer than five inches (R657-5-2(2)(e)).

Utah has three general-season buck deer hunts:

- Archery hunt
- Muzzleloader hunt
- Any legal weapon (rifle) hunt

Please see wildlife.utah.gov/maps for all hunt boundaries.

General-season archery buck deer hunt

Utah Admin. Rule R657-5-23

Utah's general-season archery buck deer hunt runs from Aug. 17 to Sept. 13.

If you obtained a general-season archery buck deer permit, you may use archery equipment to take one buck deer in the hunting unit listed on your permit.

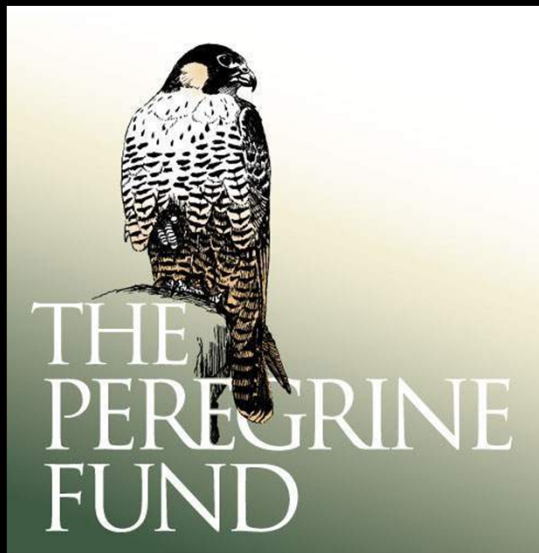
During the general-season archery buck deer hunt, you may only hunt in the unit listed on your permit. You may not hunt within deer CWMUs, premium limited-entry deer units or limited-entry deer units.

If you obtained a general-season archery buck deer permit, the only other deer permit you can obtain is an antlerless deer permit. Please see page 23 for more information on antlerless deer hunts.

Extended archery

If you haven't taken a deer by the time the general-season archery buck hunt ends, you can continue your archery hunting in the state's

Incentive Program: Non-lead Use, Gut Pile Removal



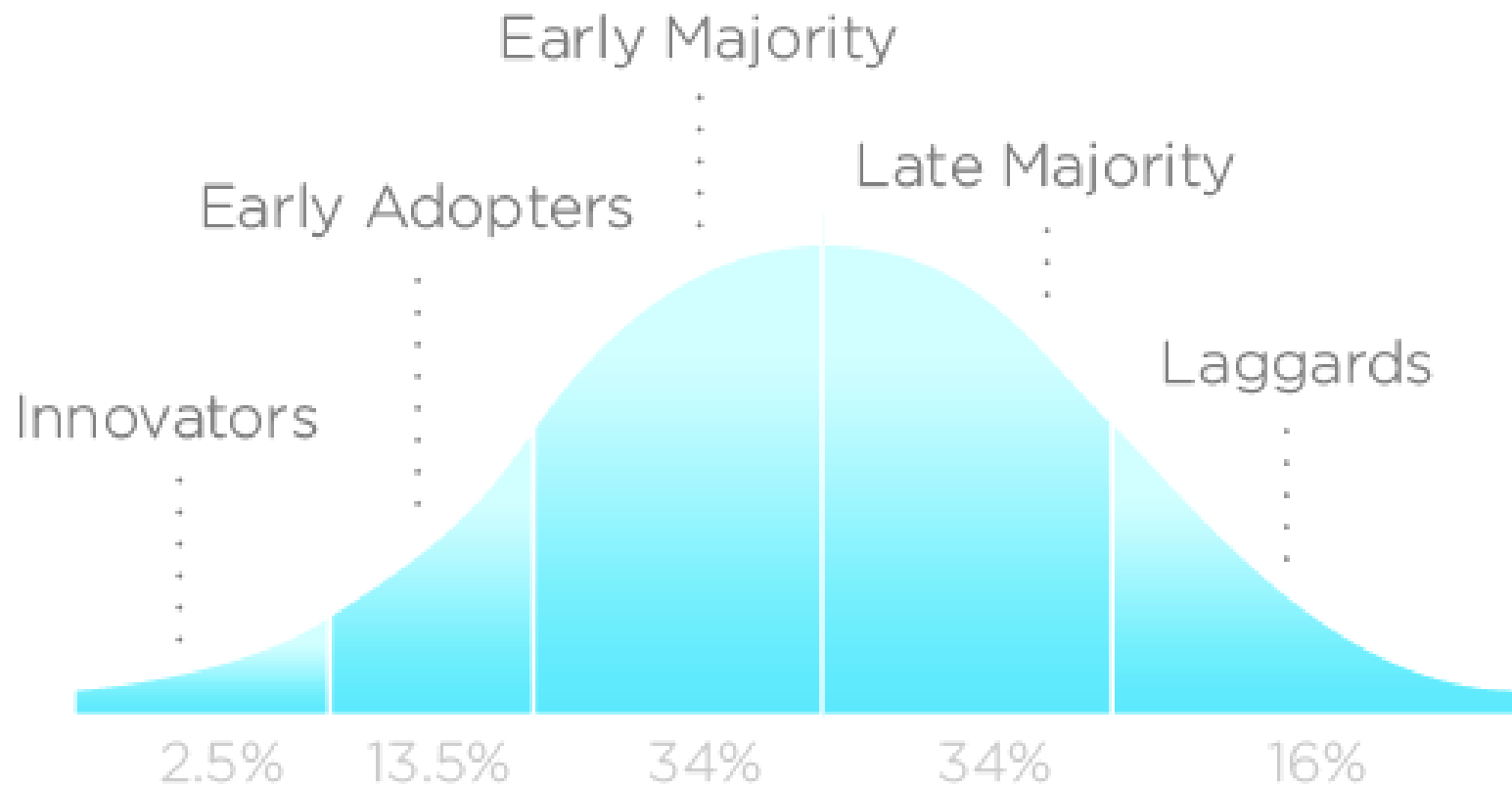


Connect Research With Values and Benefits





Behavior Change



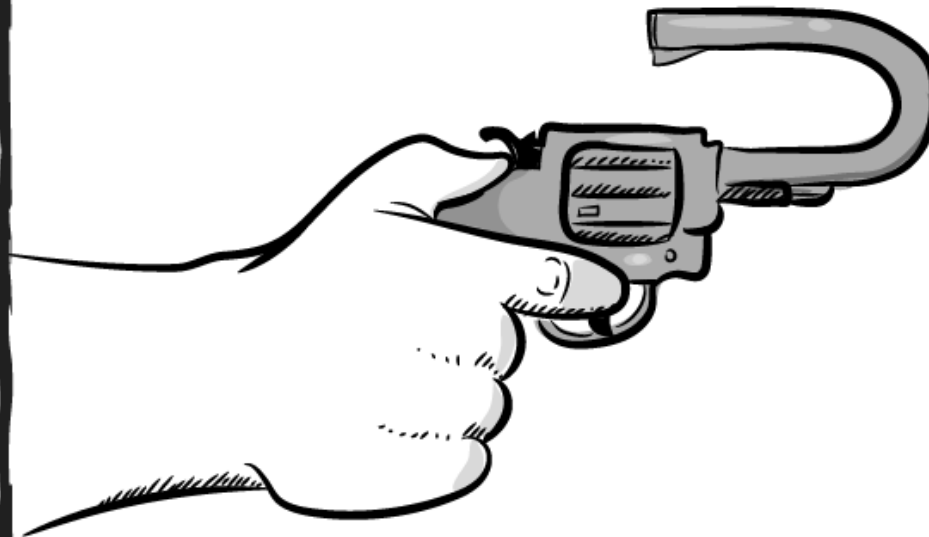
INNOVATION ADOPTION LIFECYCLE



Challenges

It's called the
backfire effect.

and it's a well-documented
psychological behavior.



<http://theoatmeal.com/comics/believe>



Challenges



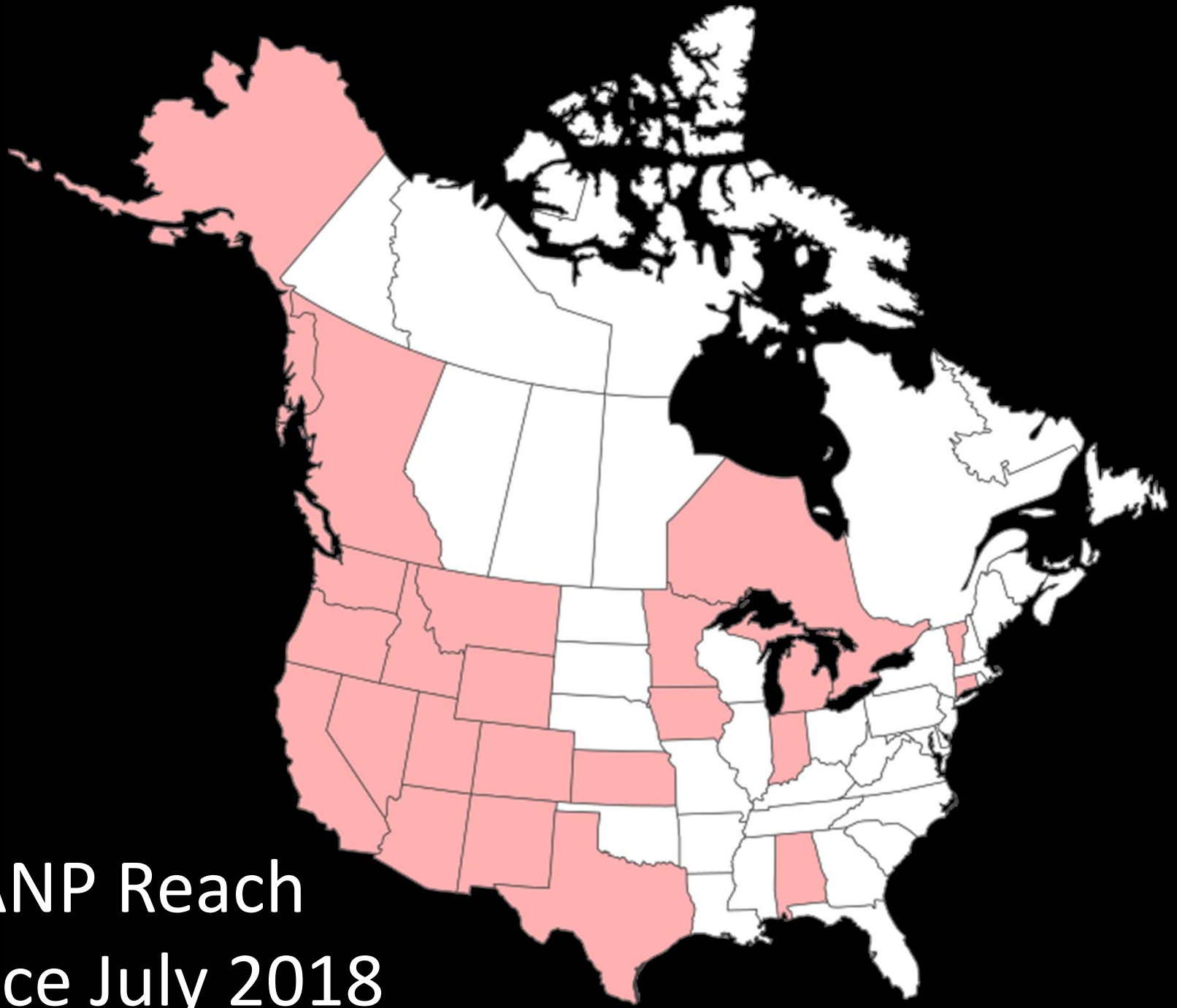
DONT TREAD ON ME



Evaluation

- Phase One – Initiate the conversation
- Absorption / consideration
- Phase Two – Re-engage, revisit
- Join-up
- Phase Three – partner
- Build and implement programs
- Evaluate, refit, and reform

NANP Reach
since July 2018





State Agency Engagements

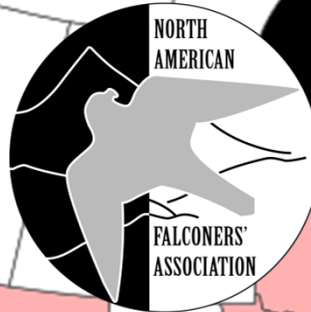
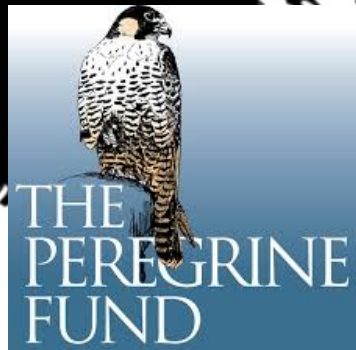


<http://nonleadpartnership.org/>

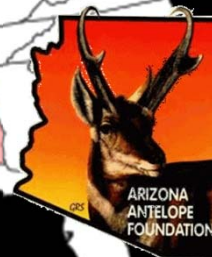
- 1. Partner** - for those who help shape, carry and deliver programs and messaging of the partnership to their constituents in full support of actions fulfilling the effort as defined, but not limited to, the resolution.
- 2. Supporting partner** - for those who support either financially or directly in tasks of outreach, education and/or incentivization of non-lead ammunition for wildlife and ecosystem health, as defined, but not limited to, the resolution.
- 3. In Support of** - for those who support/endorse the formation intent and actions of this partnership as defined by the resolution.



State Agency Partners



Partners





Non-Lead Partnership



The life cycle of a hunted animal does not stop when we carry them from the field. The remnants are left for the scavengers to pick over and utilize. In this process, our choice of bullets continues to affect other wild beings. We have teamed up with the [North American Non-Lead Partnership](#) to promote the use of non-lead bullets for hunting in an effort to limit the effect on raptors and other birds who scavenge wild game kill sites.

Hunt To Eat will donate 15% from each sale to the Non-Lead Partnership to support their ongoing work of spreading the message about impacts to birds due to the use of lead ammunition.





RANDY NEWBERG

EP 087: Lead-free Ammo and Hunting with Raptors

Jun 29, 2018

0

In this Episode (087) of Leupold's Hunt Talk Radio, Randy is joined by his production leader, Marcus Hockett, and two fanatic hunters who happen to be experts on raptors and hawking, Chris Parish and Leland Brown. Topics discussed include Randy's excitement to hunt small game and birds with raptors, history of hawking, non-lead ammo, superior bullet performance, how to get lead out of the field, voluntary compliance is better than legal mandate, hawks, falcons, raptors, scavengers, hunting birds with birds of prey, small game hunting, bullet fragmentation, terminal performance of non-lead bullets, value of condor studies to hunting conservation, and lots of other cool ideas you want to hear.



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EP 087: Lead-free Ammo and Hunting with Raptors: High Quality Non-lead Ammo, Hunting with Raptors, & Conservation

00:00:00



[Download this Episode](#)



Newberg, unfiltered.

Randy uses his platforms to advocate for hunters and public access. In addition to representing hunters in Congress and state legislatures, he serves as a volunteer and board member for many hunting and conservation groups.

public land
cross public
that has
the self-
or hunting

TV shows,
ed by the
to those
et Randy



Continued Engagement



The New York Times



PIONEERS OF CONSERVATION
OUR LEGACY FOR GENERATIONS™
BOONE AND CROCKETT CLUB
SINCE 1887

DONATE TO B&C

Username

LOGIN

JOIN B&

“the Club believes that if an individual state wildlife agency decides that lead exposure represents a population-level issue for a particular species in a given area, it should be up to that agency to implement targeted solutions that do not unnecessarily restrict hunting or shooting opportunities, including hunter education, voluntary programs, or mandatory programs using suitable ammunition alternatives.”

Google

ABOUT THE

ADVERTIS

B&C ANNU

B&C BOAR

B&C EMAIL NEWSLETTER

to best address them.

B&C HISTO

B&C POSIT

› ANIMAL W

› BIOLOGIC

› CLIMATE C

› EQUAL AC

› ENDANGE

› PREDATO

› PRIVATE P

› SUSTAINA

› RECORDS

› CANNED S

› GENETIC MANIPULATION OF GAME

“The Boone and Crockett Club also supports a [Fair Chase](#)® hunting ethic, which includes sportsmen making personal choices to ensure the ethical hunting of game to benefit wildlife conservation in general. Sportsmen should be aware of potential unintended consequences to non-hunted species, and if they feel this may be a concern in the areas where they hunt, the Club supports sportsmen choosing to use alternative ammunition..”

harvested with lead ammunition, but these elevated levels are below the levels of concern identified by the Center for Disease Control for adults. To date, there is no conclusive evidence of serious illness or death of humans caused by eating game taken with lead

Ensuring the conservation of mule deer, black-tailed deer and their habitat. [LEARN MORE >](#)

MEMBER INFORMATION CALL: 1-888-375-3337



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Mule Deer Foundation - Talking Mule Deer Podc...

<https://muledeer.podbean.com/feed.xml>



17,386

Downloads

44

Episodes



S2 E25 North American Non-Lead Partnership

September 16, 2019

S2 E25 - North American Non-Lead Partnership

Today's episode of Talking Mule Deer features a conversation with the North American Non-Lead Partnership's Leland Brown (Oregon Zoo) and Chris Parish (The Peregrine Fund). The partnership's two main functions are to preserve our wildlife conservation

Following

Mule Deer Foundation - Tal...
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BHA PODCAST & BLAST, EP. 62: CHRIS PARISH AND LELAND BROWN OF THE NORTH AMERICAN NON-LEAD PARTNERSHIP

Posted by *Backcountry Hunters & Anglers* | October 30, 2019



BHA PODCAST & BLAST WITH HAL HERRING
BHA Podcast & Blast, EP. 62: Chris Parish and Leland Brown of the North America...

PODCAST & BLAST with Hal Herring

30% 00:00:00 / 02:28:46 ↻30

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libsyn

Hal sits down in Montana with Chris Parish and Leland Brown to talk copper bullets, lead fragments, falconry, raptors, condors, Mexico and California, a love of good guns, wild animals and wild meat – all following a long day of rifle shooting with everybody from the Hellgate Hunters and Anglers (a Missoula-based rod and gun club) to former U.S. Army snipers. Chris, director of the global conservation with the Peregrine Fund, is an original Okie from Bakersfield,



