



*Washington  
Department of*  
**FISH and  
WILDLIFE**

**Background Provided to FWC Wildlife Committee December 2019**

**Addressing Lead Toxicity in Washington Fish and Wildlife**

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# Outline

- Background
  - Reducing lead exposure from hunting
  - Reducing lead exposure from fishing
- Research
  - Carcass Use study
  - Swan data
- Surveys
  - Game Management Plan
  - USFWS – Dove Hunter Survey

# Potential Reasons to Regulate Lead

- Population-level Impacts
- High Profile Species Impacts
- Environmental Concerns
- General Wildlife Impacts
- Human Health Concerns
- Social Intolerance

## POISONED BALD EAGLE IN GENTLE HANDS

**Del Zeloski, of the  
Wild Bird  
Sanctuary, holds one  
of the injured bald  
eagles that the center  
is caring for on Friday  
in Lewis and Clark  
County, Mo. The two  
eagles were brought to  
the center by a  
wildlife agent on  
Friday, apparently  
developing lead  
poisoning after  
hunting waterfowl  
that had either been  
shot or had eaten  
lead pellets.**



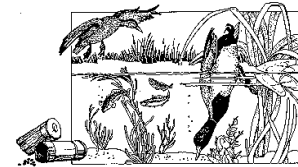
TOM GANNAM/The Associated Press

# Background

- Before 1986, WA had 2 zones where non-toxic shot was required for waterfowl hunting:
  - Barney Lake in Skagit County
  - Ridgefield NWR in Clark County
- During 1986-91, WA was part of the nationwide phase-in for nontoxic shot for waterfowl and coot hunting, based on impacts to waterfowl and bald eagles

During the late 1980s and the 1990s, the Commission implemented additional restrictions on nontoxic shot use in Washington

- 1989: nontoxic shot restrictions were added for waterfowl and coots for all of western Washington, ahead of the phase-in schedule
- 1990: lead shot possession was prohibited on the Skagit W.A.
- 1995: snipe were added to the nontoxic shot requirements (this still not a USFWS requirement)



In 2000, the Fish and Wildlife Commission asked WDFW to evaluate the use of nontoxic shot for all game bird hunting

- WDFW produced a paper evaluating 3 options for restricting the use of lead shot, ranging from all game bird hunting to a “problem area” approach (preferred)





<http://wdfw.wa.gov/publications/00767>

## Report to the Washington Fish and Wildlife Commission: The Use of Nontoxic Shot for Hunting in Washington - February 2001

### Pb poisoning literature review

- Environmental fate of Pb shot
- Availability / performance of nontoxic shot
- Regulations
- compliance
- other states
- options



## Estimated from WDFW sampling

- Skagit W.A. release site: ~6.8 tons Pb / 85 ac
- VOA release site: ~1.5 tons Pb / 35 ac





The preferred approach was adopted:

- Identify and convert areas to nontoxic shot use based on high potential for ingestion of lead by wildlife
- 11 sites were converted in 2000, primarily active upland bird hunting areas with an emphasis on pheasant release sites
- From 2000-2009, an additional 11 sites were converted to nontoxic shot use



In 2009, WDFW evaluated options for additional nontoxic shot restrictions as part of the 2009-11 three-year season setting process

Options again ranged from nontoxic shot requirements for all game bird hunting to nontoxic shot use on all WDFW wildlife areas

Closely balanced between support and opposition for most options



Based on public input, in 2009 the Commission converted all remaining WDFW pheasant release sites to nontoxic shot use for upland birds, mourning doves, and band-tailed pigeons, effective in 2011

During the 2011 public input process for the 2012-15 hunting seasons, the Commission received organized opposition to the 2011 conversion schedule but no changes were made



# Loon Breeding Areas

Review / expand existing nontoxic sinker restrictions



## Conserving Common Loons by Managing Use of Lead Fishing Tackle

- An Ad Hoc Citizen Advisory Group was formed to:
- Review the science on environmental impacts of lead
- Develop recommendations for addressing the issue

# Conserving Common Loons by Managing Use of Lead Fishing Tackle



Discussion ranged from fishing closures on these lakes to no change at all, with varied support for the following final [range of options](#):

A total ban on any lead fishing tackle

A partial ban, with no lead fishing weights or jig heads

A partial ban with no lead fishing weights or jig heads equal to or less than one ounce or equal to or less than 1-1/2 inches along the longest axis

No restriction (no change or “status quo”)



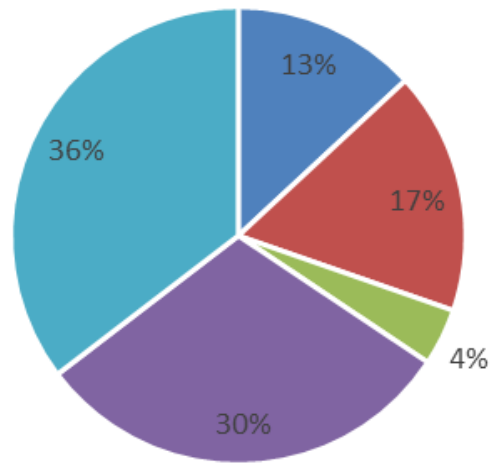
Dec. 2-4, 2010 Commission adopted rule on lead tackle that went into effect May 1, 2011

# Management actions

- WDFW Districts 1 and 6 – erected and maintain educational signage at lead tackle restricted lake boat launch sites
- WDFW Districts and USFS Campground hosts conduct non-lead tackle exchange
- Enforcement and Districts coordinate on reporting violators
- All C. loon mortalities are necropsied as routine policy
- Cooperators: USFS and Citizen Science-
  - Produced and promoted “Get the Lead Out of Washington” brochure featuring Loons and lead fishing tackle problems and solutions
  - WDFW 2019 Statewide Award- North Central Audubon (M. Ashmore, 8<sup>th</sup> grader) for fundraising and actions promoting non-lead tackle alternatives



## Causes of Death for Washington Common Loons 1999-2017 (n=23)



■ drowned ■ gunshot ■ IH ■ Pb ■ trauma

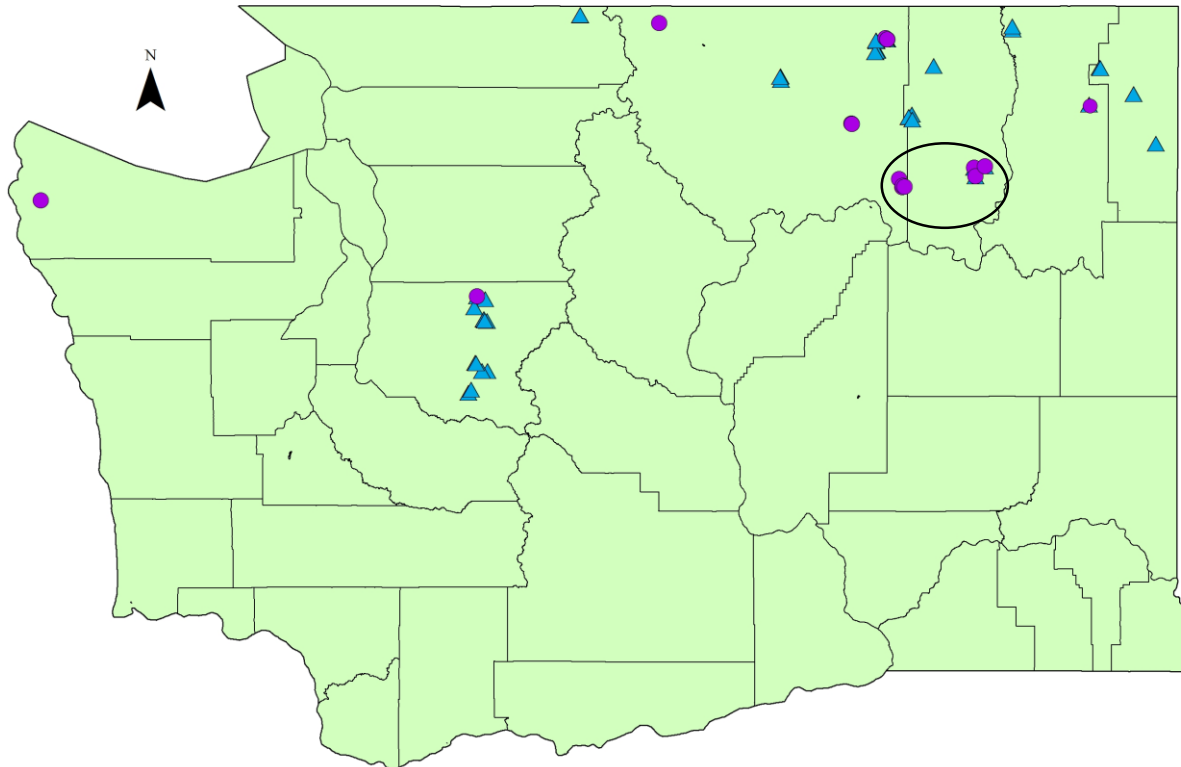
Pb = lead toxicosis; IH = Internal hemorrhage

Summarized by Kristen Mansfield, DVM and Katie Haman, DVM for WDFW. Sources: Necropsies conducted by Biodiversity Research Institute, Maine; toxicology by Washington Animal Disease Diagnostic Lab, WSU.

# 2010 (WAC) public access lead-restricted lakes with nesting Common Loons (n = 13)



# 2019 update



● COMMON LOON NESTING, no lead restriction

▲ NESTING, 2010-2019; restriction on lead tackle or access



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**New Research and Surveys**

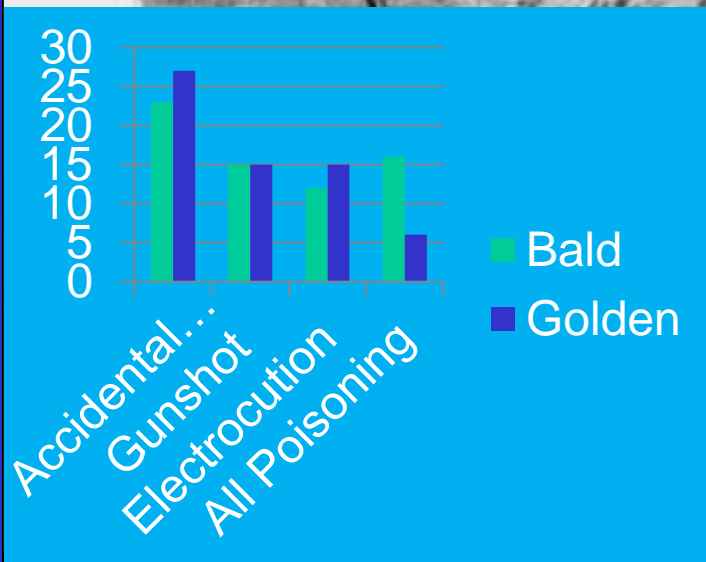
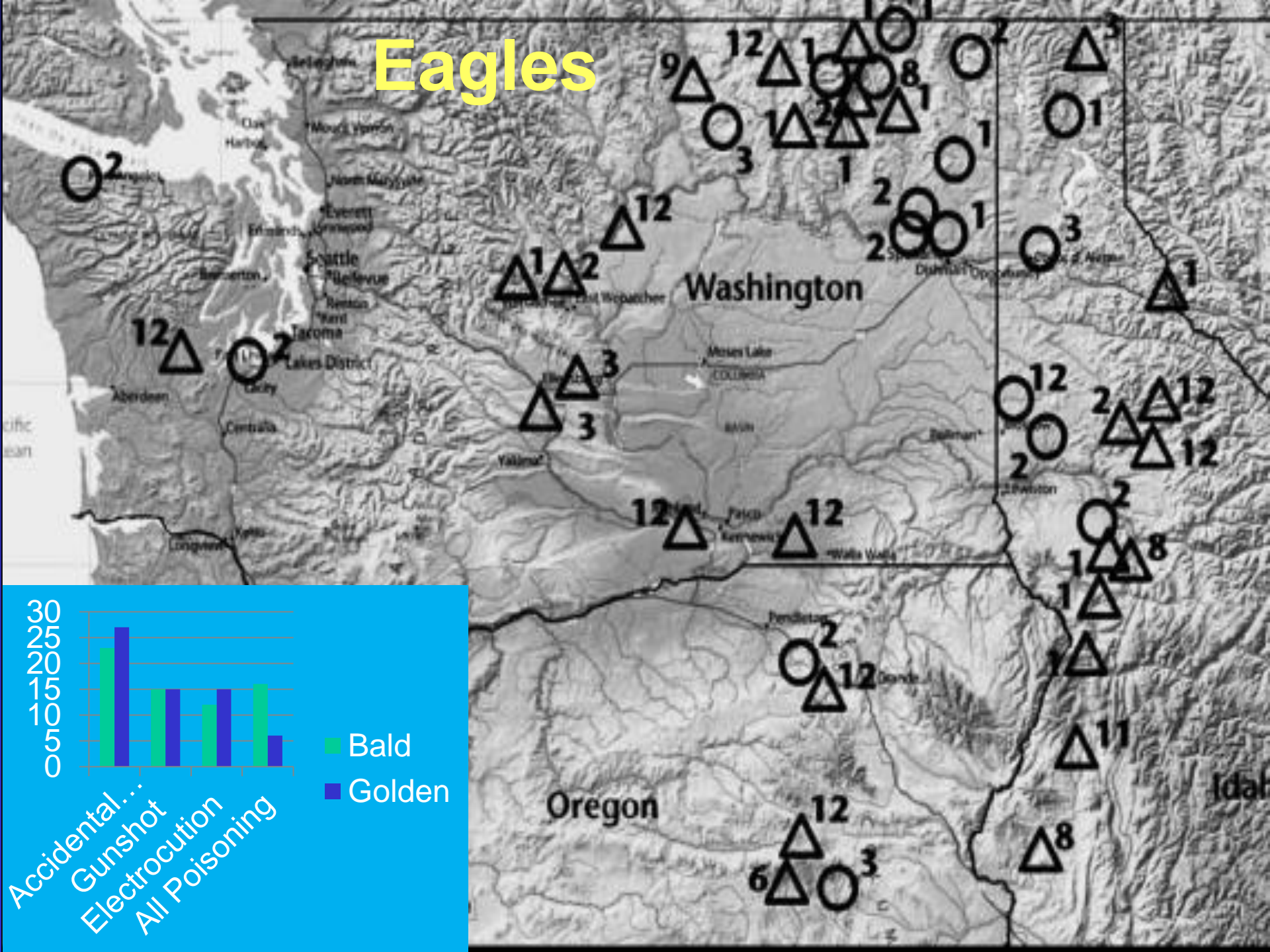


## Golden eagle use of big game carcasses

- To better understand potential lead toxicosis pathways in golden eagles, Biologists placed self-activated camera stations at golden eagle nest territories.
- 2013 served as a trial run with lessons learned applied to future monitoring efforts.
- At the carcasses deployed at China Bend and Vulcan, golden eagles were recorded feeding on the carcass.



# Eagles



- **Four-part study of lead toxin impacts and sources in WA golden eagles**

(1) Pb levels breeding adults?

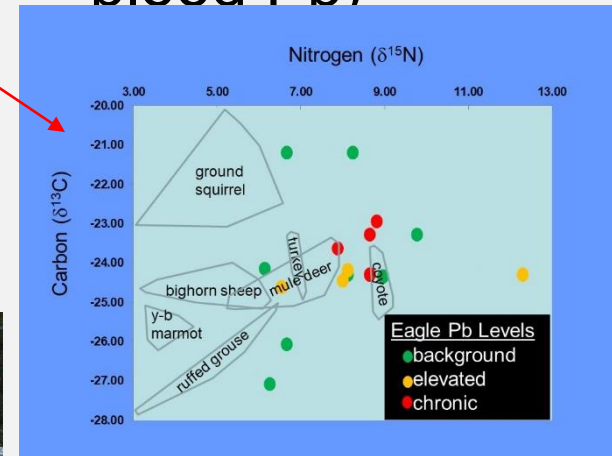


(2) Diets during breeding season?



(3) Winter scavenging rates and behavior?

(4) Pb pathways? (diet isotopes & blood Pb)



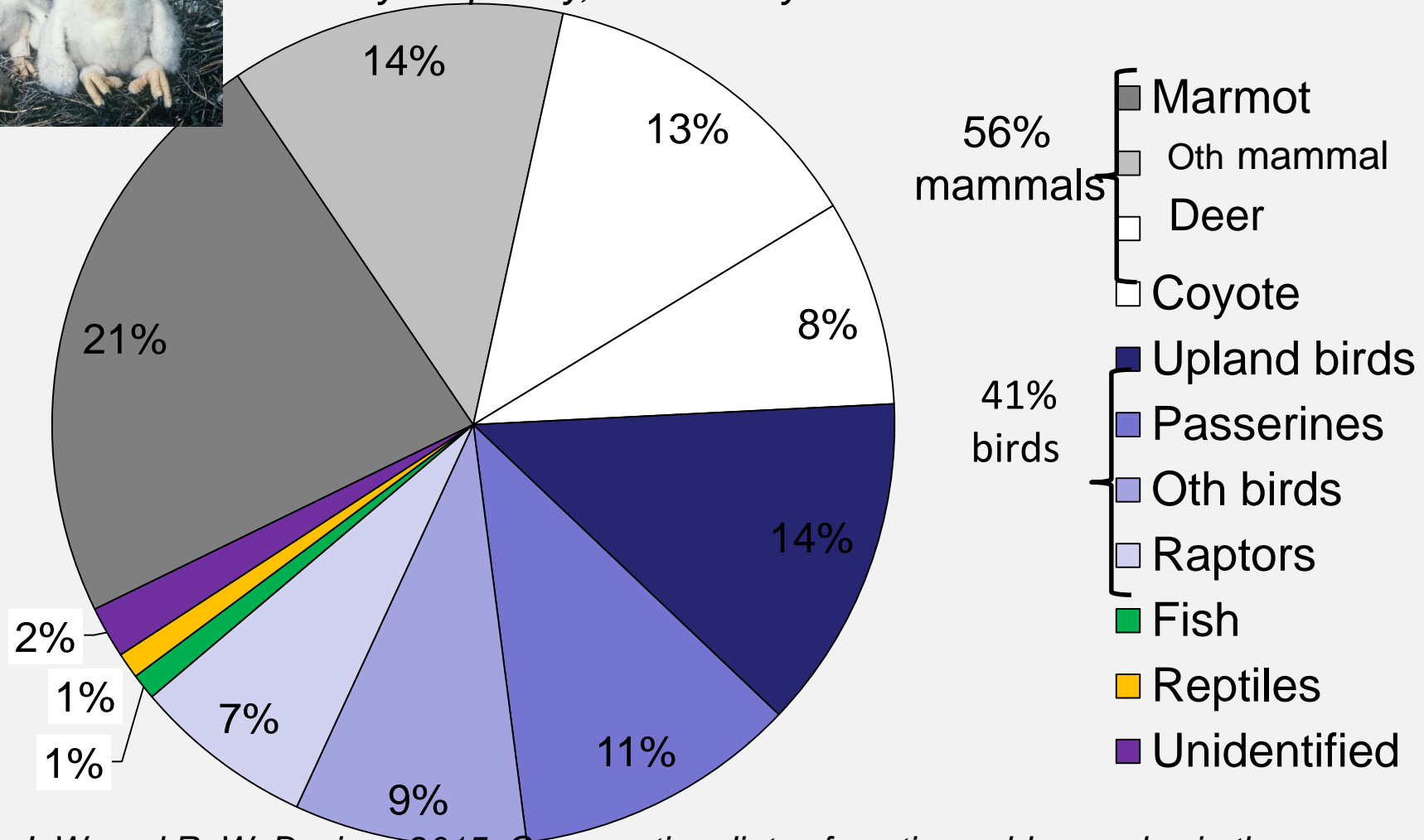


## ✓ (2) Diets during breeding season?



250 nest prey items, 23 territories, 2007-13

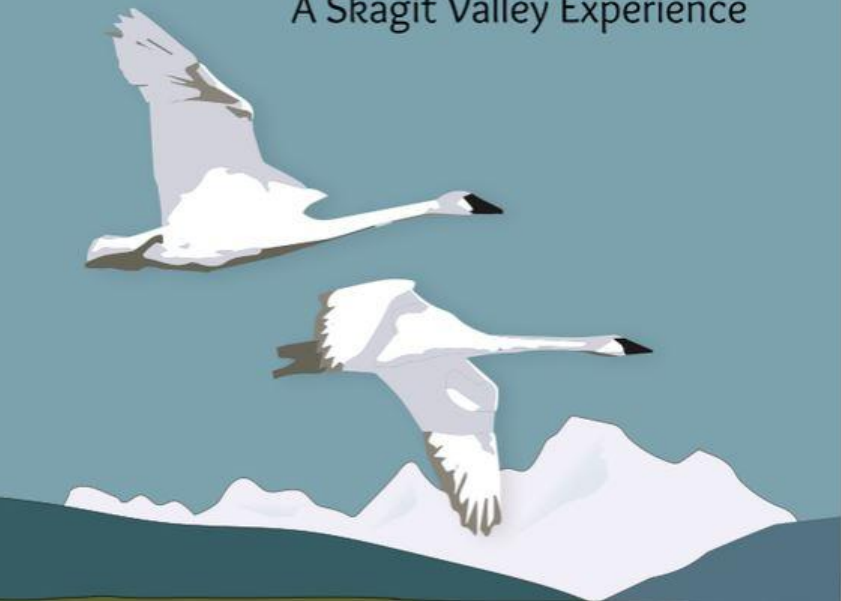
Marmots, deer, and coyotes accounted for 42% of prey by frequency, but 79% by biomass



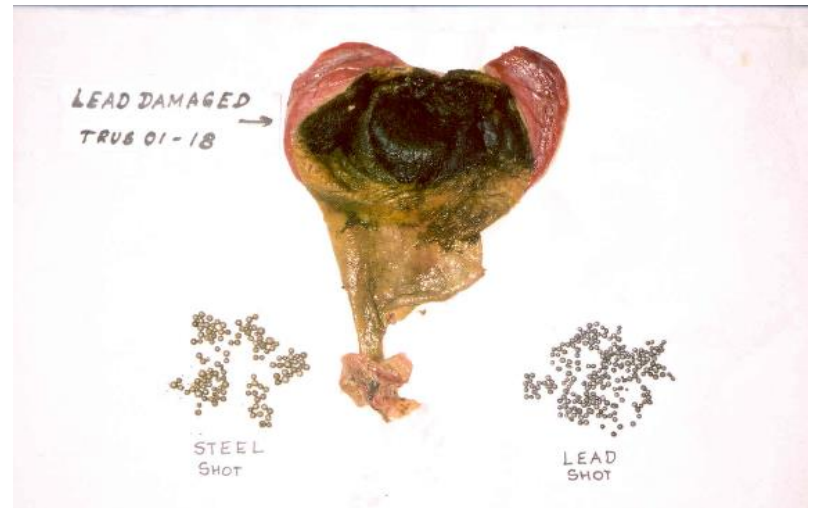
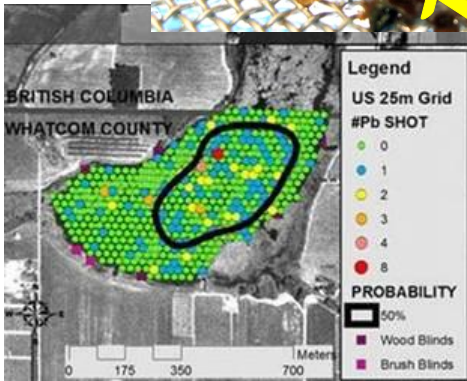
Watson, J. W. and R. W. Davies. 2015. Comparative diets of nesting golden eagles in the Columbia Basin between 2007–2013 and the late 1970s. *Northwestern Naturalist* 96:81-86.

# BIRDS OF WINTER

A Skagit Valley Experience



	Lead suspect	Powerline suspect	Other trauma	Aspergillosis	Undetermined
<b>Mar 23-29, 2019</b>	<b>24</b>	<b>1</b>			
Sumas Prairie	27			1	1
Whatcom	119	28			9
Skagit	26	19	5		13
Snohomish	57	7			5
San Juan	1				1
Island		1			
King	11				2
Pierce	14	3			
Clallam		2	1		2
<b>Totals</b>	<b>255</b>	<b>60</b>	<b>6</b>	<b>1</b>	<b>33</b>



# Swan Mortalities

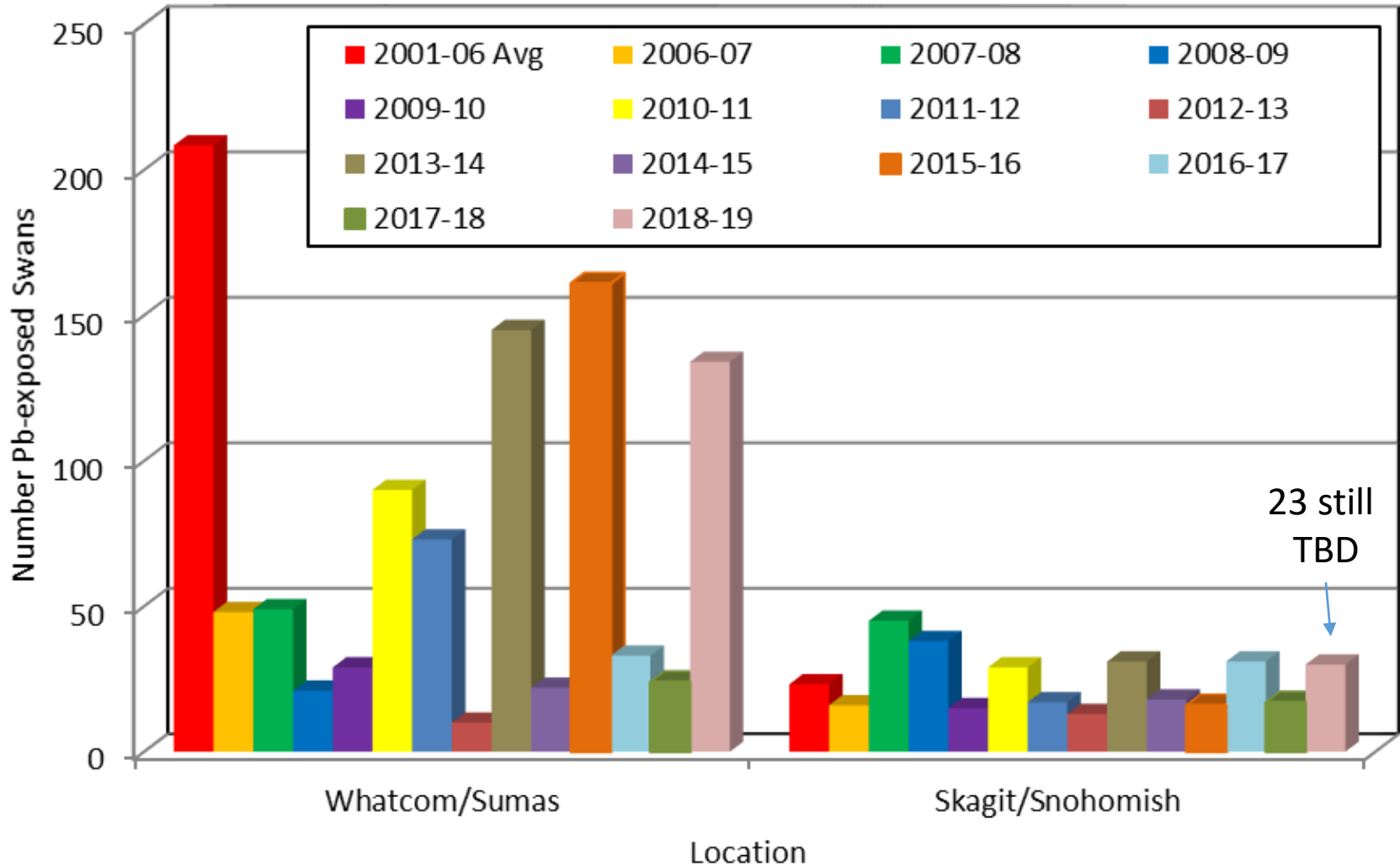
## NW WA State & Sumas Prairie, B.C.



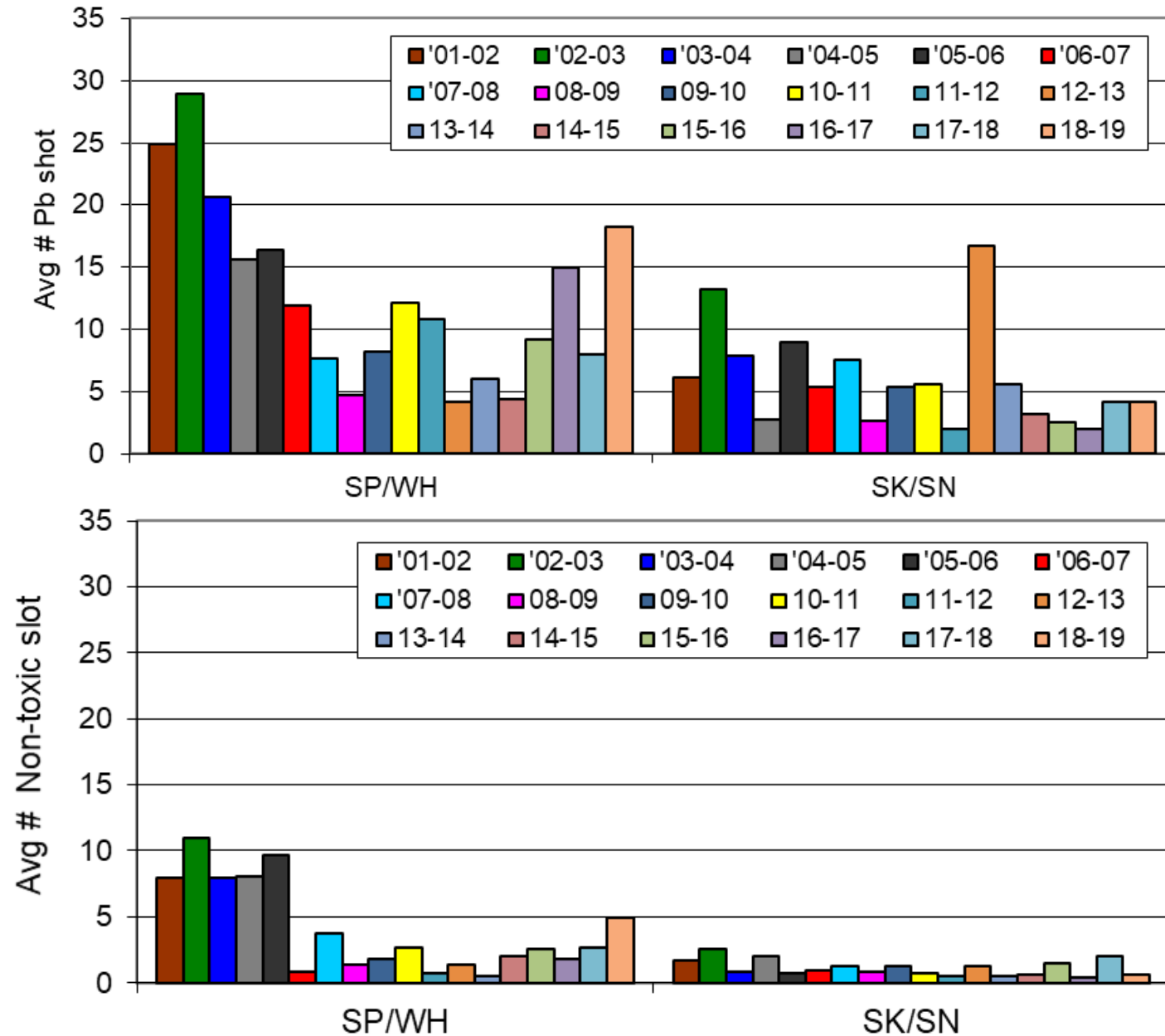
# Swan Mortalities, 2018-19 (n=396) NW WA State & Sumas Prairie, B.C.



# Swan Lead Mortalities NW WA State (WH, SK, SN counties) & Sumas Prairie, B.C.

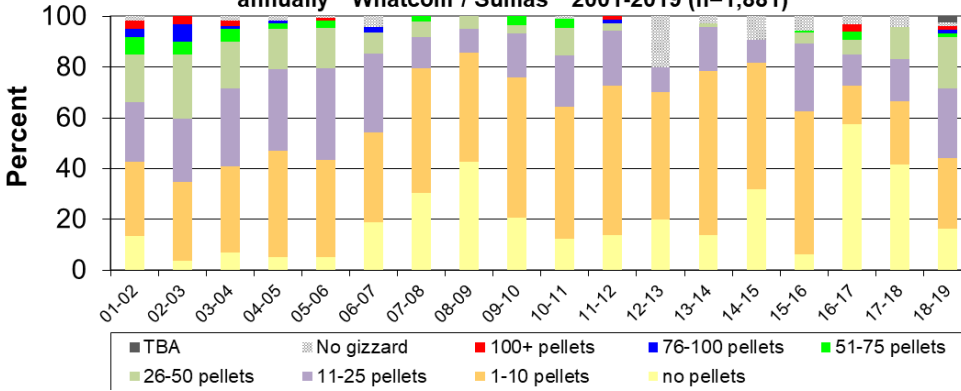


# Average number shot / gizzard (Pb-exposed swans)

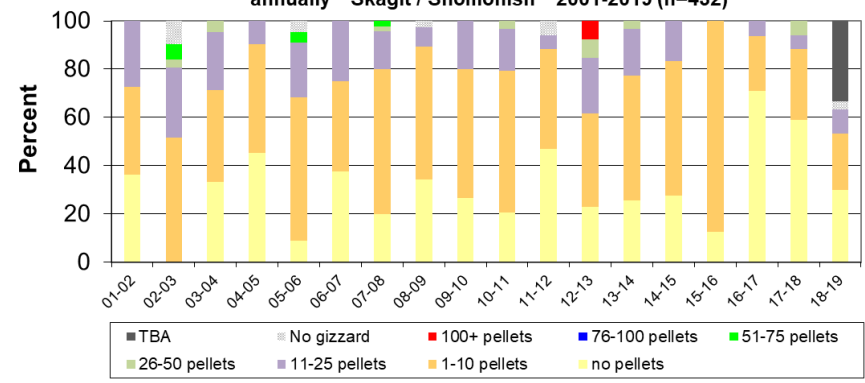


# Percent of Pb-exposed swans with different no. of Pb pellets by County NW WA State (WH, SK, SN counties) & Sumas Pr. BC

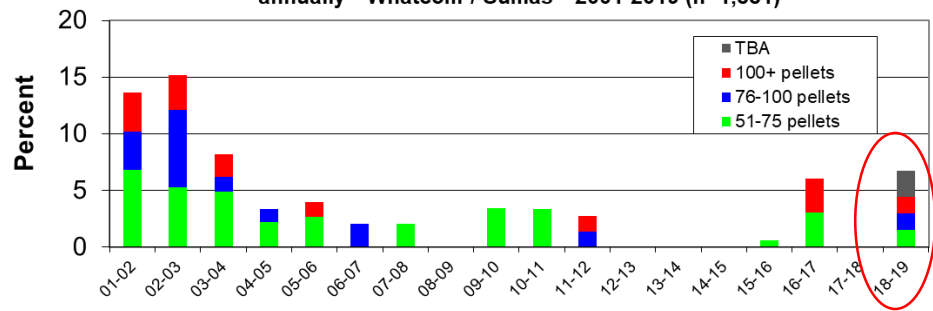
Percent of Pb-exposed swans with different no. of Pb pellets in gizzard annually \* Whatcom / Sumas \* 2001-2019 (n=1,881)



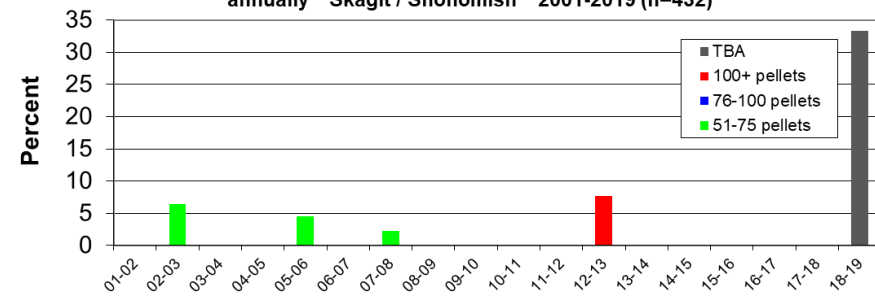
Percent of Pb-exposed swans with different no. of Pb pellets in gizzard annually \* Skagit / Snohomish \* 2001-2019 (n=432)



Percent of Pb-exposed swans with different no. of Pb pellets in gizzard annually \* Whatcom / Sumas \* 2001-2019 (n=1,881)



Percent of Pb-exposed swans with different no. of Pb pellets in gizzard annually \* Skagit / Snohomish \* 2001-2019 (n=432)



WH069, 6Dec18, Judson Lk \* 50 Pb, 17 Steel = 67 shot  
 WH115, 27Dec18, Judson Lk \* 50 Pb, 14 Steel = 64 shot  
 TRUS18-24, 3Jan19, Laxton Lk \* 51 Pb, 3 Steel = 54 shot  
 WH183, 1Jan19, Flynn Rd \* 68 Pb, 10 Steel = 78 shot

WH159, 27Dec18, Judson Lk \* 91 Pb, 11 Steel = 108 shot  
 TRUS18-21, 28Dec18, Laxton Lk, \* 96 Pb, 11 Steel = 107 shot  
 TRUS18-01, 12Dec18, Laxton Lk \* 121 Pb, 49 Steel = 170 shot  
 WH180, 1Jan19, Van Boven Gravel Pit \* 125 Pb, 16 Steel = 141 shot



# Game Management Plan 2015-21

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- Work with hunters to develop restrictions that are supported and effective at reducing lead poisoning of wildlife.
  - 2015-17 three-year hunting season package:
    - It is unlawful to possess shot (either in shotshells or as loose shot for muzzleloading), other than nontoxic shot, when hunting for upland game birds, mourning doves, and band-tailed pigeons on all WDFW designated pheasant release sites



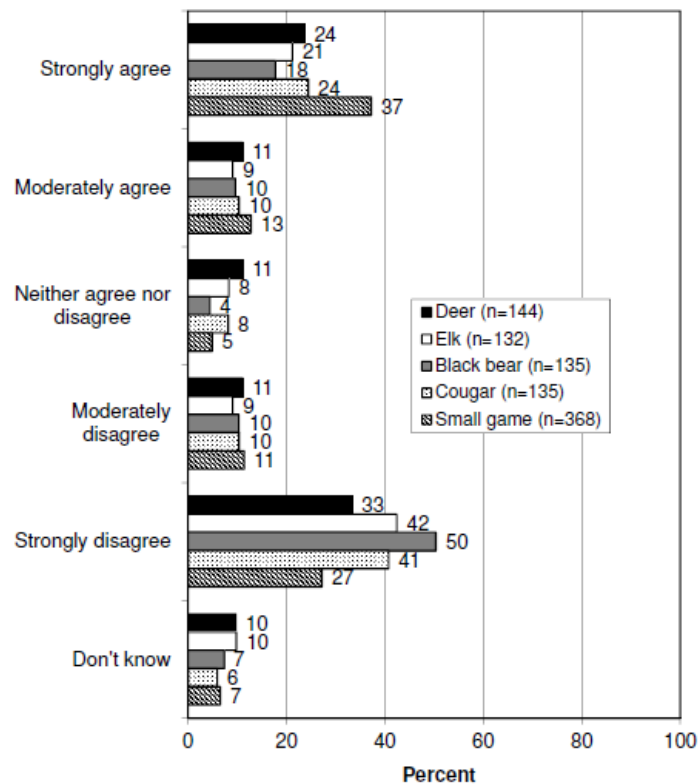
# **Game Management Plan 2015-21**

- Survey Washington hunters
  - ammunition preferences
  - concerns for both lead and non-toxic ammunition
  - relative knowledge of the issues
  - levels of support for the development of mechanisms to reduce the use of lead ammunition

# Game Management Plan 2015-21

- Survey Washington hunters: 2015-21  
GMP hunter survey results (August 2014)
  - There is no consensus about whether non-lead ammunition is important for the future of hunting.

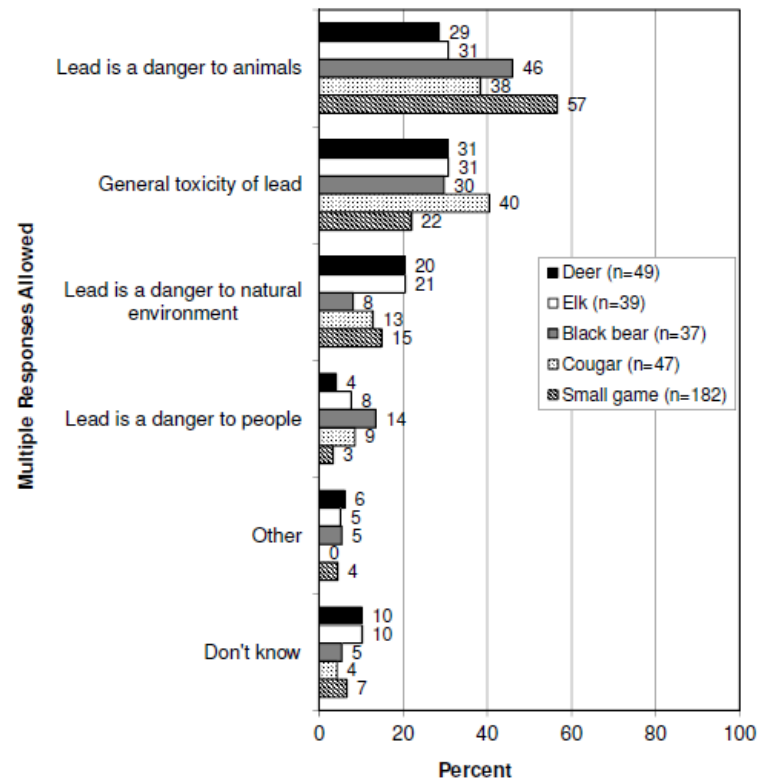
Q253. Do you agree or disagree that non-lead ammunition is important for the future of hunting in Washington?



# Game Management Plan 2015-21

- Survey Washington hunters: 2015-21 GMP hunter survey results (August 2014)
  - Of those who agree: most important reasons to consider using non-lead ammunition for hunting are toxicity of lead and its danger to the animals, environment, and people.

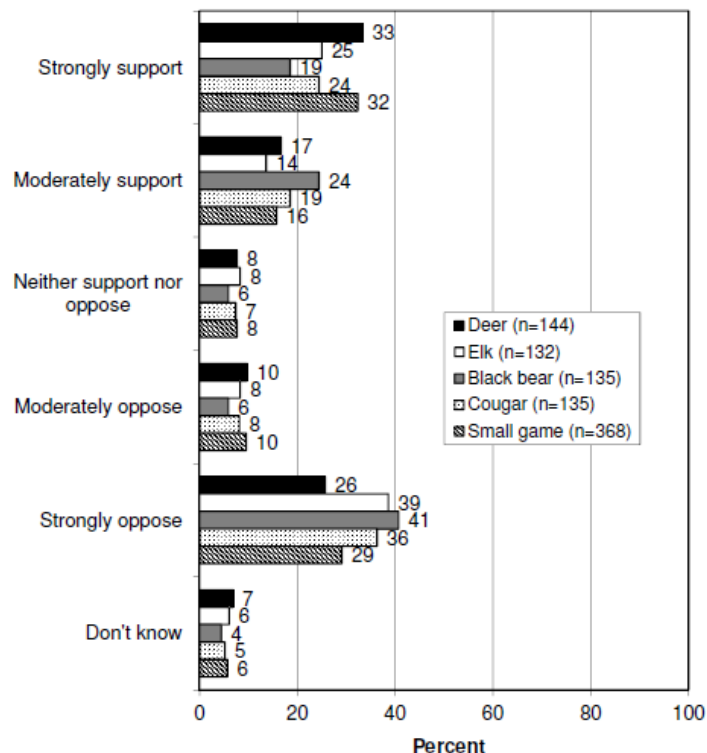
Q254. What do you think are the most important reasons to consider using non-lead ammunition for hunting? (Asked of those who agree that non-lead ammunition is important for the future of hunting in Washington.)



# Game Management Plan 2015-21

- Survey Washington hunters: 2015-21 GMP hunter survey results (August 2014)
  - Hunters are split on support for a potential new Department program to provide incentives for hunters to voluntarily use non-lead ammunition for hunting.

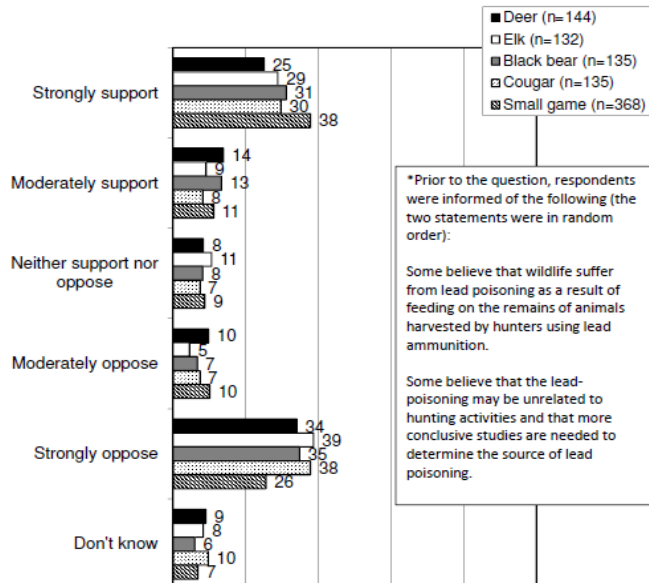
Q255. Would you support or oppose a new Department program to provide incentives for hunters to voluntarily use non-lead ammunition for hunting?



# Game Management Plan 2015-21

- Develop an outreach plan that helps hunters understand the lead ammunition issues and gain support for reducing the use of lead for hunting
  - Pamphlet / website / hunter education?
  - Mourning Dove Survey: hunter levels of trust
    - Highest - avid/experienced dove hunters, friends/family, Internet.
    - Medium – game wardens, hunting organizations, wildlife biologists, hunting guides, ammunition manufacturers, and hunting businesses.
    - Lowest – outdoor writers, staff at sporting goods stores
  - Outreach efforts should have metrics to measure success

**Q260. Knowing this\*, would you support or oppose legal restrictions requiring hunters to remove game that was shot with lead ammunition from areas where they might be consumed by other wildlife, such as raptors?**



# Game Management Plan 2015-21

- Survey Washington hunters: 2015-21 GMP hunter survey results (August 2014)
  - Regarding restrictions to remove game that is shot with lead, opinion is polarized: from 38% to 49% of the hunters support, while 36% to 45% oppose.







# National Mourning Dove Hunter Survey August 2014

- >85% of respondents “mostly” or “always” use lead shot to hunt doves
- Majority believe that lead shot substitutes are too expensive
- More than half of respondents believe that nontoxic shot doesn’t perform as well as lead for dove hunting



**Pierce et al. 2014,  
Wildlife Society  
Bulletin  
Mourning Dove  
Ammunition  
Comparison**

- Compared mourning dove harvest metrics using a double-blind field test
  - Lead 7½
  - Steel 6 and 7
- No differences among the 3 ammunition types:
  - Doves bagged or wounded per shot
  - Doves bagged or wounded per hit
- Similar to past shooting tests for waterfowl



## National Mourning Dove Hunter Survey August 2014

- Only 20% indicated that concerns about lead shot consumption by wildlife have been explained to hunters
- 54% agreed they would be willing to use non-lead shot if scientific evidence showed the dove population was being harmed by eating lead pellets

- Two-thirds of respondents oppose a requirement for use of non-lead shot
- About half believe efforts to restrict lead ammunition is a tactic by:
  - animal rights groups to eliminate hunting
  - gun control advocates to encroach on gun ownership rights
- Dove survey results can be used to inform WDFW hunter survey and outreach efforts

## **National Mourning Dove Hunter Survey August 2014**



Questions?