

There has been known concern regarding potential risk of lead bullet fragmentation and potential toxicity to the California condor for several years, with the Department recommending that hunters voluntarily use non-lead projectile alternatives or bury internal organs and trimmed meat resulting from field-dressing a carcass in condor range. Additionally, a recent study indicates that considerable fragmentation of lead projectiles in the body occurs when large mammals are killed. Another study reported that examination of lead exposure and mortality in condors indicated that lead isotope ratios detected in blood samples from California condors closely matched lead isotope ratios from local, available lead ammunition. These results have caused some to infer that lead from hunters' projectiles could be contributing to lead toxicity in the condor.

The intent of the proposed regulation change is to reduce the risk of indirect lead poisoning to the California condor (as well as other scavenging birds) from big game hunting activities by requiring "non-lead" projectiles. When used in this document and in the proposed regulation, "non-lead" projectiles means projectiles that contain only trace amounts of lead resulting from the projectile production process. The Commission will establish a maximum amount of lead allowable in projectiles that will be based on available information.

The proposed changes:

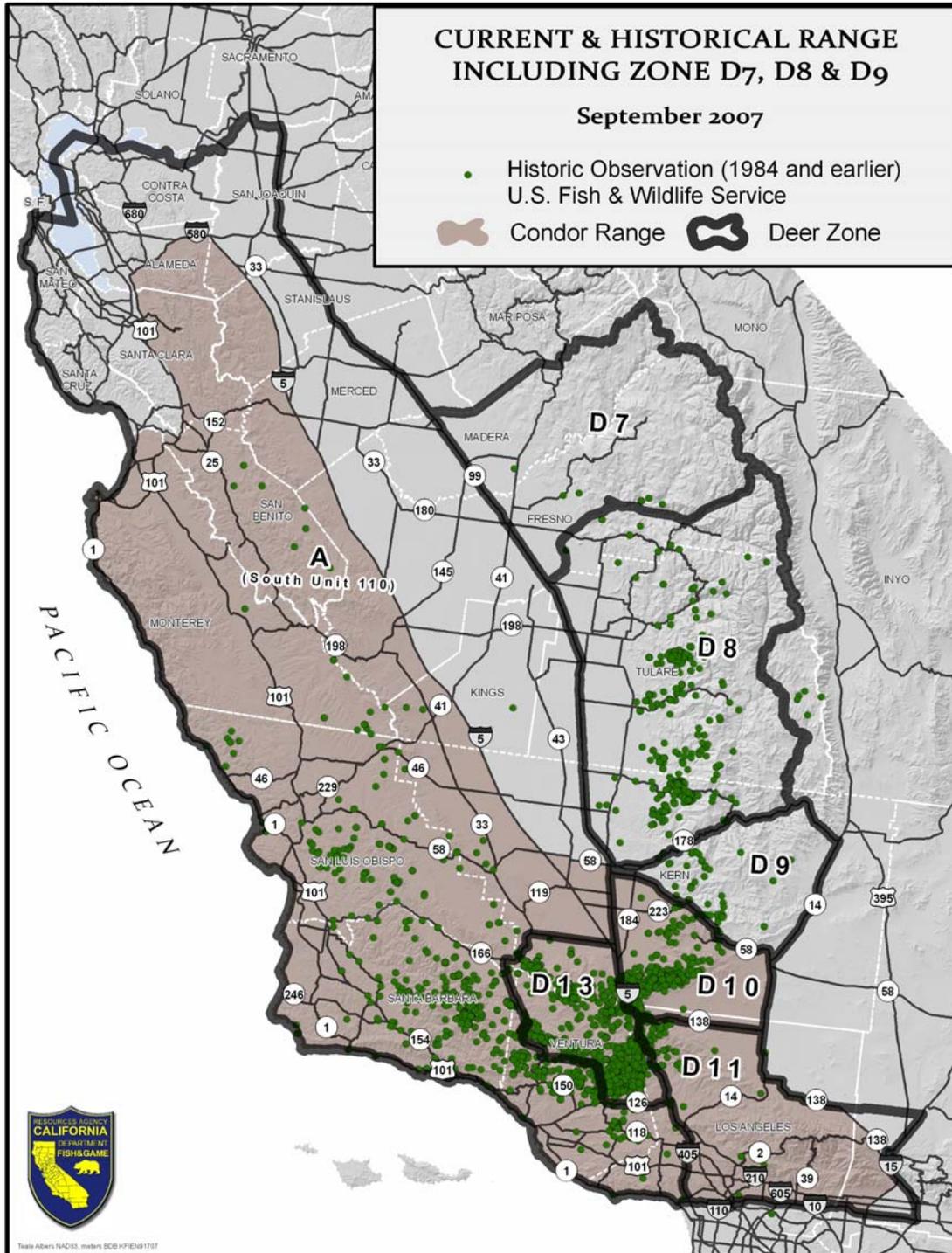
1. Establish the regulatory definition of projectile. A "projectile" is defined as any bullet, ball, sabot, slug, buckshot or other device which is expelled from a firearm through a barrel by the force of any explosion.
2. Establish a maximum threshold of allowable lead in a projectile to account for trace elements present in the projectile production process. The Commission will determine a maximum threshold based on input from ammunition manufacturers, scientists, and the public.
3. Establish the geographic area in which non-lead projectiles would be required for big game hunting. Options for geographic area are:
 - a. Current California condor range as represented by the area shown in **Figure 1**. Based on information available to the Department, the condor currently inhabits these areas.
 - b. Current and historical range as represented by deer hunt zones in Title 14, CCR, Section 360 as South A (Unit 110),

D7, D8, D9, D10, D11, and D13 as shown in **Figure 2**. Based on information available to the Department, the condor does not currently inhabit areas of Zones D7, D8, or D9.

- c. Statewide. Based on information available to the Department, the condor does not currently inhabit the entire State.
4. Establish that it is unlawful to possess any projectile containing lead in excess of the amount permitted and a firearm capable of firing the projectile while taking or attempting to take any big game.

Enforcement of the proposed projectile regulations is expected to be problematic, but the Department continues to work with the ammunition and bullet manufacturers, and other industries to develop tools to better enforce the proposed regulations regarding non-lead projectiles.

Figure 2. Option 3b, alternative non-lead area for big game hunting that illustrates deer zone boundaries for option 3b, overlaid on the proposed Option 3a area.



- (b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 200, 202 and 203, Fish and Game Code.

Reference: Sections 200, 202, 203, 203.1, 207, 2005, 2055, and 3950, Fish and Game Code.

- (c) Specific Technology or Equipment Required by Regulatory Change:

Requires hunters to use projectiles containing no more than a specified percentage of lead (by weight) when taking big game within the current range of the California condor.

- (d) Identification of Reports or Documents Supporting Regulation Change:

2007 Draft Environmental Document entitled "DRAFT ENVIRONMENTAL DOCUMENT REGARDING: Sections 353 and 475 of Title 14, California Code of Regulations, Methods Authorized for Taking Big Game and Methods of Take for Nongame Birds and Nongame Mammals"

Michael Fry, January 24, 2003. Assessment of Lead Contamination Sources Exposing California Condors – Final Report.

Christine Kreuder Johnson et al., February 2007. Lead Exposure in California Condors and Sentinel Species in California.

Church ME, Gwiazda R, Risebrough RW, Sorenson K, Chamberlain CP, Farry S, Heinrich W, Rideout BA, Smith DR. 2006. Ammunition is the principal source of lead accumulated by California condors re-introduced to the wild. *Environ Sci Technol.* 40(19):6143-50.

Hunt, W.G., W. Burnham, C.N. Parish, K.K. Burnham, B. Mutch, and J.L. Oaks. 2006. Bullet fragments in deer remains: Implications for lead exposure in avian scavengers. *Wildl. Soc. Bull.* 34(1): 167-170.

- (e) Public Discussions of Proposed Regulations Prior to Notice Publication:

The Department held a public scoping meeting (October 11, 2006) regarding environmental concerns related to the mammal hunting regulations. The topic of lead ammunition in condor range was the dominant issue brought up at the meeting. On December 7, 2006, the Department provided the Fish and Game Commission information on the status of the coming regulation cycle and identified the proposed

regulation change as an alternative that was being prepared for consideration.

Additionally, this topic has been an item of discussion at each regularly scheduled Fish and Game Commission Meeting since February 2, 2007 (a total of seven (7) meetings). The Fish and Game Commission held a special meeting on August 27, 2007 in Sacramento dedicated solely to the discussion of this issue.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

1. Allow continued use of traditional lead projectiles in obsolete and/or "wildcat" cartridges with the hunter required to remove all portions of the animal from the field so that the remains are unavailable to scavengers (note: a wildcat cartridge is a cartridge that uses the case of a commercially sold cartridge fitted with a bullet of a different caliber. A wildcat cartridge is usually not sold commercially and no complete weapons are made for it. However, barrels for the caliber are often manufactured by both weapons manufacturers and gunsmiths specialized in making barrels).

This alternative would allow big game hunters to continue to use lead projectiles as ammunition for which, due to low demand, high manufacturing costs, and inherent product design, suitable non-lead projectile alternatives are not available. This alternative would require the Department to anticipate the development of unknown custom cartridges which is an impossible task. Additionally, avoidance of the lead exposure pathway in this alternative primarily relies upon hunter retrieval of every animal shot and killed so that lead is not available. Long-term data on wounding loss of big game indicates that some big game will not be recovered by hunters, thereby posing an indirect risk.

2. Allow continued use of all traditional lead projectiles and require that hunters remove from the field all portions of the animal or bury internal organs and trimmings resulting from the field dressing process.

Avoidance of the lead exposure pathway in this alternative primarily relies upon hunter retrieval of every animal shot and killed so that lead in carcasses is not available to scavengers. Long-term data on wounding loss of big game indicates that some big game will not be recovered by hunters, thereby posing an indirect risk of lead being ingested by the condor.

(b) No Change Alternative:

The no change alternative would result in continued risk of indirect lead poisoning to the California condor from legal big game hunting activities. Recommendations to all big game hunters to voluntarily use non-lead projectiles in condor range would continue as would recommendations to bury or dispose of remains so they are unavailable to scavengers.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective and less burdensome to the affected private persons than the proposed regulation.

V. Mitigation Measures required by the Regulatory Action:

The proposed regulatory action will have no significant negative impact on the environment; therefore, no mitigation measures are needed.

These alternatives and the proposed action are further described in the 2007 Draft Environmental Document entitled "DRAFT ENVIRONMENTAL DOCUMENT REGARDING: Sections 353 and 475 of Title 14, California Code of Regulations, Methods Authorized for Taking Big Game and Methods of Take for Nongame Birds and Nongame Mammals".

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations regarding the required statutory categories have been made:

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The Department does not believe that the proposed action will have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states.

Based on information currently available, the Department does not believe that requiring the use of non-lead ammunition or projectiles for the hunting of big game in California condor range will cause any significant changes to hunting programs administered by the Department or to the public.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California:

Ammunition retailers not offering non-lead ammunition options will likely experience a reduction in sales and revenue. Those can be mitigated by including non-lead ammunition in their sales inventory. The demand for non-lead ammunition alternatives for a variety of purposes (enforcement, security, target practice) in addition to hunting is increasing.

- (c) Cost Impacts on a Representative Private Person or Business:

Department research indicates that although the number of manufacturers currently producing non-lead ammunition is limited and the price of non-lead ammunition is higher in cost than lead ammunition, neither of these factors will result in significant adverse cost impact to California's big-game hunters:

The difference in price for a box (20 rounds) of non-lead ammunition compared to lead ammunition varies depending on caliber and ranges from \$1.00 (2%) for 7mm caliber to \$5.00 (22%) for .243 caliber.

Differences in non-lead bullet costs for reloading (50 bullets/box) ranged from \$8.60 (37%) for .270 caliber to \$11.04 (65%) for .224 caliber.

Although production may be limited at the present time, a variety of ammunition retailers do offer non-lead ammunition in most calibers used in big-game hunting.

When viewed as part of the total cost of a hunting trip however, (license, tags, food, lodging, fuel, carcass processing, taxidermy, etc.) the increased amount (up to \$5.00 for a box of ammunition and up to \$11.04 for a box of bullets) is not considered significant.

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State:

None. There has been some concern from the public that decreased hunting license sales would result, and in turn, decreased funding in federal funds available to the state through the Federal Aid in Wildlife Program (Pittman-Robertson Act). The Department of Fish and Game has no data to substantiate that this will happen, although a survey of hunters in Fall 2006 suggested some would not buy hunting licenses if this regulatory change were made.

(e) Nondiscretionary Costs/Savings to Local Agencies:

None

(f) Programs Mandated on Local Agencies or School Districts:

None

(g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4:

None

(h) Effect on Housing Costs:

None

Informative Digest/Policy Statement Overview

The existing regulations provide for methods to be used to take big game and traditionally, projectiles (bullets) containing lead have been used. The regulation changes proposed would require non-lead projectiles for big game hunting in the geographic area determined by the Fish and Game Commission to reduce risk of indirect lead toxicity to free-ranging California condors. Lead-alternative projectiles are primarily made of copper, and are considered effective for hunting and are not considered to be toxic to the California condor.

The proposal will allow the Fish and Game Commission to:

1. Establish the regulatory definition of projectile. A “projectile” is defined as any bullet, ball, sabot, slug, buckshot or other device which is expelled from a firearm through a barrel by the force of any explosion. For centerfire rifles, pistols, and revolvers, “projectile” is used to replace the term “bullet”. For muzzleloaders “projectile” is used to replace the terms “ball or bullet”. Projectile definition is given to improve consistency and clarity.
2. Establish a maximum threshold of allowable lead in a projectile to account for trace elements present in the projectile production process. The Commission will determine a maximum threshold based on input from ammunition manufacturers, scientists, and the public.
3. Establish the geographic area in which non-lead projectiles would be required for big game hunting. Options for geographic area are:
 - a. Current California condor range as represented by the area shown in Figure 1. Based on information available to the Department, the condor currently inhabits these areas.
 - b. Current and historical range as represented by deer hunt zones in Title 14, CCR, Section 360 as South A (Unit 110), D-7, D-8, D-9, D-10, D-11, and D-13 as shown in Figure 2. Based on information available to the Department, the condor does not currently inhabit areas of Zones D-7, D-8, or D-9.
 - c. Statewide. Based on information available to the Department, the condor does not currently inhabit the entire State.

4. Establish that it is unlawful to possess any projectile containing lead in excess of the amount permitted and a firearm capable of firing the projectile while taking or attempting to take any big game.

Since the 1980s, State, federal, and non-profit organizations have diligently worked to save and reintroduce the endangered California condor into the wilds of its former range. These conservation efforts, including substantial research investigations, have resulted in the determination that lead toxicity/lead poisoning is a factor affecting condor health and survival. The Department mission is to conserve California's wildlife for use and enjoyment by the public. The intent of this regulation change is to reduce the risk to the condor from lead poisoning through big game hunting activities.