

FIRST-YEAR RESULTS OF A FREE NON-LEAD AMMUNITION PROGRAM TO ASSIST
CALIFORNIA CONDOR RECOVERY IN CENTRAL CALIFORNIA

December 1, 2012

Ventana Wildlife Society
19045 Portola Drive Suite F-1
Salinas, California 93908
(831) 455-9514

EXECUTIVE SUMMARY

In 2012, Ventana Wildlife Society began a free non-lead ammunition giveaway program to promote the use of non-lead ammunition among central California hunters and to reduce the exposure of California Condors (*Gymnogyps californianus*) to lead from spent ammunition. We conducted the program in three phases, including a general giveaway in April, drawings in May and June, and a fall campaign conducted with National Park Service for residents in suspected condor foraging areas near Pinnacles National Monument. During the three phases, we filled 623 orders for 1,246 boxes of non-lead ammunition. A survey of program participants indicated that many tried new non-lead ammunition products during the program and were satisfied with the products they received. Many hunters (34% of those surveyed) indicated that this program made them more willing to shoot with non-lead ammunition.

INTRODUCTION

The California Condor (*Gymnogyps californianus*) was on the brink of extinction in the mid to late 1980's before a successful captive breeding program facilitated the reintroduction of populations in California, Arizona, and Baja California. In the 20 years since the first releases in 1992, the global population of wild condors has increased from zero to approximately 200 birds. During this time, condors have demonstrated an ability to forage and reproduce successfully in the wild, providing reasons for optimism that populations might fully recover. However, the growth of condor populations has been largely a result of releases of captive-reared birds and considerable protective management efforts.

A self-sustaining condor population requires the elimination or substantial reduction of threats, particularly lead poisoning (Snyder and Schmitt 2002). Lead poisoning was at least partly responsible for original population declines (Meretsky et al. 2000) and remains a significant threat today (Woods et al. 2007, Finkelstein et al. 2012, Rideout et al. 2012). Finkelstein et al. (2012) identified spent lead ammunition as the principal source of lead exposure for condors, based on blood lead isotope composition that is consistent with lead-based ammunition and several cases in which lead ammunition fragments were recovered from lead-poisoned birds. Based on evidence that lead from spent ammunition threatens California Condor recovery, a law went into effect in 2008 banning the use of lead ammunition in areas within the state inhabited by condors.

In 1997, Ventana Wildlife Society began releasing California Condors along the central California coast and managing a wild population now exceeding 60 birds. Regular field testing indicates that some birds each year are exposed to lead poisoning. Our management of the lead threat includes arrangement of treatment for birds when they are detected with elevated blood

lead, and public outreach aimed at promoting the use of non-lead ammunition. In 2012, we expanded our focus to more directly assist local hunters with switching to non-lead ammunition. We initiated a program offering two free boxes of non-lead ammunition to hunters in our region, Monterey and San Benito counties. Our objectives were to encourage hunters to try non-lead ammunition, to prompt more willingness among hunters to use non-lead ammunition, and to demonstrate that Ventana Wildlife Society does not oppose hunting but works cooperatively with hunters to reduce the amount of lead from spent ammunition in our environment. This report summarizes and evaluates results of the free non-lead ammunition program in its first year.

METHODS

Our free non-lead ammunition program consisted of three phases in 2012, including a general giveaway in April, drawings in May and June, and a focused fall campaign conducted with National Park Service for residents in areas near Pinnacles National Monument where we suspected condors forage, based on GPS data.

We conducted the general giveaway in April by receiving orders through an online form on the Ventana Wildlife Society website, and to a lesser extent, through a paper form we created to be mailed by the participant. Hunters had the opportunity of selecting two boxes of non-lead ammunition from a list of products certified by California Department of Fish and Game for use in the condor range. We offered approximately 120 non-lead rifle ammunition products from an available 34 cartridge or projectile calibers. We made an effort to locate additional non-lead products if a participant contacted us with a special request. Several regional newspapers picked up our press release as the online order form went live. Such broad exposure resulted in more

than 400 orders in the first 48 hours. We deactivated the online order form at that time to avoid exceeding our budget and to concentrate on filling the orders we had received.

Upon receiving orders through our website or in the mail, we placed them with Cabela's. Cabela's provided a discount on all orders through a Ventana Wildlife Society corporate account. Cabela's arranged the shipment of products to the recipients, and communicated directly with them as needed (e.g., when products were out of stock). We ordered products with several other companies when items were out of stock at Cabela's. Prior to placing orders, we verified the ages of participants through an instant online verification system (Veratad Technologies). For 103 individuals, verification of appropriate age (i.e., at least 18 years old) was inconclusive. To demonstrate due diligence in preventing minors from obtaining ammunition, we requested additional age documentation from these individuals in the form of a driver's license. Many (N=66) provided sufficient proof of age, whereas others did not respond to the request (N=36); one responded but was unwilling to provide further documentation. We did not place orders if we could not satisfactorily verify the ages of recipients. Although the online and printed forms stated our intent to limit participation to residents of Monterey and San Benito counties, we accepted a small number of orders from other California counties, primarily because the program was broadly advertised and some non-residents intended to hunt in our area. We also allowed orders from multiple hunters at one address during the general giveaway phase.

After raising additional funding, we initiated the second phase of the program by holding two drawings for free non-lead ammunition, one in May and another in June. Similar to the general giveaway in April, we received orders through our online form. We sent letters to several hundred hunters in Monterey and San Benito counties advertising the drawings. All entries were again subject to age verification. Unlike the general giveaway, we did not accept entries from

counties other than Monterey or San Benito. Nor did we accept multiple entries from the same address. We randomly selected winners from eligible entries at the end of May and June. Orders from selected entries were placed with Cabela's or other companies in the same manner as the general giveaway.

In the third phase of the program, we partnered with National Park Service in conducting a fall drawing for rural residents near Pinnacles National Monument. We chose this area because our GPS tracking data indicated that many condors might feed on non-proffered carcasses in that area and become exposed to lead poisoning. Drawing invitation letters were mailed to residents in that area, and Pinnacles National Monument also solicited orders from personal contacts in the community. We filled orders from personal contacts as they were received and selected drawing winners in October until funds were exhausted.

To evaluate the success of the free non-lead ammunition program in fulfilling our objectives, we prepared an anonymous online survey (Constant Contact, Inc.) for all participants of the general giveaway and the summer drawings (Appendix A). The 15 questions on the survey solicited feedback on a variety of topics from their opinion of the ordering logistics to their opinion of how lead poisoning from spent ammunition threatens condor recovery. We were particularly interested in determining the percentage of participants trying products for the first time, their satisfaction with the products, and how the program changed their willingness to use non-lead ammunition. Although survey feedback came only from participants receiving free products, and does not necessarily represent the opinions of the hunting community, this feedback can help us understand what many hunters think about issues associated with non-lead ammunition and California Condor recovery. We summarize survey response in this report and provide results for individual survey questions in Appendix A.

RESULTS

Summary of Products Ordered

We filled 623 orders for a total of 1,246 boxes of non-lead ammunition, including 918 boxes during the phase one giveaway, 200 boxes during the phase two drawings, and 128 boxes during phase three. Participants selected 94 different products of cartridges and projectiles. Cartridge calibers most selected were .30-06 Springfield (N=280, 25%), .270 Winchester (N=183, 16%), .308 Winchester (N=119, 10%), and .223 Remington (N=111, 10%) (Appendix B). Nearly half of all ordered boxes was Federal Premium brand (N=524, 42%), followed by Barnes (N=295, 24%), Hornady (N=259, 21%), Winchester (N=159, 13%), and others (N=9, <1%). Approximately \$47,000 was spent on products and shipping.

Summary of Survey Responses

We sent 515 e-mail survey invitations, and 221 participants (43%) completed the online survey (Appendix A). Feedback from participants covered several topics, including ordering logistics, their experience with the products ordered, their perceptions of switching to non-lead ammunition, and how the program changed their perceptions.

Most of the participants completing the survey were satisfied with ordering logistics. The majority (87%) indicated that they received their orders promptly. Orders were not considered promptly delivered because of backorder delays associated with limited stock (10%) or other reasons (3%). The amount of communication regarding order status was satisfactory for 90% of responding participants, whereas 10% would have liked more communication. None indicated a desire for less communication. Some of those desiring greater communication commented that they would have appreciated a confirmation e-mail from Ventana Wildlife Society or Cabela's

with an estimated time of shipment. We did not send e-mail confirmation for orders during the general giveaway, but e-mail notification was provided for those selected in the drawings. Two individuals commented that they had not received their orders, nor been offered an explanation for the delay. The majority of participants (88%) were satisfied with the selection of products we offered, but some (10%) wished for a greater selection. Several commented on the need for more .22 ammunition, and others suggested adding handgun or shotgun ammunition, or additional rifle calibers, brands, or grains.

Survey results indicated that hunters tried new non-lead ammunition products during the program and were satisfied with the products they received. More than half (62%) of the hunters completing the survey had not already tried the products by the time they ordered through this program. Most hunters indicated that they were very satisfied (65%) or somewhat satisfied (16%) with the products they received. Only 5% were dissatisfied. Nearly all of those surveyed (97%) would consider purchasing those products in the future.

Cost, performance, and availability were the top three factors cited by hunters as the most likely factors to prevent them from switching to non-lead ammunition (Appendix A). Although legislation limits the legal use of lead within the range of the condor in California, many hunters completing the survey (42%) were not convinced that lead threatens California Condors. Some specified what type of evidence was needed to better convince them, and these suggestions included scientific research from a source they perceived as unbiased, greater study of the effects of other sources of lead in the environment, or more direct evidence of condors ingesting lead bullet fragments. Several of those convinced of the lead threat commented that they were not supportive of condor recovery efforts.

Survey results indicated that this program had some effect in improving perceptions of non-lead ammunition and the willingness among hunters to shoot with non-lead ammunition. Opinions of non-lead ammunition remained the same for more than half (63%) of those surveyed, but 32% answered that the program improved their opinion; only 3% answered that the program lowered their opinion. When asked how the program changed their willingness to shoot with non-lead ammunition, 34% answered that the program made them more willing, compared to 2% answering that they would be less willing. Willingness was unchanged for the remainder, with 30% indicating they were already willing to use non-lead ammunition and 33% indicating they were still not happy about being required to use non-lead ammunition.

DISCUSSION

Based on our distribution of more than 1,200 boxes of non-lead ammunition and positive feedback from surveys, we consider that the program in 2012 met our objectives of encouraging hunters to try non-lead ammunition and prompting more willingness among hunters to use non-lead products. Our survey indicated that nearly two-thirds had not already tried the non-lead product they ordered, although we did not ask if they were previously using lead because of the legal restriction of lead within the condor range in California. About one-third indicated greater willingness to shoot with non-lead ammunition. In addition, most hunters were satisfied with the products they ordered and nearly all would consider purchasing those products, further indicating willingness to use non-lead ammunition in the future. More than half of hunters surveyed ranked high cost as the factor most likely to prevent them from switching to non-lead ammunition. By providing free non-lead ammunition, this program helped many overcome that important barrier,

even if only temporarily. Using state lottery and state gaming revenue, Arizona Game and Fish Department (2009) has been distributing non-lead ammunition to protect condors since 2005, and has reached 80-90% of Arizona hunters since 2007. Our free non-lead ammunition program fills a gap in California, although the Institute for Wildlife Studies has spearheaded an outreach program since 2007 to offer California hunters and landowners opportunities to evaluate non-lead ammunition.

Although more difficult to quantitatively evaluate, comments from surveyed hunters indicated we also achieved some success in meeting our third objective of demonstrating our willingness to work cooperatively with hunters in switching to non-lead ammunition. Some of the most positive comments were provided when hunters were asked to comment on how we could improve the program. Almost half (45%) provided comments, and about one-fourth (26%) of those commenting chose to write something nice about the program rather than offer a suggestion for improving. The following comments are examples of evidence that our objective of demonstrating cooperation with the hunting community was not lost on participants:

- In addition to getting the lead out of condor territory, this program's value is in building bridges between the hunting community and the environmental community.
- I am happy to see that we hunters and non-hunters can work together on these difficult issues. Thank you for your efforts.
- I think it was a good way to break the ice. It shows me that you are willing to put your money where your mouth is.
- I think the program is great, offering people another way to comply with existing laws is an absolute no brainer. Nice work!

Based on our experience in 2012, we consider that program improvements could be made in communication, ordering logistics, and prioritizing areas where condors face the greatest risk of lead exposure. We discovered that product availability was unpredictable, and many hunters endured substantial delays in receiving their orders. Product availability is beyond our control,

but we can improve communication so that participants waiting for backordered items receive more frequent updates and opportunities to select alternative products. We spent approximately 80% of our funds for this program on non-lead ammunition and 20% on labor and other costs. Any added cost associated with increased communication might be offset by what we expect might be more streamlined ordering procedures in the future. In 2012, we did not anticipate the need to take extra measures to verify ages for so many of the participants. Although most of the 103 hunters with inconclusive age reports were willing to provide a copy of their driver's license, this process was time consuming and undoubtedly turned away some participants. In the future, we might be able to improve by exploring other legal options for due diligence or continuing with a drawing system in which we can select for participants with conclusive age reports. Finally, our extensive advertising of the program through press releases and newspaper articles created fine publicity for the organization and the condor recovery program, but resulted in a heavy rush for products and the probable exclusion of many rural hunters in our focus area. Phase three of the program was intended to improve our coverage of rural communities, but by the fall when the phase began, relatively little program funding remained. A less extensive advertising campaign, and more strategic focused outreach, should be a point of emphasis for the program in the future.

We recommend continuing the program in 2013 by offering free non-lead ammunition to hunters residing in central California and concentrating on building relationships, particularly with those hunters or landowners in high-use condor areas. The drawings provided greater flexibility in screening orders, but the relatively low number of entries indicated that hunters were probably less likely to enter a drawing than a general giveaway. Modifying the drawing to include hunting location as a selection factor could allow us to prioritize entries and maintain

flexibility. Direct invitations to hunters in high-use condor areas could provide the hunter with more confidence that their order will be accepted, relative to most drawings.

The feedback we received from surveys in 2012 provides a great opportunity for us to build relationships among the hunting community. Participants expressed widespread doubt that lead threatens condor recovery, and a few suggested that they did not value condor recovery. One individual thanked us for the opportunity to vent their opinions on lead and condors. Such participation in a survey is a clear indication that hunters desire communication on these issues, and we have an opportunity to continue that communication. Many specifically suggested what types of evidence might better convince them of the lead threat, and we should provide this evidence on our website, even if we are not regarded as an unbiased source. Using the website to share information can also help promote the value of biodiversity on our website, and the benefits of California Condor recovery to society. We should demonstrate that Ventana Wildlife Society is attentive to the opinions of hunters, even if we do not always agree.

Although we met our objectives in this first year of the program, ultimate success will be determined in large part on the basis of documenting evidence of reduced lead exposure for condors in central California. Because we have tested for lead in condors annually since the first releases in 1997, and continue to test each spring and fall, a framework is in place to evaluate temporal changes in lead exposure. In the short term, we point to the high level of participation in the program, increased willingness to use non-lead, and demonstration of cooperation between Ventana Wildlife Society and the hunting community as positive first steps in reducing the use of non-lead ammunition and protecting California Condors.

LITERATURE CITED

- Arizona Game and Fish Department. 2009. Condors and lead. Retrieved October 17, 2012, from http://www.azgfd.gov/w_c/california_condor_lead.shtml.
- Finkelstein, M. E., D. F. Doak, D. George, J. Burnett, J. Brandt, M. Church, J. Grantham, and D. R. Smith. 2012. Lead poisoning and the deceptive recovery of the critically endangered California Condor. *Proceedings of the National Academy of Sciences* 109:11449-11454.
- Meretsky, V. J., N. F. R. Snyder, S. R. Beissinger, D. A. Clendenen, and J. W. Wiley. 2000. Demography of the California Condor: implications for reestablishment. *Conservation Biology* 14:957-967.
- Rideout, B. A., I. Stalis, R. Papendick, A. Pessier, B. Puschner, M. E. Finkelstein, D. R. Smith, M. Johnson, M. Mace, R. Stroud, J. Brandt, J. Burnett, C. Parish, J. Petterson, C. Witte, C. Stringfield, K. Orr, J. Zuba, M. Wallace, and J. Grantham. 2012. Patterns of mortality in free-ranging California Condors (*Gymnogyps californianus*). *Journal of Wildlife Diseases* 48:95-112.
- Snyder, N. F., and N. J. Schmitt. 2002. California Condor (*Gymnogyps californianus*). *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/610>.
- Woods, C. P., W. R. Heinrich, S. C. Farry, C. N. Parish, S. A. H. Osborn, and T. J. Cade. 2007. Survival and reproduction of California Condors in Arizona in relation to lead exposure. Pages 57-78 in *California Condors in the 21st Century* (A. Mee and L. S. Hall, Eds.). Nuttall Ornithological Club, Cambridge, MA and The American Ornithologists' Union, Washington D.C.

Appendix A. Results of surveys returned by 221 hunters in Monterey and San Benito counties, California in 2012.

1)	I submitted an order during:	# Responses	Response Ratio
	a) The main free program (April)	169	76%
	b) The drawings (May or June)	51	23%
	c) No response	1	<1%
2)	Did you receive your order promptly?	# Responses	Response Ratio
	a) Yes	192	87%
	b) No, I had to wait for backordered items	22	10%
	c) No	7	3%
3)	Were you satisfied with the amount of communication you received regarding your order status?	# Responses	Response Ratio
	a) Yes, the amount of communication was appropriate	198	90%
	b) No, I would have liked more communication about my order	23	10%
	c) No, I would have liked less communication about my order	0	0%
4)	Have you tried the product(s) you received?	# Responses	Response Ratio
	a) No, not yet	71	32%
	b) Yes, I had already tried the product(s) before ordering through this program	81	37%
	c) Yes, I tried the product(s) for the first time during this program	66	30%
	d) I still haven't received my order	3	1%
5)	Please check all that apply. Which small, big, and non-game mammals did you take this year?	# Responses	Response Ratio
	a) Deer	67	42%
	b) Pig	89	56%
	c) Ground Squirrel	64	40%
	d) Tree Squirrel	10	6%
	e) Rabbit	37	23%
	f) Coyote	59	37%
	g) Other	33	21%
6)	Choose the best answer describing your level of satisfaction with the product(s) you received	# Responses	Response Ratio
	a) Very satisfied	143	65%
	b) Somewhat satisfied	36	16%
	c) Neutral	17	8%
	d) Somewhat dissatisfied	9	4%
	e) Very dissatisfied	3	1%
	f) No response	13	6%
7)	Would you consider purchasing this product in the future?	# Responses	Response Ratio
	a) Yes	163	74%
	b) No	5	2%

	c) Maybe	51	23%
	d) No response	2	<1%
8)	Were you satisfied with the selection of non-lead products offered through this program?	# Responses	Response Ratio
	a) Yes, you provided enough selections for me to choose from	195	88%
	b) No, I didn't find what I was looking for	22	10%
	c) No response	4	2%
9)	Choose the best answer describing your opinion of how lead threatens California Condor.	# Responses	Response Ratio
	a) I am convinced that lead poisoning threatens the recovery of condors	41	19%
	b) I am somewhat convinced but more evidence is needed	84	38%
	c) I am not at all convinced that lead is affecting condors	92	42%
	d) No response	4	2%
10)	What additional evidence or research would most convince you about a link between spent lead ammunition and condor mortality		
	107 text response provided		
11)	Choose the best answer to describe how this program has changed your opinion of the quality of non-lead ammunition	# Responses	Response Ratio
	a) This program has improved my opinion of non-lead ammunition	70	32%
	b) My opinion of non-lead ammunition remains the same	140	63%
	c) This program has lowered my opinion of non-lead ammunition	6	3%
	d) No response	5	2%
12)	Choose the best answer to describe how this program has changed your willingness to shoot with non-lead ammunition	# Responses	Response Ratio
	a) Nothing has changed, I was already willing to use non-lead ammunition	65	29%
	b) Nothing has changed, I am still not happy about having to use non-lead	72	33%
	c) This program has made me more willing to use non-lead	76	34%
	d) This program has made me less willing to use non-lead	4	2%
	e) No response	4	2%
13)	What factor would be most likely to prevent you from switching to non-lead ammunition?	# Responses	Response Ratio
	a) Higher cost	126	58%
	b) Unfamiliarity with non-lead ammunition	8	4%
	c) Inconsistent availability of non-lead ammunition	42	19%
	d) Performance of non-lead ammunition	79	37%
	e) Feeling obligated to make a switch	20	9%
	f) Nothing, I made the switch rather easily	29	13%
	g) Other	16	7%
14)	Would you participate in this program again?	# Responses	Response Ratio
	a) Yes	209	95%
	b) No	2	<1%
	c) Maybe	10	5%

15) What suggestions do you have for improving the program?

105 text responses

Appendix B. List of 1,246 non-lead cartridge and projectile boxes by caliber distributed by Ventana Wildlife Society in central California in 2012.

Type	Caliber	# Boxes
cartridges	.30-06 Springfield	280
	.270 Winchester	183
	.308 Winchester	119
	.223 Remington	111
	7mm Remington Magnum	99
	.30-30 Winchester	62
	.243 Winchester	60
	.22 Long Rifle	44
	.300 Winchester Magnum	41
	.300 Winchester Short Magnum	33
	.270 Winchester Short Magnum	19
	.17 HMR	19
	.22-250 Remington	18
	.25-06 Remington	16
	.22 Winchester Magnum	9
	.300 Remington Ultra Magnum	7
	7mm-08 Remington	6
	.338 Winchester Magnum	4
	7mm Winchester Short Magnum	3
	.280 Remington	2
.300 Weatherby Magnum	2	
7.62x54R	2	
.300 H & H Magnum	1	
.300 Ruger Compact Magnum	1	
Projectiles	0.27	33
	0.30	23
	7mm	15
	0.22	13
	0.25	10
	0.20	3
	6.5mm	2
	6.8mm	2
	0.308	1
	0.338	1
	6mm	1
	8mm	1