



## Spent lead ammunition poisons California condors

**“IT’S THE RIGHT THING TO DO,”** states Cade (2007), who advocates using nontoxic ammunition such as copper bullets (vs. traditional lead shotgun pellets and bullets) in hunting to reduce the frequency of sickened or killed California condor (*Gymnogyps californianus*). Lead poisoning from spent ammunition in the carcasses and gut piles that condors eat causes the birds’ crops to become paralyzed (crop stasis), resulting in starvation and death. Cade’s summary of scientific data supports the conclusion that exposure to lead poisoning causes fatalities and physiological malfunctions, which at current levels of exposure will prevent the reintroduced condors from developing self-sustainable populations at least in Arizona, and possibly in California. Cade (The Peregrine Fund, Boise, Idaho) focuses on Arizona “where ammunition lead is the principal cause of deaths that limit the population growth of reintroduced condors” (Wood et al. 2007). Because condors do not breed until they are eight years old and then succeed in fledging only one young every two to three years, natural maintenance of the population is precarious. Lead poisoning, which results in the birds not living long enough to begin breeding, makes population maintenance impossible. Other potential sources of lead poisoning are items in waste dumps and landfills, contaminated ground around lead mines and smelters, contaminated water, atmospheric deposition, and contaminated

sewage sludge used as fertilizer (Fry 2003; Johnson et al. 2007); however, to date, the only identified source of lead in exposed condors in California and Arizona is spent ammunition (Pattee et al. 2006). Hence, Cade (2007) suggests changing human behavior through either volunteer action or legislative or regulatory relief. As with the ban of DDT in the late 1960s and early 1970s, “most people familiar with the issue of lead poisoning from spent ammunition now agree that it is only a matter of time until the use of nontoxic ammunition will become mandatory” (Cade 2007).

As of 6 October 2007, the Arizona Game and Fish Department was promoting a voluntary non-lead ammunition program ([http://www.azgfd.gov/h\\_f/highlights/HuntingHighlightsOct2007.html](http://www.azgfd.gov/h_f/highlights/HuntingHighlightsOct2007.html) [accessed 18 March 2008]). As of 1 July 2008, the California Department of Fish and Game will require hunters to “get the lead out” by retrieving all killed animals, disposing of carcasses or gut piles, removing bullets and the surrounding impacted flesh when leaving carcasses or gut piles in the field, or using lead-free ammunition (<http://www.dfg.ca.gov/wildlife/hunting/condor/> [accessed 18 March 2008]).

### References

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—Katie KellerLynn