Condor lead poisoning persists, impeding recovery

June 25 2012

The California condor is chronically endangered by lead exposure from ammunition and requires ongoing human intervention for population stability and growth, according to a new study led by the University of California, Santa Cruz, and involving the University of Colorado Boulder.

Since 1982, the condor population has increased from 22 to approximately 400, but only through intensive management including captive breeding, monitoring and veterinary care. The bird's recovery has been deceptively successful as its primary threat -- poisoning from lead-based bullets ingested as fragments from carrion -- has gone largely unmitigated, according to the study.

"We will never have a self-sustaining wild condor population if we don't solve this problem," said lead author Myra Finkelstein, a research toxicologist at UC Santa Cruz. "Currently, California condors are tagged and monitored, trapped twice a year for blood tests and when necessary treated for lead poisoning in veterinary hospitals, and they still die from lead poisoning on a regular basis."

The California condor, which once numbered in the thousands in the western United States and Mexico, is the largest land bird in North America.

Reintroductions since the bird's near extinction in 1982 have led to free-flying populations in Arizona, California and Baja California. Dubbed

"thunderbird" by American Indians, its impressive wings can span more than 9 feet. A type of vulture, the creature's bald head allows feeding without the mess of carcass flesh sticking to its plumage.

The study, published this week in *Proceedings of the National Academy of Sciences*, shows that annually from 1997 to 2010, 20 percent of the California condors sampled suffered lead poisoning and needed chelation therapy, a metal detoxification process that also is used for children with lead poisoning. Cumulatively over the time period, nearly half of the population tested was poisoned by lead, with many birds suffering repeat poisoning within and across years.

"Lead exposure and poisoning levels in condors continue to be epidemic," said co-author Dan Doak, a new endowed chair and professor in CU-Boulder's Environmental Studies Program. "Despite the current efforts to help the species, the wild population will decline again toward extinction in a few decades unless these unsustainable and very expensive efforts continue in perpetuity."

From 1997 to 2010, the annual prevalence of lead exposure -- with blood lead levels indicating potentially serious but nonlethal effects -- ranged from 50 to 88 percent in California condors in the wild. Also, the annual median blood lead levels in free-flying California condors exceeded the average for pre-release condors bred in captivity by at least threefold.

The researchers found no evidence that a partial ban on the use of lead-based ammunition in condor habitats, enacted in California in 2008, resulted in lower incidence of lead exposure and poisoning. Although alternatives to lead-based bullets are available, regulations limiting the use of lead-based ammunition face stiff opposition from hunting organizations and gun-rights groups, according to the researchers.

The estimated cost of a multiagency condor recovery program including

the U.S. Fish and Wildlife Service is about $5 million per year, according to the researchers.

"Integrating a study of the effects of toxic chemicals on individual wild animals into a modeling of whole-population impacts is very unusual," said Doak. "But the results provided a critical piece of our results in this study."

Provided by University of Colorado at Boulder